

# Advanced practice nursing in the field of wound management

## Pokročilá prax v ošetrovatelstve v oblasti manažmentu rán

### Abstract

*Aim:* Chronic wounds represent a significant problem increasing morbidity, disability, and mortality, and severely interfere with patient's/family's quality of life. Nursing plays an important role. The inconsistency of legislative norms and conditions for nursing practice in Slovakia prevents nurses from practicing their competences in wound care. This has the effect of increasing their professional, salary and social value despite their erudition often at advanced level. The aim of this study was to identify, analyze and assess the performance of Advanced Practice Nurses (APN) working in the field of wound management. *Patients and methods:* Quantitative cross-sectional study used a self-designed questionnaire based on advanced practice domains in nursing. The research sample consisted of 50 APNs working in wound management. Data collection was carried out in January–February 2021 in three different types of health care facilities. Descriptive and inductive statistical methods (testing correlations and differences) were used in the study. *Results:* The overall self-perception related to the management of chronic wounds at an advanced level was rated moderately positive (60%). The best rated domain was "Training and education", the lowest rated was "Clinical leadership". The overall self-perception did not correlate with years of clinical practice and no significant differences were found among the facilities. Respondents were interested in advanced education in wound management (70%). *Conclusions:* The results show that there is a prerequisite for pursuing a specialist profession in the field of wound management at an advanced level in Slovakia. The results reveal areas of expertise as well as shortcomings. APN with adequate education and training could significantly support the efficiency and rationalization of health care in Slovakia.

### Súhrn

*Cieľ:* Chronické rany predstavujú problém zvyšujúci morbiditu, invaliditu a mortalitu, a vážne zasahujú do kvality života pacienta/rodiny. Ošetrovatelstvo zohráva dôležitú úlohu. Cieľom štúdie bolo identifikovať, analyzovať a zhodnotiť sebnávanie sestier s pokročilou praxou (SsPP) pracujúcich v oblasti manažmentu rán. *Súbor a metódy:* V kvantitatívnej prierezovej štúdií bol použitý dotazník vlastnej konštrukcie s doménami pokročilej praxe v ošetrovatelstve. Výskumnú vzorku tvorilo 50 SsPP. Zber údajov sa uskutočnil v januári až februári 2021 v troch rôznych typoch zdravotníckych zariadení. V štúdií boli použité deskriptívne indukčné štatistické metódy (testovanie korelácií a rozdielov). *Výsledky:* Celkové sebnávanie týkajúce sa manažmentu chronických rán na pokročilej úrovni bolo hodnotené mierne pozitívne (60 %). Najlepšie hodnotenou oblasťou bola odborná príprava a vzdelávanie, najnižšie bolo klinické vedenie. Celkové sebnávanie nekorelovalo s rokmi klinickej praxe a medzi zariadeniami sa nezistili žiadne významné rozdiely. Respondenti mali záujem o ďalšie vzdelávanie v oblasti manažmentu rán (70 %). *Závery:* Na základe výsledkov konštatujeme existenciu predpokladov pre implementáciu špecializovaného povolania v oblasti manažmentu rán na pokročilej úrovni. Výsledky odhaľujú erudíciu i nedostatky. SsPP s adekvátnym vzdelaním a odbornou prípravou by mohli významne podporiť efektivitu a racionalizáciu zdravotnej starostlivosti na Slovensku.

### Introduction

Chronic wounds represent a significant problem in the context of morbidity, incidence, complications, disability and mortality. The incidence of chronic wounds globally is nearly 4 million cases per year; 1–2% of the popula-

tion suffer from a chronic wound at least once in a lifetime. This is currently an upward trend associated with the rising curve of the ageing population and chronic diseases such as diabetes mellitus, cardiovascular diseases, other diseases leading to immobilization of pa-

tients, etc. [1]. The incidence and prevalence of chronic wounds in Slovakia is difficult to determine. Partial information from local experts or official information sources, despite the shortcomings in data collection in Slovakia, more or less confirm the global trend [2].

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### Key words

wound management – advanced practice nursing – self-perception – education and practice – rationalization of care

### Kľúčové slová

manažment rán – pokročilá prax v ošetrovatelstve – sebnávanie – vzdelávanie a prax – racionalizácia starostlivosti

A chronic wound can severely interfere with all areas of a patient's/his family' and surrounding's quality of life [3], where nursing plays a very important role [4]. In recent years, significant advances in wound care and multidisciplinary management of such patients were achieved [5]. Treatment and care therefore require a high level of knowledge, expertise, erudition and practical skills of professionals. Nurses play an irreplaceable and difficult role, which leads to the idea of the need to erudite such a nurse. There is a support from national, European and international organizations addressing these issues [6,7]. Nursing care in a given area has its scope in primary to quaternary, institutionalized or community care [8]. Nurses practicing wound care in settings across the continuum should be understood for their unique contribution to the wound care team [9]. Changes in population demographics, social affairs, technology, science, research, economics and politics are prerequisites for the increased need of nurses with advanced knowledge, skills and clinical expertise in wound care [8]. Furthermore, the hierarchy of wound care nursing with varying levels

of licensure, certification, and scope of practice can be clarified to delineate leadership and reimbursement issues to meet current health care challenges [9].

**Aim and objectives**

Care and services provided to the target group of patients with chronic wounds in Slovakia are significantly fragmented, under-sized, and uncoordinated, which often results in deterioration of the wound and the overall health status of the patient, transition to chronicity, or even serious complications with life-threatening consequences. Nurses are key players in a multidisciplinary team of specialists in the context of daily patient contact and wound monitoring/care. It is evident that an erudite nurse at an advanced level is needed within the Slovak healthcare system. All this led to the idea of exploring nurses' self-perception related to their own practice at an advanced level in the field of wound management in Slovakia. The aim of this research was to identify, analyze and assess the current level of advanced practice nurses' activities in the field of wound management from the self- perception perspec-

tive, and related factors. The objectives of the work were identified:

- a) the most positive and most negative evaluated domain of advanced practice in the context of wound management;
- b) relationships and differences of the overall results in the context of demographic factors and categories; and
- c) interest in education at advanced level in the context of chronic wound management.

**Materials and methods**

The research design was a quantitative cross-sectional study using a questionnaire survey. The self-constructed questionnaire consisted of eight domains defining key areas of advanced nursing practice using existing models [10]. The main part of the questionnaire contained 35 questions divided into eight domains of advanced nursing:

- 1) research and evidence-based practice;
- 2) clinical leadership;
- 3) professional autonomy;
- 4) interprofessional relations and mentoring;
- 5) nursing care quality management;
- 6) care management;
- 7) training and education; and
- 8) health promotion.

The Likert scale was used (from having an impact on the area of interest as "definitely not" to "definitely yes"). There were 10 demographic questions forming the second part of the questionnaire (age and years of practice, education, type of the hospital, specialization, other education activities related to wound management and interest in further education at advanced level). The research sample consisted of 50 APNs (meeting the conditions specified in Edict of MoH No. 95/2018 Coll., § 3 [11]). The approval of the Ethics Committee of each health care facility was obtained. After that, the respondents expressed their consent by completing a questionnaire, of which they were informed in the invitation letter attached to the questionnaire. Respondents were also informed about the anonymity, purpose and data protection. Data collection was carried out in January–February 2020 in three different types of health care facilities. We used the IBM SPSS 25.0 statistical program for statistical analysis and testing of correlations and differences.

**Results**

The characteristic feature of the sample of respondents (N = 50) was age on aver-

**Tab. 1. Sample characteristics.**

Category (N = 50)	Min/Max	M/SD ±	N/%
Age	27.00/60.00	41.86/9.2	–
Years of practice	5.00/41.00	19.72/10.33	–
Education			
MSc.	–	–	47/94
PhDr.*	–	–	3/6
Type of hospital			
state-owned	–	–	4/8
private	–	–	35/70
non-profit	–	–	11/22
Specialized in related field			
yes (intensive, adults, surgical, internal)	–	–	40/80
no	–	–	10/20
Other educational activity			
yes (seminar, conference)	–	–	18/36
no	–	–	32/64
Interest in education at advanced level			
yes	–	–	35/70
no	–	–	15/30

\*postgraduate university degree following a master's degree ("doctor in nursing")  
N – number; SD – standard deviation

age 41.86 (SD ± 9.20) years, clinical practice 19.72 (SD ± 10.33) years, 94% completed MSc. and 6% DN level of education, 80% completed a specialization in a related field (most in intensive care 30%, and in surgery 18%). The total of 70% of respondents worked in the private sector, 22% in a non-profit organization, and only 8% in the public sector. As many as 32% of respondents worked in the fields of surgery, 28% in intensive care, 18% in geriatrics and the long-term, and finally 14% in internal medicine. Overall, 36% of respondents had participated in an educational activity focusing on chronic wounds. Overall, 70% of respondents expressed interest in education in chronic wound management at an advanced level.

The overall self-perception of participants in the context of the advanced practice nursing in wound management was M = 62.94; SD ± 19.89 (60%). The highest rated domain was "Training and education" (70%), and conversely the lowest rated domain was "Clinical and professional leadership" (50%); at the same time this domain reached the neutral value (Tab. 1). The second lowest rated domain was the Interprofessional relations and mentoring (51%). The rest of the domains were rated moderately positive (descending Health promotion, Research and evidence-based practice, Nursing care quality management, Professional autonomy and Care management). The highest positively rated questions (above 75%; descending) considered the wound care as a specialty (88%), multidisciplinary (87%), hygiene and epidemiology (87%), wound assessment (77%), and implementation of standards (76%). The lowest negatively rated questions (above below 50%; descending) considered the information about assistance within health promotion (49%), nursing team management (48%), wound manager designation (48%), standards development (43%), mentoring students (33%), conducting research (27%), and indication and prescription (19%) (Tab. 2). We consider these findings and evaluate the overall results as moderately positive. However, the results show that there are many important areas in which participants perceive their practice negatively in the context of advanced practice.

In determining the relationships and differences, we used non-parametric testing with respect to the non-parametric distribution of data as the Kolmogorov-Smirnov normality test represented the value of

**Tab. 2. Statistical parameters of the questionnaire domains and the overall results.**

Domain	Min	Max	M	SD ±	%
Research and evidence-based practice	1.00	11.00	7.48	2.10	62
highest rated: implementation of standards	0.00	3.00	2.28	0.67	76
lowest rated: conducting research	0.00	3.00	0.80	0.78	27
Clinical and professional leadership	0.00	9.00	4.48	2.53	50
highest rated: vooperation management	0.00	3.00	1.52	0.95	51
lowest rated: nursing team management	0.00	3.00	1.46	1.03	48
Professional autonomy	1.00	24.00	14.40	5.41	60
highest rated: wound assessment	0.00	3.00	2.32	0.82	77
lowest rated: indication and prescription	0.00	3.00	0.56	0.91	19
Interprofessional relations and mentoring	1.00	12.00	6.06	2.84	51
highest rated: multidisciplinary	0.00	3.00	2.60	0.64	87
lowest rated: mentoring students	0.00	3.00	0.98	1.04	33
Nursing care quality management	0.00	15.00	9.20	3.89	61
highest rated: hygiene and epidemiology	0.00	3.00	2.62	0.70	87
lowest rated: standards development	0.00	3.00	1.30	1.07	43
Care management	1.00	15.00	8.66	3.95	58
highest rated: sufficient material supply	0.00	3.00	2.04	0.92	68
lowest rated: wound manager designation	0.00	3.00	1.44	1.34	48
Training and education	1.00	9.00	6.96	1.87	77
highest rated: wound care as a specialty	0.00	3.00	2.64	0.60	88
lowest rated: participation in education	0.00	3.00	1.98	0.89	66
Health promotion	0.00	9.00	5.70	2.37	63
highest rated: patient education	0.00	3.00	2.12	0.85	71
lowest rated: information about assistance	0.00	3.00	1.46	0.97	49
Overall results of self-perception	21.00	96.00	62.94	19.89	60

SD – standard deviation

P = 0.037. We tested the correlation of the total self-perception score in relation to the years of practice, the difference in the total score among the health care facilities, and between the interest/no interest in wound management education at advanced level. The overall self-perception did not correlate with the years of practice (P = 0.66), no significant differences in scores were found among the health care facilities (P = 0.37) as well as in interest/no interest in wound management education at an advanced level (P = 0.224) (Tab. 3).

### Discussion

Wound care and wound management are traditional performances included in daily nursing practice. Practical interventions consist of dressing changing, monitoring,

evaluating and preventing infections, managing nutrition and hydration, maintaining mobility, hygiene and comfort of the patient. Nurses have been involved in these activities for centuries; in the past more informally and without official designations or education [12]. The current demands for care and services in the health care sector have brought an expansion of levels, designations and specializations in nursing. Research studies have shown positive results of using the APN role in improving the availability and efficiency of care, as well as the humanization of nursing care in general [13–15] In this study, the self-perception of APNs in the specialty of wound management was moderately positive. Therefore, we conclude that there is a precondition for practicing the profession and specialty in

Tab. 3. Inductive statistics (correlations and differences).

Corr./Diff.	Test	Value	df	P*	Highest score
Self-perception vs. years of practice	Spearman $\rho$	0.064	–	0.658	–
Self-perception vs. type of hospital	Kruskal-Wallis H	1.977	2	0.372	public facility (M = 29.13)
Self-perception vs. interest in education at advanced level	Mann-Whitney U	206.000	–	0.224	interested (M = 27.11)

\*significance at  $P \leq 0.05$ 

this area at an advanced level. The application of advanced nursing practice in wound management in Slovakia has the potential to have a significantly positive impact on the rationalisation of care, competencies in terms of multidisciplinary and collaboration in order to apply a holistic approach towards the patient. It should be borne in mind that these are patients with chronic wounds that often require long-term and complex care and services, so it is often necessary to focus on his/her bio-psycho-social and spiritual needs, his/her quality of life, and to ensure quality, safe and continuous care. An APN in care of a patient with a chronic wound can play an important role, for example as a case manager organizing patient's assessment, diagnostics, treatment procedures and nursing care and services related to his condition. Of course, responsibility and erudition are closely related to these competencies, so an adequate communication, leadership, knowledge and practical basis is a must. Given the current existing situation, it is necessary to reflect on the content and scope of the required knowledge and skills of a nurse specializing in wound management and thus critically consider whether the content of certification training is sufficient or whether there is room to move training to the more advanced levels. The situation requires professional discussion at the transdisciplinary level.

Areas related to training and education, health promotion and evidence-based research and practice (EBP) were assessed positively. This was followed by quality management and autonomy. The management of patients with chronic wounds is largely considered by respondents to be a specific area of nursing. If this specific area were to be considered for advancement to a higher level, the nursing education at this level in Slovakia should be supplemented with the basic subject of Advanced Practice Nursing, and specialty subject of Advances in Wound Management, and/or existing

subjects in this area of interest should be amended.

Given the incidence and prevalence of chronic wounds, even in the context of chronic disease, the domain has the potential for application and benefit of positive change. EBP as one of the important domains of advanced practice plays a key role; in relation to chronic wounds, it is also significantly irreplaceable. The scores of the application of research and EBP by nurses in this research were positive. According to a study by Warren et al. focusing on the strengths and weaknesses of implementing EBP in health care systems, respondents' views of EBP were positive. More than a third worked in Magnet Recognition hospitals. Yet they reported being able to implement EBP at a very low level [16].

Weaker rated domains such as clinical and professional leadership, interprofessional relations and mentoring, as well as care management, resulting from the outcomes of the research, need to be strengthened in the context of progress. A study by Elliot et al. evaluates leadership and mentoring as an important part of the APN role. As a result of their exploration, 13 barriers were identified relating to multiple levels of organisational, management support, opportunities to participate in strategic decisions and the extent of the practical burden. However, there are many support structures and mechanisms in place to enable these nurses to practice their leadership role [17]. As we state above, the prerequisites for advancement in wound care in nursing given the outcomes exist. However, the gaps and shortcomings reveal room for further development and support in specific areas. Statistical testing did not reveal any significant correlations or differences. The evaluation of domains and overall scores of self-perceptions do not correlate with the years of clinical experience of the respondents, and no significant differences were found among the types of health care facilities. The results of the descriptive inves-

tigation showed that the respondents were interested in further education in the field to a significant extent.

The specialised focus of selected categories of healthcare workers-nurses and physicians, and their education in the management of chronic wounds is supported by the recently published standard operating procedure Wound Management. This multidisciplinary oriented standard in its essence and methodology of approach confirms the need for specialized education and orientation of professionals in clinical practice [18]. This approach is however not new. The history of specialization in wound management began in the 1950s in connection with a stoma initiated by surgeon Dr. Rupert Turnbull of Cleveland Clinic, USA, and his patient Norma Gill. In 1961, a specialty training program was established, followed by the formation of the Wound, Ostomy and Continence Nurses Society (WOCN) in 1968 in the U.S. to promote education, practice, and research in wound management by nurses [19]. The society issued over 7,600 certificates since 1978. In 2012, certification was initiated for advanced practice registered nurses, specifically nurse practitioner and clinical nurse specialist. The certificate(s) shall be renewed every 5 years [20]. The care of patients with chronic wounds has made significant progress in recent years also thanks to European Wound Management Association (EWMA) founded in 1991, bringing together national organizations, individuals and groups focusing on wound management. The main objective of the EWMA is to promote interdisciplinary and cost-effective wound care at the required quality level. It is a resource for education organizing conferences, contributing to international projects, actively promoting the implementation of existing knowledge and provides information on all aspects of wound management. EWMA seeks to bring the latest scientific discoveries and knowledge of best practice into practice, bringing together professionals, educating and dis-

seminating evidence-based practices into the practice of health and related sciences. EWMA has developed curricula at levels 4–7 for nurses in line with the European Qualifications Framework (EQF). The curriculum for physicians developed again by EWMA and adopted by the European Union of Medical Specialists (UEMS) in 2015 correlates with EWMA curricula. Countries are free to translate, implement and develop these curricula in accordance with their own internal regulations. Curriculum EQF level 5 (a post-registration qualification level) was translated into Slovak language [21] to simplify the possibility of its implementation in this country. In January 2020, Measure of the MoH No. 09796-2019-OL of 12<sup>th</sup> December 2019 was issued, amending Ordinance of the MoH No. 12422/2010-OL containing the minimum standard for certification training for nurses under the title Nursing care of chronic wounds. The certification training is intended for nurses "...aimed at preparing nurses in wound management, creating an optimal wound environment to promote the healing process, for increasing patient comfort and quality of life, and also for achieving cost-effectiveness of treatment in accordance with the best available evidence for the most commonly encountered types of non-healing wounds in the clinical practice of hospitals, home care, social service facilities and hospices." [22,23]. The content of the minimum standard is quite extensive. It is questionable what level it reaches comparing to the EQF classification in the context of European standards.

The certification program Nursing care for chronic wounds is not ongoing/has not been completed in Slovakia, so there are no certified nurses in wound care in Slovakia yet. However, this is expected to happen soon, as the program has been accredited in few educational institutions in Slovakia. In the near future, certified nurses are expected to make a significant contribution to the care of patients with wounds. The future will show the importance, contribution, benefit and impact of this cer-

tification on the patient as well as on the health care system in the area of this wound management.

### Conclusion

This quantitative cross-sectional study mapped the evaluation of advanced practice nursing in the management of patients with chronic wound by APNs. Self-perception of APNs working in chronic wound management area was moderately positive. We therefore conclude that there is a prerequisite for the practice of the profession in this area at an advanced level. For more detailed and rigorous results, it is advisable to conduct a more extensive study in terms of the number of respondents and to partially assess the level of individual domains, to look for gaps and differences between the predefined categories of respondents, and to draw conclusions with the aim of solving the problem. Based on this, the system of training and practice can be targeted in the future.

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### Statement of conflict of interests

The author state no conflict of interest.

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