Factors that affect the development of nurses’ competencies: a systematic review

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KEYWORDS
Competences; Nurses; Work experience; Education

Abstract
Objective: To investigate factors affecting the development of nursing competency based on a review of the literature.
Method: A systematic review was utilized. The articles were taken from the databases of ProQuest, ScienceDirect, SpringerLink, and Scopus. They were retrieved using the following keywords: nursing competence, nurse competencies and clinical competence. Twenty-one papers were selected.
Results: Competence development is a continuous process of improving knowledge, attitudes and skills, and is influenced by a myriad of factors. Six factors were identified that affected the development of nursing competence in our systematic review: (1) work experience, (2) type of nursing environment, (3) educational level achieved, (4) adherence to professionalism, (5) critical thinking, and (6) personal factors. Work experience and education were shown to significantly influence the development of competency of nurses.
Conclusions: Nurse managers need to support staffing competence through ongoing education, mentoring-preceptorship training, and case-reflection-discussion teaching programs.

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Introduction
Nursing services make a significant contribution to the quality of healthcare services. They are performed over 24-hour periods and are divided into shifts that are performed three times a day, seven days a week. They should be implemented in accordance with nursing ethical codes and career ladder of competence. Competent nurses impact on patient safety. Therefore, it is important that nurses’ competencies are developed.

Nursing competency remains a considerable issue in healthcare. The assumption is that nurses have to be competent but perceptions are that this is not always the case. Nevertheless, nurses are expected to deliver quality care and services. It has been evaluated in many studies. It is defined as the ability to perform tasks that result in an anticipated outcome. Nurses’ competencies encompass all aspects of nursing, and include knowledge, attitude, and skills. In order to acquire optimal competencies, nurses must have critical thinking skills.

The competence of nurses has a significant impact on quality of care and is closely associated with job performance, satisfaction, and absenteeism. The dynamic development of nurses’ competencies is influenced by a large extent by the environment.
It is critical that nurses develop competencies. Nevertheless, there are a myriad of factors, both internal and external, that might prevent nurses from acquiring competency. By contrast, some factors enhance the development of nurses’ competencies. Thus, the study objective was to investigate factors that affect the development of nursing competence based on a review of the literature.

**Method**

A systematic review was conducted. Both newly graduated and experienced clinical nurses at hospitals were included in the study. The articles were taken from the ProQuest, ScienceDirect, SpringerLink, and Scopus databases. They were retrieved using the following search keywords: *nursing competence, nurse competencies and clinical competence*.

Literature selection was determined by the following inclusion criteria: (1) articles that focused on the development of clinical nurses’ competencies in hospitals, (2) articles that were published between 2006 and 2016, (3) articles that were published in English, (4) articles that included nursing competency in the study title and abstract, (5) articles in which the study sample was nurses at hospitals, and (6) those in which the methodology that was used was cross-sectional, experimental, or qualitative. Exclusion criteria were articles that focused on specific or particular competencies, such as cultural, safety, or information technology competencies; and those in which the study sample was anyone other than nurses; for example, nursing students.

**Results**

Initially, 5860 articles in ScienceDirect, 4667 papers in ProQuest, 393 papers in SpringerLink, and 1800 papers in Scopus were found in the systematic review. Of the 12,720 articles selected during the search, 21 papers met the inclusion criteria and were subsequently included. Details of the article selection process are shown in Figure 1.

From the analysis of 21 papers, six factors were found to affect the development of nurses’ competencies. Nearly half of the sample (43%) indicated that personal factors influence the development of nursing competency (Table 1). The factors were classified according to the study design used. Details of the study design are provided in Table 2.

**Work experience**

Work experience is the learning process encountered by nurses in the healthcare industry. It was shown to significantly influence the acquisition of nurses’ competencies ($r = 0.272; p = 0.001$). In addition, it was observed to help newly graduated nurses to develop competencies. Nurses who had experience in making diagnoses were also seen to improve their knowledge and skills in this way, and to develop subsequent professional competencies.

**Type of nursing environment**

The type of nursing environment in which the nurses were employed (i.e., hospitals with good morale, readily available medication and equipment, and which were technologically advanced and efficiently run) was another factor that influenced nursing competency. A statistically significant relationship between nursing competency and an efficiently managed organization was observed ($ys = 0.4, p = 0.010$). Access to adequate technology and good morale were also seen to be positive factors.

**Educational level achieved**

It has been reported that the level of education attained by nurses is essential to the development of nursing competency. It was demonstrated in several studies in the review that education had a significant effect on enhancing nurses’ competencies ($p = 0.001$). It was also found following post-hoc comparison (Scheffé) that average competency for nurses with a Master’s degree was significantly higher than that for nurses with a Bachelor’s degree or diploma (mean, 46.50; standard deviation [SD] = 3.48). Twelve months after the first assessment, the average of competency increased in nurses with a Bachelor’s degree (SD = 0.87) and decreased in those who held a diploma (SD = 0.73).

**Adherence to professionalism**

Patients have demanded professional care in the healthcare services. Professionalism, in many ways, could improve the

**Table 1 Factors affecting the development of nursing competency (n = 21)**

<table>
<thead>
<tr>
<th>Factors</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>9</td>
<td>42.86</td>
</tr>
<tr>
<td>Work experience</td>
<td>8</td>
<td>38.10</td>
</tr>
<tr>
<td>Adherence to professionalism</td>
<td>7</td>
<td>33.33</td>
</tr>
<tr>
<td>Type of nursing environment</td>
<td>5</td>
<td>23.81</td>
</tr>
<tr>
<td>Educational level achieved</td>
<td>4</td>
<td>19.05</td>
</tr>
<tr>
<td>Critical thinking</td>
<td>3</td>
<td>14.28</td>
</tr>
</tbody>
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nurses’ competencies\textsuperscript{10,12,18,20}. Preceptorships, an integral to the professionalism development, provide guidance for newly graduate nurses to improve knowledge, skills, and attitudes\textsuperscript{12,21}. In addition, mentorships from seniors could give effects to the development of nurses competences\textsuperscript{22}.

Patients demand professional care from healthcare services. Adherence to professionalism was seen to improve nursing competency in several studies\textsuperscript{10,13,18,20}. Preceptorships, which are integral to the development of professionalism, guided newly graduated nurses as to how to improve their knowledge, skills, and attitudes\textsuperscript{12,21}. In addition, senior mentorship positively influenced the development of nursing competence\textsuperscript{22}.

### Critical thinking

Nurses are exposed to various complex issues in healthcare settings. Therefore, they require critical thinking skills to manage a broad range of issues. The ability to think critically was seen to be a significant factor that contributed to the development of nurses’ competencies (\(r = 0.32, p < 0.001\)) on one study\textsuperscript{23}. A positive and significant correlation between critical thinking ability and nursing competency was also demonstrated in other research (\(r = 0.32, p = < 0.001\)), suggesting that higher critical thinking ability equated to greater competencies\textsuperscript{9}. In addition, the ability to think critically was a major predictor of competency in each category and of overall competency.

### Personal factors

Personal factors, such as age, sex, confidence, knowledge, attitudes, and health were identified as having an impact on the competence of nurses. It was indicated in the systematic review that age, along with work experience, positively affected the development of nurses’ competencies\textsuperscript{8,24}. In addition, the knowledge and attitudes of nurses was also influential\textsuperscript{18}. Confidence\textsuperscript{25}, and physical and emotional health\textsuperscript{10}, were respectively proven to increase and enhance the competence of nurses in the workplace. Male nurses were demonstrated to have higher competency than their female counterparts\textsuperscript{26}.

### Discussion

It was shown in our systematic review that six factors affected the development of nursing competency. These were later reclassified as internal and external factors.
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References