

Nurse prescribing: Attitudes of medical doctors towards expanding professional competencies of nurses and midwives

Aleksander Zarzeka,¹ Mariusz Panczyk,² Jaroslawa Belowska,³ Nicole Mazur,⁴ Berta Paz Lourido,⁵ Joanna Gotlib⁶

Abstract

Objective: To identify the attitudes of doctors regarding prescriptive competences of nurses and midwives since these have been recently regulated in several countries.

Methods: The cross-sectional study was conducted at the Medical University of Warsaw from February 1 to 7, 2016 and comprised doctors working at the Prof. Jan Nielubowicz Regional Medical Chamber in Warsaw, Poland. A specially designed 36-item questionnaire that had 22 statements was used regarding the role of the reform in the healthcare system; the need of granting nurses and midwives particular competencies; and their preparation and readiness for these competencies. The respondents assessed the statements using a Likert scale (1=strongly disagree; 5=strongly agree). STATISTICA 13.2 was used for data analysis.

Results: Of the 436 doctors, 245(56%) were women. The subjects presented different opinions about the reforms, especially about possible improvement in patient care with nurses prescribing, or the process getting simplified for the care-seekers. Most doctors believed that nurses and midwives were not yet equipped enough to prescribe certain medicines or issue prescriptions (1,79/5). Only in case of nurses and midwives being able to 're-order' medicines earlier prescribed by a doctor, the attitudes of primary care physicians was significantly different than those involved with hospital care ($p=0.048$).

Conclusions: Doctors were sceptical about expanding professional competences of nurses and midwives regarding drug prescription.

Keywords: Drug prescription, Legislation, Drug legislation, Nursing, physician-nurse relations, Professional practice.

Introduction

In the last decades, many countries, regardless of income,

.....
^{1-3,6}Department of Teaching and Outcomes of Education, ⁴Department of Clinical Nursing, Medical University of Warsaw, Poland, ⁵Department of Nursing and Physiotherapy, University of Balearic Islands, Spain.

Correspondence: Aleksander Zarzeka. Email: aleksander.zarzeka@wum.edu.pl

expanded professional competencies of nurses and midwives (N&Ms) by granting them possibility to prescribe certain medicines or/and medical devices.¹⁻³ Till now, nurses can prescribe in, the Netherlands, the United Kingdom, Ireland, Sweden, Finland, the United States, Australia and New Zealand.⁴

There are several reasons for granting nurses the prescriptive authority. Studies suggest that it will improve quality and continuity of patient care.^{4,5} It shall also facilitate access to healthcare services. Moreover, nurse prescribing creates a potential to make better use of nurses' professional skills and increase their autonomy. Last but not the least, introducing such powers can lead to time savings for both medical doctors (MDs) and patients.^{4,5} Moreover, latest research suggests, that there are no differences in clinical outcomes of patients receiving prescriptions from nurses versus physicians.⁶

Shortage of healthcare professionals is one of the major reasons for insufficient availability of healthcare services provided to patients, particularly in some developing countries of the Organization of Economic Cooperation and Development (OECD), as Poland, Mexico or Turkey.⁷ In such countries, economic constraints force rationalisation of expenditure on healthcare which leads to the need to optimise employment.⁸ In this context, giving N&Ms the right to prescribe certain medicines, issue prescriptions, and refer patients for specific diagnostic tests seems to be an option to improve the availability of healthcare services.

In the case of Poland that kind of reform has been introduced recently⁹ and N&Ms having graduated from a Master's degree programme or holding the title of specialist may prescribe specific medicines independently. N&Ms with a Bachelor's degree (or a title of specialist) may issue prescriptions within a medical order. Both groups of N&Ms should complete appropriate post-graduate courses in order to execute the aforementioned competencies. In the future, competencies in prescribing medicines and writing out prescriptions will be acquired by N&Ms during the course of studies. Thus, participation in additional courses will be no longer necessary in Poland.¹⁰ It is also worth

mentioning that N&Ms will be allowed to refer patients for diagnostic tests independently. N&Ms with a Bachelor's degree or a title of specialist will be entitled to do so. Any additional course will not be needed in this case.¹⁰

A list of active substances contained in medicinal products prescribed by N&Ms as well as a list of diagnostic tests patients may be referred for by N&Ms were defined in the Ministry of Health regulation.¹¹ The list covers e.g. thiethylperazinum, metronidazolom, phenoxymethylpenicillinum, hydroxyzinum or tramadolom.¹²

Such significant healthcare reforms shall not be introduced as separate from other medical professions. This kind of change affects particularly MDs who used to have the exclusive competence to prescribe. Reform seems to redefine role of both professions (doctors and nurses) and the process of treatment. Similar process took place in other countries, e.g. in the Netherlands.¹³ Nowadays, neither nurses nor physicians have a doubt that nurse prescribing makes care more complex and increases the need for consultation between the physicians and the nurses.

Therefore, it is crucial to evaluate attitudes of doctors concerning the subject in question, taking into consideration two major groups: primary care doctors and hospital care doctors.

The current study was planned to identify the attitudes of MDs regarding prescriptive competencies of N&Ms.

Subjects and Methods

The cross-sectional study was conducted at the Medical University of Warsaw from February 1 to 7, 2016 and comprised doctors working at the Prof. Jan Nielubowicz Regional Medical Chamber in Warsaw, Poland. The Regional Chamber has 21,890 physicians who execute the profession over the entire territory of the Republic of Poland.

Authors prepared own questionnaire (NPA-36). A preliminary version of the questionnaire was prepared by an interdisciplinary team comprising a lawyer, a nurse, a midwife, a pharmacist, a data-analyst and a research methodology specialist. The team based its work on the analysis of legal regulations and review of the scientific literature regarding nurse prescribing. The search was limited to studies done in English language and published between 2005 and 2015, particularly involving the questionnaire previously developed by Kroezen.⁵ This version was validated in the pilot study to ensure its congruence, pertinence and clarity. Cronbach's alpha coefficient (0.937) was used to assess the reliability of the

questionnaire.¹⁴ Estimated relative standard error was 4.75, confidence level 0.95, and proportion 0.5. Finally, the questionnaire was assessed by experts and adjusted to another amendment of the law made in November 2015.

The questionnaire comprised 36 questions. Of them, 22 statements related to attitudes of the study group towards expanding the competencies of N&Ms. The study participants responded on a five-point Likert scale (1=strongly disagree; 5=strongly agree). This part of questionnaire consisted of 14 statements regarding the role of the reform in the healthcare system; 4 statements regarding the need of granting N&Ms particular competences; and 4 statements regarding preparation and readiness of N&Ms for new competencies.

The remaining 14 questions were related to socio-demographic data of the respondents, such as age, gender, place of residence, education, current workplace, additional professional training, professional experience and form of employment contract.

Parameters of descriptive statistics were set for each of the 22 statements comprising the range of attitudes. Mann-Whitney/Wilcoxon non-parametric test was used to estimate potential differences between hospital and primary care doctors. In order to verify the assumptions for the Mann-Whitney U test, we used dispersion Ansari-Bradley test. The assumption of the scale equality (dispersion) parameter in both samples is necessary for proper inference based on the results of the semi-parameter Mann-Whitney U test. If the above assumption was not met, Kolmogorov-Smirnov test was used instead of the Mann-Whitney U test.¹⁵

All calculations were done using STATISTICA 13.2 (Dell, Inc.) in compliance with the license of the Medical University of Warsaw, Poland. The default significance level was set at $\alpha < 0.05$.

Participants were informed about the voluntary nature of their participation as well as the purpose of the study. Approval of the Ethical Review Board (ERB) of Medical University of Warsaw could not be taken because for the study due to the fact that the ERB clearly states that, "The Ethical Review Board does not give any opinion on surveys, retrospective, and other non-invasive studies".¹⁶

Results

Of the 436 doctors, 245(56%) were women. Overall median age was 31 years (range: 21-76 years; inter quartile range [IQR]: 15 years). Besides, 274(62%) subjects lived in a town with over 500,000 inhabitants; 70(16%) lived in a town having up to 100,000 inhabitants; 54(12%) lived in a town having 100,000-500,000 inhabitants, and

Table: Attitudes of doctors towards expanding professional competencies of nurses and midwives regarding prescribing medicines and issuing prescriptions (Mean value in Likert scale: 1-fully disagree - 5-fully agree).

Statement	Mean value:	Mean value:	Mean value:	Statistical	
	whole study group	hospital doctors	Primary care doctors	Z	P-value
This would improve patient care	2.70	2.73	2.61	-0.643	0.520
This would save time for a patient	3.07	3.03	3.18	0.817	0.414
This would save time for a doctor	3.12	3.05	3.29	1.208	0.227
The new powers will be just another duty of nurses and midwives that has applied only to doctors so far	2.77	2.81	2.67	0.991	0.322
The new powers will raise the prestige of the nursing and midwifery professions	3.18	3.20	3.11	-0.399	0.690
The new powers will raise legal liability of nurses and midwives	3.79	3.73	3.95	1.783	0.075
The new powers will lead to loss of control of doctors over the treatment process	2.44	2.48	2.34	0.490	0.624
The new powers will increase control of nurses and midwives over the treatment process	2.85	2.90	2.71	-1.240	0.215
The new powers are needed in Poland	2.42	2.40	2.48	0.384	0.701
Nurses and midwives should have the possibility of prescribing certain medicines	2.66	2.67	2.64	-0.300	0.764
Nurses and midwives should have the possibility of issuing prescriptions	2.29	2.26	2.36	0.700	0.484
Nurses and midwives should be able to "re-order" medicines prescribed earlier by a doctor	2.93	2.83	3.21	1.980	0.048
Nurses and midwives should have the possibility of referring patients for diagnostic tests	2.26	2.34	2.03	-1.944	0.052
Polish nurses and midwives are prepared to prescribe certain medicines	1.98	2.03	1.86	-1.325	0.185
Polish nurses and midwives are prepared to issue prescriptions	1.79	1.77	1.84	0.948	0.343
Polish nurses and midwives are prepared to "re-order" medicines prescribed earlier by a doctor	2.39	2.34	2.55	1.223	0.221
Polish nurses and midwives are prepared to refer patients for diagnostic tests	1.93	1.97	1.83	-0.662	0.508
Total	56.89	56.85	57.00	0.049	0.961

14(3%) lived in a village. Also, 295(67%) subjects lived in Masovian province.

Of the total, 55(13%) MDs had a higher academic degree; 185(42%) were attending a specialised training at the time of the study; 172(39%) had completed some specialised training; 79(18%) had not completed any specialised training. Median seniority among the MDs was 5 years (range: 0-49 years; IQR: 14). Overall, 245(56%) worked in the public sector; 77(17%) were employed in the private sector; 114(26%) worked in both the sectors. Lastly, 259(59%) MDs were employed at some teaching, town or district hospital while 96(22%) worked as primary care doctors.

More than a half — 225(52%) MDs agreed that expanding competencies of N&Ms in terms of prescribing medicines and issuing prescriptions would raise the prestige of those professions, but, at the same time, it would increase the professional and legal liability of the ones exercising the new powers. Similarly, 226 (52%) of respondents believed that implementation of the new provisions would save time of patients and 218 (50%) time of doctors.

Participants were ambiguous about statements on the purpose of giving N&Ms extra powers. They also were not convinced whether the new reform would improve patient care and availability of health services and whether it would improve N&Ms' supervision over

treatment.

The MDs had a strongly negative opinion on the level of preparation on the part of N&Ms to exercise their new powers.

The results were compared by workplace. The study participants were divided into primary care and hospital care groups. Statistically significant differences between the two groups were observed only in response to the following statement: "Nurses and midwives should be able to 're-order' medicines prescribed earlier by a doctor" ($p < 0.05$). Primary care physicians were more willing to agree with the statement compared to hospital care doctors. No statistically significant differences between the groups were found with respect to the remaining 21 statements ($p > 0.05$ each).

Discussion

The issue of nurse prescribing has been very often discussed and analysed in global scientific literature devoted to medicine and nursing and comprises a number of publications concerning the assessment of authorising nurses to prescribe medicines and issue prescriptions.^{1,2,5,6,13,17-22} Kroezen et al. examined views on the consequences of nurse prescribing in a group of nurses and physicians.⁵ It showed that most of the doctors claimed that it will increase nurses' responsibility and the need for consultation between physicians and nurses. Horton^[1] indicates that nurses had been

manipulated under the guise of providing quicker and more efficient access to healthcare, to fill the gaps left by too few doctors. Increasing number of publications regarding nurse prescribing shows that the topic is an important issue for medical and nursing care.

The results of the current study demonstrate that MDs were sceptical about the new powers of N&Ms. However, a large number of physicians saw positive aspects of changes in law, such as time-saving effects for doctors and patients. Primary care physicians significantly more often supported the idea of N&Ms writing out prescriptions for medicines ordered earlier by a doctor, which may show that this power is particularly needed in primary care. On the other hand, greater approval for issuing prescriptions on medical order than on their own may result from a lack of confidence in N&Ms or concerns of patients' safety.

Doctors participating in the study had a negative opinion on N&M's preparation for exercising the new powers. This may be verified only by a reliable evaluation of the preparation and the practice itself. Graduation from a degree programme in nursing or midwifery, including a course in pharmacology as well as a specialisation course in this regard, may prove to be insufficient for patients' safety. On the other hand, attention should be given to the fact that the list of active substances that can be prescribed by N&Ms comprises only 30 items.²³

The study results have been compared with others in recent literature. The general tone of the present study suggests that unwillingness of doctors regarding the introduction or functioning of nursing prescriptions is not only specific to Poland. MDs' concerns are raised in many countries as e.g. United States, Switzerland or New Zealand.^{17,18}

A study¹⁷ showed that American and Swiss doctors were reluctant to the idea of granting prescriptive powers to nurses. Also, a significant component of Dutch physicians also claims that nurse prescribing endangered patient safety.⁵ On the other hand, Stodart¹⁸ pointed out the concerns of some specialists that nurses with the powers to issue prescriptions would become a cheaper healthcare option for employers. The need for an in-depth evaluation of knowledge of pharmacology among prescribing nurses was also emphasised. The same study quoted the position of The New Zealand Medical Association in which it strongly rejected the proposal of granting nurses with prescriptive powers, underlining that this was dangerous and would weaken cooperation of multidisciplinary teams in healthcare.¹⁸ Other studies have also raised concerns regarding patient safety in case

when a prescription is issued by a nurse.^{1,5,21}

However, numerous other studies demonstrated that the aforementioned concerns were either unfounded or at least partly irrelevant. A study²² showed that treatment ordered by a nurse was as safe and efficient as the one ordered by a physician, and doctors themselves were in favour of granting nurses with the powers to issue prescriptions. Despite certain concerns, Horton¹ stated that nurses were more careful with drug prescription compared to doctors, and used smaller doses. This was confirmed by a systematic review⁶ which demonstrated that nurses ordered non-pharmacological treatment more frequently and patients were equally satisfied with medical and nursing care as regards prescriptions.

The above results do not mean, however, that the issue of prescriptive powers of nurses does not require adjustment. Issuing prescriptions by nurses and midwives is connected with a significant increase of legal and professional liability. In the case of Poland, new competencies are not rewarded with higher salaries. This does not encourage N&Ms to exercise their new competencies or to continue their education in order to improve their preparation. On the other hand, we are dealing with the blurring of the boundary between doctors and nurses, which also may affect the transparency in cooperation between the two professions.^{1,21} This might be one of the reasons for scepticism of doctors and nurses²⁴ over nurse prescribing.

Polish scientific literature comprises only a small number of publications devoted to the issue of authorising nurses and midwives to write out prescriptions.²⁴⁻²⁶ None of them focussed on doctors' attitudes towards or opinions on these competencies. These papers concerned nurse's opinions regarding nurse prescribing^{24,25} and the scope of formal prescribing authorities of nurses and midwives.²⁶

In the context of Polish research, the results of the current study may be directly compared to the ones obtained by Zarzeka et al. among a representative group of 968 nurses during specialisation.²⁵ That study demonstrated that nurses were positive about the impact of introduction of nursing prescriptions on patient care. Over 60% of them were sure that this would reduce the waiting time for treatment and increase the availability of healthcare. Over two-thirds of the respondents said that the proposed measures would save patients' time. In this context, doctors' opinions must be considered as particularly sceptical.²⁵

The present study showed that doctors agreed in

principle with the statements that the introduction of nursing prescriptions would raise both the prestige of the nursing and midwifery professions and their liability. In the study conducted among nurses during specialisation²⁵ the respondents agreed with these statements to an even greater extent (53% and 81% of all, respectively). This comparison showed that despite many differences, opinions of doctors and nurses regarding the new powers were similar to a certain extent. However, nurses were still more enthusiastic about the reform even in these aspects.

The comparison of results between groups of doctors and nurses during specialisation demonstrated that there were clear concerns among both groups about the preparation of N&Ms to exercise the new powers. Those doubts were stronger also among doctors. Only 39% of nurses said that N&Ms were not prepared to issue prescriptions.

Only deep understanding of professional changes and real support from physicians will lead to success of the reform and will increase confidence of the prescribing nurses. It requires reasonable informational campaign which will show both advantages and challenges for doctors related to nurse prescribing.

Attitudes of doctors towards nurse prescribing need further studies, particularly with qualitative approaches, to provide contextualised data on the topic. This kind of studies would reveal better understanding about medical concerns and could facilitate future inter-professional education and clinical work. The present study has its limitations. The fact that most MDs come from the Masovian Province indicates that the results may not be fully representative of the population of Polish doctors. The average age of doctors was also lower than the average age in the country. However, the study results may be a worthwhile suggestion for further studies on nursing prescriptions.

Conclusions

Doctors were sceptical about nurses and midwives having the power to prescribe medicines and issue prescriptions independently. The study participants believed that nurses were not prepared to exercise the new competencies. Most of them also believed they should not be granted these possibilities. Ambulatory care doctors were significantly more often in favour of granting N&Ms such competencies. This may be indicative of either particular importance of nurse prescribing in primary care or an excessive number of administrative obligations of MDs that may be mitigated by the new competencies of N&Ms.

Disclaimer: The Abstract was presented at the Warsaw International Medical Congress and was published in the Abstract Book Abstract No.198, Page 168. Also, the paper is a part of an ongoing PhD thesis.

Conflict of Interest: None.

Source of Funding: None.

References

- Horton R. Nurse-prescribing in the UK: right but also wrong. *Lancet*. 2002; 359:1875-6.
- Kroezen M, Francke AL, Groenewegen PP, van Dijk L. Nurse prescribing of medicines in Western European and Anglo-Saxon countries: a survey on forces, conditions and jurisdictional control. *Int J Nurs Stud*. 2012; 49:1002-12.
- Latter S, Blenkinsopp A. Non-medical prescribing: current and future contribution of pharmacists and nurses. *Int J Pharm Pract*. 2011; 19:381-2.
- Kroezen M, van Dijk L, Groenewegen PP, Francke AL. Nurse prescribing of medicines in Western European and Anglo-Saxon countries: a systematic review of the literature. *BMC Health Serv Res*. 2011; 11:127.
- Kroezen M, van Dijk L, Groenewegen PP, de Rond M, de Veer AJ, Francke AL. Neutral to positive views on the consequences of nurse prescribing: Results of a national survey among registered nurses, nurse specialists and physicians. *Int J Nurs Stud*. 2014; 51:539-48.
- Gielen SC, Dekker J, Francke AL, Mistiaen P, Kroezen M. The effects of nurse prescribing: a systematic review. *Int J Nurs Stud*. 2014; 51:1048-61.
- Health at a Glance 2015: OECD Indicators [online] 2015 [cited 2018 June 12]. Available from URL: <http://apps.who.int/medicinedocs/documents/s22177en/s22177en.pdf>
- Domagala A. Planowanie kadr medycznych systemu zdrowotnego - potrzeba czy konieczność? [Medical staff planning - need or necessity? *Zdrowie Publiczne i Zarządzanie*. 2013; 11:148-58.
- Carney PA, Rdesinski R, Blank AE, Graham M, Wimmers P, Chen HC, et al. Utility of the AAMC's Graduation Questionnaire to study behavioral and social sciences domains in undergraduate medical education. *Acad Med*. 2010;85:169-76.
- Ustawa o zawodach pielęgniarzy i położnej z dnia 15 lipca 2011 r. [Law on nurse and midwife professions dated. [Online] [Cited 2018 November 30]. Available from URL: <http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20111741039>.
- Rozporządzenie Ministra zdrowia z dnia 18 stycznia 2018 r. w sprawie wykazu substancji czynnych zawartych w lekach, wykazu środków spożywczych specjalnego przeznaczenia żywieniowego, wykazy wyrobów medycznych i wykazu badań diagnostycznych.[The Regulation of the Minister of Health of 18th January 2018 on the list of active substances contained in medicines, foodstuffs for particular nutritional uses and medical devices ordained by nurses and midwives and a list of diagnostic tests for which they are allowed to issue nurse and midwife referrals; [Online] [Cited 2018 February 02]. Available from: URL: <http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU2018000299>.
- Midwives CoP-GEoNa. Specialistic course programme - prescribing medicines and issuing prescriptions by nurses and midwives. Warsaw, 2015.
- Kroezen M, De Veer A, Francke A, Groenewegen P, Van Dijk L. Changes in nurses' views and practices concerning nurse

- prescribing between 2006 and 2012: results from two national surveys. *J Adv Nurs*. 2014; 70:2550-61.
14. Panczyk M, Zarzeka A, Iwanow L, Belowska J, Gotlib J. Ocena rzetelnosci i trafności autorskiego kwestionariusza do badania wiedzy i postaw wobec rozszerzenia uprawnień zawodowych pielęgniarek i położnych w zakresie samodzielnego ordynowania niektórych leków, wystawiania recept oraz kierowania na wybrane badania diagnostyczne - doniesienie wstępne. [Assessment of reliability and validity of original questionnaire to evaluate knowledge of and attitudes towards extending professional powers of nurses and midwives with respect to independent prescription of certain drugs, writing out prescriptions, and referring for diagnostic tests - preliminary report.] *Pielęgniarstwo XXI wieku*. 2016;15:27-36.
 15. Sheskin DJ. Handbook of Parametric. In: Sheskin DJ, eds. *Nonparametric Statistical Procedures*. Florida: Chapman & Hall CRC, 2004.
 16. Statement of the Medical University of Warsaw Ethical Board. [Online] [Cited 2017 November 05]. Available from URL: <http://komisjabioetyczna.wum.edu.pl/content/szczeg%C3%B3l%C5%82owe-informacje-oraz-wzory-dokument%C3%B3w>.
 17. Bradley E, Nolan P. Impact of nurse prescribing: a qualitative study. *J Adv Nurs*. 2007; 59:120-8.
 18. Stodart K. Nurses keen on new prescribing roles. *Nurs N Z*. 2013; 19:19.
 19. Cashin A, Stasa H, Dunn SV, Pont L, Buckley T. Nurse practitioner prescribing practice in Australia: confidence in aspects of medication management. *Int J Nurs Pract*. 2014; 20:1-7.
 20. Rutkow L, Vernick JS, Wissow LS, Kaufmann CN, Hodge JG. Prescribing authority during emergencies. Challenges for mental health care providers. *J Leg Med*. 2011; 32:249-60.
 21. Norwell N. Legal issues with nurse prescribing. United Kingdom--UK; 2006.
 22. Funnell F, Minns K, Reeves K. Comparing nurses' and doctors' prescribing habits. *Nurs Times*. 2014; 110:12-4.
 23. Smits AK, King VJ, Rdesinski RE, Dodson LG, Saultz JW. Change in Oregon maternity care workforce after malpractice premium subsidy implementation. *Health Serv Res*. 2009; 44:1253-70.
 24. Zarzeka A, Panczyk M, Scieglinska B, Belowska J, Iwanow L, Gotlib J. Attitudes of ward nurses towards extending professional powers with respect to writing out prescriptions and independent referrals for diagnostic tests - a preliminary qualitative study. *Pol Nurs*. 2015; 58:409.
 25. Zarzeka A, Panczyk M, Trzebiatowska ZH, Belowska J, Samolinski L, Iwanow L, et al. Nurse Prescribing. Knowledge and attitudes of Polish nurses in the eve of extending their professional competences: cross-sectional study. *Acta Pol Pharm*. 2017;74:1031-8.
 26. Bartosiewicz A, Binkowska-Bury M, Januszewicz P. Możliwość przepisywania recept przez pielęgniarki i położne - stan prawny w Polsce i ogólny przegląd sytuacji na świecie. [The possibility of prescribing by nurses and midwives - state of law in Poland and the review of overall situation in the world. *Przeg Med Uni Rzesz*. 2015;13:290-305.
-