

Evaluation of Validity and Reliability of Assessing Tools for Quality of Nursing Work Life

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Abstract: Background and Aim: Due to the complexity and increasing competition in organizations and labor market, the importance of manpower and quality of working life has increasingly considered. Therefore, the current study aimed to provide a valid questionnaire for evaluating the quality of nursing work life.

Materials and methods: Collecting the related articles, a questionnaire was presented including 14 demographic questions and 20 questions evaluated the quality of nursing work life. For standardization and validation of questionnaire, the qualitative evaluation of questionnaire was conducted by the 10 experts. Also, the content validity index and content validity ratio were used for evaluation of quantitative content validity. Then, the reliability of questionnaire was examined by Cronbach's alpha and collected data were analyzed using SPSS version 22.

Results: The quality of work life questionnaire includes 20 questions and results showed that the content validity of 3 questions was low and it must be revised. Finally, the total CVR was 0.74 and the question's CVI was more than 0.75. The value of Cronbach's alpha was 0.76 for this questionnaire ($\alpha: 0.76$), so it concluded that there is no need to change the questionnaire because it has internal correlation appropriately.

Conclusion: A reliable and valid tool must be used for evaluation of quality of work life. According to the results of this study, this questionnaire has relatively proper validity and reliability for applying in work places.

Keywords: Validity, Reliability, Quality of Work Life, Nurse.

1. INTRODUCTION

Among the organizational resources including capital, equipment, manpower and findings of researches, managers focus on manpower as the most important resource of organization (1). The healthcare industry is one of the nation's largest and fastest-growing industries and employs approximately 15 million workers (2). Human resource is considered as the most important strategic resource of organization and undoubtedly the success of organizations and workplaces depends on the more efficiency of organization and manpower. Organization is a social system and certainly the manpower is the most significant factor for its efficiency and effectiveness. Over the last two decades, focusing on manpower has increasingly developed (1).

The quality of work life is a multidimensional concept and its measurement leads to understanding of people, labor and organization. Understanding and consequently enhancing the quality of nursing work life is an important factor in order to obtain a high levels of quality in caring of patients. The quality of nursing work life means that they can meet their

individual and important needs through experience and learning in organization. (3). The quality of work life reflects in the personnel's reaction to job satisfaction and mental health. It is a comprehensive program which focuses on enhancing the satisfaction of personnel and it is necessary in all organization for recruitment, maintenance and satisfaction of staffs (4) also, some factors such as fair compensation, safe work place, job security, work hours, happiness, psychological state and feel healthy affect it (5). Nursing profession requires some strategies to recruit new nurses and also maintain existing nurses. Enhancing the quality of nursing work life is one of the strategies and it is considered as an important factor for stability of health system (6). Brooks and Anderson defined the quality of nursing work life as the degree to which registered nurses are able to satisfy important personal needs through their experiences in their work organization while achieving the organizational goals. Therefore, the concept of employee satisfaction is about more than simply providing people with a job and salary. It is about providing people with a place where they feel accepted, wanted and appreciated. (7). The quality of work life should not be confused with the concept of standards of living which is based primarily on income (8); but it includes all proceedings required to maintain and protect the personnel's body and soul and make them happy and satisfied. (9).

The physical health is an extremely important factor in people's lives, and its association with quality of work life can generate subsidies to support the wellbeing of nursing professionals (10). Every job has its own risks and health problems and health workers are not excluded from this matter (11). Musculoskeletal disorders constitute a major health challenge for individuals, health systems, and social care systems across the globe (12) and it is one of the major problems caused by work in nurses. Musculoskeletal problems related to work is the major problem of healthcare in industrial and developing countries (13). Many studies has shown the high risk of detecting pain in neck and back of nurses which is related to the physical and psychosocial factors (14,15).

Nurses suffer from back pain highly more than other staffs because nursing interventions include ergonomic, personal and physical risks. Nurses, who are working in critical care department, are especially prone to back pain because of patient caring in a leaning forward position for a long time, moving some parts of patient's body during repositioning and devoting more time for patient's caring. Moreover, high workload and repetitive movements of body predispose them to these problems (16). Physical and mental workload of nurses can affect the quality of work life and also cause musculoskeletal problems (17). Nurses reported that they were low energy after the work because of high workload and they cannot balance between their work and family life (2). MSD are reported to significantly impact quality of life, cause loss of work time or absenteeism, increase work restriction, transfer to another job, or disability than any other group of diseases with a considerable economic toll on the individual, the organization and the society as a whole (18).

The most comprehensive program for quality of work life has been provided by Walton in 1975. Walton provided a theoretical model to express the dimensions of quality of work life and divided it into 8 dimensions: adequate and fair compensation, safe and healthy working conditions, opportunity for continued growth and security, constitutionalism in organization, social relevance of work life, work and total life space, social integration in organization and opportunity for developing and using human capacity (19). Brooks and Anderson suggested another model for studying the quality of nursing work life in 2001; he examined previous models and corrected some impediments in his research. This model has four dimensions: the quality of work and home life, work design, work context and work world (6).

Given the extent of questions included in 2 mentioned questionnaire and the requirements of the present study, researcher decided to set a researcher-made questionnaire based on these 2 questionnaires to study the quality of nursing work life. This questionnaire examines the quality of work life in four dimensions including life at work- life outside of work, work design, work context and work world; and then the researcher investigated the face validity, content and reliability of it.

2. METHODS

The present study was analytical-descriptive research. The researcher examined the quality of nursing work life through procurement and psychometrics of QWL tools. Searching among the existing tools by researcher, Walton, Brooks and Anderson tools were used to examine the quality of work life. Walton questionnaire studied eight dimensions of QWL including adequate and fair compensation, constitutionalism in organization, social relevance in work life, safe and healthy working conditions, opportunity for continued growth and security, work and total life space, social integration and developing human capacity. This questionnaire consisted of 35 items based on a five-point of Likert's scale and

finally determined the quality of work life as poor, average and good. Brooks and Anderson questionnaire examined four dimensions of work life including home life, work design, work context and work world. This questionnaire consisted of 42 items based on a five-point of Likert’s scale and finally determined the quality of work life as good, average and poor. Reviewing previous studies and considering the requirements of the present study, a questionnaire was prepared including two sections which first section included 14 demographic questions (age, gender, marital status, number of children, education, work experience, work experience in critical care department, work schedule, job rating, employment status, work hour during a week and musculoskeletal problems before entering the critical care unit) and secondly 20 questions were selected from two abovementioned questionnaire and finally a researcher-made questionnaire was provided. This questionnaire investigated the quality of work life in four dimensions including life at work- life outside of work, work design, work context and work world. Each item was scored 1-5 based on a five-point of Likert’s scale (absolutely disagree=1, disagree=2, neutral=3, agree=4 and absolutely agree=5). The dimension of life at work and life outside of work included 4 questions for work conditions, 7 questions for work design, 5 questions for work context and 4 questions for work world and finally the total score of questions and quality of work life was determined as good, average and poor. The related correspondence was done with drafter of questionnaire (Walton, Brooks and Anderson) in order to obtain permission to use it; then the English text was translated to Persian. The translated text of questionnaire was translated to English by a person fluent in English without access to the original English text. Finally, the original English text was matched to first and second version and the Persian translation became the final tool.

In next stage, the face validity and content validity was used to determine the validity of questionnaire. First, the face validity was considered, therefore, the questionnaire was provided to 10 members of faculty of school of nursing and midwifery of Iran, Tehran and Shahid Beheshti, their comments were recorded and applied as small changes as well vague and inappropriate statements were corrected.

Collecting the expert’s comments, content validity ratio was used for quantitative assessment of content validity which also ensured that the most important and accurate content has been selected; and content validity index was used to ensure that the questions were designed in the best way to assess the content (20). The content validity ratio was determined by using the experts’ comments and scoring the questionnaire in 3 levels: “1) essential, 2) useful but not essential, 3) not essential” and calculated based on the following formula:

$$CVR = \frac{\text{Number of experts who choose "essential"} \times \frac{\text{Total number of experts}}{2}}{\frac{\text{Total number of experts}}{2}}$$

For this purpose, the questionnaire was provided to 15 members of faculty of School of Nursing and Midwifery of Iran, Tehran and Shahid Beheshti and according to the minimum value of content validity ratio based on Lawshe Table, the statements with CVR more than 0.49 (based on evaluation of 15 experts) were considered meaningful and they supported.

CVI survey was performed based on Waltz and Basel content validity index after calculating CVR. Although content validity is measured on the basis of subjective judgments of experts, since Waltz and Basel provided an objective method to determine content validity index of tools in 1983, it was used by many researchers. In content validity index, each statement was scored based on four point ranking scale in the field of relevancy, simplicity and clarity (1= irrelevant, 2= relatively relevant, 3= relevant and 4= highly relevant) (20).

Primarily, the designed questionnaire was corrected literally by supervisors in order to assess the qualitative content validity. Then, the questionnaire was assessed through Waltz and Basel’s content validity index in order to determine content validity index. So, this questionnaire was distributed among 15 faculty member of School of Nursing and Midwifery of Iran, Tehran and Shahid Beheshti. To determine the content validity, each statement was scored based on relevancy, simplicity and clarity from 1-4 and data analysis was calculated by following formula:

$$CVI = \frac{\text{Number of experts who give 3 or 4 to this item}}{\text{Total number of experts}}$$

Given the related resources, the value of 0.75 is appropriate and it can be said that the questionnaire has appropriate content validity (21).

Reliability is another important criterion in assessing the quality of tools. Reliability shows the degree of internal consistency and stability of a tool and its existence is considered as the most important criterion to indicate the quality of tool. Reliability also shows the accuracy and authenticity of measuring performed by tool. Moreover, reliability is referred to similarity and stability in measuring the existing specifications or components of a tool. Internal consistency means that how subsets of a tool can measure the considered specifications (22).

More than anything else, Cronbach' alpha is used to measure internal consistency and accepted coefficient for internal consistency was equal or more than 0.70. It is supposed that if the tool is divided into 2 parts in different ways, various parts of tool will measure the considered attributes. As this questionnaire, which is included assessing index of quality of work life, has multiple dimensions; and in order to determine internal consistency of tool in this study, researcher must make sure that the existing statements have similarity in a dimension and measure identical specifications. Cronbach's alpha was used to measure the reliability. Cronbach's alpha explains the congruency of some matters to measure a component. Cronbach's alpha must be 0.70-0.80 for adequate and good internal consistency (23).

3. RESULTS

To determine the content validity ratio, the questionnaire was provided to 15 faculty members of School of Nursing and Midwifery of Iran, Tehran, Shahid Beheshti. Given the minimum value of content validity ratio based on Lawshe Table, each statement with CVR equal or more than 0.49 (based on evaluation of 15 experts) was meaningful and supported. At the final stage of calculating the content validity ratio, the number of dimensions did not change but the number of questions reduced from 20 to 17 and one of the questions was corrected and reviewed. Other changes include more simplicity and clarity of statements and writing correction. Total CVR of indexes obtained 0.74. The question's CVR has been shown in table 1.

Table 1: Questionnaire item's value of CVR which assessing the quality of work life and the results related to acceptance or no acceptance of questions.

No.	Questions	CVR	Acceptance or No acceptance
Life at work-Life outside of work			
1	I am able to balance work with my family needs.	0.86	Acceptance
2	I have energy left after work.	0.73	Acceptance
3	I feel that rotating schedules negatively affect my life.	1	Acceptance
4	I am satisfied with my job.	0.6	Acceptance
Work design			
5	I receive a sufficient amount of assistance from unlicensed support personnel.	-0.2	No acceptance
6	I receive quality assistance from unlicensed support personnel.	-0.06	No acceptance
7	My workload is too heavy.	1	Acceptance
8	My working hours in a week is appropriate.	0.86	Acceptance
9	I have enough time to do my job well.	0.73	Acceptance

10	I perform many non-nursing tasks.	0.73	Acceptance
11	My work and rest schedule is appropriate.	1	Acceptance
	Work context		
12	I have adequate patient care supplies and equipment.	0.6	Acceptance
13	I feel like there is teamwork in my work setting.	0.33	Acceptance (corrected)
14	The nurses' lounge/break-area/locker room in my setting is comfortable.	0.6	Acceptance
15	I feel safe from personal harm (physical, emotional, or verbal) at work.	0.86	Acceptance
16	Nursing policies and procedures facilitate my work.	0.06	No acceptance
	Work world		
17	My salary is adequate for my job given the current job market conditions.	0.73	Acceptance
18	Extra benefits (alimentation, transport, doctor, dentist, etc.) provided by my work is appropriate.	0.6	Acceptance
19	I feel my job is secure.	0.73	Acceptance
20	I believe that, in general, society has the correct image of nurses.	0.6	Acceptance

Content validity index was determined by using Waltz and Basel's content validity index. Therefore, the questionnaire was provided to 15 faculty members of School of Nursing and Midwifery of Iran, Tehran and Shahid Beheshti. Due to related resources, the value of 0.75 was considered as appropriate value and it can be said that this questionnaire has appropriate content validity. For this research, content validity was considered 0.75 and since content validity index of 2 questions was less than 2, they were not accepted. The number of areas did not change at the end of calculation process for content validity index but the number of indexes reduced from 20 to 18. Other changes included more simplicity and clarity of some statements and literal corrections in this questionnaire.

Cronbach's alpha was used to examine the reliability of questionnaire. So, the questionnaire was distributed among 25 qualified persons for this research. After collecting questionnaires, internal consistency was calculated by SPSS version 22 to determine reliability of considered tool. As acceptable coefficient for internal consistency in Cronbach's alpha was equal or more than 0.70 and alpha coefficient of this questionnaire was 0.76, it was concluded that questionnaire needs no change and its internal consistency is appropriate. The value of Cronbach's alpha for every dimension of questionnaire for quality of work life has been shown in table 2.

Table 2: The value of Cronbach's alpha for every dimension of questionnaire for quality of work life

Dimension 1	$\alpha = 0.71$
Dimension 2	$\alpha = 0.71$
Dimension 3	$\alpha = 0.74$
Dimension 4	$\alpha = 0.70$

4. DISCUSSION AND CONCLUSION

The results of the present study showed that the questionnaire for quality of work life has appropriate features to measure the quality of work life. The validity and reliability of questionnaire was good and the overall structure of questions was confirmed. Therefore, this questionnaire can be used as an appropriate tool to assess the quality of nursing work life. These findings are consistent to results obtained from a study which has been performed to investigate the validity and reliability of quality of work life's questionnaire in Iran as well abroad.

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