The effects of interprofessional education – Self-reported professional competence among prehospital emergency care nursing students on the point of graduation – A cross-sectional study

M. Castrèn [a,b], M. Mäkinen [a], J. Nilsson [c], V. Lindström [d,*]

[a] Department of Emergency Medicine and Services, Helsinki University Hospital and Helsinki University, Helsinki, Finland
[b] Karolinska Institutet, Department of Clinical Science and Education, Södersjukhuset, Stockholm, Sweden
[c] Sophiahemmet University, Stockholm, Sweden & The Department of Health Sciences, Faculty of Health, Science and Technology, Karlstad University, Karlstad, Sweden
[d] Karolinska Institutet, Department of Neurobiology, Care Sciences and Society, Section of Care Science & Academic EMS Stockholm, Sweden

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ABSTRACT

The aim of the study was to investigate whether interprofessional education (IPE) and interprofessional collaboration (IPC) during the educational program had an impact on prehospital emergency care nurses' (PECN) self-reported competence towards the end of the study program. A cross-sectional study using the Nurse Professional Competence (NPC) Scale was conducted. A comparison was made between PECN students from Finland who experienced IPE and IPC in the clinical setting, and PECN students from Sweden with no IPE and a low level of IPC. Forty-one students participated (Finnish n = 19, Swedish n = 22). The self-reported competence was higher among the Swedish students. A statistically significant difference was found in one competence area; legislation in nursing and safety planning (p < 0.01). The Finnish students scored significantly higher on items related to interprofessional teamwork. Both the Swedish and Finnish students' self-reported professional competence was relatively low according to the NPC Scale. Increasing IPC and IPE in combination with offering a higher academic degree may be an option when developing the ambulance service and the study program for PECNs.

1. Introduction

In the 1980s, the World Health Organisation raised the issue of interprofessional education (IPE) and said that it would be an advantage for undergraduate students to train together since they would work together in their professional lives [1]. Students who participate in IPE strengthen their professional identity, gain a deeper understanding of the importance of teamwork, and acquire increased capability in interdisciplinary communication [2–4]. IPE may also have a positive effect on patient experience of care and reduction of clinical errors. Nevertheless, there is little evidence to draw any generalizable conclusions about IPE effectiveness on patient outcome [3,5].

While IPE has been identified as an important approach for training in collaboration among students, interprofessional collaboration (IPC) among professional health care providers has been identified as an important policy approach for addressing patient safety issues [1]. It is known that IPC is more likely to occur if the working environment features knowledge about IPC, a positive nurse–physician relationship, and shared responsibility for the patient care [6–8]. Structural empowerment, authentic leadership and a professional nursing practice environment may also enhance IPC in the clinical setting [9]. How the IPE is affected by the level of IPC in the clinical setting has not been the subject of much research, and there is a need to explore if and how IPE in the curriculum and the level of IPC in the clinical setting affect students' professional competence. Therefore, the aim of the study was to investigate whether IPE and IPC during the educational program had an impact on prehospital emergency care nurses' (PECN) self-reported competence towards the end of the study program.

1.1. Context – The ambulance service

Ambulance services differ around the world; some countries have a paramedic-based service, others use emergency medical technicians (EMT) and physicians in their organisation [10,11]. There are also countries that staff their ambulances with registered nurses (RNs) [12,13]. Sweden and Finland have similarities in their ambulance services and both countries staff their ambulances with PECNs and EMTs. The main difference between Finland and Sweden is that Finland in addition has physician-manned units on the roads [12,14]. The physicians in Finland work in a team, caring for patients together with the PECNs and EMTs [14]. In the Swedish ambulance service the physicians do not work in the ambulances as clinicians on a daily basis; instead, the Swedish physicians act as medical consultants for the companies delivering care in the ambulance service [12]. The difference in how physicians are involved in the daily work in the ambulance service may indicate that Finland has a higher level of IPC in their ambulance service, since it is known that IPC is more likely to occur if there is a shared responsibility for patient care [7]. A consequence of these differences in the ambulance service is that the level of IPC and the possibilities for IPE differ for personnel working in these services.

1.2. Context – Education

There is no consensus regarding education and competence for RNs working in the ambulance service in Europe. To become a PECN in Sweden and Finland requires four years of training; in Sweden, the training starts with three years' of education at university to become an RN and then one additional year of specialist training in prehospital emergency care at the university. In Finland the training to become a PECN is integrated into a four-year training program for RNs at the University of Applied Science. In both countries, the study program is based on current national guidelines of education to become a PECN. The desired competence for PECNs after education can be described as knowledge in areas such as generic, professional and technical skills, leadership, communication and collaboration [15].

The curriculum content in both countries is similar and consists mainly of medical science, medical treatment, clinical judgment, nursing practice and contextual knowledge in prehospital care. A difference between the two countries is that the study program to become a PECN in Sweden leads to a professional and a master's degree, and in Finland to a professional and bachelor's degree. Another difference between the study programs in these two countries is the level of IPE in the curriculum; the Finnish PECN students have a formal interprofessional course (7.5 ECTS) with medical students in the curriculum. The interprofessional course is a one-week course distributed over one semester, equivalent to 7.5 credits in accordance with the European Credit Transfer and Accumulation System (ECTS), a standard for comparing the attainment and performance of students of higher education. In Finland, the physicians are also involved in both the theoretical and the practical training during the whole study program. In Sweden, physicians seldom participate in the training and there are no formal interprofessional courses in the study program to become a PECN. These differences in the study program indicate that the Finnish PECN students participate to a greater extent in IPE during their education.

Despite these differences and similarities between Finland and Sweden in the ambulance service and the IPE content in the respective study programs, the PECNs play a crucial role when providing care outside the hospital [16,17]. Therefore, it is important to explore whether the presence of IPE and IPC has an effect on the PECNs' self-reported competence at the point of graduation.

2. Material and method

A cross-sectional questionnaire study was conducted among PECN students at one university in Finland and one university in Sweden in 2014.

2.1. Ethical considerations

The head of the department at the universities gave us written permission to perform the study. The participants in the study received verbal and written information about the aim of the study. Participation in the study was completely voluntary, filling in the questionnaires was done anonymously and every participant signed an informed consent. All students that received the questionnaire participated in the study. According to Swedish and Finnish regulations, ethical committee approval was not needed. The ethical principles for medical and nursing research involving human subjects were followed [18,19].

2.2. Data collection and participants

A questionnaire was distributed to 41 students (19 Finland, 22 Sweden) at two universities during the students' last semester in the study program to become a PECN. The Finnish group consisted of 12 males and seven females aged between 23 and 28 years (median age 25). The Swedish students consisted of 11 males and 11 females aged between 25 and 35 years (median age 28). The questionnaire used for measuring the students' self-reported competence was the Nurse Professional Competence (NPC) Scale. The NPC Scale is a validated tool for measuring self-reported professional competence among both nurse students and RNs working clinically [20,21]. The original NPC Scale [21] was used since all participating students spoke and read Swedish.

2.3. Questionnaire

The NPC Scale is constructed on the basis of formal competence requirements determined by the Swedish Board of Health and Welfare [22] and consists of 88 items covering eight competence areas (CA) [23]. CA 1: *Nursing care* (15 *items*); CA 2: *Value-based nursing care* (8 *items*); CA 3: *Medical/technical care* (10 *items*); CA 4: *Teaching/learning and support* (11 *items*); CA 5: *Documentation and information technology* (4 *items*); CA 6: *Legislation in nursing and safety planning* (9 *items*); CA 7: *Leadership in and development of nursing care* (26 *items*); CA 8: *Education and supervision of staff/students* (5 *items*) as shown in Appendix 1. A Likert scale was used to measure opinions on perceived competence. Participants rated their agreement with a statement on a four-point Likert scale ranging from "very low degree" = 1 to "very high degree" = 4. Students' responses to each of the NPC Scale items were transformed to a score ranging from 1 to 100. A high score indicated better perceived competence. The response alternative "cannot take a stand-point" was also provided.

2.4. Statistics

Statistical analyses were conducted using SPSS, version 20 (SPSS Inc., Chicago, IL, USA). Differences between the groups were tested using a paired *t*-test (two-tailed). The response alternative "cannot take a stand-point" was not used as a value in the statistical calculations. The level of statistical significance (p) was set to 0.05.