

## **Exploration of the expected and achieved competency levels of new graduate nurses**

### Author

Hyun, Areum, Tower, Marion, Turner, Catherine

### Published

2020

### Journal Title

Journal of Nursing Management

### Version

Accepted Manuscript (AM)

### DOI

[10.1111/jonm.13105](https://doi.org/10.1111/jonm.13105)

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## Title

Exploration of the expected and achieved competency levels of new graduate nurses.

## Short running title

The competency levels for new graduate nurses

## Authors

Areum Hyun\* School of Nursing, Midwifery & Social Work, University of Queensland

Marion Tower School of Nursing, Midwifery & Social Work, University of Queensland

Catherine Turner College of Nursing and Midwifery, Charles Darwin University

### \* Corresponding author:

Areum HYUN

School of Nursing, Midwifery and Social Work

Level 3, Chamberlain Building (Building 35)

The University of Queensland 4072

Tel: +61 403 956 463 / Email: areum.hyun@uq.net.au

## Acknowledgements

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

This work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere.

## Conflict of Interest Statement

The authors declare that there is no conflict of interest.

## Ethical clearance approval was obtained from

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as [doi: 10.1111/JONM.13105](https://doi.org/10.1111/JONM.13105)

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1. The University of Queensland [Clearance Number - NMSW 2016/14]
2. The Sungshin Women's University [Clearance Number – SSWUIRB 2017-078].

Author Manuscript

Article type : Original Article

**Aim:** To explore the expected and achieved competency levels of new graduate nurses.

**Background:** There are global concerns about a perceived disconnect between the educational preparation of new graduates and the expectations of employers about their work-readiness. It is important to understand competency levels expected and achieved of new graduate nurses.

**Method(s):** The study was conducted in three phases: the identification of competencies, development of a survey instrument and exploration of levels of competency from the perspectives of key stakeholders.

**Results:** New graduates were well-prepared for demonstrating respect to patients, but needed to be closely supported when providing emergency care. Results highlighted that new graduates felt less competent than graduating students in those competencies related to legal and ethical practice.

Importantly, expectations about new graduates' competency varied between educators and managers.

**Conclusion(s):** The findings provide important information about new graduates' competency levels, revealing a mismatch in the perception of key stakeholders about competency levels. This has important implications for building new graduates readiness for practice and highlights the importance of collaboration between key stakeholders to address competency gaps.

**Implications for Nursing Management:** Supportive opportunities should be provided to new graduate nurses to fill gaps in beginner competency.

Key Words

competence, nursing competencies, competency levels, new graduate nurses

## Introduction

Higher education providers strive to produce 'work ready' graduates who are well-prepared for their future roles; however, feedback from employers suggests that graduates' capabilities in specific working situations may not meet their needs (Martin, 2017). Despite the efforts of education providers

to prepare nursing graduates for practice, employers have continued to raise concerns about nursing education, stating that graduates may not be ready for the realities of the workplace and require more education and support before working independently (Numminen et al., 2014). Added to the employers' concerns, studies of new graduates' experiences also suggest they feel inadequately prepared for their role as registered nurses, which in turn affects patient safety and the quality of nursing care (Herron, 2018). As a result, the notion of practice readiness or competence has become a critical issue in nursing education and practice. It is, therefore, crucial to explore disconnects in competency levels for new graduate nurses, particularly from the different perspectives of key stakeholders; that is, education providers, employers, new graduates and graduating students. This can provide a benchmark to guide key stakeholders in ensuring new graduates are appropriately prepared and supported.

## **Background**

When considering competency in nursing, there are two issues. The first is related to identifying what nurses need to be competent to do (competencies). It should be considered in both global and local contexts. This is because the globalisation of healthcare is inevitable and as global health issues change so does the competency required to deliver appropriate care. For example, changing management of patients with emerging infectious diseases (Edmonson, McCarthy, Trent-Adams, McCain, & Marshall, 2017). It should also be considered in a local context because competencies are related to the ability of nurses to practise in a specific context, which evolves with a population's need and within the healthcare system in which care takes place (Wu, Enskär, Pua, Heng, & Wang, 2016).

The second issue is related to identifying competency levels required for safe care. Determining levels of competency requires measurement of competency. Several studies attempted to measure competency levels through developing measurement instruments: The Nurse Competence Scale in Finland (Meretoja, Isoaho, & Leino-Kilpi, 2004) and the EHTAN Questionnaire Tool in Europe (Cowan, Wilson-Barnett, Norman, & Murrells, 2008). However, these scales were evaluated the content validity based on each nation's context and the educational structures which differ in the length of a nursing program and graduation requirements. Therefore, a question remains about these instruments in what context they can be applied as different countries have different perspectives on nursing competencies (Wu et al., 2016). There are competency assessment tools in Korea, the country where the study was conducted, but these instruments have limitations, such as only focusing on clinical performance and failing to cover global trends. Further research is therefore required to draw together international and Korean literature in order to inform the required competencies and assess the competency levels for the Korean context.

It is important to understand new graduate's competency levels in order to support their transition. Several countries, such as Australia and the US, have a structured post-licensure program designed to support the transition from the educational environment into professional practice; however, Korea does not offer this support for new graduates. Korean new graduates are responsible for working independently after a short two- or three-month orientation (Sin, Kwon, & Kim, 2014). Research about Korean new graduates' experiences suggests they feel inadequately prepared for their role as registered nurses despite all Korean nursing students undertaking at least 1000 hours of clinical placement and being assessed against practice readiness during the pre-licensure program (Sin et al., 2014).

In terms of competency levels at the beginning of practice, one study, which asked graduating students to rate their competency levels in the final week of final clinical placement (Kajander-Unkuri et al., 2014), found that the overall level of competency was similar to that of registered nurses. Interestingly, Lima et al. (2016) found that new graduates felt less competent for their overall level of competency at commencement. Even though the participants might be in different contexts, it has been observed that the competency levels of new graduates could be lower than graduating students and experienced registered nurses. However, none of the studies compared competency levels between new graduates and graduating students, which may indicate gaps in understanding the demands of practice and in educational preparedness.

Benner's (1984) 'from novice to expert' framework was used to guide the study. Benner (1984) identified five distinct stages of skill acquisition: novice, advanced beginner, competent, proficient and expert. New graduates are described as advanced beginners who are expected to demonstrate basic practice skills developed through prior exposure to practice. Although of note, they also require prompting and support from mentors (Benner, 1984; 2004). However, there is a debate about what level, or how competent, new graduates should be, though the expectation from the healthcare sector is that they should be able to work independently (Numminen et al., 2014).

This study is designed to investigate the competency level of new graduates from different key stakeholders. This will inform understanding of what might be expected from a new graduate nurse as an advanced beginner in practice. In turn this can be used to support graduating students and new graduates in their transition. Importantly, from a Korean perspective there is no research which provides this information. Whilst the study reported here was in the context of Korea, it has applicability to many other countries where there are also concerns about new graduate nurses' readiness for practice.

## **Methods**

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## Aim

The study aimed to explore the expected and achieved competency levels of new graduate nurses. This study particularly explored the competency levels from the perspectives of academic educators, nurse managers, new graduates and graduating nursing students. The specific research questions for the study were:

1. Is there a difference between expected competency levels rated by educators and managers compared to achieved competency levels perceived by new graduates and graduating students?
2. Is there a difference between expected competency levels of new graduates rated by educators compared to managers?
3. Is there a difference between self-perceived competency levels rated by new graduates compared to graduating students?

## Design

The study consisted of three phases: the identification of competencies, development of a survey questionnaire and exploration of competency levels by a cross-sectional survey (Figure 1).

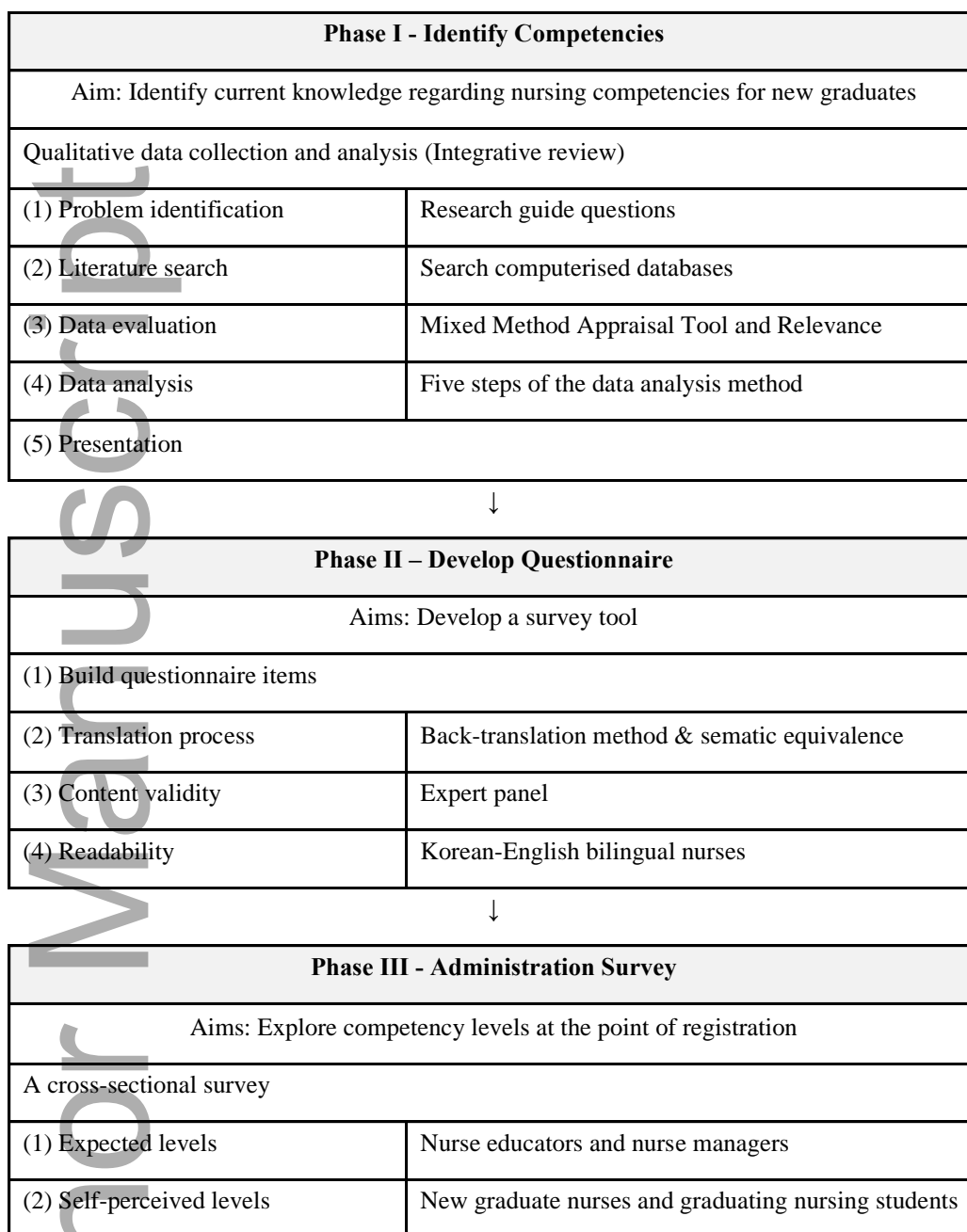


Figure 1. *Diagram of Research Process*

### **Phase One: Identification of Nursing Competencies for New Graduate Nurses**

An integrative literature review was conducted to identify required competencies for new graduate nurses in Korea. The process of the literature review followed the five stages described by Whittemore and Knafl (2005). First, computerised databases were used as the primary search, and the reference lists of the probable literature were searched purposively for a more comprehensive search.



The search was undertaken separately in the international databases and the Korean databases. The search produced 5384 references from the international literature and 573 references from the Korean literature. The duplicated references were deleted. To enhance rigour, the literature was reviewed by two investigators against the inclusion and exclusion criteria (AH and MT). Data evaluation on the selected literature was undertaken using the two steps from the Weight of Evidence Framework (Gough, 2007) to ensure that the selected evidence was sufficient and appropriate quality using the Mixed Method Appraisal Tool (Pluye et al., 2011) and relevance (Gough, 2007). Finally, 28 references were selected. The five steps of data analysis were then applied (Whittemore & Knaf, 2005): data reduction, data display, data comparison, conclusion drawing, and verification. Consequently, three themes with ten domains, 61 competency items were identified for Korean new graduate nurses.

### **Phase Two: Development of a Survey Questionnaire**

The second phase was to develop a survey questionnaire for collecting quantitative data regarding new graduates' competency levels. The questions were divided into two: The first question was to clarify the expected competency levels from educational preparation and from the practice environment (Brown & Crookes, 2016). Therefore, educators and managers were asked which competency levels they expected for new graduates at the point of registration when starting work as a registered nurse. In terms of the actual competency levels, new graduates and graduating students were asked to self-perceived competency levels. It was hoped that the self-assessed method provided information about which competency levels they had achieved at the point of registration (Benner, 2004; Duchscher, 2009).

The Bondy rating scale (Bondy, 1984) was used to assess respondents' views of whether new graduates were expected to be independent/competent at each competency item, to whether they had achieved competency. In this study, the five criteria were divided into two levels for data analysis: "Safe and knowledgeable practice" scored between the independence (5) level and the supervised (4) level, and "Inefficient and requiring verbal and physical cues" scored between the assisted (3), marginal (2) and dependent (1) levels.

A back-translation method was undertaken to ensure the semantic equivalence of the Korean translation of the English-language survey developed for the study. The semantic equivalence of the two English versions was evaluated by the four English-speaking nursing experts. It was tested with seven Korean English bilingual participants to ensure that the translated items were comprehensible. For content validity, a panel of six experts was recruited based on: experience with new graduates, professional certification in nursing education or practice, and a record of published papers on the

topic area. A total of 53 nursing competency items were selected as the relevant nursing competencies for the new graduates. All experts agreed that the overall competency items and the Bondy scale were pertinent and appropriate to use in the Korean context. The reliability of the 53 items New Graduates Competency Questionnaire (Appendix 1) was Cronbach  $\alpha = 0.98$ .

### Phase Three: Exploration of the Levels of Nursing Competency

#### Sample

The target population for this phase consisted of academic educators, managers, new graduates, and graduating nursing students. The four groups of participants were recruited using a convenience sampling method. A total of 788 questionnaires were initially sent to the potential participants, and n=406 responses were received (the overall response rate: 52 %). Nineteen responses were provided by participants who did not meet the study criteria, and 10 responses were not answered completely. Therefore, n=377 responses were considered to be legitimate for the final analysis based on the estimation that this study was planned for 90% power; minimum 172 respondents were needed to detect medium effects (Betsy & Carmen, 2007).

Table 1

*Survey Distribution and Response Rates*

	Nurse Educator	Nurse Manager	New Graduate	Graduating Student
Survey Distribution	n=466	n=40	n=90	n=192
Mode	Online	Mixed-mode (Paper/Online)	Paper	Paper
Validated response	n=97 response (21%)	n=31 response (78%)	n=70 response (78%)	n= 179 response (93%)

□

#### Data Collection

A mixed-mode strategy using both paper and online modes was employed to collect the data. A suitable mode was chosen according to each group's characteristics (Dillman, Smyth, & Christian, 2014). To recruit educators, the online mode was employed as an efficient mode for approaching a large number of individuals in this target population and who can easily access online surveys (Dillman et al., 2014). Online response rates can sometimes generate only 20% response rates (Kaplowitz, Lupi, Couper, & Thorp, 2012) and the average number of educators in each nursing school was between 5 and 10. To enhance response rates the researcher contacted the Heads of the 40

nursing schools via email to get permission to contact their educators. The online invitation with the survey link was then sent to individual educators by email between June and July 2017. The inclusion criterion was that they were full-time teachers who had taught graduating students.

For nurse managers, new graduates and graduating students, the paper survey was chosen as the best mode for these groups after consultation with the gatekeepers. To recruit managers and new graduates, a major tertiary metropolitan hospital was selected. This hospital approximately 66% of registered nurses in tertiary level hospitals (Ministry of Health & Welfare, 2014). Full-time nurse managers who were working with new graduates were recruited and new graduates who had been working for less than six months after orientation were recruited (Duchscher, 2009). The new graduates came from different universities across the country. For graduating students who were granted graduation after their final clinical placement, two nursing schools running four-year bachelor programs were approached. The survey was conducted with the sample of these groups in June 2017 and December 2017.

#### Data Analysis

Response data was coded electronically using the SPSS Statistics 23. The double data entry method was used for data coding. The datasets derived from the demographic information and the competency levels were initially analysed descriptively and then performed the chi-square test of independence comparing the proportion of the safe and knowledgeable each competency item rated by the four groups. The subtotals and total average percentages of the domains and themes were not calculated as it was beyond the scope of the study to determine if each competency item in the questionnaire contributed equally to the domains/themes.

#### Ethical Considerations

Ethical approval was obtained across all data collection sites. Informed consent was sought electronically for the online survey and in person for the paper based surveys. Potential participants were invited to ask questions if they wished further information. Participants were advised that survey data was de-identified.

## Results

### **Expected competency levels rated by educators and managers compared with achieved competency levels perceived by new graduates and graduating students**

In exploring the expected competency levels rated by educators and managers compared to achieved competency levels perceived by new graduates and graduating students, the most interesting finding of the differences in expectation and achievement was that the proportion of the achieved safe and knowledgeable nursing competencies from the new graduates and graduating students was significantly greater than the proportion of the same expected safe and knowledgeable nursing competencies from the educators and managers in almost all [n=51] (see Table 2).

As shown in Table 2, almost 80 per cent of educators and managers (n=102) would expect that new graduates could provide safe and knowledgeable practice when respecting a patient's dignity, privacy and confidentiality (Item 23). Approximately two-thirds of them also expected new graduates to be able to collaborate with and advocate for patients and their families (Item 37). Compared with the high expectations, the educators and managers had the lowest expectations about emergency care (Item 5), which means they were closely supported with continuous verbal and physical cues. They also had lower expectations of new graduates' nursing practice for basic research skills (Item 10) and participating in quality improvement activities (Item 26).

In terms of achieved competency levels, the new graduates and graduating students were asked to identify the competencies in which they felt they would be safe and knowledgeable at the point of registration. These competency items were similar to the results of the expectations by educators and managers. The majority of the participant groups reported that they self-perceived independence when protecting patient dignity and confidentiality (Item 23) and also reported that they were able to provide safe and knowledgeable practice when advocating for their patients and families (Item 24). The lower levels of achieved nursing competencies, as rated by the new graduates and graduating students, were providing emergency care (Item 5) and conducting research skills (Item 10).

Table 2

*Difference between Educators and Managers' Expectations and New Graduates and Graduating Students' Self-perceived Achievement at the Point of Registration*

	Expectation (n=128)		Achievement (n=249)		$\chi^2$ (1)	P	
	Safe and knowledgeable level						
	n	%	n	%			
<b>Theme 1. Evidence-Based Practice</b>							
Integrating knowledge and skills in practice							
1	Maintain up-to-date knowledge to utilise best practice	41	32.0%	126	50.6%	11.817	0.001
2	Perform the core nursing skills competently	66	51.6%	169	67.9%	9.577	0.002
3	Integrate relevant knowledge and skills to provide care	34	26.6%	124	49.8%	18.75	<.001
4	Provide safe medication care	58	45.3%	161	64.7%	12.997	<.001
5	Provide safe and efficient care in emergency situations	27	21.1%	79	31.7%	4.729	0.030
6	Carry out infection control and sterile procedure	61	47.7%	190	76.3%	31.183	<.001
7	Support ADLs (Activities of Daily Living) care	70	54.7%	181	72.7%	12.314	<.001
8	Provide nursing care for pain management	62	48.4%	172	69.1%	15.296	<.001
Delivering the best available evidence in practice							
9	Utilise accurate and updated evidence into practice	43	33.6%	135	54.2%	14.427	<.001
10	Possess basic research abilities	29	22.7%	96	38.6%	9.641	0.002
11	Use a critical inquiry process in nursing practice	45	35.2%	121	48.6%	6.195	0.013
12	Accurately use a range of health care technologies	43	33.6%	153	61.4%	26.274	<.001
Utilising a systematic approach							
13	Conduct a comprehensive assessment	45	35.2%	140	56.2%	15.016	<.001
14	Identify nursing diagnoses and health problems	53	41.4%	154	61.8%	14.267	<.001
15	Develop a care plan	33	25.8%	142	57.0%	33.187	<.001
16	Prioritise care based on individual needs and outcomes	48	37.5%	157	63.1%	22.25	<.001
17	Consistently provide the planned care	50	39.1%	158	63.5%	20.336	<.001
18	Evaluate outcomes of the care plan and revise if needed	39	30.5%	140	56.2%	22.49	<.001
19	Monitor changes in patient status throughout the process	43	33.6%	142	57.0%	18.577	<.001
<b>Theme 2. Patient-Centred Care</b>							
Practice for patient safety							
20	Practise physical and psychological safe care for patient	63	49.2%	192	77.1%	30.043	<.001
21	Respect patient's cultural background and values	54	42.2%	188	75.5%	40.82	<.001
22	Possess empathic ability to understand other's feeling	83	64.8%	210	84.3%	18.552	<.001
23	Ensure and respect dignity, privacy and confidentiality	102	79.7%	221	88.8%	5.664	0.017
24	Advocate for patients and rights for care	84	65.6%	212	85.1%	19.087	<.001
25	Maintain a safe and therapeutic environment	38	29.7%	159	63.9%	39.559	<.001
26	Integrate quality improvement principles and activities	34	26.6%	161	64.7%	49.137	<.001
Patient education							
27	Explain information to the patient regarding treatment	49	38.3%	146	58.6%	28.633	<.001
28	Verify that patient understands the given information	57	44.5%	181	72.7%	28.801	<.001
29	Cooperate with the multidisciplinary team for education	39	30.5%	164	65.9%	42.617	<.001
30	Provide education to care for themselves	45	35.2%	164	65.9%	32.268	<.001

		Expectation (n=128)		Achievement (n=249)		$\chi^2$ (1)	p
		Safe and knowledgeable level					
		n	%	n	%		
<b>Communication in the current healthcare system</b>							
31	Utilise a range of effective communication techniques	83	64.8%	208	83.5%	16.772	<.001
32	Communicate using medical terms accurately	68	53.1%	163	65.5%	5.422	0.020
33	Seek clarification when directions are unclear	82	64.1%	178	71.5%	2.177	0.140
34	Communicate with foreign patients	52	40.6%	140	56.2%	8.232	0.004
35	Demonstrate accurate and clear documentation skills	55	43.0%	142	57.0%	6.698	0.010
36	Utilise information and communications technology	68	53.1%	172	69.1%	9.298	0.002
<b>Collaborative nursing practice</b>							
37	Collaborate with patients and their families	88	68.8%	200	80.3%	6.277	0.120
38	Collaborate as a team to maximise patient's health	60	46.9%	170	68.3%	16.273	<.001
39	Command tasks within expected timeframe	38	29.7%	133	53.4%	19.202	<.001
<b>Theme 3. Professional Nursing Practice</b>							
<b>Legal and ethical nursing practice</b>							
40	Practise according to legal and ethical standards	83	64.8%	188	75.5%	4.752	0.029
41	Practise in accordance with the scope of practice	77	60.2%	189	75.9%	10.092	0.001
42	Seek assistance to resolve moral conflict	73	57.0%	188	75.5%	13.54	<.001
43	Apply the health strategies to promote the public health	43	33.6%	147	59.0%	21.891	<.001
44	Maintain personal development	66	51.6%	167	67.1%	8.61	0.003
45	Recognise accountability and responsibility	86	67.2%	198	79.5%	6.917	0.009
46	Be responsible for continuing professional development	53	41.4%	157	63.1%	16.053	<.001
<b>Clinical leadership</b>							
47	Prioritise the workload of several patients	47	36.7%	164	65.9%	29.139	<.001
48	Participate in teaching nursing students	42	32.8%	158	63.5%	31.869	<.001
49	Delegate and supervise care provided by others	40	31.3%	155	62.2%	32.534	<.001
<b>Professional attributes</b>							
50	Manage stress and emotions	56	43.8%	166	66.7%	18.339	<.001
51	Demonstrate professional presence and behaviour	76	59.4%	201	80.7%	19.769	<.001
52	Seek and accept constructive criticism	70	54.7%	190	76.3%	18.459	<.001
53	Recognise my limits and ask for assistance	71	55.5%	198	79.5%	23.921	<.001

### Expected competency levels of new graduates rated by educators compared to managers

The study found that overall, the expectation of new graduates' competencies from the educators was higher than that of the managers. A total of n=17 competency items showed statistically significant differences in the proportion of the expected safe and knowledgeable nursing competencies rated by educators when compared to the ratings of managers (Table 3). One of the interesting features was that the proportion of educators who perceived that new graduates were able to perform competencies related to evidence-based practice at a safe and knowledgeable level was significantly greater than the proportion of the managers (n=11).

Table 3.

*Difference between Educators' Expectation and Managers' Expectation on the Competency Levels at the Point of Registration*

		Educators (n=97)		Managers (n=31)		$\chi^2$ (1)	p
		Safe and knowledgeable level					
		n	%	n	%		
<b>Theme 1. Evidence-Based Practice</b>							
Integrating knowledge and skills in practice							
1	Maintain up-to-date knowledge to utilise best practice	32	33.0%	9	29.0%	0.169	0.681
2	Perform the core nursing skills competently	56	57.7%	10	32.3%	6.104	0.013
3	Integrate relevant knowledge and skills to provide scare	32	33.0%	2	6.5%	8.482	0.004
4	Provide safe medication care	48	49.5%	10	32.3%	2.813	0.093
5	Provide safe and efficient care in emergency situations	25	25.8%	2	6.5%	5.269	0.022
6	Carry out infection control and sterile procedure	55	56.7%	6	19.4%	13.135	<.001
7	Support ADLs (Activities of Daily Living) care	63	64.9%	7	22.6%	17.017	<.001
8	Provide nursing care for pain management	53	54.6%	9	29.0%	6.168	0.013
Delivering the best available evidence in practice							
9	Utilise accurate and updated evidence into practice	35	36.1%	8	25.8%	1.112	0.292
10	Possess basic research abilities	26	26.8%	3	9.7%	3.932	0.047
11	Use a critical inquiry process in nursing practice	42	43.3%	3	9.7%	11.649	0.001
12	Accurately use a range of health care technologies	37	38.1%	6	19.4%	3.718	0.054
Utilising a systematic approach							
13	Conduct a comprehensive assessment	34	35.1%	11	35.5%	0.002	0.956
14	Identify nursing diagnoses and health problems	43	44.3%	10	32.3%	1.411	0.235
15	Develop a care plan	32	33.0%	1	3.2%	10.876	0.001
16	Prioritise care based on individual needs and outcomes	43	44.3%	5	16.1%	7.971	0.005
17	Consistently provide the planned care	42	43.3%	8	25.8%	3.02	0.082
18	Evaluate outcomes of the care plan and revise if needed	36	37.1%	3	9.7%	8.347	0.004
19	Monitor changes in patient status throughout the process	34	35.1%	9	29.0%	0.382	0.537
<b>Theme 2. Patient-Centred Care</b>							
Practice for patient safety							
20	Practise physical and psychological safe care for patient	51	52.6%	12	38.7%	1.808	0.179
21	Respect patient's cultural background and values	39	40.2%	15	48.4%	0.645	0.422
22	Possess empathic ability to understand other's feeling	62	63.9%	21	67.7%	0.151	0.698
23	Ensure and respect dignity, privacy and confidentiality	80	82.5%	22	71.0%	1.922	0.166
24	Advocate for patients and rights for care	64	66.0%	20	64.5%	0.022	0.881
25	Maintain a safe and therapeutic environment	31	32.0%	7	22.6%	0.99	0.320
26	Integrate quality improvement principles and activities	30	30.9%	4	12.9%	3.913	0.048
Patient education							
27	Explain information to the patient regarding treatment	43	44.3%	6	19.4%	6.202	0.013
28	Verify that patient understands the given information	49	50.5%	8	25.8%	5.807	0.016
29	Cooperate with the multidisciplinary team for education	37	38.1%	2	6.5%	11.138	0.001
30	Provide education to care for themselves	41	42.3%	4	12.9%	8.886	0.003

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		Educators (n=97)		Managers (n=31)		$\chi^2$ (1)	p
Safe and knowledgeable level		n	%	n	%		
Communication in the current healthcare system							
31	Utilise a range of effective communication techniques	63	64.9%	20	64.5%	0.002	0.965
32	Communicate using medical terms accurately	54	55.7%	14	45.2%	1.042	0.307
33	Seek clarification when directions are unclear	62	63.9%	20	64.5%	0.004	0.952
34	Communicate with foreign patients	39	40.2%	13	41.9%	0.029	0.864
35	Demonstrate accurate and clear documentation skills	45	46.4%	10	32.3%	1.915	0.166
36	Utilise information and communications technology	51	52.6%	17	54.8%	0.048	0.826
Collaborative nursing practice							
37	Collaborate with patients and their families	66	68.0%	22	71.0%	0.094	0.760
38	Collaborate as a team to maximise patient's health	49	50.5%	11	35.5%	2.132	0.144
39	Command tasks within expected timeframe	31	32.0%	7	22.6%	0.99	0.320
<b>Theme 3. Professional Nursing Practice</b>							
Legal and ethical nursing practice							
40	Practise according to legal and ethical standards	68	70.1%	15	48.4%	4.86	0.027
41	Practise in accordance with the scope of practice	63	64.9%	14	45.2%	3.838	0.050
42	Seek assistance to resolve moral conflict	60	61.9%	13	41.9%	3.804	0.051
43	Apply the health strategies to promote public health	33	34.0%	10	32.3%	0.033	0.856
44	Maintain personal development	53	54.6%	13	41.9%	1.518	0.218
45	Recognise accountability and responsibility	66	68.0%	20	64.5%	0.132	0.716
46	Responsible for continuing professional development	41	42.3%	12	38.7%	0.123	0.726
Clinical leadership							
47	Prioritise the workload of several patients	37	38.1%	10	32.3%	0.35	0.554
48	Participate in teaching nursing students	35	36.1%	7	22.6%	1.943	0.163
49	Delegate and supervise care provided by others	32	33.0%	8	25.8%	0.564	0.453
Professional attributes							
50	Manage stress and emotions	41	42.3%	15	48.4%	0.357	0.550
51	Demonstrate professional presence and behaviour	53	54.6%	23	74.2%	3.724	0.054
52	Seek and accept constructive criticism	52	53.6%	18	58.1%	0.188	0.664
53	Recognise my limits and ask for assistance	53	54.6%	18	58.1%	0.112	0.738

2

### Self-perceived competency levels rated by new graduates compared to graduating students

A chi-square test of independence indicated a total of n= 37 competency items with significant differences in the proportion of the achieved safe and knowledgeable competency level as rated by graduating students compared to new graduates (Table 4). Twelve competency items related to the professional practice, such as legal and ethical practice, and clinical leadership, showed a statistically significant difference that the proportion of new graduates self-assessing as being safe and knowledgeable was statistically smaller than the proportion of graduating students.



Table 4.

*Difference in the Self-Perceived Competency Levels between Graduating Students (n=179) and New Graduates (n=70)*

		GS (n=179)		NG (n=70)		$\chi^2$ (1)	p
		Safe and knowledgeable level					
		n	%	n	%		
<b>Theme 1. Evidence-Based Practice</b>							
Integrating knowledge and skills in practice							
1	Maintain up-to-date knowledge to utilise best practice	107	59.8%	19	27.1%	21.439	<.001
2	Perform the core nursing skills competently	122	68.2%	47	67.1%	0.024	0.878
3	Integrate relevant knowledge and skills to provide care	97	54.2%	27	38.6%	4.910	0.027
4	Provide safe medication care	110	61.5%	51	72.9%	2.864	0.091
5	Provide safe and efficient care in emergency situations	66	36.9%	13	18.6%	7.780	0.005
6	Carry out infection control and sterile procedure	145	81.0%	45	64.3%	7.781	0.005
7	Support ADLs (Activities of Daily Living) care	141	78.8%	40	57.1%	11.858	0.001
8	Provide nursing care for pain management	128	71.5%	44	62.9%	1.763	0.184
Delivering the best available evidence in practice							
9	Utilise accurate and updated evidence into practice	112	62.6%	23	32.9%	17.898	<.001
10	Possess basic research abilities	77	43.0%	19	27.1%	5.352	0.021
11	Use a critical inquiry process in nursing practice	99	55.3%	22	31.4%	11.486	0.001
12	Accurately use a range of health care technologies	116	64.8%	37	52.9%	3.032	0.082
Utilising a systematic approach							
13	Conduct a comprehensive assessment	112	62.6%	28	40.0%	10.415	0.001
14	Identify nursing diagnoses and health problems	123	68.7%	31	44.3%	12.727	<.001
15	Develop a care plan	115	64.2%	27	38.6%	13.536	<.001
16	Prioritise care based on individual needs and outcomes	125	69.8%	32	45.7%	12.565	<.001
17	Consistently provide the planned care	124	69.3%	34	48.6%	9.300	0.002
18	Evaluate outcome of the care plan and revise if needed	114	63.7%	26	37.1%	14.406	<.001
19	Monitor patient status throughout the process	114	63.7%	28	40.0%	11.521	0.001
<b>Theme 2. Patient-Centred Care</b>							
Practice for patient safety							
20	Practise physical psychological safe care for patient	146	81.6%	46	65.7%	7.162	0.007
21	Respect patient's cultural background and values	143	79.9%	45	64.3%	6.623	0.010
22	Possess empathic ability to understand other's feeling	154	86.0%	56	80.0%	1.387	0.239
23	Ensure and respect dignity, privacy and confidentiality	160	89.4%	61	87.1%	0.254	0.615
24	Advocate for patients and rights for care	153	85.5%	59	84.3%	0.056	0.813
25	Maintain a safe and therapeutic environment	122	68.2%	37	52.9%	5.103	0.024
26	Integrate quality improvement principles and activities	127	70.9%	34	48.6%	11.028	0.001
Patient education							
27	Explain information to the patient regarding treatment	130	72.6%	37	52.9%	8.904	0.003
28	Verify that patient understands the given information	139	77.7%	42	60.0%	7.900	0.005
29	Cooperate with multidisciplinary team for education	129	72.1%	35	50.0%	10.899	0.001
30	Provide education to care for themselves	130	72.6%	34	48.6%	12.95	<.001

2

		GS (n=179)		NG (n=70)		$\chi^2$ (1)	p
		Safe and knowledgeable level					
		n	%	n	%		
<b>Communication in the current healthcare system</b>							
31	Utilise a range of effective communication techniques	151	84.4%	57	81.4%	0.314	0.575
32	Communicate using medical terms accurately	123	68.7%	40	57.1%	2.981	0.084
33	Seek clarification when directions are unclear	129	72.1%	49	70.0%	0.105	0.745
34	Communicate with foreign patients	114	63.7%	26	37.1%	14.406	<.001
35	Demonstrate accurate and clear documentation skills	114	63.7%	28	40.0%	11.521	0.001
36	Utilise information and communications technology	129	72.1%	43	61.4%	2.666	0.103
<b>Collaborative nursing practice</b>							
37	Collaborate with patients and their families	147	82.1%	53	75.7%	1.308	0.253
38	Collaborate as a team to maximise patient's health	127	70.9%	43	61.4%	2.106	0.147
39	Command tasks within expected timeframe	99	55.3%	34	48.6%	0.918	0.338
<b>Theme 3. Professional Nursing Practice</b>							
<b>Legal and ethical nursing practice</b>							
40	Practise according to legal and ethical standards	146	81.6%	42	60.0%	12.651	<.001
41	Practise in accordance with the scope of practice	141	78.8%	48	68.6%	2.862	0.091
42	Seek assistance to resolve moral conflict	142	79.3%	46	65.7%	5.043	0.025
43	Apply the health strategies to promote the public health	126	70.4%	21	30.0%	33.947	<.001
44	Maintain personal development	132	73.7%	35	50.0%	12.844	<.001
45	Recognise accountability and responsibility	149	83.2%	49	70.0%	5.416	0.020
46	Be responsible for continuing professional development	128	71.5%	29	41.4%	19.544	<.001
<b>Clinical leadership</b>							
47	Prioritise the workload of several patients	129	72.1%	35	50.0%	10.899	0.001
48	Participate in teaching nursing students	129	72.1%	29	41.4%	20.370	<.001
49	Delegate and supervise care provided by others	122	68.2%	33	47.1%	9.456	0.002
<b>Professional attributes</b>							
50	Manage stress and emotions	124	69.3%	42	60.0%	1.947	0.163
51	Demonstrate professional presence and behaviour	153	85.5%	48	68.6%	8.240	0.002
52	Seek and accept constructive criticism	145	81.0%	45	64.3%	7.781	0.005
53	Recognise my limits and ask for assistance	152	84.9%	46	65.7%	11.392	0.001

2

## Discussion

The present study was undertaken to explore levels of competency for new graduate nurses, beginning professional nursing practice, from the perspectives of educators, managers, new graduates and graduating students. Overall, the findings regarding the competency levels from the participant groups provide important depth to aid understanding of new graduate's competencies and support they may need to transition into practice.

This study suggests that new graduates are well-prepared for respecting and advocating for patient dignity, which met with the expectations of the educators and managers. This finding is consistent with Hwang & Choi's study (2015) that the new nurses were competent to respect patient dignity because the importance of patient dignity is integrated throughout nursing programs. This corresponds with Benner's (2004) belief experience provides increased understanding of the nature of particular clinical situations. On the contrary, new graduates were found to require more assistance to integrate knowledge and skills in an emergency situation. Well-documented findings in contemporary literature show that responding to emergency situations is the biggest challenge in the first year of practice (Herron, 2018; Thanomlikhit & Kheawwan, 2017). This could be because many new graduates have never participated in emergency care. Those who had been involved in an emergency stated they were watched very closely by their clinical instructors and told what to do rather than being given the opportunity to think critically for themselves (Herron, 2018). This suggests that nursing education needs to provide high acuity experiences for students in their clinical courses. It is also important that new graduates are not be shielded from the most difficult patients but instead supported to manage these situations (Herron, 2018; Thanomlikhit & Kheawwan, 2017). However, although more experience in emergency situations might result in increasing competency levels, securing appropriate placements is problematic. This supports the utilisation of simulated practice as a part of clinical placement or orientation, which students and new graduates can repeatedly practise to deal with emergency situations in a safe learning environment (Theisen & Sandau, 2013).

This study found new graduates and graduating students self-assessed higher achievement of almost all required competencies than the expectation of nurse experts. Although there was uneven distribution of the respondents in this study, this finding could suggest that new graduates may be more competent in the required competencies than what is expected from educators and managers. This highlights consistent findings in the literature. Some studies report that the majority of new graduates felt themselves well-prepared or had strongly developed their competencies (Wangenstein et al., 2012) while others reported less than half of the experienced nurses were satisfied with new graduates' competencies (Berkow, Virkstis, Stewart, & Conway, 2008). It may be explained by methodological issues of self-assessment, which have been criticised for lacking objectivity (Cowan et al, 2008) Overall, this suggests that further study is required to explore new graduates' competency levels through multiple assessment methods to measure objectively.

There was a gap in the expectation of educators and managers in this study related to competencies. Particularly, the number of educators who perceived that new graduates were able to perform safe and knowledgeable care for evidence-based practice was significantly greater than the number of managers. This finding may be explained by the work of Numminen and colleagues (2014) who found that educators might assess competency from the viewpoint of what is the possible level of

competency to achieve during nursing education, while managers' assessments might be based on a competency level that a nurse should achieve to succeed in their particular clinical setting. Wolff, Pesut, and Regan (2010) also found that there was concern and frustration around perceptions of a mismatch between the standards by which educational programs were being evaluated and the actual requirements of healthcare employers. This highlights the importance of collaboration between educators and managers to bridge potential theory-practice gaps by ensuring support systems are in place, such as preceptors and undertaking baseline competency assessment (Wu et al., 2017).

The last finding was that new graduates' self-assessed competency levels were generally lower than those of the graduating students. This finding, however, does not align with the theory that new graduates usually function very close to the level of their final year of nursing education (Benner, 2004). Although of note, Benner does not clarify what process occurs in transition from one stage to another. This will be an area that is important for future research to understand new graduates' changing competency during transition. This gap in the competency levels between graduating students and new graduates, which was discovered in this study, might be explained by transition shock theory (Duchsher, 2009). During the transition from graduating student to new graduates, individuals are challenged by what they understand about nursing from their education and what they experience in the real world of healthcare service delivery. Particularly, this study found that practising within a legal and ethical framework may be a challenge for new graduates. Benner (2004) also pointed out that the striking change for new graduates is that they now have full legal and professional responsibility for the patient. However, Brooke (2004) highlighted that new graduates' inexperience cannot diminish the standard of care that their patients are entitled to expect. Therefore, this is a useful finding that nurse managers can support their new graduates to cope better with legal or ethical dilemmas by creating a supportive healthy work environment (Tong & Epeneter, 2018). Furthermore, clear guidelines and examples regarding legal or ethical issues in their practice can help new graduates practise their expected roles.

### **Limitation**

There are limitations in the current study. This study utilised a cross-sectional survey method, which limited participants' answers. In the future qualitative data might provide further depth related to competencies. There was also uneven distribution of the respondents between educators and managers, and graduating students and new graduates, which could lead to potential bias and skew results in favour of the larger group. Despite the potential limitations, the findings in this study elaborate on the competency levels of new graduates from different perspectives and can be used to support new graduate nurses.

## **Conclusion**

This study has examined the competency levels for new graduate nurses from different perspectives. It was agreed that new graduates were well-prepared for respecting patient dignity and privacy whereas integrating knowledge and skills in emergency situations was identified as the biggest challenge for new graduates due to a lack of opportunity. This study revealed a gap between the expectations of educators and those of managers, which suggests that it is vital for educators and managers to collaborate to bridge potential theory-practice gaps. Last, new graduates perceived that their competency levels were lower than those of graduating students, particularly for competencies related to legal and ethical practice. Future studies could continue to explore the gap of competency levels throughout the transition in order to support the beginning of practice as a professional nurse.

## **Implication for Nursing Management**

Currently there is limited evidence of any potential difference between what competency levels are expected of new graduates or evidence that compares competency levels between new graduates and graduating students. The findings of this study provide new information about the competency levels for new graduates that managers can use in supporting their transition to practice. Particularly, managers should provide new graduates with more opportunities to deal with emergency situations in a safe learning environment. Managers can also support their new graduates to cope with legal and ethical issues by providing a supportive system of preceptors and informative guidelines. Importantly, the findings highlight the need for collaboration between educators and managers to identify and address potential theory-practice gaps.

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Table 1

## Survey Distribution and Response Rates

	Nurse Educator	Nurse Manager	New Graduate	Graduating Student
Survey Distribution	n=466	n=40	n=90	n=192
Mode	Online	Mixed-mode (Paper/Online)	Paper	Paper
Validated response	n=97 response (21%)	n=31 response (78%)	n=70 response (78%)	n= 179 response (93%)

Table 2

Difference between *Educators and Managers' Expectations and New Graduates and Graduating Students' Self-perceived Achievement at the Point of Registration*

	Expectation (n=128)		Achievement (n=249)		$\chi^2$ (1)	p
	Safe and knowledgeable level					
	n	%	n	%		
<b>Theme 1. Evidence-Based Practice</b>						
Integrating knowledge and skills in practice						
1	Maintain up-to-date knowledge to utilise best practice	41	32.0%	126	50.6%	11.817 0.001
2	Perform the core nursing skills competently	66	51.6%	169	67.9%	9.577 0.002
3	Integrate relevant knowledge and skills to provide scare	34	26.6%	124	49.8%	18.75 <.001

		Expectation (n=128)		Achievement (n=249)		$\chi^2$ (1)	p
		Safe and knowledgeable level					
		n	%	n	%		
4	Provide safe medication care	58	45.3%	161	64.7%	12.997	<.001
5	Provide safe and efficient care in emergency situations	27	21.1%	79	31.7%	4.729	0.030
6	Carry out infection control and sterile procedure	61	47.7%	190	76.3%	31.183	<.001
7	Support ADLs (Activities of Daily Living) care	70	54.7%	181	72.7%	12.314	<.001
8	Provide nursing care for pain management	62	48.4%	172	69.1%	15.296	<.001
Delivering the best available evidence in practice							
9	Utilise accurate and updated evidence into practice	43	33.6%	135	54.2%	14.427	<.001
10	Possess basic research abilities	29	22.7%	96	38.6%	9.641	0.002
11	Use a critical inquiry process in nursing practice	45	35.2%	121	48.6%	6.195	0.013
12	Accurately use a range of health care technologies	43	33.6%	153	61.4%	26.274	<.001
Utilising a systematic approach							
13	Conduct a comprehensive assessment	45	35.2%	140	56.2%	15.016	<.001
14	Identify nursing diagnoses and health problems	53	41.4%	154	61.8%	14.267	<.001
15	Develop a care plan	33	25.8%	142	57.0%	33.187	<.001
16	Prioritise care based on individual needs and outcomes	48	37.5%	157	63.1%	22.25	<.001
17	Consistently provide the planned care	50	39.1%	158	63.5%	20.336	<.001
18	Evaluate outcomes of the care plan and revise if needed	39	30.5%	140	56.2%	22.49	<.001
19	Monitor changes in patient status throughout the process	43	33.6%	142	57.0%	18.577	<.001
<b>Theme 2. Patient-Centred Care</b>							
Practice for patient safety							
20	Practise physical and psychological safe care for patient	63	49.2%	192	77.1%	30.043	<.001
21	Respect patient's cultural background and values	54	42.2%	188	75.5%	40.82	<.001
22	Possess empathic ability to understand other's feeling	83	64.8%	210	84.3%	18.552	<.001
23	Ensure and respect dignity, privacy and confidentiality	102	79.7%	221	88.8%	5.664	0.017
24	Advocate for patients and rights for care	84	65.6%	212	85.1%	19.087	<.001
25	Maintain a safe and therapeutic environment	38	29.7%	159	63.9%	39.559	<.001
26	Integrate quality improvement principles and activities	34	26.6%	161	64.7%	49.137	<.001
Patient education							
27	Explain information to the patient regarding treatment	49	38.3%	146	58.6%	28.633	<.001
28	Verify that patient understands the given information	57	44.5%	181	72.7%	28.801	<.001
29	Cooperate with the multidisciplinary team for education	39	30.5%	164	65.9%	42.617	<.001
30	Provide education to care for themselves	45	35.2%	164	65.9%	32.268	<.001
Communication in the current healthcare system							
31	Utilise a range of effective communication techniques	83	64.8%	208	83.5%	16.772	<.001

		Expectation (n=128)		Achievement (n=249)		$\chi^2$ (1)	p
		Safe and knowledgeable level					
		n	%	n	%		
32	Communicate using medical terms accurately	68	53.1%	163	65.5%	5.422	0.020
33	Seek clarification when directions are unclear	82	64.1%	178	71.5%	2.177	0.140
34	Communicate with foreign patients	52	40.6%	140	56.2%	8.232	0.004
35	Demonstrate accurate and clear documentation skills	55	43.0%	142	57.0%	6.698	0.010
36	Utilise information and communications technology	68	53.1%	172	69.1%	9.298	0.002
Collaborative nursing practice							
37	Collaborate with patients and their families	88	68.8%	200	80.3%	6.277	0.120
38	Collaborate as a team to maximise patient's health	60	46.9%	170	68.3%	16.273	<.001
39	Command tasks within expected timeframe	38	29.7%	133	53.4%	19.202	<.001
<b>Theme 3. Professional Nursing Practice</b>							
Legal and ethical nursing practice							
40	Practise according to legal and ethical standards	83	64.8%	188	75.5%	4.752	0.029
41	Practise in accordance with the scope of practice	77	60.2%	189	75.9%	10.092	0.001
42	Seek assistance to resolve moral conflict	73	57.0%	188	75.5%	13.54	<.001
43	Apply the health strategies to promote the public health	43	33.6%	147	59.0%	21.891	<.001
44	Maintain personal development	66	51.6%	167	67.1%	8.61	0.003
45	Recognise accountability and responsibility	86	67.2%	198	79.5%	6.917	0.009
46	Be responsible for continuing professional development	53	41.4%	157	63.1%	16.053	<.001
Clinical leadership							
47	Prioritise the workload of several patients	47	36.7%	164	65.9%	29.139	<.001
48	Participate in teaching nursing students	42	32.8%	158	63.5%	31.869	<.001
49	Delegate and supervise care provided by others	40	31.3%	155	62.2%	32.534	<.001
Professional attributes							
50	Manage stress and emotions	56	43.8%	166	66.7%	18.339	<.001
51	Demonstrate professional presence and behaviour	76	59.4%	201	80.7%	19.769	<.001
52	Seek and accept constructive criticism	70	54.7%	190	76.3%	18.459	<.001
53	Recognise my limits and ask for assistance	71	55.5%	198	79.5%	23.921	<.001

Table 3.

*Difference between Educators' Expectation and Managers' Expectation on the Competency Levels at the Point of Registration*

		Educators (n=97)		Managers (n=31)		$\chi^2$ (1)	p
Safe and knowledgeable level		n	%	n	%		
<b>Theme 1. Evidence-Based Practice</b>							
Integrating knowledge and skills in practice							
1	Maintain up-to-date knowledge to utilise best practice	32	33.0%	9	29.0%	0.169	0.681
2	Perform the core nursing skills competently	56	57.7%	10	32.3%	6.104	0.013
3	Integrate relevant knowledge and skills to provide scare	32	33.0%	2	6.5%	8.482	0.004
4	Provide safe medication care	48	49.5%	10	32.3%	2.813	0.093
5	Provide safe and efficient care in emergency situations	25	25.8%	2	6.5%	5.269	0.022
6	Carry out infection control and sterile procedure	55	56.7%	6	19.4%	13.135	<.001
7	Support ADLs (Activities of Daily Living) care	63	64.9%	7	22.6%	17.017	<.001
8	Provide nursing care for pain management	53	54.6%	9	29.0%	6.168	0.013
Delivering the best available evidence in practice							
9	Utilise accurate and updated evidence into practice	35	36.1%	8	25.8%	1.112	0.292
10	Possess basic research abilities	26	26.8%	3	9.7%	3.932	0.047
11	Use a critical inquiry process in nursing practice	42	43.3%	3	9.7%	11.649	0.001
12	Accurately use a range of health care technologies	37	38.1%	6	19.4%	3.718	0.054
Utilising a systematic approach							
13	Conduct a comprehensive assessment	34	35.1%	11	35.5%	0.002	0.956
14	Identify nursing diagnoses and health problems	43	44.3%	10	32.3%	1.411	0.235
15	Develop a care plan	32	33.0%	1	3.2%	10.876	0.001
16	Prioritise care based on individual needs and outcomes	43	44.3%	5	16.1%	7.971	0.005
17	Consistently provide the planned care	42	43.3%	8	25.8%	3.02	0.082
18	Evaluate outcomes of the care plan and revise if needed	36	37.1%	3	9.7%	8.347	0.004
19	Monitor changes in patient status throughout the process	34	35.1%	9	29.0%	0.382	0.537
<b>Theme 2. Patient-Centred Care</b>							
Practice for patient safety							
20	Practise physical and psychological safe care for patient	51	52.6%	12	38.7%	1.808	0.179
21	Respect patient's cultural background and values	39	40.2%	15	48.4%	0.645	0.422
22	Possess empathic ability to understand other's feeling	62	63.9%	21	67.7%	0.151	0.698
23	Ensure and respect dignity, privacy and confidentiality	80	82.5%	22	71.0%	1.922	0.166
24	Advocate for patients and rights for care	64	66.0%	20	64.5%	0.022	0.881
25	Maintain a safe and therapeutic environment	31	32.0%	7	22.6%	0.99	0.320
26	Integrate quality improvement principles and activities	30	30.9%	4	12.9%	3.913	0.048

		Educators (n=97)		Managers (n=31)		$\chi^2$ (1)	p
		Safe and knowledgeable level					
		n	%	n	%		
Patient education							
27	Explain information to the patient regarding treatment	43	44.3%	6	19.4%	6.202	0.013
28	Verify that patient understands the given information	49	50.5%	8	25.8%	5.807	0.016
29	Cooperate with the multidisciplinary team for education	37	38.1%	2	6.5%	11.138	0.001
30	Provide education to care for themselves	41	42.3%	4	12.9%	8.886	0.003
Communication in the current healthcare system							
31	Utilise a range of effective communication techniques	63	64.9%	20	64.5%	0.002	0.965
32	Communicate using medical terms accurately	54	55.7%	14	45.2%	1.042	0.307
33	Seek clarification when directions are unclear	62	63.9%	20	64.5%	0.004	0.952
34	Communicate with foreign patients	39	40.2%	13	41.9%	0.029	0.864
35	Demonstrate accurate and clear documentation skills	45	46.4%	10	32.3%	1.915	0.166
36	Utilise information and communications technology	51	52.6%	17	54.8%	0.048	0.826
Collaborative nursing practice							
37	Collaborate with patients and their families	66	68.0%	22	71.0%	0.094	0.760
38	Collaborate as a team to maximise patient's health	49	50.5%	11	35.5%	2.132	0.144
39	Command tasks within expected timeframe	31	32.0%	7	22.6%	0.99	0.320
<b>Theme 3. Professional Nursing Practice</b>							
Legal and ethical nursing practice							
40	Practise according to legal and ethical standards	68	70.1%	15	48.4%	4.86	0.027
41	Practise in accordance with the scope of practice	63	64.9%	14	45.2%	3.838	0.050
42	Seek assistance to resolve moral conflict	60	61.9%	13	41.9%	3.804	0.051
43	Apply the health strategies to promote public health	33	34.0%	10	32.3%	0.033	0.856
44	Maintain personal development	53	54.6%	13	41.9%	1.518	0.218
45	Recognise accountability and responsibility	66	68.0%	20	64.5%	0.132	0.716
46	Responsible for continuing professional development	41	42.3%	12	38.7%	0.123	0.726
Clinical leadership							
47	Prioritise the workload of several patients	37	38.1%	10	32.3%	0.35	0.554
48	Participate in teaching nursing students	35	36.1%	7	22.6%	1.943	0.163
49	Delegate and supervise care provided by others	32	33.0%	8	25.8%	0.564	0.453
Professional attributes							
50	Manage stress and emotions	41	42.3%	15	48.4%	0.357	0.550
51	Demonstrate professional presence and behaviour	53	54.6%	23	74.2%	3.724	0.054
52	Seek and accept constructive criticism	52	53.6%	18	58.1%	0.188	0.664
53	Recognise my limits and ask for assistance	53	54.6%	18	58.1%	0.112	0.738

Table 4.

Difference in the Self-Perceived Competency Levels between Graduating Students (n= 179) and New Graduates (n=70)

	GS (n=179)		NG (n=70)		$\chi^2$ (1)	p	
	Safe and knowledgeable level						
	n	%	n	%			
<b>Theme 1. Evidence-Based Practice</b>							
Integrating knowledge and skills in practice							
1	Maintain up-to-date knowledge to utilise best practice	107	59.8%	19	27.1%	21.439	<.001
2	Perform the core nursing skills competently	122	68.2%	47	67.1%	0.024	0.878
3	Integrate relevant knowledge and skills to provide care	97	54.2%	27	38.6%	4.910	0.027
4	Provide safe medication care	110	61.5%	51	72.9%	2.864	0.091
5	Provide safe and efficient care in emergency situations	66	36.9%	13	18.6%	7.780	0.005
6	Carry out infection control and sterile procedure	145	81.0%	45	64.3%	7.781	0.005
7	Support ADLs (Activities of Daily Living) care	141	78.8%	40	57.1%	11.858	0.001
8	Provide nursing care for pain management	128	71.5%	44	62.9%	1.763	0.184
Delivering the best available evidence in practice							
9	Utilise accurate and updated evidence into practice	112	62.6%	23	32.9%	17.898	<.001
10	Possess basic research abilities	77	43.0%	19	27.1%	5.352	0.021
11	Use a critical inquiry process in nursing practice	99	55.3%	22	31.4%	11.486	0.001
12	Accurately use a range of health care technologies	116	64.8%	37	52.9%	3.032	0.082
Utilising a systematic approach							
13	Conduct a comprehensive assessment	112	62.6%	28	40.0%	10.415	0.001
14	Identify nursing diagnoses and health problems	123	68.7%	31	44.3%	12.727	<.001
15	Develop a care plan	115	64.2%	27	38.6%	13.536	<.001
16	Prioritise care based on individual needs and outcomes	125	69.8%	32	45.7%	12.565	<.001
17	Consistently provide the planned care	124	69.3%	34	48.6%	9.300	0.002
18	Evaluate outcome of the care plan and revise if needed	114	63.7%	26	37.1%	14.406	<.001
19	Monitor patient status throughout the process	114	63.7%	28	40.0%	11.521	0.001
<b>Theme 2. Patient-Centred Care</b>							
Practice for patient safety							
20	Practise physical psychological safe care for patient	146	81.6%	46	65.7%	7.162	0.007
21	Respect patient's cultural background and values	143	79.9%	45	64.3%	6.623	0.010
22	Possess empathic ability to understand other's feeling	154	86.0%	56	80.0%	1.387	0.239
23	Ensure and respect dignity, privacy and confidentiality	160	89.4%	61	87.1%	0.254	0.615
24	Advocate for patients and rights for care	153	85.5%	59	84.3%	0.056	0.813

		GS		NG		$\chi^2$ (1)	p
		(n=179)		(n=70)			
		Safe and knowledgeable level					
n	%	n	%				
25	Maintain a safe and therapeutic environment	122	68.2%	37	52.9%	5.103	0.024
26	Integrate quality improvement principles and activities	127	70.9%	34	48.6%	11.028	0.001
Patient education							
27	Explain information to the patient regarding treatment	130	72.6%	37	52.9%	8.904	0.003
28	Verify that patient understands the given information	139	77.7%	42	60.0%	7.900	0.005
29	Cooperate with multidisciplinary team for education	129	72.1%	35	50.0%	10.899	0.001
30	Provide education to care for themselves	130	72.6%	34	48.6%	12.95	<.001
Communication in the current healthcare system							
31	Utilise a range of effective communication techniques	151	84.4%	57	81.4%	0.314	0.575
32	Communicate using medical terms accurately	123	68.7%	40	57.1%	2.981	0.084
33	Seek clarification when directions are unclear	129	72.1%	49	70.0%	0.105	0.745
34	Communicate with foreign patients	114	63.7%	26	37.1%	14.406	<.001
35	Demonstrate accurate and clear documentation skills	114	63.7%	28	40.0%	11.521	0.001
36	Utilise information and communications technology	129	72.1%	43	61.4%	2.666	0.103
Collaborative nursing practice							
37	Collaborate with patients and their families	147	82.1%	53	75.7%	1.308	0.253
38	Collaborate as a team to maximise patient's health	127	70.9%	43	61.4%	2.106	0.147
39	Command tasks within expected timeframe	99	55.3%	34	48.6%	0.918	0.338
<b>Theme 3. Professional Nursing Practice</b>							
Legal and ethical nursing practice							
40	Practise according to legal and ethical standards	146	81.6%	42	60.0%	12.651	<.001
41	Practise in accordance with the scope of practice	141	78.8%	48	68.6%	2.862	0.091
42	Seek assistance to resolve moral conflict	142	79.3%	46	65.7%	5.043	0.025
43	Apply the health strategies to promote the public health	126	70.4%	21	30.0%	33.947	<.001
44	Maintain personal development	132	73.7%	35	50.0%	12.844	<.001
45	Recognise accountability and responsibility	149	83.2%	49	70.0%	5.416	0.020
46	Be responsible for continuing professional development	128	71.5%	29	41.4%	19.544	<.001
Clinical leadership							
47	Prioritise the workload of several patients	129	72.1%	35	50.0%	10.899	0.001
48	Participate in teaching nursing students	129	72.1%	29	41.4%	20.370	<.001
49	Delegate and supervise care provided by others	122	68.2%	33	47.1%	9.456	0.002
Professional attributes							
50	Manage stress and emotions	124	69.3%	42	60.0%	1.947	0.163
51	Demonstrate professional presence and behaviour	153	85.5%	48	68.6%	8.240	0.002
52	Seek and accept constructive criticism	145	81.0%	45	64.3%	7.781	0.005

	GS		NG		$\chi^2$ (1)	p		
	(n=179)		(n=70)					
	n	%	n	%				
53	Recognise my limits and ask for assistance		152	84.9%	46	65.7%	11.392	0.001



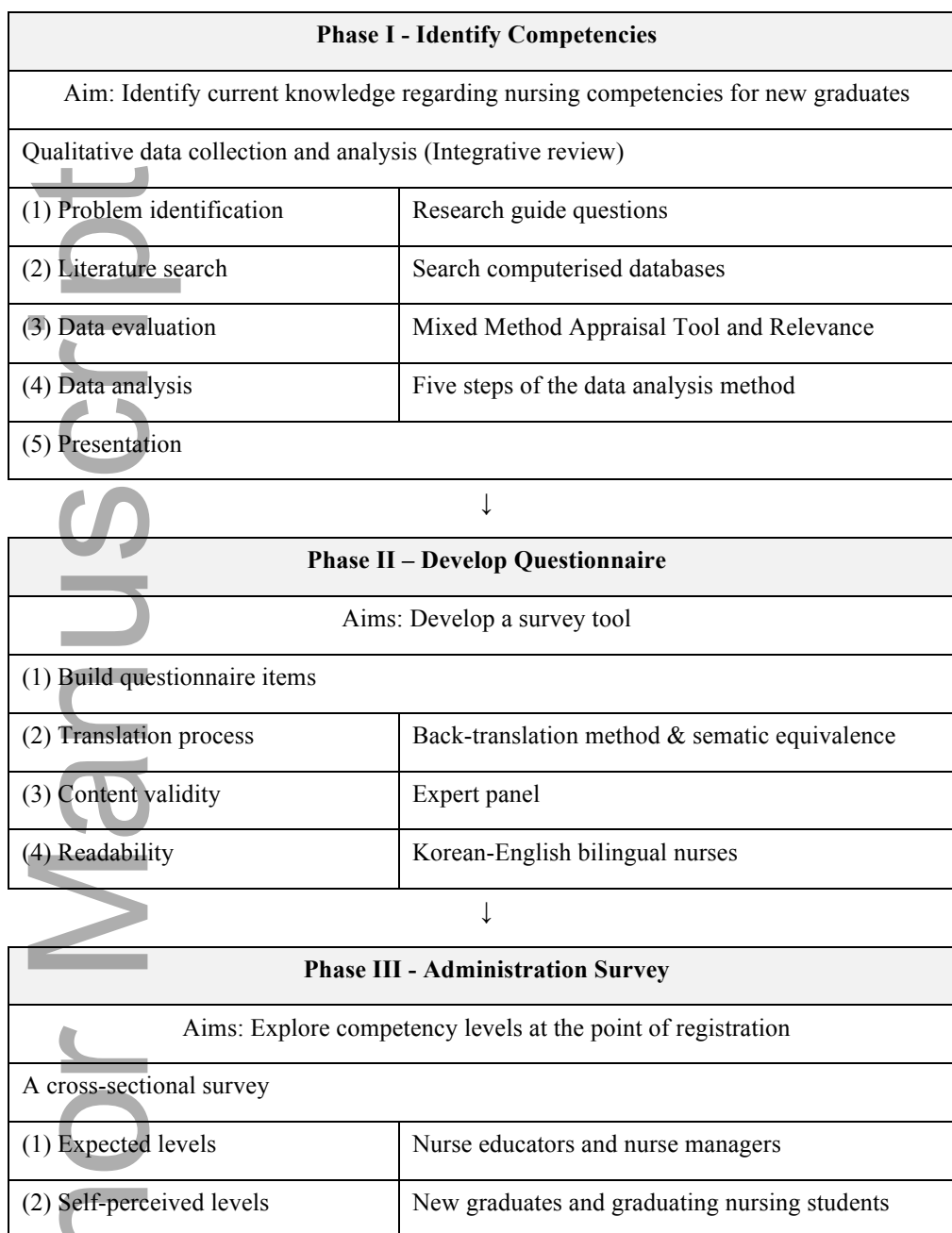


Figure 1. *Diagram of Research Process*