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Evaluation on Cognitive Competency in Nursing Practice: A Cross-Sectional Study among UniKL RCMP Nursing Graduates.

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Abstract

Introduction: Nurses are the backbone of the healthcare industry and must acquire competency to practice professionally and adhere to the acceptable standard of practice. To ensure patient safety and prevent medical negligence, the integration of knowledge, nursing skills, and attitudes should be incorporated into the nursing curriculum.
Objective: This study aimed to measure the cognitive competency among the Diploma in Nursing graduates of UniKL RCMP.
Methods:A cross-sectional survey was conducted from May 2021 until December 2021 among the Diploma in Nursing graduates who graduated between 2016 till 2020. The data were collected using an adapted Nurse Professional Competency Scale sent to the participants via online Google forms. The sample contained 200 graduates (response rate 55%). The data were analyzed using SPSS version 26.
Results: In this study, the graduates' self-assessed competence level was good (76%). Further analysis of the sub-items in the cognitive domain showed that the teaching/learning and support factor of cognitive competency has the highest attainment level (69%); on the other hand, 9% of the graduates perceived that they have yet to attain adequate competency in the supervision of staff/students in the development activities for improved care.
Conclusion: The nursing graduates perceived themselves to have moderate to high cognitive competence in nursing practice. No significant difference was found between the cognitive competence and the demographic variables of marital status, years of clinical experience, and academic enhancement post-graduation. The findings of this study assist the nurse educators of higher education institutions in the curriculum review and planning of the relevant teaching and learning strategies to enhance cognitive competency among nursing students.

Keywords: *Nursing practice, Cognitive, Nurse Professional Competency Scale*

Introduction

Medical negligence has affected patient safety, incurred financial implications, and jeopardized the organization's reputation. It is a major concern for all healthcare-providing organizations. Much of this could have been avoided if the personnel had the required competence and adhered to the acceptable standard of practice. Nurses are involved directly in the provision of patient care. Throughout their careers, nurses must enhance their competence. To practice professionally, nurses must acquire numerous essential skills that govern the profession [1,2].

Nursing competency includes core abilities that are required for fulfilling one's role as a nurse.

Logical thinking and correct nursing abilities are two fundamental cognitive domains in nursing skills that are paramount in providing professional nursing care. The four skills in these domains that make up the nursing competency structure are the capacity to comprehend needs, deliver care, collaborate, and support decision-making [3]. Therefore, it is important to clearly define nursing competency to establish a foundation for the nursing education curriculum.

To ensure patient safety, nurses' clinical competency should be upheld. Integrating knowledge, abilities, and attitudes amount to competence in nursing practice. Additionally, nurse competency raises the standard of nursing care and lowers the frequency of missed nursing care [4].

Has the theory-practical knowledge imparted at academic institutions offering nursing training translated into nursing competency? This is the question that all academic institutions offering nursing education must address. The objective of this study was to measure the cognitive competency among the Diploma in Nursing graduates.

Methods

A cross-sectional study was conducted from May 2021 until December 2021 among the Diploma in Nursing students who graduated from UniKL RCMP between 2016 till 2020. The participants were selected using a stratified random sampling method with the aid of Krejcie and Morgan table for sample size determination (1970) [5]. A sample of 200 nursing graduates was selected from the population of 393. Voluntary informed consents were obtained, and the study was approved by the dean of the Faculty of Medicine.

The research instrument used for this study was a questionnaire consisting of two parts. Part A on the socio-demographic data while Part B was the validated Nurse Professional Competence (NPC) scale which was constructed based on the competency framework by Benner, from novice to expert. The original version of NPC scaled consist of 88 items that are divided into seven factors.

For this study, the researchers adapted and modified the NPC scale into a total of 55 items on cognitive, psychomotor, and affective domains as shown in Figure 1, that were appropriate to be self-evaluated by the participants. The scales are measured in a in 6-point Likert-scale (1 = Very Weak; 2 = Weak; 3 = Average; 4 = Good; 5 = Excellent; and 6 = Outstanding).

Furthermore, to evaluate the cognitive competency among the Nursing graduates, a total of 12 items from the cognitive domain were analyzed, as follows:

- Cognitive domain that was categorized into 2 factors:
  - Factor 1: Teaching/Learning and Support (7 items)
  - Factor 2: Education and Supervision of Staff/Students (5 items)

The total score for each respondent was calculated and converted to a percentage. The percentage of 65 and above is considered highly competent based on the university examination grading system. The level of graduates' confidence of their cognitive, psychomotor, and

affective competency level are shown in Table 1. A percentage that exceeds 50% reflects that graduates have confidence of their competency in cognitive, psychomotor, and affective abilities, where a higher percentage reflects a higher level of competency.

The questionnaire is validated with pilot study with 30 samples with Cronbach's alpha of 0.957. The questionnaire was distributed via Google Form and shared on social media platforms, such as WhatsApp messenger, Telegram and Facebook to all graduates excluded those who had participated in the pilot study. Although the response rate was 55%, the minimum sample size was achieved.

Data were analysed using Statistical Package for Science Social (SPSS) version 26. Descriptive data were expressed as mean ± SD. Significant results were determined when the p-value was < 0.05.

Results

Demographic data

The demographic distribution of the 200 graduates in this study is shown in Table 2. The mean age of the nursing graduates is 23.95 ± 1.56 years. It appears that the nursing graduates are relatively young. This is because they graduated from diploma programme where the enrolment for most of them is after their form 5 education. 90% of the graduates are female. This is not surprising as the nursing profession has been perceived as a profession for female. However, there is increase demand for male nurses and the nursing profession is no longer seen as exclusively profession for women. A great majority of graduates (70.5%) are still single. This study only analyses graduates from 2016 to 2020. Therefore, they are still in very early stages of their career and still pursuing financial stability before starting their family. Slightly more than half of the graduates (53.5%) have more than three years of clinical experience. It may seem that these graduates do not have much clinical experience. This is because the study recruited graduates' nurses within five years of graduation. As shown in Table 2, a total of 92% of the respondents do not possess post basic qualifications and 89% of them have yet to enrol in nursing degree programme. The regulatory requirement is most likely the reason why they have not upgraded their academic qualifications, as it is a prerequisite to have two years working experience before enrolling in such a program. Furthermore, they are still in the early phases on their career and are still seeking financial stability. The policy of the institution where they work, where seniors are given priority for academic advancement, could be the reason why most of them are not able to pursue further studies.

Cognitive competency

As shown in Figure 2, 76% of nursing graduates have a high level of confidence in their cognitive competency. The results of this study are very encouraging for the nursing profession.

Table 3 summarized the frequency of each sub-item in the cognitive domain, which is divided into 2 main factors, factor no. 1 on teaching/learning and support, while factor no. 2 focused on education and supervision of staff/students. Overall, the competency is higher on factor 1 (teaching/learning and support) as compared to factor 2 on education and supervision of staff/students.

Looking at the factor on teaching/learning and support, the graduates' self-perceived competence was between 'good' (score 4) and 'excellent' (score 5) in all the items. The highest score was on the item "ensure that information given to the patient is understood" (mean score of 4.87 ± 0.858), followed by "motivate the patient to adhere to treatments" (mean score of 4.82 ± 0.839). It is shown that graduates perceived themselves as 'good' in "providing patients and relatives with support to enhance participation in patient care" (mean score of 4.75 ± 0.81) and "motivate changes in lifestyle" (means score of 4.79 ± 0.812).

On the other hand, the graduates have perceived themselves as 'good' in carrying out the education and supervision roles, in particularly "participate in supervision of staff/students in development activities for improved care" (means score of 4.71 ± 0.879), "supervise and educate staff" (mean score 4.75 ± 0.857), and "enable multi-professional education activities to optimize patient care" (mean score 4.75 ± 0.868)

Discussion

76% of graduates have high level of confidence in their cognitive competency. This is not surprising as the nursing curriculum of the institution greatly emphasizes on this competency. The nursing program pays great emphasis in enhancing students' therapeutics communication skills and holistic care. It also suggested that the nursing curriculum can meet the graduates' learning outcomes based on the high self-assessed cognitive competency. The finding of this study is consistent with the study done by Kajander-Unkuri, et. al. in Finland who found that over half (62.9%) of the nursing graduates assessed their competence as good and 25.8% as very good [6]. The teaching/learning and support factor of cognitive competency appears to be the competency which has the highest attainment level (69%) among the nursing graduates. This could be related to the nature of nursing education and curricular whereby students are exposed to the teaching and supporting role right from semester one and expanded when they become more seniors. Nurses are consistently involved in providing health education and assessing patient's conditions and needs. This supports the previous study that the highest level of competence was reported in helping patients and providing individualised care [6].

Nine percent (9%) of the graduates perceived that they have yet to attain good competency in supervision of staff/students in the development activities for improved care. This finding reflects that these graduates are still in the junior years of their nursing career and the skill may develop as their clinical experience increases. There are similarities between the cognitive attainment of the graduates in this study and those described by Kajander-Unkuri, et. al. [6]. Furthermore, this finding agreed with the literature review on the level of nursing competency in carrying our supervision role, that the junior nurses may have the competency in educational abilities but will still need more clinical experience to be able to supervise, and they may still need occasional supervision in their clinical abilities and competency [7].

There is no correlation between the cognitive competency and the demographic characteristics such as marital status, years of clinical experience, post diploma academic qualification (p value > 0.05). These findings agree with both studies by Kajander-Unkuri, et. al. and Faraji A, et al, who found no significant correlation between the competency and demographic data [6,8]. However, this finding may be bias as the number of graduates that have embarked on post diploma academic programme is relatively small. Besides, it is in congruent to the findings of an extensive systematic literature review done by Nehrir, B. et.al. [7]. In this systematic literature review, it was concluded that nursing students' competency is inclined more to the individual experiences, dynamic process, and positive interactive social and beneficial changes which takes place during their professional life and not so much contributed by demographic factors such as age, gender, marital status, and post-basic qualifications. They believe that this are basically the infrastructure of nursing students' competency levels [7].

Conclusion

The findings of this study indicated the nursing graduates perceived themselves to have moderate to high cognitive competence in nursing practice. No significant difference was found between the cognitive competence and the demographic variables of marital status, years of clinical experience, and academic enhancement post-

graduation. The findings of this study are useful in assisting the nurse educators of the higher education institutions in curriculum review and planning of the relevant teaching and learning strategies to enhance the cognitive competency among the nursing students. It is recommended that new educational approaches such as e-learning and continuous professional development and training to be conducted. Further study is recommended to investigate the factors influencing the cognitive competency of nurses.

This study is limited to cohort of graduates who were graduated in 2016 till 2020, with the relatively low number of respondents, the findings may not be generalizable. Furthermore, the low response rate (55%) might have influenced the study results. In general, the NPC scale is used widely in self-assessment of competency level among nurses, however, there were items in this scale that requires nursing graduates to become more senior in practice to complete the task independently such as "enable multi-professional education activities to optimize patient care", "teaching and supervision role" and 'development of healthcare teams". Employer or immediate superior's evaluation and knowledge tests could be used alongside with self-evaluation of competency to provide the researchers with more insights.

The limitation in this study is that it is a self-assessment, hence biases on students not forthcoming or not recognizing their weakness. The plan is to do evaluation analysis in the future.

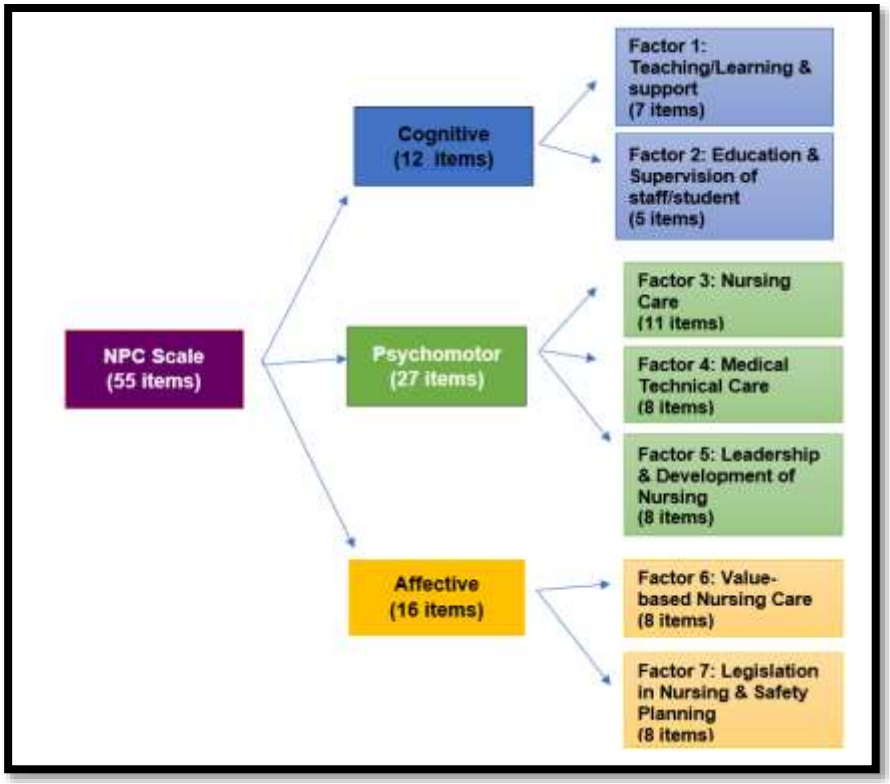

Figure 1: Domains and sub-factors in the NPC Scale

Table 1. Interpretation of level of competency

Percentage of score	**Level of Competency**
≥ 65%	Highly competent
50% - 64.9%	Moderately competent
< 50%	Low competency

Table 2. Summary of socio-demographic data for nursing graduates, 2016 - 2020

Demographic Characteristics	n (%)
Age	Mean: 23.95 ± 1.56 95% CI (23.73, 24.16)
Gender	
Male	20 (10%)
Female	180 (90%)
Marital status	
Single	141 (70.5%)
Married	58 (29%)
Divorced	1 (0.5%)
Widowed	0
Years of clinical experience	
< 1 year	30 (15%)
1 - 3 years	63 (31.5%)
> 3 years	107 (53.5%)
Post basic qualification	
Yes	16 (8%)
No	184 (92%)
Pursued degree in Nursing	
Yes	22 (11%)
No	178 (89%)

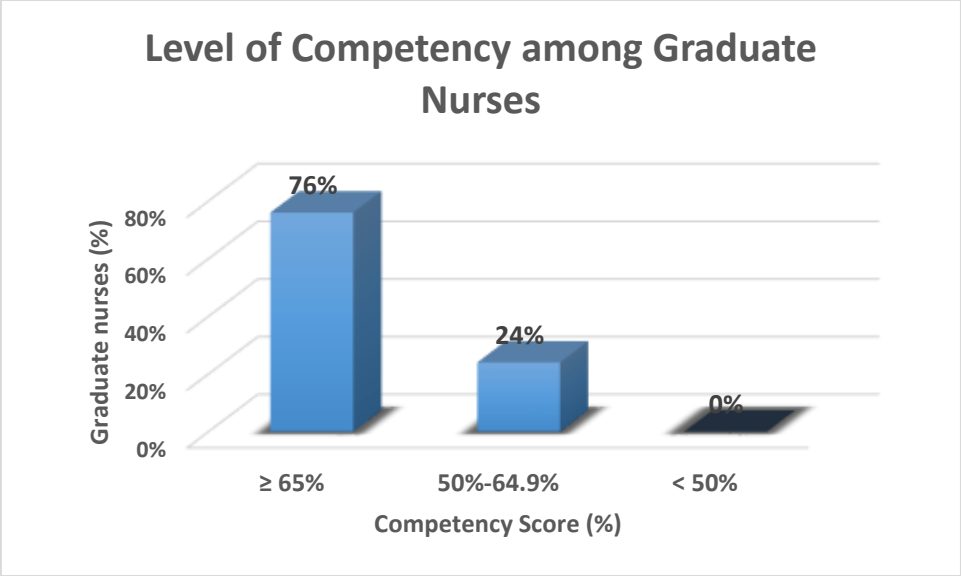

Figure 2 Level of cognitive competency

Table 3. Summary of frequency in each sub-item measured in the cognitive domain

Factor 1: Teaching/Learning and Support		1 Very weak	2 Weak	3 Average	4 Good	5 Excellent	6 Outstanding	Mean ±SD
No	**Items**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	
1.	Provide patients and relatives with support to enhance participation in patient care.	0	0	14 (7%)	62 (31%)	85 (42.5%)	39 (19.5%)	4.75 ±0.81
2.	Inform and educate individual patients and relatives.	0	0	12 (6%)	57 (28.5%)	88 (44%)	43 (21.5%)	4.81 ±0.841
3.	Ensure that information given to the patient is understood.	0	0	13 (6.5%)	49 (24.5%)	89 (44.5%)	49 (24.5%)	4.87 ±0.858
4.	Pay attention to patients who do not themselves express information needs.	0	0	14 (7%)	54 (27%)	89 (44.5%)	43 (21.5%)	4.81 ±0.855
5.	Motivate the patient to adhere to treatments.	0	0	13 (6.5%)	53 (26.5%)	92 (46%)	42 (21%)	4.82 ±0.839
6.	Motivate changes in lifestyle.	0	0	11 (5.5%)	58 (29%)	93 (46.5%)	38 (19%)	4.79 ±0.812
7.	Educate and support patients and relatives individually to enhance health.	0	0	16 (8%)	50 (25%)	91 (45.5%)	43 (21.5%)	4.81 ±0.866
Factor 2: Education and Supervision of Staff/Students								
1.	Participate in supervision of staff/students in development activities for improved care.	0	0	18 (9%)	61 (30.5%)	83 (41.5%)	38 (19%)	4.71 ±0.879
2.	Teach, supervise, and assess students.	0	0	14 (7%)	62 (31%)	81 (40.5%)	43 (21.5%)	4.77 ±0.868
3.	Supervise and educate staff.	0	0	16 (8%)	57 (28.5%)	89 (44.5%)	38 (19%)	4.75 ±0.857
4.	Development of health-care teams.	0	0	13 (6.5%)	56 (28%)	90 (45%)	41 (20.5%)	4.80 ±0.841
5.	Enable multi-professional education activities to optimise patient care.	0	1 (0.5%)	14 (7%)	59 (29.5%)	87 (43.5%)	39 (19.5%)	4.75 ±0.868

Table 4. Correlation between cognitive competency level and the socio-demographic data.

Chi-square test	
Variables	**Asymp. Sig. (2-sided)**
Marital status vs. cognitive competency level	0.685
Years of clinical experience vs. cognitive competency level	0.481
Post basic qualifications vs. cognitive competency level	0.361
Degree qualifications n vs. cognitive competency level	0.655

* P value is significant if < 0.05

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