A Comparison of Experiences of Training Emergency Care in Military Exercises and Competences among Conscript Nurses with Different Levels of Education

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The military emergency care education of nurses is primarily concerned with the treatment of soldiers with combat-related injuries. Even though great progress has been made in military medicine, there is still the pedagogical question of what emergency care education for military nurses should contain and how it should be taught. The aim of this study was to describe and compare experiences of training emergency care in military exercises among conscript nurses with different levels of education. A descriptive study was performed to describe and compare experiences of training emergency care in military exercises among conscript nurses with different levels of education in nursing. There were statistical differences between nurses with general nursing education and nurses with a general nursing education and supplementary education. A reasonable implication of the differences is that the curriculum must be designed differently depending on the educational background of the students. Hence, there is an interaction between background characteristics, e.g., the level of previous education and differences pertaining to clinical experience of the participants, and the impact of the exercise itself.

Introduction

This article deals with military nurses’ medical training with a focus on the combat environment. Even though great progress has been made in military medicine, there is still the pedagogical question of what emergency care education for military nurses should contain and how it should be taught. The emergency care education of nurses in the Armed Forces is primarily concerned with the treatment of soldiers with combat-related injuries. The nurses’ duties consist of treating life-threatening conditions and making it possible to transport the injured. According to Butler et al., military health care education should place strong emphasis on the treatment of trauma with penetrating injuries. It should furthermore focus on how people should take care of penetrating injuries, bleeding, and the treatment of shock as well as establishing a free airway.

Baker emphasizes the need for the education of medical personnel to be focused on the specific context and the practical relationship that occurs on the battlefield.

In military health care education, the difference between civilian and military wounds should be clear when addressing etiology and treatment. Wounds related to military activities can be divided into combat injuries and noncombat injuries. Depending on the tactical situation, mortality can vary between 20% and 80% and can sometimes be as high as 90%. Ninety percent of all combat injuries are penetrating injuries. The epidemiology of traumatic injuries, which are not related to combat activity, shows a strong similarity to civilian trauma. The working environment of the battlefield differs considerably from those civilian accident sites and hospitals where these traumatic experiences are taken care of.

In civilian health care, it is stated that the correct decision should be based on the nurse having the requisite experience and on collecting and evaluating information on the patient. The nurses’ ability to check a patient’s history and judge his/her physical status in an adequate manner and then make a decision on immediate and correct treatment is crucial for effective emergency care. A drawn-out triage process may also compromise the treatment results. The conditions needed to take the right triage decision comprise identifying the patient’s condition and the nurse appraising the patient. When making the decision, the need to collect more information about the patient must be weighed against the patient’s condition. Collecting additional information can facilitate arriving at a decision and can save time. The individual differences in making a decision can affect the contextual factors in the environment. With triage under uncertain conditions, experienced as well as inexperienced nurses act on what is the most likely condition to have caused the symptoms and what interventions should be carried out. By comparison, experienced nurses appraise their judgement of the patient’s condition and treatment. Nurses in general use their previous triage experience when caring for patients and during triage. Experienced nurses utilize their previous triage experience most. It is not possible, on the basis of previous education, to distinguish between baccalaureate nurses and nonbaccalaureate nurses in terms of clinical judgement. Patel and Groen described the process as ranging from the concrete, context-free, rule-driven decisions of the novice to the context-bound, pattern-matching behavior of the expert.

In previous educational research, comparisons between novices and experts have been used in many studies as a means of understanding differences in educational outcome. Comparisons have been made in health care and other areas. Dreyfus and Dreyfus described a five-stage decision-making process of reflected skill acquisition from novice, advanced beginner, competent person, and proficient person to expert. This model was first applied to nursing by Benner, and subsequently by many other researchers.
The novice is characterized by attempts to recognize objective facts, roles, and other noticeable features that are typical of their actions and are independent of the situation in which the actions take place.

The advanced beginners are those who can demonstrate marginally accepted performance, who have coped with enough real situations to notice that frequently occurring aspects of the situation can be seen as general aspects.

The competent person is one who has had 2 or 3 years of experience in an occupation and who has experience of similar situations but cannot discern what is important.

The proficient person is one who perceives situations as a whole instead of aspects. Up until now, the practitioner has followed rules and made conscious choices by reflecting over different possible solutions. At this stage, conceiving of a situation is a key issue. The proficient person understands a situation as a whole, understands the meaning in terms of future goals.

The expert knows what to do from practical experience. Actions do not stem from rules and recommendations. The expert has an intuitive perception of each situation and focuses on the acute, important parts of a problem without spending time on alternative solutions.

The education for civilian nurses (conscript) focuses on the ability to cope with military and civilian crises, i.e., on the students' ability to take care of trauma victims on the battlefield and to function in the specific contextual environment involving the specific trauma panorama, tactical conditions, and medical leadership. Previous studies have indicated that most educational programs build a context for the content of the training in terms of a selection of relevant military medicine, but there is a lack of studies discussing the explicit educational question concerning which methods to use in the training of nurses for the field of military medicine. The aim of present study was to investigate experiences of emergency care exercises in a military environment among conscript nurses with different levels of education.

Methods

Design and Setting

A comparative descriptive study design was applied to a random sample of conscript nurses in Sweden. The course is 4 weeks long with 3 weeks of theory and 1 week of practice. The theory section focuses in part on pathophysiology, the emergency care of trauma in a battlefield environment, in addition to military organization.

The practical period takes place in a similar battlefield environment. Furthermore, the task is to take care of wounded soldiers by performing lifesaving treatment and preparing them for evacuation. The curriculum was the same and only small changes were made in the content of the education program between 1995 and 1999. Staff members were changed over time. The questionnaire was mailed to the participants. A month later, 90% of all the participants had answered the questionnaire.

Subjects

A random sample of 130 nurses based on a random number table was selected from the total population (N = 385) of male conscript nurses (conscripts) who had completed their 4-week-long military education at the Armed Forces Medical Centre (AFMC) between 1995 and 1999. The inclusion criterion for the nurses was as follows: completed education from AFMC in 1995 to 1999. A total of 117 nurses from the random sample of 130 answered the questionnaire. The external dropout (n = 13) consisted of persons who could not be reached at the addresses given. To be able to describe and compare effects of military training exercises targeting conscript nurses with different educations in nursing, two stratified samples were constructed: one group consisted of subjects with an education in nursing at the undergraduate level (general nursing level) and one group with an undergraduate level education and 6 months to 1 year of full-time studies in a specialist area, i.e., intensive care, anaesthesiology, out-of-hospital, emergency care, and surgical care. The reason for selecting supplementary education as the difference between the groups was based on the fact that all subjects had at least 1 year of professional experience of nursing. According to the literature, professional experience influences the professional perspective. On the whole, the two groups were similar with respect to the demographic background variables studied. The participants (n = 117) were divided into those with a general education (less experienced) RN I (n = 47) and those having a supplementary education (experienced) RN II (n = 70).

Instrument

A 90-item questionnaire was designed using scenarios from trauma exercises. In addition to questions on demographic data, the questionnaire was divided into four major sections. The questionnaire assesses the students' opinions in the following three areas: exercise environments (6), teacher competence (6), and exercise content (69). The last area was divided into five subareas: leadership (8), stress (10), training technique (15), assessment (17), and treatment (17). These areas correspond to the most commonly mentioned areas in the literature and were developed in collaboration with senior educators. The responses were scored on a Likert scale from 1 to 4, where 1 is not at all, 2 is fairly low, 3 is fairly high, and 4 indicates a very high degree of agreement. A pilot study was performed to identify questionnaire flows. After the pilot study, some corrections were made to facilitate the understanding of the questionnaire.

Data Collection and Ethics

The subjects were informed in written form about the study, asked about their willingness to participate, and informed that participation was voluntary and that they could withdraw at any time without giving a reason. The questionnaire was mailed to the subjects along with an addressed and stamped return envelope. Detailed information on how to complete the questionnaire was included. Confidentiality procedures were carried out to satisfy ethical responsibilities. The study was carefully planned so as to avoid harming any of the participants, e.g., discrimination during the study or in the future. No compensation was offered to the participants.

Statistical Analysis

To calculate the response to the questionnaire, data were transcribed into the Statistical Package for the Social Sciences.
program (SPSS for Windows, version 13.0, Karlstad, Sweden). The participants were divided into two groups, general nursing (RN I) and supplementary education (RN II). Comparisons between the two groups were performed by testing for trends in contingency tables. The significance level is $p < 0.05$, $p < 0.01$, $p < 0.001$. The percentage shows the frequency of responses, alternative 3 (is fairly high), and 4 (indicates a very high degree of agreement) on the Likert scale.

**Results**

**Exercises Environment**

As presented in Table I, there are statistically significant differences between how RN I nurses and RN II nurses rated the importance of where the exercise took place, realistic injuries, and relevant symptoms. No significant differences between the two groups were found in the areas of: real time, physiological appraisal changes, and feedback on treatment.

**Teacher Role and Competence**

RN I nurses rated a statistically significant higher importance of the teacher having to be a registered nurse and the teacher having to be an officer compared to the RN II nurses group, as presented in Table II. No significant differences between the two groups were found in the following areas: the teacher is present, realistic injuries, and the importance of something other than health care in the exercise (RN I, 89%; RN II, 87%).

**Exercise Content**

The rated meaningfulness of having an exercise, which had a subject other than emergency care, is shown in Table III. Forty-two percent of the RN I nurses and 56% of the RN II nurses rated >3 on the Likert scale. No significant differences between the two groups were found. However, both group rated >3 on the Likert scale for the importance of exercise content in general (RN I, 79%; RN II, 81%).

**TABLE I**

<table>
<thead>
<tr>
<th>Items</th>
<th>Exercise Environment</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RN I (n = 47)</td>
<td>RN II (n = 70)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Where the exercise</td>
<td>71</td>
<td>50</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>took place</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real time</td>
<td>90$^a$</td>
<td>70$^b$</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Realistic injuries</td>
<td>87</td>
<td>65</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Relevant symptoms</td>
<td>91</td>
<td>100</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Physiological</td>
<td>100</td>
<td>100</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>appraisal changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback on treatment</td>
<td>100</td>
<td>100</td>
<td>ns</td>
<td></td>
</tr>
</tbody>
</table>

Percent of responses to strong indicators (>3 on the 4-point Likert scale). Test for trend in contingency tables; ns, no significance.

$^a$ Value of $n = 41$.

$^b$ Value of $n = 68$.

**TABLE II**

<table>
<thead>
<tr>
<th>Items</th>
<th>Teacher Role and Competence</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Teacher Role and Competence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RN I (n = 47)</td>
<td>RN II (n = 70)</td>
</tr>
<tr>
<td>Teacher is present</td>
<td>87</td>
<td>66</td>
</tr>
<tr>
<td>Follow-up by the teacher</td>
<td>89</td>
<td>87</td>
</tr>
<tr>
<td>The teacher must</td>
<td>59</td>
<td>61</td>
</tr>
<tr>
<td>be a nurse educator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The teacher must</td>
<td>70</td>
<td>84</td>
</tr>
<tr>
<td>be a physician</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The teacher must</td>
<td>87</td>
<td>50</td>
</tr>
<tr>
<td>be a registered nurse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The teacher must</td>
<td>47</td>
<td>28</td>
</tr>
<tr>
<td>be an officer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percent of responses to strong indicators (>3 on the 4-point Likert scale). Test for trend in contingency tables; ns, no significance.

**TABLE III**

<table>
<thead>
<tr>
<th>Items</th>
<th>Exercise Contents</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exercise Contents</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RN I (n = 74)</td>
<td>RN II (n = 70)</td>
</tr>
<tr>
<td>Content of exercise in general</td>
<td>79</td>
<td>81</td>
</tr>
<tr>
<td>Something other than health care in the exercise</td>
<td>42</td>
<td>56</td>
</tr>
</tbody>
</table>

Percent of responses to strong indicators (>3 on the 4-point Likert scale). Test for trend in contingency tables; ns, no significance.

**Leadership**

As presented in Table IV, there are statistically significant differences between how RN I and RN II nurses rated the importance of developing conflict solving. No significant differences between the two groups were found in the areas of developing team building/comradeship, leadership, the ability to handle moral/ethical problems, the ability to handle moral/ethical problems in the team, the ability to teach medical staff, the ability to teach other personnel, and developing the ability to teach the injured/sick. However, with regard to the importance of developing leadership, 89% of the RN I nurses and 91% of the RN II rated >3 on the Likert scale.

**Stress**

As presented in Table V, RN I nurses placed a statistically significant higher importance on knowledge control and coherence compared with the RN II nurse group. No significant differences between the two groups were found in the areas of uncertainty, psychological load, stress, physical load, meaningfulness, comradeship, context, and good moral values. As can be seen in Table V, the psychological load was rated >3 on the Likert scale by RN I (51%) and RN II (60%) and the physical load was rated by RN I (28%) and RN II (50%). Furthermore, the importance of context during exercises was rated by RN I (70%) and RN II (79%).
TABLE IV
THE WEIGHTED IMPORTANCE OF DEVELOPING ASPECTS OF LEADERSHIP DURING EXERCISES

<table>
<thead>
<tr>
<th>Items</th>
<th>Developing Aspects of Leadership</th>
<th>RN I (n = 47)</th>
<th>RN II (n = 70)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team building</td>
<td></td>
<td>66</td>
<td>73</td>
<td>ns</td>
</tr>
<tr>
<td>Leadership skills</td>
<td></td>
<td>89</td>
<td>91</td>
<td>ns</td>
</tr>
<tr>
<td>Conflict solving</td>
<td></td>
<td>83</td>
<td>58</td>
<td>0.001</td>
</tr>
<tr>
<td>Personal moral/ethics</td>
<td></td>
<td>60</td>
<td>74</td>
<td>ns</td>
</tr>
<tr>
<td>Handle moral/ethical problems</td>
<td></td>
<td>72</td>
<td>84</td>
<td>ns</td>
</tr>
<tr>
<td>Teaching medical staff</td>
<td></td>
<td>64</td>
<td>83</td>
<td>ns</td>
</tr>
<tr>
<td>Teaching other personnel</td>
<td></td>
<td>55</td>
<td>74</td>
<td>ns</td>
</tr>
<tr>
<td>Teaching the injured and sick</td>
<td></td>
<td>79</td>
<td>80</td>
<td>ns</td>
</tr>
</tbody>
</table>

Percent of responses to strong indicators (>3 on the 4-point Likert scale). Test for trend in contingency tables; ns, no significance.

TABLE V
THE WEIGHTED IMPORTANCE OF STRESS DURING EXERCISES

<table>
<thead>
<tr>
<th>Items</th>
<th>Stress</th>
<th>RN I (n = 47)</th>
<th>RN II (n = 70)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertain</td>
<td></td>
<td>55</td>
<td>57</td>
<td>ns</td>
</tr>
<tr>
<td>Psychological load</td>
<td></td>
<td>51</td>
<td>60</td>
<td>ns</td>
</tr>
<tr>
<td>Stress</td>
<td></td>
<td>57</td>
<td>54</td>
<td>ns</td>
</tr>
<tr>
<td>Physical load</td>
<td></td>
<td>28</td>
<td>59</td>
<td>ns</td>
</tr>
<tr>
<td>Knowledge control</td>
<td></td>
<td>96</td>
<td>76</td>
<td>0.01</td>
</tr>
<tr>
<td>Coherence</td>
<td></td>
<td>100</td>
<td>77</td>
<td>0.01</td>
</tr>
<tr>
<td>Meaningful</td>
<td></td>
<td>98</td>
<td>100</td>
<td>ns</td>
</tr>
<tr>
<td>Comradeship</td>
<td></td>
<td>79</td>
<td>80</td>
<td>ns</td>
</tr>
<tr>
<td>Nursing context</td>
<td></td>
<td>70</td>
<td>79</td>
<td>ns</td>
</tr>
<tr>
<td>Good moral values</td>
<td></td>
<td>70</td>
<td>70</td>
<td>ns</td>
</tr>
</tbody>
</table>

Percent of responses to strong indicators (>3 on the 4-point Likert scale). Test for trend in contingency tables; ns, no significance.

Training Technique

Table VI shows that RN I nurses placed a statistically significant higher importance on training in the examination of the patients’ vital functions, organs and full-body examinations, and preparing drugs for injection. There is a significant difference between how the groups value the importance of training management of the airway and ventilation where a higher proportion of RN I nurses assigned this aspect higher importance. The RN II nurses rated a statistically significant higher importance on training insertion of periphery venous catheters compared with the RN I nurses. Between the groups, there is a significant difference in the understanding of the value of training cut downs, the RN I nurses rated it as more important. The RN I nurses also placed a statistically significant higher importance on training splinting of extremities. No significant differences between the two groups were found in the area of reposition of extremities. As can been seen from Table VI, both RN I and RN II rated <11% on the Likert scale in the areas of pulse rate, blood pressure, injection, and preparing drugs.

Assessment

RN I nurses placed a statistically significant higher importance on training assessment in areas involving injuries and symptoms cause by trauma: fractures, traumatic shock, abdomen, thorax injuries, injuries to the central nervous system except skull injuries, as well as assessment of climate-related injuries, infectious disease, field sanitation, and pain (Table VII). No significant differences between the two groups were found in the areas involving injuries and symptoms caused by trauma: head, extremity, multiple, chemical, and burn injuries.

Treatment

As can been seen in Table VIII, RN I nurses placed a statistically significant higher importance on training treatment in areas involving injuries and symptoms caused by trauma: fractures, traumatic shock, abdomen, thorax injuries, injuries to the central nervous system, as well as treatment of climate-related injuries, infectious disease, and pain. However, both RN I and RN II rated >77% and >61%, respectively, on the Likert scale in the areas involving injuries and symptoms caused by trauma: chemical and spinal cord injuries and triage.

Discussion

There were a large number of differences between the two groups in the following areas:

— Exercise environment: where the exercise took place, realistic injuries, and relevant symptoms.

— Teacher’s role and competence: the teacher must be a registered nurse, the teacher must be an officer.

— Leadership: develop conflict solving.
### TABLE VII
THE WEIGHTED IMPORTANCE OF TRAINING ASSESSMENT

| Items              | RN I (n = 47) | RN II (n = 70) | p <  
|--------------------|---------------|----------------|------
|                    | %             | %              |      
| Consciousness      | 75            | 23             | 0.001
| Neurological injuries | 80            | 57             | 0.05
| Skull injuries     | 73            | 77             | ns   
| Fractures          | 84            | 49             | 0.05
| Extremity injuries | 86            | 60             | ns   
| Multiple injuries  | 95            | 80             | ns   
| Chemical injuries  | 89            | 77             | ns   
| Burn injuries      | 86            | 54             | ns   
| Traumatic shock    | 84            | 50             | 0.01
| Abdominal injuries | 95            | 56             | 0.01
| Thorax injuries    | 86            | 59             | 0.01
| Spinal injuries    | 87            | 73             | 0.001
| Hypothermia        | 89            | 57             | 0.01
| Infection disease  | 77            | 26             | 0.05
| Field sanitation   | 81            | 34             | 0.001
| Pain               | 59            | 24             | 0.001

Percent of responses to strong indicators (>3 on the 4-point Likert scale). Test for trend in contingency tables; ns, no significance.

a Value of n = 44.
b Value of n = 46.

### TABLE VIII
THE WEIGHTED IMPORTANCE OF TRAINING TREATMENT

| Items              | RN I (n = 47) | RN II (n = 70) | p <  
|--------------------|---------------|----------------|------
|                    | %             | %              |      
| Consciousness      | 77            | 47             | 0.001
| Pain               | 62            | 27             | 0.001
| Neurological injuries | 81            | 36             | 0.001
| Skull injuries     | 81            | 37             | 0.001
| Multiple injuries  | 96            | 73             | 0.05
| Infection disease  | 49            | 21             | 0.01
| Burn injuries      | 89            | 56             | 0.001
| Fractures          | 87            | 39             | 0.001
| Traumatic shock    | 91            | 41             | 0.001
| Thorax injuries    | 100           | 56             | 0.001
| Abdominal injuries | 100           | 56             | 0.001
| Extremity injuries | 81            | 60             | 0.001
| Frostbite          | 81            | 59             | 0.01
| Hypothermia        | 81            | 41             | 0.001
| Spinal injuries    | 77            | 77             | ns   
| Chemical injuries  | 81            | 79             | ns   
| Triage             | 77            | 61             | ns   

Percent of responses to strong indicators (>3 on the 4-point Likert scale). Test for trend in contingency tables; ns, no significance.

— Stress: knowledge control and coherence.
— Training technique: suction of airways, preparing drugs, auscultation/percussion of abdomen, cut downs, pulse rate, blood pressure, injection, full-body examination, auscultation/percussion of lungs, periphery venous catheter, dressing, fixation of extremities, thoracocentesis, ventilation.

— Assessment: neurological injuries, fractures, infection disease, traumatic shock, abdomen and thorax injuries, frostbite, hypothermia, consciousness, spinal cord, hygiene, pain.
— Treatment: multiple injuries, infectious diseases, frostbite, unconsciousness, pain, neurological, skull, burn, thorax, abdomen, extremity injuries, fractures, traumatic shock, hypothermia.

**Methodological Issues**

With regard to the applicability of the findings, the following should be considered: the students in this study were recruited among civilian nurses (conscripts) who had completed their 4-week long military education at AFMC between 1995 and 1999, and they had all undergone a similar training program. The curriculum was the same and only small changes were made with regard to the content of the study program from 1995 up to 1999. Staff members (teachers, instructors) were replaced over time. However, the entire staff was not replaced at the same time. The exercise took place on the same training ground and in a similar tactical situation. Consequently, these issues could influence the outcome of the participants’ answers, but in related areas, there was no major difference regarding the contents of the exercise. The nonresponse rate was very low, ~10%. No specific pattern among the nonrespondents could be identified. However, the two study groups were comparable in terms of important backgrounds variables such as mandatory nurse education and supplementary education. The study has an ex-post facto design and was carefully planned; the questionnaire was validated in a pilot study. In addition to demographic questions, the questionnaire assesses the student’s opinions in the following four areas: exercise environments, teacher/instructor competence, and exercise contents.

**Group Issues**

The aim of the study was to investigate experiences of emergency care exercises in a military environment among conscript nurses with different levels of education. Despite the fact that all of the nurses were registered nurses and the military programs were intended for this group of professionals, the present study finds several differences between the groups. The differences observed and similarities found can be related to differences in the sample but may be directly related to the nurses’ educational preparation. The sample consisted of randomly selected participants based on a random number table and was selected from the total population (n = 385) of nurses (conscripts) who had completed their military education at the AFMC between 1995 and 1999. No systematic bias could be observed. On the other hand, several of the differences found are in line with effects described within the novice-expert paradigm as expected educational effects and thus increase the likelihood that it is the study program that mainly explains the outcome.20–23

The discrepancy in the area of exercise environments and the location of trauma exercise indicates that the groups of nurses with a general education, RN I, are in more need of concrete examples to be able to learn military medicine compared with the group of nurses with supplementary education. The original expertise approach consists, according to Ericsson and Smith28,
of three steps. The first step involves capturing the essence of superior performance under standardized laboratory conditions by identifying representative tasks. The second step involves a detailed analysis of the superior performance. The third and final step involves efforts to account for the acquisition of the characteristics and cognitive structures and processes that have been found to mediate the superior performances of experts. This could be related to the findings in the present study where nurses who are more experienced (RN II) are in greater need of correct and relevant symptoms being given during exercises. Similar findings have been reported by Reischman and Yarandi, who describe how experienced nurses use a pattern of domain-dependent knowledge and sift through incoming cues to find specific cues.

In the area of teacher competence, the results show that RN II nurses feel that more highly educated teachers have positive effects on their performance at the accident scene. This could be related to the teachers’ clinical credibility. Acquiring clinical credibility requires the teacher to be in touch with clinical practice. Nursing educators and physicians have a responsibility to narrow the gap between theory, clinical practice, and research in the areas of military trauma and education.

Furthermore, the study reveals that the opinions of the two groups differ regarding the content of exercises, i.e., whether they should contain assessment and treatment. RN II nurses consider this less important than do RN I nurses. This could be explained by the fact that the more experienced nurses probably have more case-related experience and can narrow their decision making. The RN II nurses with longer clinical experience used intuition in their decision making. Intuition and confidence in judgement could be explained by the length of clinical experience. Nursing expertise increases critical thinking and decision making. Patel and Groen explain it as enhanced recall, which refers to the fact that experts have superior memory skills in recognizing patterns in their domains of expertise and forward reasoning; the expert problem solvers tend to work “forward” from the information given to the unknown.

In the area of exercise contents and technique skills, there is a discrepancy between the two groups, RN II nurses consider it less meaningful to practice technique skills compared with RN I nurses. This could be explained by the fact that many of these skills are common knowledge and practice for nurses with a general nursing education, especially in these emergency conditions, in terms of knowledge and practical experience. Clinical nurse specialists focus on the important tasks related to education, research, and leadership while acute care practitioners focus on important tasks related to comprehensive care, diagnosis, and performing diagnostic procedures. RN I nurses emphasize current clinical data and do not use related content knowledge. Nurses with more experience use a pattern of principles derived from a content knowledge base. RN I nurses placed a statistically significant higher importance on knowledge control and coherence compared with the nurses in the experienced group. Similar results have not been found in previous research.

The educational program met learning needs in the past, but would benefit from redesign for the future. Potential barriers within the nurses themselves or barriers created by military staff have been overcome by the experienced need for medical knowledge.

Conclusions

A reasonable implication of the differences is that the curriculum must be designed differently depending on the educational background of the students. The adjustments are important both to achieve efficiency in the education program and to make the courses respected. It should be noted that the two aspects are not independent. Furthermore, it can be stated that differences within several areas could be identified as the outcome of military training exercises among conscript nurses with different levels of education (RN I and RN II). Hence, there is an interaction between background characteristics, e.g., the level of previous education and differences pertaining to clinical experience of the participants, and the impact of the exercise itself. The results from this study stress the importance of the teacher’s role in the study program. Moreover, more experienced nurses tend to accept qualified expertise among teachers, whereas less experienced nurses prefer nurses and officers as teachers. With regard to the curriculum, it is obvious that an emphasis on learning tasks requiring a repertoire of knowledge and skills—ranging from, e.g., assessment and treatment of individual soldiers to understanding the battlefield environment in its entire complexity—would be for the benefit of the less-experienced nurses. In all likelihood, the more experienced nurses would also benefit from such a focus in the curriculum.

References


ERRATUM

Letters to the Editor published in Military Medicine, July and August 2007 issues erroneously referred to Dr. Martin Tepper as Dr. Tedder. The journal offers its sincere apology for any inconvenience or distress that this may have caused.