

## ORIGINAL PAPER

## COMPETENCIES OF NURSE MANAGERS IN SLOVENIA: A QUALITATIVE AND QUANTITATIVE STUDY

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## Abstract

**Aim:** The aim of the study is to identify nurse managers' competencies in Slovenia regarding various healthcare organisations, public and private healthcare sectors, and management levels, as well as the reasons for their differences. **Design:** The study was based on quantitative and qualitative research. **Methods:** An online survey was conducted among 297 nurse managers in Slovenia, and in-depth interviews with 12 nurse managers were carried out. **Results:** Managers who worked in nursing homes were significantly more likely to perceive themselves as being more competent in leadership ( $p = 0.001$ ) and financial management ( $p = 0.004$ ) than their colleagues. Managers who had higher management positions were significantly more likely to perceive themselves as being more competent in financial management than their colleagues in lower management positions ( $p = 0.002$ ). Nurse managers in the private sector perceived themselves to be significantly more competent in financial management ( $p = 0.0001$ ). The reasons for nurse managers' differences in proficiency levels are the degree of job security, and degree of autonomy and support in the healthcare team. **Conclusion:** The study identified inadequate nurse manager competencies, and reflected the needs of nurse managers for designing and providing health management programmes aimed at enhancing management capacity in the health sector in Slovenia.

**Keywords:** management, competencies, skills, nurse managers, Slovenia, in-depth interviews, healthcare organisations, management level.

## Introduction

The changes in health and social environment during the past two decades have led to the increased importance of management in the healthcare sector, regardless of whether it is predominantly tax, social insurance, or market based. In Slovenia, Central Europe and, more broadly, in the developed world, healthcare faces many new challenges, such as aging populations, a shift from acute illnesses to chronic conditions, shorter hospitalisations, increased complexity in clinical nursing practice, higher expectations of patients, aging of staff base, and testing and scrutiny of healthcare services (Zavrl Džananović, 2010; Costa Fernandes, 2013; Prosser, Olson, 2013; Rigolosi, 2013). Through a systematic review of 37 studies, Lega, Prenestini, Spurgeon. (2013) found that management skills are essential for improving the performance and sustainability of the healthcare system. Thus, a reform of knowledge management in healthcare is crucial, and serves to

strengthen nurse manager competencies (Cathcart, Greenspan, Quin, 2010; Pillay, 2010; Kantanen et al., 2015). However, do nurse managers have enough competencies to face the challenge of such demanding responsibilities?

A partial answer to this question can be found in studies that have examined the proficiency level of nurse managers in hospitals across the globe, and identified inadequate nurse manager competencies (Chase, 2010; McCallin, Frankson, 2010; Pillay, 2010; Kang et al., 2012; Townsend et al., 2012; Luo et al., 2016; Pihlainen et al., 2016). However, the question of the proficiency level in nurse manager competencies in healthcare organisations other than hospitals has not yet been answered.

In this study, nurse manager competencies represent knowledge, skills, abilities, and attitudes that are necessary for nurse managerial levels and tasks in formal healthcare (Pihlainen et al., 2016). The definition of competencies has become complex, and there is no consensus among scholars on nurse manager competencies (Pillay, 2010; Kantanen et al., 2015; Pihlainen, 2016). At present, process-based management with a lean approach, and competency-

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based management are emphasized (Hakim, 2014; Pihlainen, 2016). It rests on the assumption that unlike generic managers, nurse managers require additional competencies because of the uniqueness of the healthcare environment and conceptual philosophy, since nurses have a social responsibility for the health of individuals, families, and communities (Pillay, 2010). However, the competency-based approach to developing nurse manager competencies has not as yet been unconditionally accepted, nor have their formal programs had as significant an influence as informal approaches (McCallin, Frankson, 2010; Pihlainen et al., 2016).

Pihlainen et al. (2016) performed a systematic literature review to identify and describe the characteristics of nurse manager and leadership competencies in healthcare. They found that literature is surprisingly limited, and nurse manager competencies could be broken down into three main categories: healthcare context-related, operational, and general competencies. Nurse manager roles requiring healthcare context-related competencies comprise social, organisational, business, and financial dimensions. Within the category of operational competencies, they identified process, operation, clinical, and development competencies to be important for the managerial role. General management competencies comprise time management, interpersonal skills, strategic mindset, thinking and application skills, and human resource management in all analysed studies. Chase (1994; 2010) developed a Nurse Manager Competencies Model that classifies nurse manager competencies into five main categories: technical skills, human resource skills, conceptual skills, leadership skills, and financial management, the key competencies synthesised by Pihlainen et al (2016). By using a web-based survey to collect information from hospital nurse managers, Chase (2010), found that the highest self-reported nurse manager competencies ratings included human resource management and leadership, and the lowest self-reported nurse manager competencies included conceptual skills and knowledge.

The position of manager in the organisation is characterised by varying degrees of rigor and scope (Lin et al., 2007). In Slovenia, head nurses are the mainstay of top management. Their primary mission is to present and represent nursing care in the healthcare organisation, and formulate its policy, as well as to develop and coordinate research. In Slovenia, top management appoints middle management or the department head, and defines

her/his duties and responsibilities (i.e., to organise, direct, coordinate, and supervise the work of nursing care in healthcare organisations at the intermediate level). Lower executive management represents the one or two levels above the operators. Their work relates directly to the implementation of operational management tasks. They are responsible for the provision of services, and represent the relationship between the performers and the rest of management, coordinating the work of their colleagues, and endeavoring to solve problems promptly. In Slovenia, this front-line management is mainly carried out at the operational level, represented by a unit and team of nurses who lead other nurses, and are responsible for healthcare (Lorber, 2015). Do nurse managers at various management levels have different proficiency levels regarding nurse manager competencies?

There is also a different degree of autonomy between nurse managers in specific healthcare organisations (Costa Fernandes, 2013; Prosser, Olson, 2013). In Slovenia, nurse managers have the greatest autonomy in nursing homes (residential treatment centres, and geriatric care facilities), and community healthcare services within health organisations. They have the autonomy to organise their work in a team independently of doctors, and to perform management activities in the field of nursing, human resources, and even in financial management, such as purchasing healthcare materials, without the need for authorisation from doctors or other professionals (Zavrl Džananović, 2010; Lorber, 2015). Do nurse managers in different healthcare organisations have different proficiency levels in nurse manager competencies?

Pillay (2010) found that public sector nurse managers in South Africa assessed themselves as being relatively less competent than private sector managers. In Slovenia there are, according to the Slovenian National Institute for Public Health (2015), only about 2500 nurses employed in the private sector, and around 15000 nurses in the public sector (Slovenian National Institute for Public Health, 2015). Since public sector nurse managers predominate in Slovenia and other Central European countries (Waters et al., 2008), the question of whether Slovenian nurse managers in the private and the public sector have different proficiency levels in manager competencies is also relevant. The existing studies of nurse manager competencies have analysed only the proficiency level in competencies of nurse managers working in hospitals (Chase, 2010; McCallin, Frankson, 2010; Pillay, 2010; Kang et al., 2012; Townsend et al., 2012; Luo et al., 2016; Pihlainen et al., 2016), and neglected the question of why nurse managers differ from each other

regarding their management capacity. This study aims to close this research gap.

## Aim

The aim of the study is to identify nurse managers' competencies in Slovenia regarding various healthcare organisations, public and private healthcare sector, and management levels, as well as the reasons for their differences.

## Methods

### Design

The study was based on quantitative and qualitative research. In the first part of the study, a cross-organisational questionnaire survey was carried out to assess managers' degree of competency. In the second part of the study, in-depth semi-structured individual interviews were conducted to identify clear, accurate, and inclusive opinions based on personal experience of reasons for different nurse managers' self-assessed level of nurse manager competencies.

### Sample

In February 2016, we sent e-mail invitations to participate to 1,197 nurse managers working in key public and private medical nursing homes, healthcare centres, and hospitals as top, middle, and executive managers, covering all Slovenian regions. Since the response rate was less than 10%, we resent e-invitations in April 2016. Data collection was completed three weeks after the final mailing. The total response rate was approximately 24.8%.

Since we were attempting to establish reasons why the competencies among nurse managers differ regarding healthcare organisations, healthcare sector, and management levels, a purposeful sample was used to recruit a sample of 12 nurse managers with more than two years' experience as nurse managers in public and private organisations, hospitals (4), nursing homes (4), and healthcare centres (4) at different management levels. In May and June 2016, interviews were conducted lasting 45 to 120 minutes, and held in locations chosen by the interviewees, until conceptual saturation was achieved. Each interview included the following thematic questions: "Can you describe any skills usually used in your management positions?", and "In your opinion, why do you usually use some skills more than others?"

### Data collection

Our study of nurse manager competencies used an online survey to collect information from nurse managers via a self-administered competency

instrument. The research review in this area revealed that Chase's Nurse Manager Competency Instrument (2010) was most frequently used, and it appeared to be most useful for measuring nurse manager competencies. Reliability and validity assessments were determined with positive results (Chase, 2010; 2012). We then adjusted it to fit the Slovenian context. First, the instrument was translated by two independent translators, then a pre-test with 10 nurse managers was conducted to ensure the survey was worded appropriately for cultural and professional term considerations. The participants comprehensively excluded two items not appropriate for the Slovenian context of nurse manager competencies, i.e. "humour" and "political processes". To establish content validity of this survey instrument, a panel of nurse managers reviewed the draft of the proposed questions, and provided feedback to the authors to enhance the comprehensibility of the questionnaire. Minor revisions were made to the survey. Nurse managers were required to rate their proficiency in each of 51 manager competencies items (see Table 1) on a Likert-type scale from 1 (very poor) to 5 (excellent).

The demographic section of the instrument collected information regarding organisational and individual variables. Organisational variables included sector, management levels, and healthcare organisations. Individual variables consisted of gender, age, education, status, and years of employment. The reliability of the scales was estimated by assessing their internal consistency using Cronbach's Alpha, which demonstrated positive results ("technical skills",  $\alpha = 0.91$ ; "human resource skills",  $\alpha = 0.96$ ; "conceptual skills",  $\alpha = 0.98$ ; "leadership skills",  $\alpha = 0.92$ ; "financial management",  $\alpha = 0.91$ ).

### Data analysis

Data for individual variables were summarised using frequency distribution, and focused on the central tendency (mean), and dispersion (standard deviation). The relationships between variables were analysed using the  $\chi^2$ -test for categorical variables, and one-way analysis of variance (ANOVA) for quantitative variables.

The qualitative data were analysed using an established qualitative analysis technique (for more, see Patton, 2015). A thematic framework was developed from the emergent issues. These themes were used to code the text obtained from the interview transcripts, allowing for new themes that emerged. Afterwards, we proceeded to map and interpret the themes, searching for patterns, associations, concepts, and explanations, as well as extracting central ideas, and their key-expressions.

**Table 1** List of nurse manager competencies (Chase, 2010)

<b>Competencies</b>	
<b>Technical</b>	
1. Nursing Practice Standards	27. Ethical Principles
2. Nursing Care Delivery Systems	28. Teaching/ Learning Theories
3. Nursing Care Planning	29. Quality/Process Improvement
4. Clinical Skills	30. Legal Issues
5. Patient acuity system	<b>Leadership</b>
6. Infection Control Practices	31. Decision-Making
7. Research and Evidence-Based Practice	32. Power and Empowerment
8. New Technology	33. Delegation
9. Case Management	34. Change Process
10. Information Systems and Computers	35. Conflict Resolution
11. Regulatory Agency Standards	36. Problem-Solving
<b>Human Resources</b>	37. Stress Management
12. Effective Communication	38. Research Process
13. Effective Staffing Strategies	39. Motivational Strategies
14. Recruitment Strategies	40. Organisation Work Units and Workflow Process
15. Retention Strategies	41. Policies and Procedures
16. Effective Discipline	42. Staff Education
17. Effective Counselling Strategies	43. Time Management
18. Constructive Performance Evaluation	44. Interdisciplinary Care Coordination
19. Staff Development Strategies	<b>Financial Management</b>
20. Group process	45. Cost Containment and Cost Avoidance Practice
21. Interviewing Techniques	46. Productivity Measurements
22. Team-Building Strategies	47. Operational & Capital Budget Forecasting and Generation
23. Optimism	48. Cost Benefit Analysis
<b>Conceptual</b>	49. Unit Budget Control Measures
24. Nursing Theories	50. Financial Resource Procurement
25. Administrative/Organisational	51. Financial Resource Monitoring
26. Strategic Planning/Goal Development	

## Results

### Results of survey

Questionnaires were completed by 297 nurse managers, eight from nursing homes, 112 from healthcare centres, and 177 from hospitals. Table 2 shows that most of the respondents at nursing homes were female (100%), older than 50 years of age (100%), had a Master's degree (66.67%), worked in the public sector (87.5%), and had been working for more than 30 years (62.5%).

Most of the respondents who worked in healthcare centres, were also female (95.54%), over 50 years of age (56.25%), had a Bachelor's degree (66.07%), worked in the public sector (76.86%), and had been working for 20–30 years (33.04%).

Most of the respondents, who worked in hospitals, were female (90.4%), between 35 to 50 years of age (44.64%), had a Bachelor's degree (86.44%), worked in the public sector (88.14%), and had been working equally for 10–20 and 20–30 years (24.29%).

Bivariate analysis of categorical variables and sector showed that there is only one significant relationship between healthcare organisations and age. Nurse managers who worked in nursing homes were

significantly more likely to be older than their colleagues in other healthcare organisations ( $\chi^2 = 14.22$ ;  $p = 0.001$ ). There is no significant association between the healthcare organisations and gender, education, years of work, and sector.

Table 3 shows the self-assessment of level of proficiency. As a group, nurse managers from specific healthcare organisations felt most competent in terms of healthcare technical skills, followed by conceptual skills in human resource management, and leadership. The interviewed nurse managers felt less competent in terms of financial management.

Table 4 shows the results of bivariate analysis between categorical variables and self-assessed proficiency levels. It demonstrates that there were no significant differences in proficiency among the different groups in terms of gender, education, and length of employment. It shows significant differences in proficiency among nurse managers regarding age, healthcare organisations, management levels, and sectors. Older managers felt significantly more competent in financial management than younger nurse managers. Managers who worked in nursing homes were significantly more likely to perceive themselves to be more competent

**Table 2** Respondents' characteristics

	Medical nursing home (n = 8)		Healthcare centre (n = 112)		Hospital (n = 177)		All (n = 297)	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
<b>Gender</b>								
women	8	100	107	95.54	160	90.4	275	92.59
male	0	0	5	4.46	17	9.6	22	7.41
total	8	100	112	100	117	100	297	100
<b>Age</b>								
< 35	0	0	24	21.43	35	19.77	59	19.87
35–50	2	25	25	22.32	79	44.64	106	35.69
> 50	6	75	63	56.25	63	35.77	132	44.44
total	8	100	112	100	117	100	297	100
<b>Education</b>								
secondary	0	0	0	0	2	1.13	2	0.68
bachelor's	2	33.33	74	66.07	153	86.44	229	77.1
master's	6	66.67	38	33.93	22	12.43	66	22.22
doctoral	0	0	0	0	0	0	0	0
total	8	100	112	100	117	100	297	100
<b>Sector</b>								
public	7	87.5	76	76.86	156	88.14	239	80.47
private	1	12.5	36	23.14	21	11.86	58	19.53
total	8	100	112	100	117	100	297	100
<b>Years of employment</b>								
< 10	0	0	22	19.64	34	19.22	56	18.86
10–20	0	0	24	21.43	43	24.29	67	22.56
20–30	3	37.5	37	33.04	43	24.29	83	27.95
> 30	5	62.5	29	25.89	57	32.2	91	30.63
total	8	100	112	100	117	100	297	100

in leadership, and financial management than their colleagues. Managers who had higher management positions were significantly more likely to perceive themselves to be more competent in financial management than their colleagues in lower management positions. Nurse managers in the private sector felt significantly more competent in financial management.

#### *Results of in-depth interviews*

The analysis shows three central ideas which demonstrate the reasons for differences among nurse managers according to nurse manager competencies.

**Job security.** All nurse managers interviewed mentioned a lack of human and financial resources in their institutions, which caused a precarious organizational and financial situation, and prevented the implementation of adequate healthcare management in their workplace. Most participants who worked in the private healthcare sector claimed that the main way to maximise profits for the owners is by the understaffing of healthcare teams. Despite feeling overworked, they train themselves in financial management, one of the most important skills in the private sector. Without a high level of proficiency in financial management competency, they fear they will lose their jobs. In their opinion, a higher salary is

one of the key reasons why older and experienced nurse managers leave public sector hospitals, despite job insecurity. Thus, job insecurity has motivated participants who work in the private healthcare sector to become competent in the area of financial management. I am not employed in a public sector hospital, where you can do whatever you want, and cannot be fired. I left the public sector clinic because I could not change anything. There was indifference to any changes, and of course, I was not paid a decent salary for my hard work. You should know that I work even harder now; yes, I am really overloaded. And besides all my work, I have to further educate myself so as not to lose my job. Our owners are only interested in maximising profits and reducing all costs. Therefore, I have to be good at finance. (NM2)

**Degree of autonomy and executive power in different healthcare organisations.** All interviewed nurse managers who worked in nursing homes and community healthcare services within healthcare centres in the public sector spoke of their regular use of all management skills in terms of the autonomy to perform their management role without asking another professional for authorization. Moreover, they mentioned their use of executive power

**Table 3** Mean values for ratings of proficiency

Competencies	Management levels	mean	n
Technical	Nursing home	3.67	8
	Healthcare centre	3.66	112
	Hospitals	3.66	177
	Total	3.66	297
Human Resources	Nursing home	3.38	8
	Healthcare centre	3.36	112
	Hospitals	3.37	177
	Total	3.37	297
Conceptual	Nursing home	3.64	8
	Healthcare centre	3.63	112
	Hospitals	3.63	177
	Total	3.63	297
Leadership	Nursing home	3.4	8
	Healthcare centre	3.36	112
	Hospitals	3.35	177
	Total	3.37	297
Financial	Nursing home	3.11	8
	Healthcare centre	2.35	112
	Hospitals	2.14	177
	Total	2.53	297

regarding financial resources in comparison with nurse managers in other healthcare organisations, especially hospitals. Since they have great decision-making power to dispose of financial resources, they require financial management skills to negotiate the precarious financial situation. Possessing autonomy and executive power motivates the participants to educate themselves and become competent in the area of financial management. In their view, lack of autonomy was also one of the key reasons why older and experienced nurse managers left public hospitals.

In private community healthcare service, nurses have significantly more autonomy to perform their work than nurses working in hospitals. I know that because I worked there for more than 20 years. That is why I left the hospital. I am here on my own, and I am responsible for my work. Yes, due to a shortage of

financial resources, I have to be a magician to pay all the bills, and to do the work properly, but I decide how to spend the money. Well, you see, I have to know how to work with money. Otherwise, I would not have survived. (NM2)

*Lack of support from the healthcare team.* The interviewed nurses also stated that support (or lack of support) from the healthcare team members is a key factor that defines the implementation of management activities, and the level of proficiency in nurse manager competencies. In the public sector, the economic crisis has resulted in cost reductions in essential healthcare materials, supplies, and personnel, as well as huge nursing shortages, an unstable work environment, and poorly-paid nursing work. The nurse managers interviewed working in public sector hospitals and healthcare centres drew attention to the apathy regarding their work, and lack of motivation for the performance of managerial duties. However, where nurse managers received the support of doctor managers, they implemented their activities conscientiously, and developed their management skills. Support from team members motivated them to try to overcome the difficulties of their position. In particular, participants from public sector hospitals claimed that doctor managers had a negative attitude towards them. They did not usually respect nurse managers, and did not value their opinions. Thus, the lack of support from doctors discouraged some participants from educating themselves, performing managerial duties, and becoming competent in the areas of financial management, and leadership.

I always wonder about the typical pattern when an excellent doctor becomes a bad manager who does not listen and appreciate me. You cannot work in a team that does not support you. Therefore, I am doing only the most urgent tasks. There is already too much administrative work, and not enough time to work with patients. Why should I further educate myself if no one appreciates my efforts? (NM3)

**Table 4** Results of ANOVA

Competencies	Gender	Education	Years of employment	Age	Healthcare organisation	Management level	Sector
Technical	0.18	0.68	1.43	1.63	0.31	2.31	0.12
Human Resources	0.76	0.78	2.92	0.33	0.22	0.82	0.01
Conceptual	0.16	0.42	10.02	1.82	0.17	0.77	0.04
Leadership	1.24	0.75	6.11	1.23	13.58**	1.22	0.23
Financial management	0.66	1.79	5.17	9.6*	14.92**	13.92**	18.41***

(F)-value: \*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$

## Discussion

The combination of quantitative and qualitative methods enabled us to measure nurse managers' self-assessed proficiency level in nurse manager competencies, as well as the reasons for differences in these levels.

The nature of the occupation was confirmed as being predominately female. In addition, most participants had a Bachelor's degree and worked in the public sector. The most alarming fact was the predominance of nurse managers older than 50 years (44.44%). This was also reported by Pilley (2010), who emphasized that the aging of the nurse base is a trend in all industrialised countries. The results of the survey also showed that nurse managers in medical nursing homes were significantly more likely to be older than their colleagues in hospitals, which could be explained by the fact that many older and experienced nurse managers are drawn to medical nursing homes due to the greater autonomy, and higher salaries offered there.

The results of other researchers (Chase, 1994; 2010; 2012; McCallin, Frankson, 2010; Pillay, 2010; Townsend et al., 2012; Pihlainen et al., 2016), regarding inadequate nurse manager competencies were confirmed by our research. The low level of self-perceived proficiency in all management categories except the technical in all healthcare organisations, could be explained by the lack of systematic management training. Although clinical aspects of the role are addressed, the management requirements are more or less neglected (Jennings, Scalzi, Rodgers, 2007; Bijelic, 2010).

The difference of our results in comparison with Chase's findings (2010) – the lowest self-reported nurse manager competencies in the USA included conceptual skill – could be partially explained by education, since Slovenian and other Eastern European healthcare education, in comparison with the USA, emphasizes conceptual and technical competencies above financial competencies (Bijelic, 2010).

The results of this study demonstrate a clear difference between nurse managers in different healthcare organizations. The difference between proficiency in leadership and financial management could be explained by degree of job security, lack of autonomy, and lack of support from the healthcare team, factors identified in the in-depth interviews. The participants working in nursing homes and community healthcare services within healthcare centres have greater autonomy and executive power, and more support from their healthcare teams than nurse managers working in hospitals. Having

autonomy and the support of the healthcare team motivates and stimulates these participants to educate themselves in financial management, to try to overcome the difficulties of the challenging organisational, and financial situation in healthcare organisations, particularly characterised by understaffing, heavy workloads and poor resources.

The difference between sectors and proficiency in financing could be explained by levels of autonomy and support from the healthcare team. However, as our in-depth interviews showed, the main reason is job insecurity, or, in other words, fear of losing one's job, which stimulates private nurse managers to gain proficiency in financial manager competencies, since cost efficiency is an important factor in the private sector. Our interviews also revealed that nurse managers experienced in financial management migrated from the public to private sector, since Slovenian nurses in the public sector are paid according to an extremely rigid payment system.

The results of the study also demonstrate the difference between nurse managers at different management levels. The difference in proficiency in financial manager competencies could be explained by greater autonomy and executive power requiring a higher proficiency level in financial management, and also by previous training. A study conducted by Skela Savič et al. (2004) shows that leadership performance in Slovenian hospitals correlated with the type and extent of previous training of employees. Nurse managers at the higher organisational level received significantly more training and education than other employees. Training of employees in management in Slovenian public sector hospitals is still not perceived as a necessary investment to improve the work process (Skela Savič, Robida, 2013). This is not only a Slovenian phenomenon, but a global one (Backer et al., 2012). New nurses, promoted from direct care roles, are often not provided with any formal training for their new role. Instead, they are expected to hit the ground running. Therefore, the current, and future management capacity should be enhanced by using different forms of training, such as formal training within the higher education curricula, in-service training, informal training, and mentoring. Nevertheless, management skills should be considered a priority for high-quality health services, since such services cannot exist without a skilled management (Baker et al., 2012).

This study has some limitations. It is based on self-assessment by nurse managers, which means that it is subjective, and not externally validated. Furthermore, the response rate was low. Future researchers should

try to increase the response rate. However, despite this limitation, the study has shown the practical relevance of improving management in healthcare in Slovenia and Eastern European countries which have a similar healthcare system. It shows the importance of management knowledge and skills in a profession characterised by poor resources.

## Conclusion

Nurse managers working in nursing homes assessed themselves as being more competent than nurse managers in hospitals. The largest proficiency gap of nurse managers in nursing homes was found in leadership and financial management competencies. Public sector nurse managers assessed themselves as being relatively less competent in financial management than private sector managers. Head nurses felt more competent in financial management than nurse managers at lower management levels. The reasons for nurse managers' differences in proficiency levels are the degree of job security, autonomy, and support from the healthcare team that they enjoy. Finally, a holistic educational management framework is required to provide a consistent approach to management development for all healthcare employees.

## Ethical aspects and conflict of interest

Ethics committee approval was not required. The manager nurses were informed that their participation in the study would be voluntary, and all data were treated as confidential. The authors declare that the study has no conflict of interest.

## Author contribution

Conception and design (KE, JS), data analysis and interpretation (KE), manuscript draft (KE), critical revision of the manuscript (KE, JS), the final version of the manuscript (KE, JS).

## References

Baker S, Marshburn DM, Crickmore KD, Rose SB, Dutton K, Hudson PC. What do you do? Perceptions of nurse manager responsibilities. *Nursing Management*. 2012;43(12):24–29.

Bijelic N. *Education and training of nurses in Slovenia*. Kranj: University of Maribor, FAO; 2010.

Cathcart EB, Greenspan M, Quin M. The making of a nurse manager: the role of experiential learning in leadership development. *Journal of Nursing Management*. 2010;18(4):440–447.

Chase L. Nurse manager competencies. *Journal of Nursing Administration*. 1994;24(4 Suppl):56–64.

Chase LK. Nurse manager competencies [dissertation]. Iowa: University of Iowa; 2010.

Chase LK. Are you confidently competent? *Nursing Management*. 2012;43(5):50–53.

Costa Fernandes M, Sales da Silva LM, Magalhães Moreira TM, Ferreira da Silva MR. Factors involved in the management of nursing care: descriptive study. *Online Brazilian Journal of Nursing*. 2013;12(3):522–533.

Hakim H. Not just for cars: lean methodology. *Nursing Management*. 2014;45(3):39–43.

Jennings BM, Scalzi CC, Rodgers JD 3rd, Keane A. Differentiating nursing leadership and management competencies. *Nursing Outlook*. 2007;55(4):169–175.

Kang CM, Chiu HT, Hu YC, Chen HL, Lee PH, Chang WY. Comparison of self-ratings on managerial competencies, research capability, time management, executive power, workload and work stress among nurse administrators. *Journal of Nursing Management*. 2012;20(7):938–947.

Kantanen K, Kaunonen M, Helminen M, Suominen T. The development and pilot of an instrument for measuring nurse managers' leadership and management competencies. *Journal of Research in Nursing*. 2015;20(8):667–677.

Lega F, Prenestini A, Spurgeon P. Is management essential to improving the performance and sustainability of health care system and organizations? A Systematic review and a roadmap for future studies. *Value in Health*. 2013;16(1 Suppl):S46–S51.

Lin LM, Wu JH, Huang IC, Tseng KH, Lawler JJ. Management development: a study of nurse managerial activities and skills. *Journal of Healthcare Management*. 2007;52(3):156–169.

Lorber M. *Značilnosti in kompetence vodij v povezavi s počutjem zaposlenih v zdravstveni negi* [dissertation]. Maribor: University of Maribor, Ekonomsko-poslovna fakulteta; 2015. (in Slovenian)

Luo WY, Shen NP, Lou JH, He PP, Sun JW. Exploring competencies: a qualitative study of Chinese nurse managers. *Journal of Nursing Management*. 2016;24(1):E87–94.

McCallin AM, Frankson C. The role of the charge nurse manager: a descriptive exploratory study. *Journal of Nursing Management*. 2010;18(3):319–325.

*Nurses and Midwives Association of Slovenia*. [cited 2016 Aug 24] Available from: <http://www.zbornica-zveza.si/en/introduction>

Pihlainen V, Kivinen T, Lammintakanen J. Management and leadership competence in hospitals: a systematic literature review. *Leadership in Health Services (Bradford, England)*. 2016;29(1):95–110.

Pillay R. The skills gap in nursing management in South Africa: a sectorial analysis: a research paper. *Journal of Nursing Management*. 2010;18(2):134–144.

Prosser B, Olson RE. Changes in professional human care work: the case of nurse practitioners in Australia. *Health Sociology Review*. 2013;22(4):422–432.

Rigolosi ELM. *Management and leadership in nursing and health care*. 3rd ed. New York: Springer Publishing Company; 2013.

Patton MQ. *Qualitative research & evaluation methods*. 4th ed. Los Angeles: Sage; 2015.

Skela Savič B, Pagon M, Lobnikar B. Leadership analysis in Slovenian hospitals: who are successful leaders? *Organizacija*. 2004;37(1):5–15.

Skela Savič B, Robida A. Capacity of middle management in health-care organizations for working with people-the case of Slovenian hospitals. *Human Resources for Health*. 2013;11:18.



Slovenian National Institute for Public Health. *EuroHealthNet Report: Championing a healthier and fairer Europe*. [cited 2016 Jul 14] Available from: <http://eurohealthnet.eu/sites/eurohealthnet.eu/files/publications/EuroHealthNet%20Annual%20Report%202015-2016.pdf>  
Townsend K, Wilkinson A, Bamber G, Allan C. Accidental, unprepared, and unsupported: clinical nurses becoming

managers. *The International Journal of Human Resource Management*. 2012;23(1):204–220.

Zavrl Džananović D. Patronažno varstvo Slovenije včeraj, danes, jutri. *Obzornik zdravstvene nege*. 2010;44(2):117–125. (in Slovenian)