

Technical report

Relevance of the test content of the Korean Nursing Licensing Examination to nursing job

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Abstract

Purpose: This study aimed at identifying if there is a relevance of content of the Korean Nursing Licensing Examination (KNLE) revised in 2014 to nursing job. It will be able to provide the validity of revised content of the KNLE. **Methods:** From October 13 to November 13, 2015, print version of 8 duties with 49-tasks, 155-job item questionnaires were distributed to 1,305 hospital nurses and 202 nursing faculties in Korea. Results were treated by descriptive statistics and comparison analysis. There were responses from 946 nurses or professors (72.5%). **Results:** The relevance of test content of KNLE to nursing job was shown to be valid with over 3 points out of 4 point Likert scale in all items: from 3.23 at lowest to 3.64 at top. **Conclusion:** Above results showed that the revised version of KNLE in 2014 was valid to test the nursing students' knowledge for job performance.

Keywords: Knowledge; Nursing licensure; Nursing students; Korea; Work performance

Introduction

Studies on the improvement of the Korean Nursing Licensing Examination (KNLE) have been carried out several times [1,2]. However, an analysis on relevance of the test content of the Korean Nursing Licensing Examination to nursing job was not done. Korea Health Personnel Licensing Examination Institute (KHPLEI) revised the contents of test items of KNLE according to job description in 2014 [3]. This study aimed to analyze the relevance between the nurse's job and the content of KNLE. Based on the results, the study will draw validity of the recently revised contents of KNLE.

Methods

Research design

This study is a descriptive analysis of surveyed data. The analyses were carried out for deriving nursing knowledge and confirming the validity.

Subjects

The survey was conducted targeting on-site experts working in hospitals with over 300 beds and nursing professors with over 10 years' experience. A total of 1,305 questionnaires were distributed to 18 hospitals, 6 community health centers, and 202 nursing colleges and, among them, 942 were collected (collection rate 72.2%). The corresponding data was collected for 1 month from Oct. 13, 2014.

Materials

The research questionnaire is completed after developing

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Received: March 16, 2016; Accepted: June 2, 2016;

Published online: June 2, 2016

This article is available from: <http://jeehp.org/>

the derived nursing knowledge as questions, carrying out some preliminary research, and making up for the problems. The questionnaire consists of 155 items and each one is measured

on a 4-point Likert scale, from 'not reasonable at all' 1 point to 'very reasonable' 4 points. Questionnaire was a nursing knowledge developed for KNLE [4]. Subjects marked each items from

Table 1. The degree of the knowledge validity according to the duty and task

Duty	Task	College professors (N = 86)		Clinical nurses (N = 856)		Total (942)	
		Mean	SD	Mean	SD	Mean	SD
Nursing management and staff development (3.44)	Shift report	3.62	0.53	3.64	0.51	3.62	0.52
	Recording of nursing care	3.63	0.51	3.72	0.45	3.64	0.51
	Prescription management	3.47	0.58	3.44	0.54	3.46	0.58
	Admission care and discharge planning	3.47	0.53	3.38	0.48	3.46	0.58
	Management of equipment and devices	3.47	0.56	3.50	0.57	3.47	0.56
	Documentation and reporting	3.46	0.55	3.47	0.57	3.46	0.55
	Quality monitoring	3.45	0.58	3.45	0.52	3.45	0.57
	Ethical decision making	3.38	0.52	3.32	0.42	3.37	0.51
	Staff development	3.32	0.53	3.26	0.48	3.32	0.53
	Health system guidance	3.23	0.53	3.22	0.41	3.23	0.52
Safety and infection control (3.47)	Collaboration with other health professionals	3.22	0.58	3.30	0.51	3.23	0.57
	Environmental management	3.31	0.53	3.22	0.47	3.30	0.52
	Infection control	3.56	0.47	3.54	0.42	3.55	0.47
	Surveillance: safety	3.54	0.48	3.44	0.42	3.53	0.47
Management of potential risk factors (3.55)	Community disaster preparedness	3.49	0.53	3.42	0.54	3.48	0.53
	Vital signs monitoring	3.58	0.49	3.68	0.42	3.59	0.49
	Emergency care and management	3.62	0.49	3.61	0.51	3.62	0.50
	Diagnostic test management	3.52	0.51	3.44	0.57	3.51	0.52
	Pre, peri, postoperative care	3.53	0.52	3.53	0.54	3.53	0.52
Basic nursing and caring (3.47)	Pre, peri, postnatal care	3.50	0.55	3.66	0.47	3.52	0.55
	Self-care assistance: hygiene	3.38	0.55	3.12	0.67	3.36	0.57
	Nutrition management	3.48	0.50	3.48	0.45	3.48	0.50
	Urinary elimination management	3.53	0.49	3.55	0.48	3.53	0.49
	Bowel management	3.51	0.50	3.53	0.44	3.51	0.49
	Sleep and bed rest care	3.44	0.51	3.34	0.54	3.43	0.51
	Pressure ulcer prevention and care	3.56	0.50	3.52	0.47	3.56	0.50
Maintenance of physiological integrity (3.54)	Exercise and activity promotion	3.43	0.54	3.40	0.51	3.43	0.53
	Respiratory monitoring	3.59	0.47	3.60	0.46	3.59	0.47
	Circulatory care	3.61	0.48	3.61	0.47	3.61	0.48
	Maintenance of regulation and metabolism	3.52	0.51	3.52	0.48	3.51	0.51
	Sensation management	3.49	0.52	3.41	0.53	3.48	0.52
	Wound care	3.56	0.50	3.53	0.48	3.56	0.50
	Tube care	3.52	0.52	3.44	0.51	3.51	0.52
Medication and non-oral treatments (3.54)	Pain management	3.53	0.51	3.37	0.58	3.52	0.52
	Medication administration	3.57	0.48	3.51	0.51	3.57	0.49
	Medication management	3.52	0.52	3.39	0.52	3.50	0.52
	Blood products administration	3.58	0.50	3.50	0.56	3.57	0.51
	Chemo and radiation therapy management	3.53	0.53	3.48	0.51	3.53	0.53
Maintenance of socio-psychological integrity (30.46)	Total parenteral nutrition (TPN) management	3.52	0.50	3.46	0.51	3.51	0.50
	Support system enhancement	3.47	0.51	3.36	0.54	3.45	0.52
	Hospice care	3.48	0.52	3.27	0.54	3.46	0.52
	Maintain the value of life and the belief	3.45	0.55	3.20	0.59	3.42	0.56
	Stress reduction	3.51	0.57	3.45	0.63	3.46	0.58
	Risk identification and management	3.47	0.58	3.37	0.54	3.51	0.51
	Substance use management	3.47	0.55	3.44	0.54	3.46	0.58
Maintenance and improvement of health (3.46)	Education	3.51	0.50	3.49	0.56	3.47	0.52
	Health screening	3.48	0.52	3.42	0.52	3.42	0.53
	Risk identification	3.42	0.52	3.36	0.54	3.42	0.53
	Maintenance of sex and reproductive health	3.48	0.53	3.36	0.55	3.47	0.53

1 to 4 points according to the degree of relevance to nurse's job. The questionnaire was analyzed after integrating data into 8 duties with 49 tasks out of 155 items.

Statistical analysis

The collected data was analyzed using SPSS version 18.0 (SPSS Inc., Chicago, IL, USA). The validity of the knowledge according to each task is obtained by percentage, averages, and standard deviation. The validity difference of the knowledge according to working periods is obtained by t-test and ANOVA. A Scheffé test is carried out to do a post-investigation.

Ethical approval

This study was approved by the institutional review board of Nursing College of Chungnam National University before collecting the data (No. 2-1046881-A-N-01-201410- HR-048). Only those who consented to participate signed the written consent form on the first page of the document and answered the questionnaires.

Results

The working years of the subjects

The average teaching experience of the university professors

Table 2. The degree of the duty validity according to working periods

Duty	Working years	N	Average	SD	F	P
Nursing management and staff development	< 5a	66	3.37	0.39	17.385	< 0.001 b < a < c < d
	6-10b	403	3.35	0.43		
	11-20c	335	3.49	0.38		
	> 21d	138	3.61	0.31		
	Total	942	3.44	0.40		
Safety and infection control	< 5a	66	3.44	0.41	13.197	< 0.001 a < d b < c < d b < a < d
	6-10b	403	3.38	0.45		
	11-20c	335	3.52	0.40		
	> 21d	138	3.61	0.36		
	Total	942	3.47	0.42		
Management of potential risk factors	< 5a	66	3.47	0.47	9.387	< 0.001 a < d b < c < d a < b < d
	6-10b	403	3.48	0.48		
	11-20c	335	3.60	0.42		
	> 21d	138	3.68	0.39		
	Total	942	3.55	0.45		
Basic nursing and caring	< 5a	66	3.43	0.45	9.031	< 0.001 b < c < d
	6-10b	403	3.40	0.46		
	11-20c	335	3.52	0.42		
	> 21d	138	3.60	0.40		
	Total	942	3.47	0.44		
Maintenance of physiological integrity	< 5a	66	3.46	0.45	8.924	< 0.001 a < d b < c < d a < b < d
	6-10b	403	3.47	0.46		
	11-20c	335	3.59	0.42		
	> 21d	138	3.66	0.40		
	Total	942	3.54	0.44		
Medication and non-oral treatments	< 5a	66	3.48	0.46	8.196	< 0.001 b < a < d
	6-10b	403	3.47	0.47		
	11-20c	335	3.56	0.43		
	> 21d	138	3.68	0.37		
	Total	942	3.54	0.45		
Maintenance of socio-psychological integrity	< 5a	66	3.44	0.45	5.405	0.001 b < c < d b < c b < d
	6-10b	403	3.40	0.49		
	11-20c	335	3.50	0.46		
	> 21d	138	3.56	0.43		
	Total	942	3.46	0.47		
Maintenance and improvement of health	< 5a	66	3.37	0.50	5.059	0.002 b < c < d
	6-10b	403	3.41	0.48		
	11-20c	335	3.51	0.47		
	> 21d	138	3.55	0.45		
	Total	942	3.46	0.48		

was 130.51 months (± 108.81), and 93.3% of them have 11 to 20 years working experience. The average working experience of the registered nurses was 131.54 months (± 104.36). The 42.8% of them had 6 to 10 years working experience (403) and 35.6% 11 to 20 (335).

The degree of knowledge validity according to the duties and tasks

The average and standard deviation was obtained in the degree of the knowledge validity according to their duties and tasks. The category was divided into three groups such as registered nurses, university professors, and all subjects (Table 1). Dividing their job into 8 duties, the degree of validity was compared (Table 1). While 'management of potential risk factors' was the highest at 3.55 points (± 0.45), 'nursing management and staff development' was the lowest at 3.44 points (± 0.40). The degree of the total task validity ranged from 3.22 points (± 0.52) to 3.63 points (± 0.51) (Table 1). While 'health system guidance' and 'collaboration with other health professionals' showed a relatively low point, 'recording of nursing care', 'shift report', 'emergency care and management', 'circulatory care', and 'prescription management' indicate a higher degree of validity. A similar result was indicated in the validity degree depending on working places evaluated by the registered nurses and university professors.

The degree of duty validity according to working periods

There were meaningful differences in all 8 duties in the degree of duty validity according to working periods (Table 2). In the case of 'nursing management and staff development', nurses who had worked for over 21 years rank the first and those 11 to 20 years, under 5, and 6 to 10 were followed in that order ($F = 17.385$, $P < 0.001$).

Nurses working for over 21 years most highly evaluated the validity in 'safety and infection control', and those 11 to 20 and 6 to 10 years showed meaningful differences ($F = 13.197$, $P < 0.001$). In 'management of potential risk factors', nurses working for over 21 years also ranked that first, and there were remarkable differences depending on each working period ($F = 9.387$, $P < 0.001$). Likewise, the first for those working for over 21 years in 'basic nursing and caring', and those 11 to 20 years and 6 to 10 were followed, showing meaningful differences ($F = 9.031$, $P < 0.001$). In 'maintenance of physiological integrity' ($F = 8.924$, $P < 0.001$), 'medication and non-oral treatments' ($F = 8.196$, $P < 0.001$), 'maintenance of socio-psychological integrity' ($F = 5.405$, $P = 0.001$), and 'maintenance and improvement of health' ($F = 5.059$, $P = 0.002$), the validity evaluation of those working for over 21 years was the highest and showed a statistically meaningful difference to that of those with other working periods.

The results connected the nurses' jobs and nursing knowledge (learning goals and the range of questions). According to the survey on the connection validity of the nurses' jobs and nursing knowledge, the validity degree of all the items were over 3 points, and so 155 items are accepted as valid.

Discussion

This study, being design to understand the changes in learning objectives, connected the range of the KNLE by nursing jobs and completed a table connecting nurse job-learning objective-knowledge. Being categorized by nursing jobs based on the 2nd analysis [4], the nursing knowledge area related with the duty of 'nursing management and staff development' were 40 areas integrated from an overlapped 47. There were 13 areas at the duty of 'safety and infection control', and 18 nursing knowledge areas at the duty of 'management of potential risk factors'. Twenty three nursing knowledge areas were closely related at the duty of 'basic nursing and caring', 20 nursing knowledge areas at 'physiological integrity', 22 at 'medication and non-oral treatments', 29 at 'maintenance of socio-psychological integrity', and 36 nursing knowledge areas related with the duty of 'maintenance and improvement of health'. This result shows that, at the time of performing the nurse jobs, knowledge of nursing is required to be integrated rather than used individually by majors.

Since 2004, the National Council Licensure Examination for Registered Nurses (NCLEX-RN) of the United States has run integrated test subjects and has evaluated their capability to carry out the duties depending on nursing courses. The number of exam question categories of the NCLEX-RN is 4. The contents of each category are on safe and effective care environment (management of care 17%-23%, safety and infection control 9%-15%), health promotion and maintenance 6%-12%, psychosocial integrity 6%-12%, and physiological integrity (basic care and comfort 6%-12%, pharmacological and parenteral therapies 12%-18%, reduction of risk potential 9%-15%, physiological adaptation 11-17%) [5].

In comparison with National Council of State Boards of Nursing (NCSBN) of the United States, the 2nd analysis of nursing jobs categorized to 8 job ranges and was mostly coincident with that of USA in content except minor differences in terms. However, when it goes to setting test ranges, KNLE still consist of 7 subjects with mainly the learning objectives of the majors. KHPLEI has previously reviewed the possibility of integrating the subjects for the development of the KNLE, with which 52.5% of professors majoring in nursing science in Korea have acknowledged its necessity [6]. They say integration could minimize the overlaps among the subjects, enhance the problem-solving ability of the nurses in the field, and promote

holistic and comprehensive care for their patients.

There have been studies for the integration of KNLE, though this is virtually the first one to connect the range of possible questions, and nursing jobs. This will eventually make the paradigm shift of the standard of making items of KNLE from the learning objective of nursing major subjects to nursing jobs, and to the nursing knowledge necessary for each nursing job. This means the standard of setting the KNLE will make the paradigm shift from knowledge verification for each major subject, to knowledge verification mainly for the jobs performed in nursing fields. Also, this will show KNLE should be able to verify the correct knowledge areas relevant to performing proper duties in the fields. The most important one is that content of KNLE should be in compliance with on-site duties. It is suggested to change the standard of setting the KNLE to, as drawn in this study, a task-centered paradigm of nursing job-nursing knowledge, and integrate the seven exam subjects and unite into a single nursing subject.

The comparison and analysis on this study is limited as to category and domain for the nursing learning objective, and 8 duties and 49 tasks for the nursing jobs. We suggest the study to draw more concrete and practical nursing knowledge comparing the content of nursing learning objective with the task elements of nursing jobs.

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Conflict of interest

No potential conflict of interest relevant to this article was reported.

Funding

This work is supported by a research grant from the National Health Personnel Licensing Examination Board of Korea, 2014 (RE02-1533-05).

Supplementary materials

Audio recording of the abstract.
Raw data of the research.

References

1. Lim NY, Song JH. Delphi study on introduction of practical skills test in National Examination for Nursing Licensure. *J Korean Acad Fundam Nurs* 2007;14:157-165.
2. Lee HY, Kim CJ, Lee SJ, Park HR, Lee IS, Kim HJ, Park YM. A study of the validity of the Korean Nurses' Licensing Examination. *J Educ Eval Health Prof* 2005;2:31-42. <http://dx.doi.org/10.3352/jeehp.2005.2.1.31>
3. Korea Health Personnel Licensing Examination Institute. Specific area for developing test item pool of Korean Nursing Licensing Examination. Seoul (KR): Korea Health Personnel Licensing Examination Institute; 2014.
4. Park IS, Suh YO, Park HS, Ahn SY, Kang SY, Ko IS. The job analysis of Korean nurses as a strategy to improve the Korean Nursing Licensing Examination. *J Educ Eval Health Prof* 2016;13:24. <http://dx.doi.org/10.3352/jeehp.2016.13.24>
5. National Council of State Boards of Nursing. NCLEX-RN® examination test plan for the National Council Licensure Examination for Registered Nurses [Internet]. Chicago (IL): National Council of State Boards of Nursing; 2012 [cited 2016 Mar 16]. Available from: https://www.ncsbn.org/2013_NCLEX_RN_Test_Plan.pdf.
6. Korean Association of College of Nursing. Basic direction for nursing subjects integrity of National Nurses' License Examination. Seoul (KR): Korean Association of College of Nursing. 2001.