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Development of Competency Indexes to Assess Nursing Postgraduate's Tutor

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ABSTRACT

The aim of this study was to develop competency indexes assessing nursing postgraduate's tutor in China. Based on Iceberg competency theory, a Delphi survey was carried out. 30 nursing experts in 16 provinces of China were invited to rate the importance of indexes and give some comments on the content. There were 22 experts taking part in two rounds Delphi study. A Kendall's W test also demonstrated experts were well coordinated. During the first round, overall mean scores were high, except for 1 tertiary index. We also added and moved some indexes building on the experts' suggestions. After two rounds, we developed competency indexes appropriate to assess tutots' competencies, consisting of 5 preliminary indexes, 13 secondary indexes and 68 tertiary indexes. The competency indexes were validated and scientific, it can be used to assess tutors in China.

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1. INTRODUCTION

Now, nursing has been the first level discipline in 2011 in China, and there is an increasing needs for nursing service, demonstrating an increasing demands for high quality nurse. So higher education is significant, and postgraduate nursing education, as the highest level of nursing education, is the main way to cultivate high quality nursing personel. Recently, nursing postgraduates' education has been developing vigorously, there is a sharp increase in universities with nursing postgraduates' enrollment qualification, and so is tutor of nursing postgraduates in China. However, each university had its own tutor assessment criterion [1]-[3], and tutors' level was irregular [4]-[5]. Tutor, as main performer of postgraduates' training program and instructor of scientific research, played a key role in ensuring quality of postgraduate education. Competency, which was proposed by MeClelland D in 1973 [6], was widely used on management, education and medicinel in foreign countries [7]-[10]. In China, researches about competency focused on human resource management, also on education and medicine [11]-[12]. And tutor competency was one of the key factors guaranting quality of postgraduate education and promoting the development of nursing discipline.

Teacher competency included professional knowledge, professional skills and professional value in which teachers possessed [13]. Nevertheless, study on evaluation of nursing postgraduates' tutor has not yet been widely carried out. Developing valid competency indexes to assess nursing postgraduates' tutor had great significance in enhancing quality of tutor, as well as the education. So we adopted a Delphi survey to develop competency indexes to provide a reference basis for assessing tutors.

2. RESEARCH METHOD

2.1. Design

We carried out a Delphi-survey on e-mail to collect opinions from a wide range of experts for developing a consensus about the assessment indexes. Delphi survey were supposed to offer quantitative estimates through qualitative methods, characterized by anonymity, iteration, controlled feedback, and statistical group response [14]. The competency indexes were presented to an expert panel.

2.2. Delphi Expert Panel

Expert selection was built on the following criteria: at least bacholar 's degree in nursing; at least senior professional titles; at least ten-year working experience in nursing, participating in the education/ management of nursing postgraduates and active support for our research. 30 experts in 16 provinces of China were selected to participate in the study. And we carried out two rounds of Delphi survey by E-mail.

2.3. Delphi Procedure

Two researchers designed the Delphi questionnaire based on competency framework-'Competence iceberg theory'. Among them, skill and knowledge are threshold competency, motives and traits are differentiating competence, which are key to distinguish achievers from mediocrity; self-concept is in-between. Beisdes, we searched PubMed, EBSCO, CNKI, Wanfang Database, as well as educational web sites about tutors' competency by the following search terms: "nursing mentor/nursing supersivor/nursing teacher/nursing educator", "competency/competency evaluation", On the basis of group discussion, we developed competency indexes preliminarily, including 5 preliminary indexes, 13 secondary indexes and 64 tertiary indexes. In two consecutive Delphi rounds, experts were asked to comment on the content by giving ratings, building on a likert-5 scale (1=least important, 5=most important).

2.4. Delphi Data Analysis

Data were recorded with Excel by two persons and re-checked , then, they were imported into IBM SPSS Statistics for Windows (version 19.0) for analysis. The mean, standard deviation, coefficient of variation for overall indexes were calculated. Index selection were based on mean scores greater than 3.5, coefficient of variation not greater than 0.25 as well as expert suggestions. Descriptive statistic were used to summarise sample characteristics. Besides, a kendall "w test were used to demenstrate experts" coordinated degree.

3. RESULTS AND ANALYSIS

3.1. Results

Twenty-five of 30 experts actively responded in the first Delphi round (effective response rate of 83.33%). In the second Delphi round, 22 experts (88%) completed the survey. They all were females, 3 experts (13.64%) were aged 30~39 years, 9 experts (40.91%) were 40~49 years, and 10 experts (45.45%) were over 50 years; 5 experts (22.73%) were bachelor degree, 11 experts (50%) were master degree, and 6 experts (27.27%) were doctoral degree; 8 experts(36.36%) were with secondary senior titles, and 14 experts (63.64%) were with senior titles; 6 experts (27.27%) worked as tutor for less than 2 years, 3 experts (13.64%) worked for 3~5 years, 13 experts (59.09%)worked for more than 6 years. The number of experts from school and hospital were close (Table 1).

Table 1. Affliations of Consultation Experts (N=22)

Consultation experts' workplace	Number
Nursing School of Peking University	1
Sichuan University	1
Capital Medical University	1
Harbin Medical University	1
Xi'an Jiaotong University	2
Xinjiang Medical university	1
Nanjing Medical University	1
Fujian Medical University	1
Nanchang University	1
Children's Hospital of Fudan University	1
Shanghai Children's Medical Center	1
West China Second University Hospital	1
The Hospital Group of the first Affiliated Hospital of ChongQing Medical University	1
Second Hospital of Shanxi Medical University	1
Xiangya Hospital of Central South University	2
Zhongnan Hospital of Wuhan University	1
The First Affiliated Hospital of Guangxi Medical University	2
The Second Clinical Medical College, Guangzhou University of Chinese Medicine	1
Henan Provincial People's Hospital	1

3.2. Delphi Round 1

Mean scores and coefficient of variation reflected that all indexes were perceived as important and feasible for assessing tutor (mean scores ＞3.5, coefficient of variation≤0.25） After the first Delphi survey, 1 tertiary index: emotional persistence, was removed, due to its variation coefficient was 0.26.

Interesting, many suggestions were presented. Some experts raised concerns about different competency indexes assessing two types of nursing postgraduates' tutor: academic nursing postgraduates and master of nursing specialist (MNS). Some experts thought many tutors lacked communication with students and did not help them plan career.

Based on the comments, the researchers decided to remove 1 tertiary index: emotional persistence, added 7 tertiary indexes: ability to acquire expertise in depth, breadth and new progress, ability to innovate, the evaluation of employer to postgraduates, postgraduates' score of professional courses, ability to acquire information, showing ethics, serving in various academic societies and academic journals; adjusted the way of expression for 19 indexes and moved 3 indexes among tertiary index.

3.3. Delphi Round 2

During the second round, all indexes resulting from the first round were presented again to the panel. The experts were invited to give some suggestions. They were additionally informed about the changes based on the results from the first round. In this final Delphi-round, all assessment indexes turned out to be validated and consensus was obtained. A Kendall's W test demonstrated the results were statistically significant ($p<0.01$), meaning that experts were well coordinated after two rounds.

Building on the two rounds, the final validated competency indexes assessing nursing postgraduates' tutor consists of 5 preliminary indexes, 13 secondary indexes and 68 tertiary indexes (Table 2)

Table 2. Competency Indexes for Tutor

Indexes	Mean scores ($\bar{x} \pm s$)	Coefficient of variation
A Nursing professional level	5.00±0.00	0.00
A1 Nursing abilities	4.86±0.35	0.07
A1a Ability to communicate effectively	4.77±0.43	0.09
A1b Ability to observe sharply	4.86±0.35	0.07
A1c Ability to analyze and judge	4.91±0.29	0.06
A1d Ability to make decisions	4.77±0.43	0.09
A1e Ability to deal with emergency	4.77±0.43	0.09
A1f Showing ethics	4.73±0.55	0.12
A1g Knowing nursing law and regulations	4.55±0.60	0.13
A1h Ability to work with others	4.73±0.46	0.10
A1i Ability to coordinate interpersonally	4.64±0.49	0.11
A1j Ability to manage and organize	4.50±0.51	0.11
A1k Ability to acquire expertise in depth, breadth and new progress	4.82±0.59	0.12
A1l Ability to innovate	4.86±0.35	0.07
A2 Professional development ability	4.91±0.29	0.06
A2a Ability to reflect	4.82±0.39	0.08
A2b Evidence-baesd nursing ability	4.86±0.35	0.07

Indexes	Mean scores ($\bar{x} \pm s$)	Coefficient of variation
A2c Critical thinking ability	4.91±0.29	0.06
A2d Ability to seek resources to solve clinical problem	4.95±0.21	0.04
A2e Self-learning and self-education ability	4.86±0.35	0.07
A2f Professional influence	4.41±0.73	0.17
B Teaching and guiding ability	4.95±0.21	0.04
B1 Teaching ability	4.86±0.35	0.07
B1a Strict teaching attitude	4.73±0.46	0.10
B1b Rich teaching content	4.23±0.81	0.19
B1c Diversified teaching method	4.73±0.46	0.10
B1d Good teaching effect	4.36±0.66	0.15
B2 Guiding ability	4.95±0.21	0.04
B2a Cultivation of postgraduates' innovative thought	4.68±0.65	0.14
B2b Instruction of postgraduate professional learning	4.91±0.29	0.06
B2c Cultivation of postgraduate professional ability	4.86±0.35	0.07
B2d Cultivation of postgraduate research ability	4.95±0.21	0.04
B2e Cultivation of postgraduate teaching ability	4.64±0.49	0.11
B2f Guidance for development	4.68±0.48	0.10
B3 Postgraduate quality	4.45±0.74	0.17
B3a Quality and quantity of papers postgraduate published	4.50±0.60	0.13
B3b Quality of postgraduates' dissertation	4.82±0.39	0.08
B3c Postgraduates' work ability	4.73±0.46	0.10
B3d Postgraduates' comprehensive qualities.	4.64±0.49	0.11
B3e The evaluation of employer to postgraduates	4.36±0.66	0.15
B3f Postgraduates' score of professional courses	4.23±0.53	0.12
C Research ability	5.00±0.00	0.00
C1 Research base and literacy	4.91±0.29	0.06
C1a Scientific knowledge	4.77±0.43	0.09
C1b Foreign language proficiency	4.64±0.49	0.11
C1c Science research spirit	4.77±0.43	0.09
C1d Sensitivity to research	4.95±0.21	0.04
C1e Research direction	4.32±0.78	0.18
C1f Project level	4.27±0.63	0.15
C1g Research funds	4.27±0.63	0.15
C1h Research team	4.68±0.48	0.10
C1i Ability to acquire information	4.82±0.50	0.10
C1j Academic ethics and norms	4.91±0.29	0.06
C2 Scientific research output	4.68±0.48	0.10
C2a Academic influence	4.32±0.72	0.17
C2b Serving in various academic societies and academic journals	4.23±0.69	0.16
D Motivations as tutor	4.27±0.70	0.16
D1 External motivations	4.09±0.68	0.17
D1a Self-worth	4.41±0.67	0.15
D1b Professional ideal	4.50±0.74	0.16
D1c Sense of achievement	4.36±0.73	0.17
D2 Internal motivations	4.32±0.72	0.17
D2a Love for teaching	4.73±0.46	0.10
D2b Professional value	4.86±0.35	0.07
D2c Like students	4.73±0.46	0.10
D2d Aggressive	4.77±0.43	0.09
E Personality traits	4.27±0.77	0.18
E1 Cognitive features	4.55±0.51	0.11
E1a Objective	4.55±0.60	0.13
E1b Comprehensive	4.50±0.60	0.13
E1c Independent	4.27±0.70	0.16
E1d Simple	4.09±0.61	0.15
E1e Agile	4.41±0.67	0.15
E2 Emotion	4.45±0.60	0.13
E2a Emotional intensity	4.09±0.68	0.17
E2b Emotional stability	4.59±0.50	0.11
E2c Positive emotion	4.23±0.69	0.16
E3 Attitude	4.50±0.67	0.15
E3a Interpersonal attitude(honesty,compassion）	4.55±0.67	0.15
E3b Work attitude（responsible）	4.86±0.35	0.07
E3c Self-attitude (self-esteem, confidence)	4.64±0.58	0.13
E4 Will quality	4.45±0.67	0.15
E4a Initiative	4.55±0.51	0.11
E4b Decisive	4.36±0.66	0.15
E4c Tough	4.45±0.60	0.13
E4d Self control	4.68±0.48	0.10

3.4. Disscussion

The present study aimed to develop the competency-based indexes assessing tutors' competencies in China, we adopted a Delphi-survey to collect expert opinions. In total, two rounds of consultation were needed to validate the competency-based indexes. It demonstrated that all competency indexes, except 1 tertiary index, were already considered important in the first round (mean scores >3.5, coefficient of variation ≤0.25), Besides, after two round, there was an increasing consensus among experts. We dealt with a large amount of comments related to the competency indexes by deleting, adding and moving some indexes during the two rounds.

Building on the comments, we develop 5 preliminary indexes. Firstly, Nursing professional level was the basic competency for tutor, its mean scores was 5.00, and coefficient of variation is 0.00, demonstrating the index was considered most important. Nursing was an applied subject, and hospital was the main place for practice. So nursing professional level was signifcant. Besides, research ability was core, so mean score was the same as nursing professional level, scored highest, and coefficient of variation is 0.00. The big difference between undergraduate and postgraduate nursing education is research, tutor is instructor of scientific research for nursing postgraduates. And scientific research was the significant way of promoting development of nursing profession and improving the level of clinical care, so it could not be emphasized no longer for postgraduates' education [15], the result meaned experts' high expectations for it. Tutor should focus on their research ability, use their own rich resources to create a good scientific environment for nursing postgraduates, and give some guidances on project declaration, implementation and thesis writing [16]. Then, teaching and guiding ability was important, its mean scores was 4.95, and coefficient of variation was 0.04. it was stressed by nursing educators in foreign countries [17]. In deed, teaching and guiding were tutors' duty. so they should treat nursing postgraduates as individuals, besides, teaching activities should be learner-centered [18], proper teaching methods should be used, such as interaction teaching [19]. Except theoretical study, postgraduates' life and social pratice were all changed in the tutor's words and deeds, so tutor's guidance should be comprehensive [16]. Next, motivation as tutor could not be ignored, its mean scores was 4.27, and coefficient of variation is 0.16. Compared with Shang Linping's research, we added it on delphi survey [20], motivation was a psychological tendency or impetus which triggered and maintained individuals' activities, and instructed individuals make efforts for a goal, including internal motivation and external motivation. Motivation can differentiate out standing performer and average one, and measure a tutor's competence. It also can stimulate tutor to work better, determine tutor's participation and continuity of cultivating nursing postgraduates directly, determine effort level of cultivating postgraduates, and affect the quality of postgraduates in the end. Although work motivation was hard to change, it can be influenced by environment [21], so we can not ignore function of internal and external motivation, and make great efforts to create good external environment to improve tutor's enthusiasm of cultivating postgraduates. Finally, personality trait was prerequisites for tutor. Its mean score was not low, tutor not only setted us an example of scientific research, but also inflenced our behaivors. As a tutor, morality and personality trait were basic. So they should pay more attention to moral trait, responsibility and dedication; besides, they should take good care of postgraduates, communicate more with them, respect them and treat them equally to develop harmonious relationship with nursing postgraduates [22]-[23].

3.5. Limitations

The study had also some limitations about Delphi study. On the one hand, the study, as Delphi study, possibly did not provide a space for discussion and debate. Notwithstanding its shortcoming, we just remove 1 tertiary index considered "least unimportant". On the other hand, the dropout of experts also needed be explained. We invited 30 experts, reached the following effective response rates (N=25/22), a dropout percentage of 27%. This may be due to the length of the survey for each round (1/1 month) and some experts may be too busy. In the future, we would investigate if the competency-based assessment indexes will improve the competencies of nursing postgraduates' tutor in China.

4. CONCLUSION

Competent tutors were key to maintain quality of nursing postgraduates' education. The present Delphi-study validated indexes to assess nursing postgraduates' tutors in China. After two rounds Delphi survey, the competency indexes assessing tutors was established, including 5 preliminary indexs:nursing professional level, teaching and guiding ability, research ability, motivation as tutor and personality trait, 13 secondary indexes and 68 tertiary indexes. This competency research can provide a reference to assess tutor.

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