

# Investigating the Self-assessment of Clinical Competency of Nurses Working in Babol University of Medical Sciences Hospitals

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## Abstract

**Objective:** Clinical competence, practical competence, and the ability to integrate knowledge, skills, attitudes and values are required in clinical situations. More than 71% of nursing errors are due to nurses' neglect or nonsecurity. Therefore, this study was designed to evaluate the clinical competency of nurses working in Babol University of Medical Sciences hospitals.

**Methodology:** The method of this research is cross-sectional. A total of 157 nurses working in hospitals affiliated to Babol University of Medical Sciences were selected by census method. The data collection tool was a nurses' clinical competence questionnaire which measures 73 different nursing skills in seven domains. The level of competence was determined based on the scale of 0-100 and the practical application of nursing skills in a clinical setting by a Likert scale of four. The validity of the questionnaire was confirmed by the professors and its reliability was 0.88 based on Cronbach's alpha coefficient. Descriptive statistics (mean and standard deviation) and inferential statistics (Spearman, ANOVA) were used to analyze the data using SPSS24 software.

**Findings:** The results showed that the mean score of nurses' clinical competency is  $85.427 \pm 11.874$ . Also in the ranking of the variables studied, "diagnostic measures" and "management ability" had the highest average and the "quality assurance" range was the lowest. Also, findings from one-way analysis of variance showed that there was no significant difference between clinical competency in the two groups of nurses in general and special departments (Sig=0.132, F=3.295).

**Conclusion:** The level of clinical competence and utilization of nursing skills in the hospitals are desirable. Therefore, it is recommended that nursing managers pay more attention to the quality of nursing services and, therefore, ways to improve them.

**Key words:** Self-assessment, Clinical Competency, Diagnostic Measures, Management Ability.

## Introduction

Today, nurses with more than 14,000 people in Iran are considered as the largest and most important provider of care. For this reason, the quality of nursing services is always assessed by the authorities to ensure that they have the capacity to provide effective and appropriate care (Abbasi et al., 2017). In this regard, clinical competence is of particular importance due to the significant impact on improving the quality of patient care and the creation of opportunities for professional promotion in health care (Moskoei et al., 2017). The purpose of clinical competence is the deliberate use of technical and communication skills, knowledge, clinical reasoning, emotions and values in clinical settings (Carr, 2004). Therefore, one of the most basic needs of community health is the training of people with special academic and practical abilities and competencies (Daily, 2010). Ensuring nurses have clinical competence to intervene in a crisis is essential (Garfield, 2008). Therefore, assessment of nurses' clinical competence plays a very important role in managing the process of providing care and achieving care objectives. This assessment is important in identifying the areas that need to be promoted and in determining the educational needs of nurses as well as ensuring that care is provided appropriately, to the extent that it mentions the performance of quality assurance systems, workforce planning and HRM, which is considered to be the key responsibility of nursing managers in clinical settings (Namadi Vosoughi et al., 2014). In this regard, self-assessment of clinical competencies involves the use of competence assessment tools to determine whether a nurse has the ability to perform specific tasks in a clinical setting (Pravikoff, 2016). Self-assessment also allows nurses to play a more active role in the learning process and facilitate their continuous learning through the process of rethinking (Hannigan, 2001). An overview of the literature shows that this issue has been considered in different areas of educational and clinical management. Having nurses clinically competent involves providing quality care services and obtaining patients' satisfaction and as a result is a key factor in the survival of hospitals. (Yekta, 2005). The importance of this issue for managers who are generally dissatisfied with the lack of competency in nursing newcomers, is they should be ready to spend significant sums of nursing competency-enhancing activities in spite of the existing economic bottlenecks to improve the quality of these services and, ultimately, increase profits and use new technologies such as computers, the Internet (Marcum, 2004), retraining and in-service training, monitoring, and efficient learning systems. Therefore, the application of competence assessment criteria not only leads to the recognition of nurses and managers towards the general nurses' status, but also identifies their skills and cognitive deficiencies (Girrot, 2000). Therefore, the consequences of lack of clinical competence in nurses are very unfortunate. Ali Akbari et al. (2014), in his research on the assessment of the competence of emergency nurses, showed that the performance scores in each of the nine assessed skills were lower than the average. Also in line with the research conducted by Ghanbari et al. (2017) in his research on the assessment of the clinical competence

of emergency nurses: an exploratory study of 710 nurses working in emergency departments of educational centers found 5 agents with 30 competencies divided into three areas of communication, professional maturity, and personality traits. Kalantari et al. (2017) showed that the mean score of nurses clinical competency is higher than average. Also in the ranking of the variables studied, the "quality assurance" field is the lowest and the variable "occupational and organizational tasks" is at the highest level. Since nursing is developing as a day-to-day clinical practice in various sectors, health care system officials should continuously evaluate, prioritize and determine the clinical competencies of nurses in these sectors; the lack of clear clinical competence indicators will challenge the assessment. Considering that nurses lacking the necessary skills in health centers can endanger the health of the community, qualification criteria not only increase the knowledge and knowledge of nurses and managers about their competency, but also identify shortcomings and cognitive impairments. Considering the above items and the fact that the clinical competence of nurses working in hospitals affiliated to Babol University of Medical Sciences has not been studied so far, the researcher aimed to determine the self-assessment of clinical competency of nurses working in hospitals affiliated to Babol University of Medical Sciences.

## Methodology

The method of this research is cross-sectional. The study population included all nurses working in Babol medical sciences hospitals (Yahyanejad, Shahid Beheshti, Amirkola and Rouhani) in 2015-2016. A total of 157 nurses working in hospitals affiliated to Babol University of Medical Sciences were selected by census method. The data collection tool was a nurses' clinical competence questionnaire which measures 73 different nursing skills in seven domains. A two-part questionnaire was used to collect information. The first part included personal characteristics (age, gender, level of education, length of work experience and experience in the current sector and passing in-service training), and the second part of the questionnaire was designed to assess the clinical competency of nurses, which was designed according to the basic skilled banner framework and evaluated 73 different nursing skills in seven domains that included: The area of "duties and assistance" (seven skills), "education and guidance" (sixteen skills), "diagnostic activities" (seven skills), managerial positions "(eight skills)," therapeutic interventions "(ten skills)," quality assurance "(six skills) and finally the domain of "job and organizational tasks"(nineteen skills). The level of competence was determined based on the scale of 0-100, with the score between (0-25) low, the score between (26-50) relatively good, the score between (51-75) good and the score between (76-100) considered to be very good and the practical application of nursing skills in a clinical setting by a Likert scale of four, a zero rating meaning that it does not use that skill, rank 1 means that is a rarely used skill, rank 2 meaning applying it occasionally, and ranking three meaning reusing that skill. Validity of the questionnaire was evaluated and approved by the nursing community. In the study of Bahraini et al. (2010), the instrument's validity

index was 0.83 and its reliability coefficient based on the Cronbach's alpha coefficient in the seven domains ranged from 0.70 to 0.85 which indicates the intrinsic and desirable consistency of the domains and the high reliability of the tool. The validity of the questionnaire was confirmed by the professors and its reliability was 0.88 based on Cronbach's alpha coefficient. In order to collect information after obtaining permission from the university's research deputy and presenting it to the head of the covered hospitals (Yahyanejad, Shahid Beheshti, Amirkola and Rouhani) and performing the necessary coordination, the researcher with a data retrieval tool, a nurses clinical competency assessment questionnaire, in each of these skills based on the visual scoring scale asked the nurses in morning and afternoon shifts in the sampled environments, to evaluate their clinical competence in each of these skills based on the visual scoring scale. In this scale, the score of zero, was the lowest score, and the minimum clinical competence and the score of one hundred, was the highest score possible and

meant the maximum benefit of clinical competence. Then, according to the number of items in each area, the nurse's clinical competency score was calculated by calculating the mean scores of that area. In this research, inferential and descriptive statistics were used to analyze the data. Descriptive statistics (mean and standard deviation) and inferential statistics (Spearman, ANOVA) were used to analyze the data using SPSS24 software. Descriptive statistics in descriptive and dispersion indices were used to investigate the demographic characteristics of the research sample as well as to assess the clinical competence of the research samples in general and to the hospitals participating. In the inferential statistics section, in order to investigate the relationship between clinical competence of nurses with demographic characteristics (age, occupation and education) according to the scale of the demographic variables Spearman correlation test was used, and also, ANOVA was used to assess the difference between the two groups of nurses in both special and general sections.

## Findings

### 1. Descriptive Findings

Based on the findings of demographic characteristics, it was found in Table 1 that 137 people were female and 20 people were male. The highest number of nurses was in the age range of 31 to 40 years old (68 people, 43.3%). From the work experience, 107 (68.2%) were under 10 years of work experience and 46 (29.3%) had more than 10 years of work experience. Also, 149 of the research samples had a bachelor's degree, and only 7 had master's degree.

**Table 1: Describing demographic characteristics of nurses working in hospitals affiliated to Babol University of Medical Sciences**

Demographic variables	Gender		Age						Education		Work experience		Employment type		
	Female	Male	Less than 25 years old	26 to 30 years old	31 to 35 years old	36 to 40 years old	41 to 45 years old	45 to 50 years old	Bachelor	Masters	Less than 10 years	More than 10 years	Official	Contractual	Projective
Demographic factors															
Frequency	137	20	33	29	36	32	19	8	149	7	107	46	67	65	25
Frequency percentage	87.3	20	21	18.5	22.9	20.4	12.1	5.1	94.9	4.5	68.2	29.3	42.7	41.4	15.9

In Table 2 (next page) information on the self-assessment of nurses of their clinical competence is reported. Based on the average results of the seven domains, the clinical competencies of nurses ranged from 79.133 to 87.426; therefore, the leveling results indicated that the nurses working in hospitals in Babol were evaluated at excellence level. Nurses had the lowest mean in skills related to "quality assurance" and "therapeutic measures" and had the highest average in "diagnostic measures" and "management ability" skills.

Spearman correlation test was used for the correlation between demographic characteristics and the results are shown in Table 3.

**Table 2: Average clinical competencies of nurses working in hospitals affiliated to Babol University of Medical Sciences**

Scope of clinical competence	Average	Standard deviation
Helping patient	85.827	11.671
Training and guidance	86.715	10.569
Diagnostic measures	87.426	11.378
Management ability	87.001	12.907
Therapeutic measures	84.492	14.930
Quality guarantee	79.133	17.510
Occupational and organizational tasks	86.101	14.091
Overall clinical competence	85.427	11.874

**Table 3: Spearman correlation test (correlation of clinical competence with demographic characteristics)**

Clinical Nurses Competency		
	Spearman correlation	Significance level
Age	0.104	0.194
Work experience	0.142	0.078
Education	0.035	0.667

The findings showed that there is no significant relationship between clinical competency of nurses with age (Sig=0.194, rho=0.104), job experience (Sig=0.078, rho=0.142) and education (Sig=0.667, rho=0.035). Also, ANOVA was used to assess the differences in clinical competencies of nurses in special and general sections. Prior to reporting the results of variance analysis, it is necessary to test the assumption of variance equation. For this purpose, the results of the Lyon test were first reported. Based on the results of variance, the variables of patient support and assistance, education and guidance, diagnostic measures, therapeutic measures, quality assurance, occupational and organizational tasks, and general clinical competence are equal in the two groups of nurses in the special and general sectors and there is no significant difference between them and the assumption of equality of variances is confirmed.

**Table 4: Results of one-way ANOVA test (the difference between clinical competencies in nurses in the special and general sectors)**

Variable		Mean Square	Degrees of freedom	Average squared	F value	Significance level
Helping patient	Intra-group	0.087	1	0.087	0.012	0.915
	Intergroup	1167.034	155	7.529		
Training and guidance	Intra-group	90.595	1	90.595	3.663	0.057
	Intergroup	3833.214	155	24.730		
Diagnostic measures	Intra-group	11.642	1	11.642	1.83	0.178
	Intergroup	986.077	155	6.362		
Management ability	Intra-group	9.878	1	9.878	1.104	0.295
	Intergroup	1386.67	155	8.946		
Therapeutic measures	Intra-group	26.614	1	26.614	1.399	0.239
	Intergroup	2948.456	155	19.022		
Quality guarantee	Intra-group	17.523	1	17.523	1.523	0.219
	Intergroup	1783.776	155	11.508		
Occupational and organizational tasks	Intra-group	64.362	1	64.362	1.231	0.269
	Intergroup	8105.549	155	52.294		
Overall clinical competence	Intra-group	1098.65	1	1098.65	2.295	0.132
	Intergroup	74190.25	155	478.649		

One-way analysis of variance analysis showed that there was no significant difference between two groups of nurses in special and general sectors, between helping patient and assistance (Sig=0.915, F=0.012), education and guidance (Sig=0.057, F=3.663), diagnostic measures (Sig=0.178, F=1.83), management ability (Sig=0.295, F=1.104), therapeutic measures (Sig=0.239, F=1.399), quality guarantee (Sig=0.219, F=1.523), occupational and organizational tasks (Sig=0.269, F=1.231), and clinical competence (Sig=0.132, F=2.295).

## Conclusion

Based on the findings, the clinical competence of nurses in Babol was at the optimum and excellent level. The results are in line with the findings of Liu et al. (2007), which assessed the clinical competence of nurses by self-assessment method and showed that clinical competence of nurses was reported at a good level. Also with the results of Kalantari et al. (2016), which showed in their research, the overall average score of nurses' clinical competence is higher than the average. However, with the study of Ali Akbari et al. (2014), which showed that the average performance scores for each of the 9 evaluated skills were lower than the average, and it is inconsistent. The difference in results can be due to the different statistical population of the samples under investigation. These results indicate that the majority of nurses consider their clinical competence to be good and excellent in terms of the conditions, which can be related to nursing education and healthcare systems; adequate nurses' motivation, high quality and quantity of retraining courses, job satisfaction, interest in the profession, nurses' fitness with their profession, and the existence of specific standards. Based on the results, there was no significant relationship between the demographic characteristics of nurses with perceived clinical competency. The results are in line with the findings of Bahrain and colleagues (2010) and Abbasi et al. (2017), and are incompatible with the results of Salonen et al. (2007), which indicated that there was a significant relationship between competence level with age, duration of work experience and the frequency of use of competency; or the results of the study of Meretoja (2004) reported the relationship between these variables with nurses' clinical competence as meaningful. Differences in results can be due to different measurement tools, sample samples, cultural conditions, and working environment conditions. It seems that with increasing age and work experience of nurses, their clinical competencies should also be increased; however, as the results of this study indicate, there is no significant relationship between age, work experience and work experience in the current hospital nurses with their mean clinical competence. Probably, factors such as low salaries and benefits and job dissatisfaction among nurses in hospitals, cause nurses with increasing age and work experience to become more exhausted and discontented and display this discontent in their assessments. Based on the results, diagnostic and management capabilities were identified as the most important clinical competence indicators of Babol nurses. The results are in line with the findings of Meretoja (2004), which showed that the highest level of clinical competence of nurses in the field of managerial ability. Abbasi et al. (2017) also showed that managerial abilities were most important in nursing competencies. However, Liu et al. (2007) described interpersonal relationships as the most important clinical competence index. In general, due to differences in the clinical competence of nurses in different evaluation methods, different views and expectations of people may depend on their roles. Diagnostic measures and management ability are the most important nurses' qualifications; this shows that nurses' level of knowledge

and abilities in nurses' diagnostic procedures is desirable. The nurse uses scientific and practical abilities and practices and clinical evidence to apply their knowledge and skills in clinical practice and to make correct judgments. Timely diagnosis and quick action when nurses face the patient is very important to improve the quality of care. The health of patients is the top priority and all nurses need timely diagnoses and take the necessary action because the delay in diagnostic procedures compromises the patient's condition. A large number of sick and high-risk patients, short duration of hospitalization and unpredictable complicated situations require prompt response from nurses which can enhance their managerial skills. The results also showed that quality assurance had the lowest average among the clinical competencies among nurses in Babol. The results are in line with the findings of Kalantari et al. (2016) and Bahrainini et al. (2010) and Meretoja (2004). In their studies, quality assurance had the lowest importance among the areas of clinical competence. The role of quality in the success and failure of organizations is important to the extent that it is said that the organization that focuses on the core business of its organization to meet the demands of customers and satisfy their needs at minimum cost and maximum quality, will be able to survive. On the other hand, in assessing health care, one of the sources used is the satisfaction of patients with the services provided, where inaccurate findings and the necessary measures and taking necessary action to resolve problems will eventually make caregivers more permanently accessible (Mack, 2004), therefore, it is recommended that nursing managers pay more attention to the reasons for decreasing of quality of nursing care and its improvement. One-way variance analysis showed that in general, there is no significant difference between helping patient, education and guidance, diagnostic measures, management ability, therapeutic measures, the quality guarantee, job and organizational tasks, and clinical competency in the two groups of nurses in the special and general sectors; therefore, it can be said that there is no difference in the level of clinical competence and nursing skills in special and general groups. The results of this study are consistent with the results of the study of Bahraini et al. (2010) that assessed the clinical competence of nurses in two different clinical settings in two different cities. In explaining the similarities among these sectors, perhaps it is because the two areas did not differ in terms of management system, in-service training, functional environment, and organizational climate, which could affect the clinical competence of nurses working in these centers. The lack of this difference in the present study indicates that the level of skills in nurses in the special and general section is probably due to equal facilities, the same education and in general, proper organization of nurses' continuing education processes in the hospital in Babol in the special and general sections of the hospitals studied. Since the nurses' clinical competence is examined from their point of view, the results may contain inappropriate responses from respondents. This can be a limitation to the study itself. Also, the assessment of the degree of competence in different items makes the importance of applying scientific and research knowledge in the clinical setting clearer. Results in some areas, such as the use of

research evidence, are consistent with similar research. Obviously, it is necessary to provide the environment and conditions in which the nurse can apply their knowledge. Therefore, it is necessary to look for ways to increase the level of clinical competency in nurses. Therefore, it is recommended that evaluating clinical competency of nurses as a program and performed annually (i.e. Quality Assurance) and the results of this study are aimed at granting professional qualifications and employment, encouraging and punishing programs, planning of continuing education courses based on educational needs of nurses and also ranking nurses based on clinical competency with the aim of distributing them more appropriately in the public and specialized departments.

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