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# Educational level and self-reported competence of nurses in Slovakia

## Poziom wykształcenia a samoocena kompetencji pielęgniarek na Słowacji

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STRESZCZENIE

**POZIOM WYKSZTAŁCENIA A SAMOOCENA KOMPETENCJI PIELĘGNIAREK NA SŁOWACJI**

**Cel pracy.** Celem pracy było zbadanie związku między samooceną kompetencji a poziomem wykształcenia pielęgniarek na Słowacji.
**Materiał i metodyka.** 73-punktowa Skala Kompetencji Pielęgniarki została przetłumaczona na język słowacki zgodnie z modelem tłumaczenia Brislina, a następnie elektroniczna wersja narzędzia została wysłana pocztą elektroniczną do pielęgniarek w Republice Słowackiej zarejestrowanych w Słowackiej Izbie Pielęgniarek i Położnych. Dane zostały przeanalizowane w programie IBM SPSS w wersji 22 przy użyciu statystyk opisowych, testu t Studenta, testu Kołmogorow-Smirnowa i testu U Manna-Whitneya.
**Wyniki.** Ankiety wypełniło 135 pielęgniarek pracujących w słowackim systemie opieki zdrowotnej. Pielęgniarki z wykształceniem magisterskim zgłaszały większą pewność siebie w podskalach „zapewnienia jakości" i wyższe kompetencje w podskali „zarządzania sytuacjami" niż pielęgniarki bez tytułu magistra. Badanie to nie wykazało innych istotnych związków między poziomem wykształcenia pielęgniarek a samooceną własnych kompetencji.
**Wnioski.** Wykształcenie na poziomie magisterskim wpływa na kompetencje pielęgniarskie w zakresie zarządzania sytuacjami klinicznymi i zapewniania jakości opieki pielęgniarskiej świadczonej na Słowacji.

Słowa kluczowe: **pielęgniarki, kompetencje, jakość opieki zdrowotnej, Słowacja, samoocena**

ABSTRACT

**EDUCATIONAL LEVEL AND SELF-REPORTED COMPETENCE OF NURSES IN SLOVAKIA**

**Aim.** The aim of this study was to explore the relationship between self-reported competences and the educational level of nurses in Slovakia.
**Materials and methods.** The 73-item NCS was translated into the Slovak language according to Brislin's translation model, then electronic version of the tool was emailed to eligible nurses in the Slovak Republic registered with the Slovak Chamber of Nurses and Midwives (SkSaPA). Data were analysed in IBM SPSS version 22 using descriptive statistics, Student t-test, Kolmogorov-Smirnov, and Mann-Whitney U test.
**Results.** A total of 135 nurses, who work in the Slovak healthcare system, returned the surveys. Nurses with master's degree reported greater confidence in "ensuring quality" and higher competence on the "managing situations" subscales than nurses without a master's degree. This study found no other significant relationships between nursing educational levels and self-reported competence.
**Conclusions.** Master's level education influences nursing competence in managing clinical situations and ensuring the quality of nursing care provided in Slovakia.

Key words: **nurses, competence, quality of healthcare, Slovakia, self-evaluation**

## INTRODUCTION

Competence is the knowledge and skills generally associated with and defined by a specific professional governing body or other authority [1]. In healthcare, nursing in particular, competence is more than just knowledge and skills. It is also a matter of being able to meet complex requirements by using and mobilizing psychosocial resources, including skills, attitudes, and behaviours in a specific context. As stated by the European Federation of Nurses [2], competence is the intersection of knowledge, skills, attitudes and values, as well as the mobilization of specific components that are put into particular contexts or real situations in order to arrive at the best action/behaviour. Nursing shortages across the European Union (EU) prompted efforts to identify knowledge, skills, education, training, and experience equivalents among each of the EU member countries. These efforts are aimed at minimizing career opportunity and/or hiring barriers without compromising quality of care. The European Qualifications Framework (EQF) facilitates translation of qualifications and competencies between EU member countries. Nurses and employers can quickly determine if individual qualifications met a specific country's competency requirements. In the EQF, competences are described with regards to a certain degree of responsibility and autonomy: a proven ability to apply knowledge, skills, and personal and social abilities in professional and personal development. Twenty years ago, Meretoja and Leino-Kilpi [3] asserted that we need to assess competencies because of the significant association between competence, the quality of patient care, and outcomes, as well as increasing nurses' opportunities for professional growth and career development. These views remain relevant today. The National Academy of Medicine [4] recommended 1) that nurses should achieve a higher level of education and training through an improved education system that supports smooth academic progress; and 2) nurses must be prepared to work and take on managerial roles not only in hospitals but also in communities, clinics, homes, and everywhere else they are needed. Addressing NAM recommendations, Wilkinson, Carryer and Budge [5] suggested that nurses prepare for research, education, politics, and leadership roles during their master's degree. In contrast, the aim of the bachelor's study in nursing is to prepare students for the provision of basic nursing care in the primary secondary and tertiary spheres of healthcare [6]. There are also similar recommendations from Liao, Sun, Yu, and Li [7]. Findings from their study offered clinically important evidence of reduced patient mortality and errors in life-saving failure when more nurses with higher levels of education were present in the workplace. Nurses with graduate level education provide expertise and skills to other colleagues, families and patients, and support/conduct clinical research, adding to the evidence-base for nursing. Evidence-based practice promotes high quality nursing care and, finally, cost reduction. According to Finn Fensom & Chesser-Smyth [8], the aim of the master's degree in nursing was to develop the practice of nurses through the process of transferring learning and integrating the reality of practice with knowledge and theory.

In 2018, categories for nurse qualifications and competencies in the Slovak Republic were revised. According to the new decree of 95/2018, nurse qualifications were divided into three categories: registered nurse, specialized nurse, and advanced practice nurse. The new decree describes the clinical competencies for each education level of nurses and has precise requirements for education, work experience, skills, knowledge, responsibilities, and autonomy [9]. See Table 1. for more details.

## AIM

The aim of this study was to explore the relationship between self-reported competencies and the educational level of nurses in Slovakia.

## METHODS

### Study Design

This was a cross-sectional descriptive correlational study.

### Sample

Nurses registered in the Slovak Chamber of Nurses and Midwives (SKSaPA) professional organization who were currently working as a nurse in the Slovak Republic according to the Slovak Act 578/2004, were eligible. The SKSaPA is a non-political independent organisation for nurses and midwives. As of December 2020, 40,083 nurses were registered in SKSaPA 12/09/2020. The main goals of SKSaPA are to promote and maintain the highest possible standard care in nursing and midwifery, develop practice, management, education, ethics and research in nursing and midwifery, to represent nurses and midwives in the Slovak government and parliament, in public and abroad [10]. Nurses were excluded from the survey if they were retired, working in a non-clinical area, or not working as a nurse.

### The research instrument

We used the standardized NCS questionnaire [11] translated into Slovak for this study. This self-report questionnaire consists of two scales, level of confidence and frequency of use, and 7 subscales (73 items): 1) helping role (7 items); 2) teaching-coaching (16 items); 3) diagnostic functions (7 items); 4) managing situations (8 items); 5) therapeutic interventions (10 items); 6) ensuring quality (6 items); and 7) work role (19 items). For level of confidence, respondents indicate their subjective opinions for each item using a visual analogue scale from 0 (very low) to 100 (very high). The 4-point response scale for frequency of use items was: 0 = "not applicable"; 1 = "used very seldom"; 2 = "used occasionally"; and 3 = "used very often in my work". We also collected sociodemographic data on respondents such as age, gender, number of years in clinical practice, education, place of practice, job classification. The copyright of this NCS is owned by the authors and Journal of Advanced Nursing Published by John Wiley & Sons Ltd.

## Slovak NCS translation process

We translated the questionnaire into Slovak using a modified cross-cultural adaptation and validation model from Brislin [12]. This model is used to translate tools through independent and blind translations. We asked two independent experts with a university degree in translation to translate the first version of the NCS scales. Based on their pilot translation of the NSC scale, we asked two new bilingual translators to translate the Slovak version of the NSC back into the original English language. We then re-translated the new version of the NCS scale into English, this was completed by two new bilingual experts. After discussions on the English version, we did not find any differences in the cultural-equivalent meaning of the individual items between the translated scales. In the last seventh phase, we carried out a pilot study for the validation of the NCS scale. The group of respondents consisted of 10 bilingual persons, whose task was to fill in the original version of the NCS and the Slovak version of the NCS. Bilingual respondents recommended that the Slovak version of the NCS did not need to be further modified.

Reliability testing was performed using Cronbach's alpha. Reliability testing results ranged from 0.87 to 0.95. Test results for each item are shown in Tab. 2.

## Data collection

Online questionnaires were distributed via e-mail through the SKSaPA online portal. Data collection was carried out from 01.12.2019 to 29.02.2020.

Tab. 1. Categories of Slovakian nurses

| Categories of nurses | Qualification | Years of practice |
|---|---|---|
| Registered nurse | Secondary school of nursing – general nurse, paediatric nurse<br>Higher professional education with nursing diploma<br>BSc. or MSc. degree in nursing | not specified |
| Specialized nurse | Secondary school of nursing – general nurse, paediatric nurse<br>Higher professional education in general nurse<br>BSc. or MSc. degree in nursing<br>Completed specialized studies for nurses | the number of years of experience depends on the type of specialization study |
| Advanced practice nurse | BSc. or MSc. degree in nursing<br>Completed specialized studies for nurse | at least five years' experience in clinical nursing |

Note. BSc. – Bachelor of science; MSc. – Master of Science

Tab. 2. Reliability of Slovak NCS by category

| NCS Category | Items | Cronbach α |
|---|---|---|
| Helping role | 7 | 0.87 |
| Teaching-coaching | 16 | 0.94 |
| Diagnostic functions | 7 | 0.88 |
| Managing situations | 8 | 0.88 |
| Therapeutic interventions | 10 | 0.94 |
| Ensuring quality | 6 | 0.92 |
| Work role | 19 | 0.95 |
| Total Slovak NCS score | 7 | 0.98 |

## Data analysis

We conducted the statistical analysis in SPSS version 22 (IBM Corp., Armonk, NY, USA). Due to the established hypotheses and the nature of the data, we used the Kolmogorov-Smirnov test of normality, Student's t-test, nonparametric Mann-Whitney U-test for each hypotheses. Statistical significance was set at $p < 0.05$.

## Ethical considerations

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki [13] and the European Union Regulation on Personal Data Protection [14]. We collected the data with the permission of the President of SKSaPA. Survey participation was voluntary, and all data were processed anonymously. We did not collect any personally identifiable data from respondents.

# RESULTS

A total of 135 nurses working in the Slovak healthcare system completed surveys, all of which were included in the final analysis. Briefly, mean age of respondents was 43.5 years (SD ± 9.51), 57% had master's degree, and the mean number of years in practice was 21.5 years (SD ± 10.78). Additional demographic data is in Tab. 3.

Tab. 3. Demographic characteristics

| Characteristics | n (%) (n=135) |
|---|---|
| Gender | |
| Female | 126 (93.3) |
| Male | 9 (6.7) |
| Age | |
| Less than 30 years | 15 (11.1) |
| 31-40 years | 25 (18.5) |
| 41-50 years | 69 (51.1) |
| More than 50 years | 26 (19.3) |
| Education level | |
| Secondary school of nursing | 16 (11.9) |
| Diploma nursing | 10 (7.4) |
| Bachelor's degree | 32 (23.7) |
| Master´s degree | 77 (57.0) |
| Years of clinical practice | |
| Less than 10 years | 24 (17.8) |
| 11-20 years | 30 (22.2) |
| 21-30 years | 48 (35.6) |
| More than 30 years | 33 (24.4) |
| Role | |
| Registered nurse | 40 (29.6) |
| Nurse specialist | 40 (29.6) |
| APN[1] | 55 (40.7) |
| Unit | |
| Primary health care | 38 (28.1) |
| Secondary health care | 80 (59.3) |
| Nursing home | 17 (12.6) |

Note. [1]Advanced Practice Nurse

Tab. 4. Statistical outcomes of Slovak NCS by group

| | Master's degree | | | Other than master's degree | | | |
|---|---|---|---|---|---|---|---|
| Slovak NCS Category | Min | Max | Mean Rank (SD) | Min | Max | Mean Rank (SD) | p-value |
| Helping role | 4 | 21 | 71.50 (4.28) | 1 | 21 | 63.35 (5.25) | 0.230[a] |
| Teaching-couching | 8 | 48 | 30.62 (11.10) | 1 | 48 | 29.55 (12.25) | 0.596[b] |
| Diagnostic functions | 0 | 21 | 72.36 (5.08) | 2 | 21 | 62.22 (5.68) | 0.135[a] |
| Managing situations | 4 | 24 | 72.06 (5.45) | 5 | 24 | 62.61 (5.49) | 0.163[a] |
| Therapeutic interventions | 0 | 30 | 73.30 (7.76) | 2 | 30 | 60.97 (8.63) | 0.069[a] |
| Ensuring quality | 0 | 18 | 11.56 (4.59) | 0 | 18 | 9.66 (5.79) | 0.042*[b] |
| Work role | 5 | 57 | 72.60 (12.33) | 0 | 57 | 61.90 (14.91) | 0.115[a] |
| Overall | 36 | 219 | 152.93 (44.07) | 27 | 219 | 138.96 (51.45) | |

Note. *level of statistical significance $p < 0.05$; [a]Mann Whitney U test; [b]Studentov t-test; SD – standard deviations

Tab. 5. Frequency of use NCS among Slovakian nurses

| Slovak NCS score | Master's degree (%) | Other than master's degree (%) |
|---|---|---|
| Frequency of use Helping role | | |
| Low competence | 18.37 | 11.82 |
| Reasonable competence | 25.60 | 14.53 |
| Good competence | 32.10 | 38.67 |
| Very good competence | 23.93 | 34.98 |
| Frequency of use Teaching-coaching | | |
| Low competence | 26.14 | 17.13 |
| Reasonable competence | 25.97 | 21.66 |
| Good competence | 23.05 | 22.84 |
| Very good competence | 24.86 | 38.36 |
| Frequency of use Diagnostic functions | | |
| Low competence | 21.52 | 12.32 |
| Reasonable competence | 23.19 | 20.44 |
| Good competence | 24.68 | 27.34 |
| Very good competence | 30.61 | 39.90 |
| Frequency of use Managing situations | | |
| Low competence | 15.91 | 9.91 |
| Reasonable competence | 13.64 | 16.38 |
| Good competence | 25.00 | 23.71 |
| Very good competence | 45.45 | 50.00 |
| Frequency of use Therapeutic interventions | | |
| Low competence | 21.56 | 15.69 |
| Reasonable competence | 21.56 | 13.62 |
| Good competence | 24.94 | 26.90 |
| Very good competence | 31.95 | 43.79 |
| Frequency of use Ensuring quality | | |
| Low competence | 23.59 | 17.82 |
| Reasonable competence | 21.43 | 20.11 |
| Good competence | 32.68 | 25.29 |
| Very good competence | 22.29 | 36.78 |
| Frequency of use Work role | | |
| Low competence | 17.84 | 13.79 |
| Reasonable competence | 14.83 | 12.34 |
| Good competence | 23.99 | 20.69 |
| Very good competence | 43.34 | 53.18 |

Confidence level will vary by educational degree. Nurses with master's degree scored higher than other nurses for all categories in NCS, however only "Ensuring quality" was statistically significant ($p = 0.042$). The results of the statistical analysis are presented in Tab. 4.

Nurses without master's degree reported a high level of competence in all subscales of NCS (Tab. 5). Nurses with master's degree indicated the lowest competence for teaching-coaching and the highest level of competence for managing situations.

## DISCUSSION

The aim of this study was to examine the relationships between nursing education and self-reported competencies using the NCS tool. This study findings align with Sibandze and Scafide [15], who also found that higher educational levels of nurses were associated with higher quality of nursing care. They concluded that nurses with a bachelor's degree or a higher nursing had a greater awareness and application of professional values than nurses with a lower level of academic or non-academic education. They also recommended educational institutions should support and encourage nursing students to develop their knowledge and skills through higher education. Similar findings were reported in the Finnish study by Silvennoinen, Salanterä, Meretoja and Junttila [16]. They found that a statistically positive relationship between nurses' educational level and level of competence ($p < 0.044$) and in the Work role category ($p < 0.039$). The findings of a positive correlation between ensuring quality and education may be explained by the fact that the master's degree curriculum in nursing in Slovakia is rather oriented towards the development of managerial knowledge and skills. Marchetti et al., [17] also point out that bachelor's degree in nursing is associated with the implementation of suitable interventions, skills, and clinical decisions in practice. In contrast, master's degree in nursing focuses on leadership, management, and the development of team competence. Interesting are the findings from Kajander-Unkuri et al., [18], who evaluated the competencies of nurses from 10 European countries within an international project. They found that Czech Republic nurses have a statistically high level of general nurses competencies in categories of NCS except for Managing situations and

Therapeutic interventions. In contrast, nurses studying in the neighbouring Czech Republic also complete specialized studies in a clinical field of nursing as part of their master's degree, and great emphasis in the curriculum is focused on the selected clinical field and not on management. Istomina et al. [19] had similar findings. They found that nurses with a university degree better assessed general competencies and some specific competencies. For example, nurses who graduated from university (BSc. or MSc) used the competencies of "Quality ensuring" category in practice more frequently than nurses who completed their studies before 2001 year ($p < 0.05$). This may be due to reforms that took place in 2001 with regards to nursing education. "All nursing schools became colleges after education reform, part of them were liquidated" (19, p. 233). Kirca, Ozgonul and Bademli [20] also found in the study that nurses with higher education had significantly higher score in the teaching and couching, managing situations, and therapeutic interventions subscales on the NCS than nurses who graduated from high school. However, based on their results, Jansson, Eklund, Larsson and Nilsson [21] found no statistically significant relationships in terms of higher professional competence between nurses with master's and bachelor's degree. This study findings regarding the non-significant relationship between educational level and implementation of research knowledge in clinical practice is a bit surprising. In another Slovak study, Halász, Majerníková, Hudáková and Obročníková [22] evaluated the perception of nurses' clinical practice, where they found that there was no statistically significant relationship between the level of master's education and the implementation of research into clinical practice. These results may indicate that nurses in clinical practice do not pay attention to nursing research in Slovakia.

### Limitations

We acknowledge there are several limitations in this study. Sample size is small considering the number of nurses registered with SKSaPA, limiting generalizability. Second, foreign-trained nurses registered in SKSaPA not fluent in Slovak may not have participated, further limiting generalizability. We also did not collect data on the area of concentration for graduate-level education. Respondents with a graduate degree in administration may have reported higher levels of competence in management situations than teaching or coaching or diagnostic function, impacting the overall NCS score. Thus, it may be that self-reported competence would vary by type of graduate education. Additionally, self-report questionnaires have inherent bias in that participant scores may not reflect actual competence.

### Disclaimer

The contents, views or opinions expressed in this publication or presentation are those of the authors and do not reflect official policy or position of the Department of Defense (DoD), Department of the Army, or the U.S. Government.

## CONCLUSIONS

The positive impact of higher nursing education on clinical practice is well known. Employing highly qualified nurses in the healthcare system is essential for the provision of quality nursing care in primary, secondary and tertiary health care. Based on findings of this study, nurses with master's degree are more confident and report higher levels of competence in ensuring quality of and managing clinical situations in practice. The findings of this study, nursing educators should devote personal attention to developing the use of research results in clinical practice with nurses that have master's education. It is necessary to increase the competences of master's prepared nurses in all NCS subscales, except for scale "ensuring quality" and managing situations. The aim is to provide safer and better nursing care than in the case of nurses with different education. Regular assessments of nursing competences could be used as an indicator of the quality of professional nurses in education.

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