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# A Study on Comprehensive Evaluation Index System of Senior Nurse

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**ABSTRACT Objective:** According to the development plan of the nursing profession, personnel system reform policy, the need of the post's assessment, the aim of this study was to establish a scientific, practical comprehensive evaluation index system of the senior professional title nursing personnel in tertiary general hospital, in order to realize comprehensive evaluation about senior nurse scientifically and effectively. **Methods:** To establish alternative index library by the methods of literature analysis and Expert interviews methods, and then carried on the three questionnaires of 39 experts. Delphi method was used to screen and add the indexes. **Results:** By the methods of three questionnaires and statistical analysis, a scientific and practical comprehensive evaluation index system of senior nurses, which contains four first-Class indexes including professional quality, learning level, profession ability and outstanding achievements, fourteen second-class indexes and forty-seven third-class indexes. **Conclusion:** This study established a scientific, practical comprehensive evaluation index system of the senior nurse. The index system, which has moderate number of indicators, a clear hierarchical structure, defined appraisal criterion can perform comprehensive evaluation objectively and fairly for senior nurses.

**Key words:** Senior nurse; Comprehensive evaluation; Indexes system; Delphi method

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## Introduction

Senior nurse is an important part of nursing team and the key group for the development of nursing science<sup>[1,2]</sup>. Senior nurses are the backbone of the hospital nursing. Their quality and ability to reflect the level of business throughout the hospital and thought quality level. Their quality and ability play important roles in the development of nursing and medical level<sup>[3]</sup>. The comprehensive evaluation index system is the premise to carry out comprehensive evaluation and an efficient tool to improve comprehensive evaluation. Through literature review and analysis of the research background, the domestic still did not form a mature and effective corresponding comprehensive evaluation index system, which was different from our nursing staff job title and responsibility at present. Foreign research on nursing personnel evaluation system is gradually developing and perfection. Comprehensive evaluation of different level nursing staff evaluation system is perfected<sup>[4,5]</sup>. This study using the Delphi method and Analytic Hierarchy Process (AHP) to study comprehensive evaluation index system of senior nurse<sup>[6,7]</sup>. The purpose is to establish comprehensive evaluation index system and provide the basis for senior nurses comprehensive evaluation.

## 1 Methods and Materials

### 1.1 Delphi method<sup>[8-10]</sup>

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Delphi method is consulted by communication expert opinion predictions of the team, after several rounds of consultation, makes the prediction of panel's views tend to be concentrated, thus Delphi method was used for screening evaluation index in this study according to the expert advice to the evaluation objects to evaluation method combining qualitative and quantitative prediction.

### 1.2 Analytic hierarchy process (AHP)

Analytic hierarchy process (AHP) depends on the principle of matrix in linear algebra, is a combination of qualitative and quantitative systematic hierarchical analysis method<sup>[11,12]</sup>. AHP can effectively deal with multi-objective decision scheme. It is applied to the weight of each level, usually adopted the relative importance of two evaluation method. When the evaluation method adopted the relative importance of two layers and are too many elements in each layer of more method are complex, and can be compared by using the methods of importance assignment mean<sup>[13]</sup>. This study by using the Saaty scale to the importance assignment mean comparison<sup>[14]</sup>. Using Delphi method and AHP, the author selects the indexes, makes certain their weights.

### 1.3 Experts consultation

To establish alternative index library by the methods of Literature analysis and Expert interviews methods, and then carried on the three questionnaires of 39 experts who were engaged in administrative management personnel management, nursing management, clinical medical care, scientific research. These experts come from 15 top three comprehensive hospitals in Beijing, Shanghai, Shandong, Heilongjiang, Jiangsu, Sichuan six areas.

### 1.4 Statistics methods

This study used questionnaire recovery rate to represent ex-

perts positive coefficient; with authority coefficient represents the authority of experts<sup>[15,16]</sup>; With experts coordinate coefficient represents expert opinion coordination degree.SPSS18.0 and Excel were used for data statistical analysis.

## 2 Results

### 2.1 Recycling questionnaire analysis

Three rounds of expert consultation provided questionnaires respectively for 52 copies, 46 copies, 45 copies,and the effective questionnaire returns-ratios were 84.6%,89.13%,86.66%.The proportion of experts titles respectively of Senior title, deputy high titles, intermediate title was 23.08% , 58.97% , 17.95% .

### 2.2 Expert opinion coordination coefficient

To learn about all the indicators of the coordination degree by the research of the coordination coefficient of experts. According to the application characteristics of the Delphi method, W values range between 0 ~ 1<sup>[17]</sup>, after 2-3 rounds of consultation and coordination, the error was controlled in the better scope. W is in commonly 0.5 within the scope of volatility,and the generally fluctuation range of W was in 0.5<sup>[18]</sup>. Through statistical analysis, three rounds of expert consultation total coordination coefficient respectively were 0.394, 0.420, 0.467 (Table 1), the results showed the expert opinion had better coordination.

Table 1 Expert opinion coordination coefficient and significance test

Consultation rounds	Index numbers	Coordination degree	$\chi^2$	Degree of freedom	P
First round	50	0.394	849.460	49	0.000
Second round	47	0.420	774.900	46	0.000
Third round	47	0.467	834.060	46	0.000

### 2.3 Comprehensive evaluation index system<sup>[19,20]</sup>

By three questionnaires and statistical analysis, a scientific and practical comprehensive evaluation index system of senior nurses, which contains four first-Class indexes including professional quality, learning level, profession ability and outstanding achievements, fourteen second-class indexes and forty-seven

third-class indexes. AHP method was used to confirmed the weight of each index, the weight of the four first-class indexes were 0.1644, 0.2848, 0.4457, 0.1051, the value of RI showed that the comprehensive evaluation index system had logical consistency(Table 2).

Table 2 Comprehensive evaluation index system of Senior nurse and Index weight

	Names of Index	First-class index weight	Second-class index weight	Third-class index weight	Combination index weight
I -1	Occupational qualities	0.1644			0.1644
II -1	Professional attitudes		0.3108		0.0511
III-1	Appearance			0.0824	0.0042
III-2	Service attitude			0.4204	0.0215
III-3	Professional dedication			0.2415	0.0123
III-4	Sense of responsibility			0.1279	0.0065
III-5	Labor discipline			0.1279	0.0065
II -2	Professional ethics		0.4934		0.0811
III-6	Patient-centered			0.3108	0.0252
III-7	Medical ethics			0.4934	0.0400
III-8	Team work spirit			0.1958	0.0159
II -3	Mental and physical quality		0.1958		0.0322
III-9	Physical quality			0.3333	0.0107
III-10	Mental quality			0.6667	0.0215
I -2	Knowledge level	0.2848			0.2848
II -4	Professional knowledge		0.2684		0.0764
III-11	Nursing Knowledge			0.3108	0.0237
III-12	Social humanistic knowledge			0.4934	0.0377
III-13	Basic knowledge of medicine			0.1958	0.0150
II -5	Comprehensive Knowledge		0.6144		0.0764
III-14	English knowledge			0.1836	0.0140
III-15	Computeracy			0.1391	0.0106
III-16	Management theory			0.3018	0.0231

	Names of Index	First-class index weight	Second-class index weight	Third-class index weight	Combination index weight
III-17	Policy familiarity			0.0972	0.0074
III-18	Nursing development trends			0.2783	0.0213
II -6	Experience accumulation		0.1172		0.0042
III-19	Engaged in the professional life			0.1958	0.0042
III-20	Office term			0.3108	0.0066
III-21	Using empirical			0.4934	0.0105
I -3	Professional ability	0.4457			0.4457
II -7	Nursing management ability		0.6250		0.2786
III-22	Nursing quality management			0.4176	0.1163
III-23	Nursing risk management			0.1775	0.0495
III-24	Interpersonal coordination			0.1171	0.0326
III-25	Organizing ability			0.1241	0.0346
III-26	Training of subordinates			0.1637	0.0456
II -8	Clinical ability		0.2385		0.1063
III-27	Planning of care			0.0788	0.0084
III-28	Nursing technical operation			0.1805	0.0192
III-29	Rescue of critically ill patients			0.2865	0.0305
III-30	Nursing round			0.1339	0.0142
III-31	Case-discussing			0.2274	0.0242
III-32	Technical appraisal			0.0928	0.0099
II -9	Research and teaching ability		0.1365		0.0608
III-33	Scientific research innovation			0.1893	0.0115
III-34	Clinical teaching			0.3491	0.0212
III-35	Nursing lectures			0.1435	0.0087
III-36	Nursing academic lecture			0.2498	0.0152
III-37	Nursing skills training			0.0684	0.0042
I -4	Work achievement	0.1051			0.1015
II -10	Work quality		0.5396		0.0567
III-38	Work efficiency			0.5591	0.0317
III-39	Assessment of quality of care			0.3522	0.0200
III-40	Nursing error accident			0.0887	0.0050
II -11	Teaching achievements		0.2970		0.0312
III-41	The number of papers			0.1182	0.0037
III-42	Research production			0.2616	0.0082
III-43	Number of teaching			0.4531	0.0141
III-44	Continue education program			0.1671	0.0052
II -12	Honorary title		0.1634		0.0172
III-45	Concurrent Academic Posts			0.4934	0.0085
III-46	Administrative rank			0.3108	0.0053
III-47	Honorary title			0.1958	0.0034

### 3 Discussion

This index system, which has moderate number of indicators, a clear hierarchical structure, defined appraisal criterion, clearly connotation, reasonably stable weight, can perform comprehensive evaluation objectively and fairly for senior nurses.

In the process of building the index system cannot avoid the influence of subjective factors of experts. The connotation of the evaluation index system of index evaluation method and standard to be added to further clear and perfect.

### 4 Conclusion

By the methods of three questionnaires and statistical analysis , a scientific and practical comprehensive evaluation index system of senior nurses, which contains four first-Class indexes including professional quality, learning level, profession ability and outstanding achievements, fourteen second-class indexes and forty-seven third-class indexes. This index system, which has moderate

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## 高级护师综合评价指标体系研究

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**摘要 目的:** 结合当前我国护理事业发展规划纲要、人事制度改革、岗位评聘的需要, 构建科学合理、实用性强的高级护师综合评价指标体系, 实现对高级护师科学化的综合评价。**方法:** 运用文献分析法及专家访谈法建立备选评价指标, 据此对 39 名专家仅进行三轮专家咨询。通过德尔菲法对拟定的指标进行筛选和补充, 通过层次分析法对指标权重进行明确。**结果:** 经过三轮专家咨询及数理统计分析, 构建了一套科学的三级甲等综合性医院高级护师综合评价指标体系。该指标体系包括职业素质、学识水平、业务能力、工作业绩 4 个一级指标及其延伸的 12 项二级指标和 47 项三级指标。**结论:** 本研究构建了科学、实用的高级护师综合评价指标体系, 该指标体系层次分明、指标数量适中、指标权重明确, 有利于正确反映高级护师实际能力和综合素质, 能够对高级护师进行科学的综合评价。

**关键词:** 高级护师; 综合评价; 指标体系; 德尔菲法

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