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Understanding and applying the matrix on the four levels of competences and categories of the nursing care providers: a descriptive research

Razumevanje in umeščanje matrike štirih ravni kompetenc in kategorij izvajalcev v zagotavljanje zdravstvene nege: opisna raziskava

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ABSTRACT

Introduction: The complexity of patients' needs in today's health care calls for a revision and extension of nursing professions to ensure optimal health care outcomes. The aim of the research was to assess the understanding of the four categories of the nursing care continuum and, accordingly, four categories of nursing care providers.

Methods: A descriptive, quantitative research design was employed. Participants included 365 nursing educators and nurses working in the clinical setting. The structured questionnaire used was based on the four categories of the nursing care continuum.

Results: Secondary school teachers expressed significantly lower agreement with the terming of health care assistant ($p < 0.001$), and with the general ($p < 0.001$) and specific ($p < 0.001$) competencies of this profession, contrary to management workers ($p < 0.001$) and those trained in research ($p = 0.030$) and evidence-based care ($p = 0.004$) who expressed higher agreement with the competencies of health care assistants.

Discussion and conclusion: The research draws attention to the issue of understanding and applying the competencies of health care assistants. In order to implement the workforce matrix of competences, the European Directive on regulated professions should be supplemented with minimum requirements for specialist knowledge and advanced practice in nursing. In addition, the competencies and minimum educational requirements for health care assistants should be defined.

IZVLEČEK

Uvod: Trenutna kompleksnost pacientovih potreb zahteva revizijo in razširitev kompetenc poklicev v zdravstveni negi, ki bo zagotovila optimalne zdravstvene izide. Cilj raziskave je bil preveriti razumevanje štirih ravni kompetenc pri zagotavljanju zdravstvene nege in s tem povezanih štirih kategorij izvajalcev zdravstvene nege.

Metode: Uporabljena je bila opisna kvantitativna metoda. V raziskavi je sodelovalo 365 oseb s področja izobraževanja in kliničnega dela v zdravstveni negi. Uporabljen je bil strukturirani vprašalnik, ki je temeljil na štirih ravneh kompetenc in kategorij izvajalcev v zdravstveni negi.

Rezultati: Učitelji srednjih šol se manj strinjajo s poimenovanjem poklica zdravstveni asistent ($p < 0,001$) ter splošnimi ($p < 0,001$) in specifičnimi kompetencami za ta poklic ($p < 0,001$). Nasprotno menedžment ($p < 0,001$) in tisti, ki so se izobraževali iz raziskovanja ($p = 0,030$) in na dokazih podprtega dela ($p = 0,004$), kompetence za zdravstvenega asistenta značilno bolj podpirajo.

Diskusija in zaključek: Raziskava kaže na problem razumevanja in ustreznega umeščanja kompetenc zdravstvenega asistenta. Za implementacijo matrike kompetenc je potrebno Evropsko direktivo za regulirane poklice dopolniti z minimalnimi zahtevami za specialistična znanja in napredne oblike dela v zdravstveni negi ter zapisati kompetence in minimalne pogoje šolanja za zdravstvenega asistenta.

Introduction

At the European Union (EU) level, the minimum requirements for the training of registered nurses (RN) and their professional competences are governed by two European Parliament and Council Directives (Directive 2013/55/EU of the European Parliament of the Council, 2013; Directive 2005/36/EC on the recognition of professional qualifications: 22–142, 2005). The guidelines of various international associations further explain the requirements set out by these directives. They also advocate for an increase in the knowledge and education levels in nursing, and position it as a profession and a scientific discipline that contributes to meeting the health care needs of the society, thereby justifying the need for a variety of training for nurses to increase their knowledge and competences in patient work (World Health Organization [WHO], 2016, 2011; European Federation of Nurses Associations [EFN] 2015; International Council of Nurses [ICN], 2015). National education and competence development standards and guidelines contribute to improving the quality of education and development of professional competences in nursing care (Nursing & Midwifery Council [NMC], 2010; American Nurses Association [ANA], 2013; Skela-Savič, 2015, 2017).

It has become evident that the complexity of current patient needs results in the necessity for a revision and expansion of nursing competence standards in order to ensure optimal health care outcomes. Therefore, competences are no longer seen as static, but what is needed is the evaluation of competence development across all nursing care educational levels and the ability to perform them effectively in practice (Garside & Nhemachena, 2013; Dury, et al., 2014; McKenna, et al., 2014; Numminen, et al., 2014; Kroezen, et al., 2018). Nursing competences and their assessment are topical issues in current nursing education and practice, contributing to the safety and quality of nursing care (Numminen, et al., 2014).

With the ability to acquire and use modern scientific findings and evidence-based clinical practice (EBP) in everyday work, nursing care requires interdisciplinary skills that support the development of competences and transferrable skills (Blažun, et al., 2015). A comparison of nursing care education within the EU revealed differences in educational programs across countries (Palese, et al., 2014). The most significant differences and the lack of regulation were found in educational levels for the "Nursing Support Worker" and "Enrolled, Registered or Licensed Practical Nurse" categories, a fact confirmed by two European projects analyzing this situation. Differences were found in the ages of students enrolling in the educational program, duration of the program, relationship between practical and theoretical training, competences, etc. (Braeseke, et al., 2013; Schäfer, et al., 2016). In both

projects mentioned, the term used for this category was Health Care Assistant (HCA). It is becoming increasingly important to regulate the education of HCAs and define their role in health care provision—clear boundaries and competences must be defined for their patient work (Cassier-Woidasky, 2013). European Member States differ in terms of the knowledge, skills and competences which health care assistants are expected to achieve as learning outcomes, and the CC4HCA study shows that there is presumably a common, core set of learning outcomes which almost all HCAs across Europe possess (Kroezen, et al., 2018).

Currie and Carr-Hill (2013) recommended that standards be specified in terms of what different categories of nurses actually do, and their responsibilities and the role within that scope in practice. The European Federation of Nurses Associations (EFN, 2014) defined four categories of nursing care providers in its "EFN Matrix on the Four Categories of the Nursing Care Continuum" document (EFN Matrix): Health Care Assistant (HCA), General Care Nurse (GCN), Specialist Nurse (SN) and Advanced Nurse Practitioner (ANP), defining GCN as a professional educated in compliance with Art. 31, modernized Directive 2005/36/EC. In its Nursing Care Continuum and Competences document, the International Council of Nurses (2008) similarly used five nursing care provider categories: Support or Assistive Worker; Enrolled Nurse/Registered Nurse Assistant/Licensed Practical Nurse; Registered/ Licensed Nurse; Specialist Nurse; Advanced Practice Nurse.

Aims and objectives

Slovenia has 8.6 nurses per 1,000 people, of which only 2.5 are RNs or holders of a Nursing BSc, qualifications compliant with EU directives (2013/55/ EU, 2005/36/E); the rest are Health Care Technicians (HCT) or Practical Nurses (PN) with completed secondary education, placing Slovenia at the bottom of European countries. The aim of the research was to determine the level of understanding of nursing care continuum provider category descriptions and their competences according to the EFN Matrix; this will serve as an important starting point for planning nursing care education and employment changes and working requirements in nursing in Slovenia.

Methods

A descriptive quantitative research method was employed.

Description of the research instrument

A structured questionnaire with two sections was employed. The first, demographic section contained

22 questions. We gathered basic demographic data, information on employment position, participation in training over the past five years, database access, and other parameters. Participants replied with dichotomous responses (Yes/No). Respondents self-evaluated their knowledge of research, evidence-based work, the English language proficiency and assessed their satisfaction with professional work on a five-point scale (1 – Insufficient; 2 – Sufficient; 3 – Good; 4 – Very good; 5 – Excellent). Respondents also indicated their agreement with the Slovenian translations of English names for the four nursing care provider categories defined by the EFN Matrix.

The second questionnaire section inquired into the understanding of the EFN Matrix. Respondents rated 37 statements on a five-point scale (1 – Strongly disagree; 2 – Disagree; 3 – Neither agree nor disagree; 4 – Agree; 5 – Strongly agree). Participants responded to general descriptions of individual provider categories and specific competences. Provider categories, descriptions, and specific competences were translated from English into Slovenian by a professional translator. Reliability and validity evaluations were used for all sets of statements where data were shown to be useful for future analysis. The general descriptions of four nursing care provider categories through the four statements proved to have good reliability (Cronbach alpha = 0.807).

The instrument's ability to measure:
– the "specific HCA competences" phenomenon through eight statements turned out to be very reliable (Cronbach alpha = 0.901). Factor analysis explained 55.43 % of the variance (KMO = 0.878, Bartlett $p < 0.001$). The result is a single factor (FA1 – Specific HCA competences) in which all statements have a factor loading of less than 0.63;
– the "specific GCN competences" phenomenon through eight statements has turned out to be very reliable (Cronbach alpha = 0.958). Factor analysis explained 75.31 % of the variance (KMO = 0.932, Bartlett $p < 0.001$). The result is a single factor (FA2 – Specific GCN competences) in which all statements have a factor loading of less than 0.77;
– the "specific SN competences" phenomenon through eight statements turned out to be very reliable (Cronbach alpha = 0.966). Factor analysis explained 77.19 % of the variance (KMO = 0.954, Bartlett $p < 0.001$). The result is a single factor (FA3 – Specific SN competences) in which all statements have a factor loading of less than 0.76;
– the "specific ANP competences" phenomenon through eight statements turned out to be very reliable (Cronbach alpha = 0.933). Factor analysis explained 79.15 % of the variance (KMO = 0.885, Bartlett $p < 0.001$) with two factors. The first factor explained 68.18% of the variance (Cronbach alpha = 0.939) and the second 10.97 % of the variance (Cronbach alpha = 0.910). The first factor describes

collaborative, educational, and development tasks (collectively: FA4 – Collaboration and development), while the second covers responsibility for treatment, clinical decisions, and patient referrals (collectively: FA5 – Responsibility for treatment).

The results of factor analysis (Principal Axis Factoring) are shown in Tables 2 and 3.

Description of the research sample

Purposive sampling was used. In total, 785 people were invited; 569 (72.48 %) agreed to receive the questionnaire and 365 respondents returned the questionnaire, making the response rate 64.15 %. The sample included nursing care teachers and management from secondary health care schools ($n = 31$), nursing care lecturers and management from health care science colleges and faculties ($n = 30$), GCNs who are clinical mentors and educators in health care institutions ($n = 274$), and members of national nursing bodies in Slovenia (Nurses and Midwives Association of Slovenia, Ministry of Health) ($n = 30$). In terms of gender representation, 315 (86.3 %) respondents were female. On average, the respondents were 43.4 years old ($s = 9.4$). In terms of educational achievement, participants ranged from GCNs ($n = 310$) to masters in nursing ($n = 55$). The average length of employment in nursing was 15.17 years ($s = 10.66$).

Description of the research procedure and data analysis

The research took place between April and June 2016. Reliability analysis was calculated using Cronbach's alpha coefficient of internal consistency (< 0.70) (Pallant, 2010). Consistency analysis was validated using exploratory factor analysis (Principal Axis Factoring approach, the Oblimin with Kaiser Normalization rotation method), the Bartlett sphericity test was performed ($p < 0.05$), and the KMO measure used was (> 0.6) (Pallant, 2010). If a factor has four or more factor loadings exceeding 0.6, the result is reliable regardless of the sample size (Pallant, 2010). In addition, descriptive statistics, paired t-test, variance analysis (ANOVA with post-hoc tests), and correlation analysis were used to process data. Statistical significance was set at $p < 0.05$. The program SPSS ver. 22 was used to process data.

Results

In terms of training and educational activities, respondents indicated that over the previous five years (2010–2015), only half had received education and training in nursing research ($n = 182$), followed by evidence-based practice (EBP) in nursing ($n = 173$). A total of 157 (43 %) reported on having access to information databases (e.g. Cinahl, Web of Science,

ProQuest) at their workplace. When asked to rate their knowledge, skills, and job satisfaction on a 5 – point scale, the mean value obtained for research skills was 3.14 (s = 0.94), EBP knowledge 3.20 (s = 0.97), and English language proficiency 2.93 (s = 1.05). Job satisfaction was rated with a mean value of 3.99 (s = 0.77). A total of 62.7 % of respondents actively participated in working and professional nursing bodies outside their workplace; 43.3 % held a management position and 78.9 % acted as mentors to nursing students.

When it came to naming nursing care provider categories, the HCA translation proposal had the lowest level of agreement ($\bar{x}$ = 3.29, s = 1.34) or revealed ambivalence about naming appropriateness in all areas of respondent employment (F = 17.170, df = 294, p < 0.001). A secondary school nursing teacher had significantly lower agreement with the naming of HCA ($\bar{x}$ = 1.54, s = 0.86) than a faculty nursing teacher ($\bar{x}$ = 3.26, s = 1.10) and GCNs from clinical area ($\bar{x}$ = 3.38, s = 1.31), while high agreement ($\bar{x}$ < 4) was achieved with the other three proposals (GCN, SN and ANP) from all respondents.

The general description of HCA showed the lowest level of agreement (Table 1). Secondary school nursing teachers ($\bar{x}$ = 2.27, s = 1.40, F = 14.151, df = 298, p < 0.001) had significantly lower agreement rates with the general description of HCA than faculty nursing teachers ($\bar{x}$ = 4.00, s = 1.00), and GCNs ($\bar{x}$ = 3.70, s = 1.10), from the clinical area. Respondents in management positions had higher agreement rates with a general description of HCA ($\bar{x}$ = 3.88, s = 1.05, t = 2.787, p = 0.006) than other respondents. The same applies to mentors who had higher agreement rates ($\bar{x}$ = 3.73, s = 1.33, t = 2.213, p = 0.028) than other respondents. Respondents who had received training

in EBP over the past five years had higher agreement rates with the general description of HCA ($\bar{x}$ = 3.79, s = 1.18, t = 2.038, p = 0.042) than other respondents.

Specific competences for individual nursing care continuum provider categories

1. Health Care Assistant

The average value of responses on specific HCA competences was 4.1 (s = 0.69). For individual statements, the lowest levels of agreement and response dispersion were identified for the response describing the delegation of tasks by GCNs. The research found that respondents from secondary health care schools have lower agreement levels ($\bar{x}$ = 3.60, s = 0.57) with HCA competences (F = 5.494, df = 2.96, p = 0.001), while respondents working in management have higher agreement levels (t = 4.362, p < 0.001) than other respondents. Higher levels of agreement were reported by those who had received training in research in the last five years (t = 2.174, p = 0.030), who had received training in EBP (t = 2.899, p = 0.004) and who have database access (t = 2.194, p = 0.029). As the years of mentoring students (r = 0.241, p < 0.001) and job satisfaction levels (r = 0.171, p = 0.002) increase, so does the agreement level with HCA competences. Descriptive results with factorial analysis are shown in Table 2.

2. General Care Nurse

The average value for responses on specific competences was acquired using the "GCN competences" derived variable; its value was 4.55 (s = 0.58). Higher levels of agreement were recorded among

Table 1: *Results for respondents' agreement with the general descriptions of individual EFN Matrix nursing care continuum provider categories*
Tabela 1: *Rezultati odgovorov strinjanja s splošnimi opisi štirih kategorij izvajalcev v zagotavljanju zdravstvene nege Evropskega združenja medicinskih sester*

Descriptions of the cathegories / Opisi kategorij	$\bar{x}$	s
Health Care Assistant (HCA): An auxiliary that assists the nurse directly in nursing care in institutional or community settings under the standards and the direct or indirect supervision of the general care nurse.	3.67	1.18
General Care Nurse (GCN): A self-regulated health care professional who works autonomously and in collaboration with others and who has completed a nursing education program and is qualified and authorized in his/her country to practice as a general care nurse. Has successfully completed a program of education approved by the nursing board/council; has passed the required assessments established by the nursing board/council for entry into the profession; continues to meet the standards of the nursing board/council (ref. art 31, modernized Directive 2005/36/EC).	4.23	0.80
Specialist Nurse (SN): A nurse prepared at an advance level and authorized to practice as a specialist with specific expertise in a branch of the nursing field.	4.27	0.79
Advanced Nurse Practitioner (ANP): A general care nurse who has advanced knowledge base, complex decision-making skills and clinical competencies for expanded clinical practice on advanced level; the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice.	4.19	0.88

Legend / Legenda: $\bar{x}$ – average / povprečje; *s –standard deviation / standardni odklon*

Table 2: *Results for respondents' agreement with the specific competences for HCA and GCN*
Tabela 2: *Rezultati odgovorov strinjanja s specifičnimi kompetencami zdravstvenega asistenta in diplomirane medicinske sestre za splošno zdravstveno nego*

Health Care Assistant (HCA) / Zdravstveni asistent	$\bar{x}$	s	FA1
To work under the delegation and supervision of nurses to support nursing care and administration.	3.74	1.12	0.64
To support nurses with the preparation and delivery of diagnostic and treatment interventions.	4.12	0.80	0.72
To monitor basic patient vital and other signs and progress as indicated by the nurse and report to her/him as appropriate.	4.02	1.03	0.75
To support patients and citizens with activities of daily living, including hygiene, comfort, and mobilization and feeding needs.	4.28	0.77	0.75
To convey routine information to patients/citizens and relatives.	3.98	0.92	0.62
To communicate promptly and accurately with nurses and other health professionals in ensuring the delivery of quality and safe patient care.	4.30	0.78	0.81
To work together with nurses and other health professionals in supporting the delivery of basic patient care.	4.21	0.83	0.77
To identify what is normal concerning patient and citizen well-being through experience and instruction, and report that which is out with normal to nurses.	4.20	0.81	0.82
General Care Nurse (GCN) / Diplomirana medicinska sestra; Diplomirani zdravstvenik	$\bar{x}$	s	FA2
To independently diagnose the nursing care required using current theoretical and clinical knowledge and to plan, organize and implement nursing care when treating patients on the basis of the knowledge and skills acquired in order to improve professional practice.	4.48	0.64	0.85
To work together effectively with other actors in the health sector, including participation in the practical training of health personnel on the basis of the knowledge and skills acquired.	4.54	0.60	0.88
To empower individuals, families and groups towards healthy lifestyles and self-care on the basis of the knowledge and skills acquired.	4.52	0.61	0.93
To independently initiative life-preserving measures and to carry out measures in crises and disaster situations.	4.40	0.73	0.76
To independently give advice to, instruct and support persons needing care and their attachment figures.	4.40	0.70	0.77
To independently assure quality and evaluation of nursing care.	4.50	0.64	0.92
To comprehensively communicate professionally and to cooperate with members of other professions in the health sector.	4.53	0.63	0.91
To analyze the care quality to improve the own professional practice as a general care nurse.	4.50	0.65	0.88

Legend / Legenda: $\bar{x}$ – average / povprečje; s –standard deviation / standardni odklon; FA1 – factor analysis 1 / faktorska analiza 1; FA2 – factor analysis 2 / faktorska analiza 2

the respondents in management positions ($t = 3.088$, $p = 0.002$), members of working and professional bodies ($t = 2.704$, $p = 0.007$), student mentors ($t = 1.975$, $p = 0.049$), and those who had received training in research ($t = 2.175$, $p = 0.030$) or EBP ($t = 3.235$, $p = 0.001$) over the past five years. The results are shown in Table 2.

3. Specialist Nurse

The average value for responses on specific competences was acquired using the "SN competences" derived variable; its value was 4.48 ($s = 0.59$), revealing agreement with competences. Higher levels of agreement were recorded among the respondents in management positions ($t = 2.951$, $p = 0.003$), members of working and professional bodies ($t = 2.062$, $p = 0.040$), and those who had received training in research ($t = 3.248$, $p = 0.001$) or EBP ($t = 3.724$, $p < 0.001$) over the past five years. As the years of mentoring students ($r = 0.241$, $p < 0.001$) and job satisfaction levels ($r = 0.171$,

$p = 0.002$) increase, so does the level of agreement. The results are shown in Table 3.

4. Advanced Nurse Practitioner

The lowest level of agreement was recorded for the statement related to independent prescription of medication and independent treatment. The mean value for responses on specific competences was obtained using the derived variable "ANP competences" with a value of 4.24 ($s = 0.76$). The level of agreement increases with the level of education ($F = 3.061$, $p = 0.028$), among management workers ($t = 2.696$, $p = 0.007$), and persons who had received training in research ($t = 2.990$, $p = 0.003$) or EBP ($t = 3.216$, $p = 0.001$). Correlation analysis revealed a weak correlation between opinions and years of mentoring students ($r = 0.115$, $p = 0.046$).

A significant difference in mean values was found to exist between the two factors: the "Collaboration and development" statements have a mean value of 4.39

Table 3: *Results for respondents' agreement with the specific competences for SN and ANP*
Tabela 3: *Rezultati odgovorov strinjanja s specifičnimi kompetencami diplomirane medicinske sestre specialistke in magistrice zdravstvene nege*

Specialist Nurse (SN) / Diplomirana medicinska sestra, specialistka, Diplomirani zdravstvenik specialist	$\bar{x}$	s	FA3	
To analyze complex clinical problems with the use of relevant knowledge, diagnose, initiate and evaluate treatment for patients in a multi-professional arena, within the field of specialization following agreed protocols.	4.44	0.65	0.88	
To operate within an extended practice role in order to carry out advanced treatment, diagnostic and invasive interventions as related to the field of specialization.	4.44	0.67	0.82	
To identify health promotion and education needs for patients within the field of specialization and develop and implement strategies as appropriate.	4.49	0.64	0.93	
To keep abreast of technological developments and educate nurses, other health professionals and patient groups about advancements in the field of specialization.	4.54	0.61	0.90	
To further develop the communicative skills and be able to formulate and communicate complex clinical issues to patients, relatives and other health professionals,	4.50	0.64	0.87	
To identify health, health-related and nursing needs of patients and develop appropriate care and treatment plans in a multi-professional arena.	4.49	0.67	0.89	
To lead and coordinate the treatment of patients in the field of specialization to ensure continuity and fullness of care.	4.51	0.64	0.91	
To evaluate and undertake audit of the field of specialization to ensure the delivery of quality and safe nursing care.	4.49	0.67	0.90	
To think critically and contribute to the continuous development of the field of specialization and research-based practice through participation in professional development and research programs.	4.43	0.76	0.75	
Advanced Nurse Practitioner (ANP) / Magistrica zdravstvene nege; Magister zdravstvene nege.	$\bar{x}$	s	FA4	FA5
To autonomously examine, diagnose and prescribe evidence-based therapeutic interventions, including prescribing medication and actively monitoring the effectiveness of treatment for patients.	3.88	1.20	−0.07	1.00
To be accountable and responsible for clinical decision-making at advanced practice level through caseload management for individual patients, families and communities.	4.14	0.93	0.34	0.58
To identify risk prevention and health promotion priorities in order to develop and implement relevant strategies within a wider public health agenda.	4.39	0.75	0.83	0.06
To guide, counsel and educate other health professionals about latest practice innovations, act as a mentor and role model, and actively engage in knowledge transfer with patient communities.	4.49	0.71	1.01	−0.17
To communicate assertively and contribute equally to decision-making at clinical, management and policy levels, including the allocation of health funds.	4.36	0.82	0.75	0.16
To autonomously perform comprehensive health assessment and use professional judgement to refer patients requiring specialist attention to other health professionals and agencies as appropriate.	3.99	1.11	0.08	0.84
To initiate and lead on changes in health care service in response to patient need and service demand in order to ensure the continuous quality improvement of the service.	4.31	0.83	0.63	0.30
To identify research priorities, and to lead, conduct and disseminate research findings that shape and advance nursing practice, education and policy.	4.40	0.78	0.88	0.02

Legend / Legenda: $\bar{x}$ – average / povprečje; s –standard deviation / standardni odklon; FA3 – factor analysis 3 / faktorska analiza 3; FA4 – factor analysis 4 / faktorska analiza 4; FA5 – factor analysis 5 / faktorska analiza 5

(s = 0.71), while "Responsibility for treatment statements" scored with 4.01 (s = 1.01) (t = 9.817, $p <$ 0.001).

Discussion

We aimed to research the understanding of nomenclature, descriptions, and competences for various categories of nursing providers based on the EFN Matrix among different groups of professionals.

Low levels of agreement were identified with the category naming and general description of HCA among health care teachers in secondary schools. Respondents in management positions, those participating in professional bodies outside their workplace, those who received training in research

or EBP, who have database access, and those who are mentoring students and expressed job satisfaction reported greater agreement with the HCA naming and general and specific HCA competences. The importance of postgraduate education in research or EBP and database access for understanding development activities in nursing has also been stressed by other researchers (Stokke, et al., 2014; Yoder, et al., 2014; Wilson, et al., 2015; Skela-Savič, et al., 2016, 2017).

High levels of agreement have been recorded for descriptions and specific competences of other provider categories apart from GCN, which had significantly lower agreement levels among secondary school health care teachers, who dislike having GCNs delegate work to HCAs. This points to the specific situation in Slovenia, where the secondary education sector wants to establish HCT/PNs as fully independent from GCNs and disagrees with a reduced scope of their education and employment in health care institutions, in which they are supported by physician associations.

In addition to Associate Professional Nurses (Assistant Nurse, Enrolled Nurse, Practical Nurse), Eurostat lists another category: Practicing Caring Personnel (Nursing Aide - clinic or hospital, Patient Care Assistant, etc.) (Eurostat, n.d.). This raises the question of whether the description in Nursing Care Continuum and Competences (ICN, 2008) with five categories is not more appropriate. This division is particularly important for post-socialist countries, where the number of HCT/PNs is still high in relation to GCNs. The HCT/PNs educational program in Slovenia is a four-year professional secondary educational program, while a three-year secondary educational program is designed for Health Care Assistive Workers. In Slovenia, the HCA general description in the EFN Matrix is closer to Health Care Assistive Workers, while the specific competences are passed between HCT/PNs and Health Care Assistive Workers. Since the respondents were not offered a competence set that would describe HCT/PNs specifically, it can be concluded that this is the cause for their low levels of agreement. Meretoja and Koponen (2012) found that department heads often entrust more responsibility with the providers than they would have the courage to take on themselves, which was also observed in Slovenia where HCT/PNs are instructed by the management to perform competences of GCNs which they were not educated or trained for (Skela-Savič, 2017). Skela-Savič (2017) also explained that education for HCAs is not a pre-condition for education for GCNs, which is in accordance with the conditions to enter the education program for a regulated profession (Directive 2013/55/EU of the European Parliament and of the Council, 2013). Education of HCAs has been recognized as a European problem, which needs to be solved because there is a lack of GNCs and the importance of HCAs in modern health care systems is expected to grow (Kroezen, et al., 2018).

Our research shows how important post-graduate education, training, and job satisfaction are for the understanding and agreeing with nursing care provider categories. The importance of post-graduate education in research or EBP has been shown to contribute significantly to the development of nursing care in extant international and Slovenian research (Palese, et al., 2014, Stokke, et al., 2014; Yoder, et al., 2014; Wilson, et al., 2015; Sibandze & Scafide, 2017; Skela-Savič, et al., 2016, 2017), which is why it is important for nursing care management and national nursing associations to strive to increase the number of GCNs through specialization and master's and doctoral degrees and to end the practice of having Associate Professional Nurses take on the tasks of GCNs in clinical settings. More, Skela-Savič (2017) added that the implementation of research work in nursing may only eventuate through a national institute for research in nursing care whose founder is the Nurses and Midwives Association of Slovenia. Slovenian nursing care education is not integrated enough and there is insufficient collaboration between schools and clinical settings, resulting in the described discrepancies confirmed by qualitative research (Skela-Savič, 2017) which was conducted as a continuation of the results in this article.

We found that general category descriptions and specific competences for HCAs, GCNs, and SNs in the EFN Matrix show a unified measurement construct with good reliability, while ANP shows two content constructs with high reliability and consistency: "Collaboration and development" and "Responsibility for treatment". This result reflects the situation in Slovenia, where the ANP role has not been developed in practice and has no systematized position, which makes prescribing medications a taboo topic. Purposive sampling is a limitation of our research; however, we wanted to include respondents who actually work with professional competences. A higher response rate would also be desired. Another limitation was poor responsiveness from secondary and tertiary education institutions. Because the EFN Matrix was translated into Slovenian prior to validation, there is a possibility of slight differences in the local terminology compared to the original instruments. It is possible that the respondents were overly positive or negative, so a generalization cannot be made based on this. Finally, the accuracy of self-reporting survey techniques may be limited.

Conclusion

The results provide a significant insight into understanding the EFN Matrix at the level of a single EU country. The research provides significant

international insight into the understanding, reliability, and consistency of the EFN Matrix. Furthermore, the research reveals the importance of clearer definitions for nursing care provider categories in the first EFN Matrix category (HCA). It is particularly important to define the role and education at the Support or Assistive Worker and Registered Nurse Assistant levels. This would prevent unqualified nursing providers from performing RN/GCN competences. There is an increasing need to amend the EU Directive for regulated professions with the minimum requirements for specialized nurse training and ANP education. In addition, the competencies and minimum educational requirements for health care assistants have to be defined. This would support the mechanisms for developing nursing care as a profession and as a scientific discipline.

Conflict of Interest / Nasprotje interesov

The authors declare that no conflicts of interest exist. / Avtorji izjavljajo, da ni nasprotja interesov.

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Ethical approval / Etika raziskovanja

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Authors contributed equally to the development of the article. / Avtorji so enakovredno prispevali k nastanku članka.

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