ORIGINAL ARTICLE

دراسة الاحتياجات التعليمية للممرضات وفق منهج ISO 10015 للمعايير الدولية في مستشفى الرازي في تربت حيدرية في عام ٩٧ شمسيا.

الخلفية: الممرضات هم أكبر مجموعة من مقدمي الرعاية الطبية في جميع أنحاء العالم. يرتبط وجود ممرضين ذوي قدرة عالية في نظام الرعاية الصحية ارتباطاً مباشراً بنتائج أكثر إيجابية للمرضى. التطور السريع للإجراءات و المعدات الطبية الجديدة يقتضي تطوير مهارات و كفاءات جديدة باستمرار. و بالتالي فإن إحدى الوسائل الفعالة لتدريبهم بشكل أكثر كفاءة هي تحديد و تقييم احتياجاتهم التعليمية. الغرض من هذا البحث هو دراسة الاحتياجات التعليمية للممرضات بطريقة ISO 10015.

الطريقة: هذه الدراسة عبارة عن دراسة وصفية للمسح تم إجراؤها على جميع ممرضات مستشفى الرازي في تربت حيدرية عام ١٣٩٧ شمسيا عن طريق التعداد. تم تحديد الكفاءات و المهارات اللازمة باستخدام طريقتين من دلفي و تحليل الوظائف و تقييم الاحتياجات التعليمية وفقًا لخطوات ISO 10015. الأدوات المستخدمة كانت استبيانات مصممة من قبل الباحث التى اختبرت موثوقيتها و صلاحيتها من خلال تحقيق ألفا كرونباخ بنسبة ٨٣,٩ ٪ ، و طريقة صلاحية المحتوى على التوالي. تم تحليل البيانات باستخدام الإصدار ١۶ من برنامج SPSS.

النتائج: تم تحديد ثلاثمائة و واحد و ستين مهارة وتم تصنيفها إلى ثلاث فئات: عامة (۴٨ مهارة) و متخصصة (٣٠٣ مهارة) و إدارية (١٠ مهارات). كان لدى الممرضات كفاءات مقبولة في ٣١٢ من المهارات المحددة حينما كانت هناك فجوات تعليمية و هيكلية وجدت في ٨ مهارات عامة و ٣۶ متخصصة و ۵ مهارات إدارية ، و اقترحت مجموعة من الخبراء حلولًا للتغلب على الفجوات. في النهاية ، تم تحديد و تسجيل ٧ مهارات عامة و ٣٣ متخصصة و ۵ مهارات إدارية على أنها فجوات معرفية.

الخلاصة: اكتشفنا في هذه الدراسة أن المهارات المتخصصة هي أهم الاحتياجات التعليمية (تفسير ABG ، تدريب جهاز التنفس الصناعي ، عدم انتظام ضربات القلب (للممرضات) ، و تقييم احتياجات الموظفين و المرضى (لرؤساء التمريض))؛ تليها مهارات التمريض العامة (اليقظة) و مهارات الإدارة (إدارة الجودة). ينبغى النظر في الفجوات المعرفية المحددة في التخطيط للتدريب في المستقبل.

الكلمات المفتاحية: تقييم الاحتياجات التعليمية ، ISO 10015 ، كفاءات التمريض، تقنية دلفي ، تقنية تحليل الوظائف

تربت حیدریہ میں کے رازی اسپتال میں ایزو ١٠٠١۵ کے مطابق نرسنگ اسٹوڈنٹس کی تعلیمی ضرورتوں کا جائزہ لیا گیا۔ یہ تحقیق دو ہزار چھے میں انجام دی گئي

بیک گراونڈ: نرسیں دنیا میں سب سے زیادہ میڈیکل خدمات فراہم کرنے والی کیڈر ہیں ۔ نرسوں کا اپنی تعلیم اور ٹریننگ میں مضبوط ہونے سے بیماروں کے علاج پر مثبت اثر پڑتا ہے، علم طب کی تیز ترقی کو دیکھتے ہوئے یہ ضروری ہے کہ نرسنگ سیکٹر میں بھی علمی لحاظ سے ترقی ہو۔ اسی وجہ سے نرسوں کو اپ ٹو ڈیٹ رکھنا نہایت اہمیت رکھتا ہے۔ اس تحقیق کا ھدف ایزو 10015کے مطابق نرسوں کی تعلیمی ضرورتوں کو سمجھنا ہے۔

روش: اس تحقیق میں تربت حیدریہ کے اسپتال کی تمام نرسوں نے شرکت کی۔ جاب اینا لائسس اور ڈلفی تکنیکوں سے اھلیت کا پتہ لگایا گیا ،اس کےبعد ایزو 10015 کے مطابق تعلیمی ضر ورتوں کا اندازہ لگایا گیا۔ ڈیٹا کی جمع آوری سوالنامہ کے ذریعے کی گئی جس کی علمی حیثیت آلفا کرونباخ سے ثابت کرلی گئي تھی۔ ڈیٹا کا تجزیہ ایس پی ایس ایس سولہ ورژن کے سافٹ ویر سے کیا گیا۔

نتیجے: تین سو اکسٹھ افراد کو جنرل میڈیسن ، تین سو تین افراد کو ماہرانہ صلاحیتوں کا حامل اور دس افراد کو مینجمنٹ کی صلاحیتوں کا حامل قراردیا گیا۔ نرسوں کو تین سو بارہ میدانوں میں صاحب صلاحیت پایا گیا جبکہ عام علاج میں آنھ ، مہارتوں میں بتیس اور مینجمینٹ کے میدانوں میں کچھ خامیوں پائي گئي تھیں۔

سفارش: اس تحقیق سے معلوم ہوا ہے کہ مہارتوں کی صلاحیتیں نرسنگ کے لئے نہایت اہمیت کی حامل ہیں جیسے اے بی جی کی وضاحت کرنا، وینٹی لیٹر کو سیٹ کرنا، اور دل کی غیر معمولی حرکت کا اندازہ لگانا ، یہ ساری چیزیں نرسوں کے لئے ضروری قرار دی جاتی ہیں۔ اس کے علاوہ نرسوں کی عام صلاحیتیں بھی ضرورتی ہوتی ہیں جو کہ بنیادی حیثیت رکھتی ہیں۔ اس کے علاوہ انہیں مینجمینٹ صلاحیتوں کا بھی حامل ہونا چاہیے، جو کمیاں محسوس کی گئي تھیں انہیں آئندہ منصوبہ بندی میں دور کرنے کی کوشش کی جائے گي ۔

کلیدی الفاظ: تعلیمی ضرورتیں ، جاب اینا لائسس ، ڈلفی تکنیک

Surveying training needs of nursing staff of Razi Hospital, Torbat Heydarieh Iran through ISO 10015 standard in 2018

Background: Nurses are the largest group of medical caregivers in the world. Having highly capable nurses in a healthcare system is directly associated with more favorable outcomes for patients. The rapid development of new medical procedures and equipment necessitates constantly developing new skills and competencies. Thus one of the effective means towards their efficient training is to identify and assess their educational needs. The purpose of this investigation is to study educational needs of nurses by ISO 10015 method.

Methods: A descriptive survey research was designed surveying all of the nursing staff of Razi Hospital of Torbat Heydarieh. At the first stage of the study, necessary competencies and skills were identified using two methods of Delphi and job analysis, and then educational needs assessment was done according to ISO 10015 steps. The tools used were researcher designed questionnaires and their reliability and validity were tested by achieving a Cronbach's alpha of 83.9%, and by content validity method, respectively. Data analysis was done using version 16 of SPSS software.

Results: Three hundred and sixty-one skills were identified and were categorized into three categories of general (48 skills), specialized (303 skills), and management (10 skills). Nurses had acceptable competencies in 312 of the identified skills, while there were educational and structural gaps found in 8 general, 36 specialized and 5 management skills, as well as the solutions to overcome the gaps were proposed by a group of experts. At the end, 7 general, 33 specialized and 5 management skills were identified and recorded as knowledge gaps.

Conclusion: In this study we found out that the specialized skills are the most important educational needs (ABG interpretation, ventilator settings, and cardiac arrhythmias for nurses; and staff and patients' needs assessment for head nurses) followed by general nursing skills (hemovigilance), and management skills (quality management). The identified knowledge gaps were considered in planning for the future trainings of the study population.

Keywords: Educational Needs Assessment, ISO 10015, Nursing competencies, Delphi technique, Job Analysis technique

بررسی نیازهای آموزشی پرستاران با رویکرد استاندارد بین المللی ایزو ۱۰۰۱۵ در بیمارستان رازی تربت حیدریه در سال ۹۷

زمینه و هدف: پرستاران، بزرگترین ارائه دهندگان خدمات بهداشتی درمانی در جهان هستند. بهره مندی از پرستاران با توانمندی آموزشی بالا با بهبود پیامدهای بیماران ارتباط مستقیم دارد. با گسترش سریع مرزهای علم، پرستاران نیاز به کسب مهارت های جدید دارند، بنابراین یادگیری، نیاز مداوم آنان بوده و شناخت نیازهای آموزشی آنان، گامی مؤثر در راه ارتقای توانمندی آنان می باشد. هدف از مطالعه حاضر بررسی نیازهای آموزشی پرستاران با رویکرد ایزو۱۰۰۱۵ است.

روش: این مطالعه، یک پژوهش توصیفی پیمایشی است، که بر روی کلیه پرستاران بیمارستان رازی تربت حیدریه در سال ۱۳۹۷ به روش سرشماری انجام گرفت. ابتدا الزامات شایستگی با استفاده از تکنیک تجزیه و تحلیل شغل و تکنیک دلفی انجام و سپس نیازسنجی آموزشی بر اساس گامهای ایزو۱۰۰۱۵ انجام گردید. ابزار، پرسش نامه های محقق ساخته بود که روایی آنها به روش اعتبار محتوا و پایایی با استفاده از آلفای کرونباخ، ۸۳/۸ ٪ تأیید گردید. تحلیل داده ها توسط SPSS ورژن ۱۶ انجام شد.

یافته ها: ۳۶۱ شایستگی، در سه حیطه عمومی (۴۸ عنوان)، تخصصی (۳۰۳ عنوان)، مدیریتی (۱۰ عنوان) استخراج شد. پرستاران در ۳۱۲ عنوان، شایستگی داشتند. ۸ شکاف عمومی، ۳۶ شکاف تخصصی و ۵ شکاف مدیریتی مشخص و راه حل ها توسط متخصصین تعیین شد. در آخر هفت نیاز آموزشی عمومی، ۳۳ تخصصی و پنج مدیریتی شناسایی و ثبت شدند.

نتیجه‌گیری: نیازهای تخصصی در اولویت اول (تفسیر ABG، آموزش ونتیلاتور، آریتمی های قلبی برای پرستاران، نیازسنجی آموزشی کارکنان و بیماران برای سرپرستاران)، نیازهای عمومی در اولویت دوم (همومیژولانس) و نیازهای مدیریتی در اولویت سوم (مدیریت کیفیت) تعیین شد. بنابراین توجه به نیازها دربرنامه ریزی آموزشی پیشنهاد می گردد.

واژه های کلیدی: نیاز سنجی آموزشی، ایزو ۱۰۰۱۵ ، شایستگی پرستاران، تکنیک دلفی، تکنیک تجزیه و تحلیل شغل

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INTRODUCTION

With over 14 million population around the world and 170 thousands in Iran, nurses are the largest group of health care providers, providing between 50-80% of all health care services across the globe (1). As a result, the quality of their services influences the quality of the healthcare system directly which necessitates more efficient and higher quality education and training for this group of healthcare providers (2). One of the most important steps in improving training efficiency and effectiveness is to assess the educational needs of the target population and to direct the available resources towards the specific needs of those who we want to train (3). There are various methods available for needs assessment (to identify knowledge gaps). These include target oriented methods, communication oriented methods, problem oriented methods, and a combination of the abovementioned methods. One of the communication oriented methods is Delphi method which structurally collects different ideas and opinions around a certain problem or need (4). Another unique tool in the field of education and training is ISO (international organization for standardization) 10015 standard, which is used in surveying educational processes. This standard provides a set of training instructions including needs analysis, designing and planning, implementation of training, assessment of results, and monitoring improvements (5). Using and applying ISO 10015 standard could potentially grant improvements in education of the staff, increasing efficiency, reducing costs, reducing time of the process cycle, and further innovations (6, 7).

The aim of this study is to survey the training needs of nurses of Razi Hospital, Torbat Heydarieh, Iran using Job analysis technique, Delphi technique, and ISO 10015 standard to find out the possible solutions which could be used to fill in the educational gaps of the nursing staff of the hospital.

METHODS

A hundred nurses of Razi hospital, Torbat Heydarieh, Iran were surveyed in this descriptive exploratory design study. All of the hospital nursing staff met the inclusion criteria of this investigation. The inclusion criteria were having bachelor's degree of nursing or higher education, having at least 6 years of working experience in general wards, and being employed in the hospital. The exclusion criteria were: unwillingness to take part in the study, occurrence of any unpredicted accidents throughout the study, resigning or transferal of the participants to other hospitals. The tools used in this study were researcher-designed questionnaire which were specifically designed for the nurses of different wards including: internal medicine ward, surgery, Cardiac Care unit (CCU), head nurses, clinical supervisors, educational supervisors, and nursing managers. Each questionnaire was consisted of two parts; demographic data and competencies. The questionnaires were used for self-examination of the nursing staff, and also to evaluate the nursing staff by their direct supervisors according to their previous encounters. Getting less than 4 points (below average) showed the need of the individual to be trained with certain competencies. The validity of the questionnaire was achieved by presenting it to 10 experts and applying the needed changes accordingly. In order to assess the reliability, the questionnaire was given to 15 nurses twice with 4 weeks of interval and then Cronbach's alpha was calculated to be 83.8%. At the end of the study, the same parameter was calculated again which was 85%. Data were collected according to ISO 10015 steps for identifying and evaluating training needs. At the first step of the standard, identifying the skills associated with competency, the present study used a combination of two methods of job analysis technique and Delphi technique. By using job analysis, a list of the necessary competencies for the nurses were composed based on the professional duties which were mentioned in the nationwide policies, and also credible nursing references and curricula which were confirmed in three group discussion sessions with the assistant of a group of experts. Using Delphi method, the present researchers validated the skills in three rounds. In the first round, they gave the documents which were compiled in the previous step to 10 experts (including one with a master in nursing, one with a master of internal and surgical nursing, one with a master of pediatric nursing, one with a master of critical care nursing, one with a master of neonatal critical care nursing, one with a master of emergency nursing, one clinical supervisor, one educational supervisor, one Metron, and one ISO audit) and they gave a score between 1-7 to the determined parameters based on their importance (1 as the least importance, and 7 as the most importance). In addition, they proposed some skills and competencies to be added to our list which were missing in the first step. In the second round, the recommendations made in the first round were assessed and the repetitive suggestions were omitted and then the modified list was given to the same experts again to be scored once more. In the third round, the researchers calculated the mean score of each skill, and removed the skills with a mean score of lower than 4 points. At the end of this step, a list of required competencies was compiled. Then the list was categorized into general and specialized competencies for the nurses and specialized and management competencies for head nurses, supervisors, and managers. In the second step of the standard, the researchers evaluated the competencies of the nurses and compared their competencies with the required skills, which were expected. This step was carried out using questionnaires by both the individuals and their direct supervisor using a 7-point scoring system. Then all the gathered data were recorded to the statistical software and the competency of the individuals were demonstrated by frequency and the percentage. The researchers then compared the results with the score of 4, which was considered as the threshold of competency, and identified the competencies with a score lower than 4 as educational needs. In the third step, a working group of experts was assigned to discuss the possible solutions to resolve and eliminate the shortcomings of the nurses' competencies. In the fourth step, the researchers determined the characteristics of the identified educational needs, categorizing those with possible educational solutions as educational (knowledge) gaps and the rest as non-educational

gaps (e.g. structural gaps). According to this categorization, they then defined and recorded the final educational gaps. In this step, every remaining item was necessarily an educational gap. This study has been approved by ethical committee of Mashhad University of Medical Sciences with IR.MUMS. Medical.REC.1397.559 ethical code.

RESULTS

All of the nurses of Razi Hospital were enrolled in the study (100 nurses), out of which 64 were female and 36 were male and 85% of them had a bachelor's degree in nursing, while the rest had master's degree of nursing (table 1).

Utilizing ISO 10015, the present researchers finally identified 45 knowledge gaps in the nursing staff, which were categorized into 33 specialized, 7 general and 5 management knowledge gaps (table 2).

The most important specialized knowledge gaps were ABG interpretation, ventilator instructions, and cardiac arrhythmia for nurses, and educational needs assessment of nursing staff and patients for head nurses (table 3). On the other hand, the most important general need was hemovigilance, and the most important management need was quality management (table 3).

DISCUSSION

In this study, 361 competencies in three categories were evaluated: general (48 competencies), specialized (303 competencies), and management (10 competencies). The nurses were fully capable in 312 of the aforementioned competencies. However, gaps were found in 8 general, 36 specialized and 5 management competencies.

At the first step of the ISO 10015 standard, nursing needs were determined using required nursing competencies, two methods of work assessment and Delphi in three rounds which resulted in identifying 48 general, 303 specialized and 10 management competencies. In their study on 710 nursing

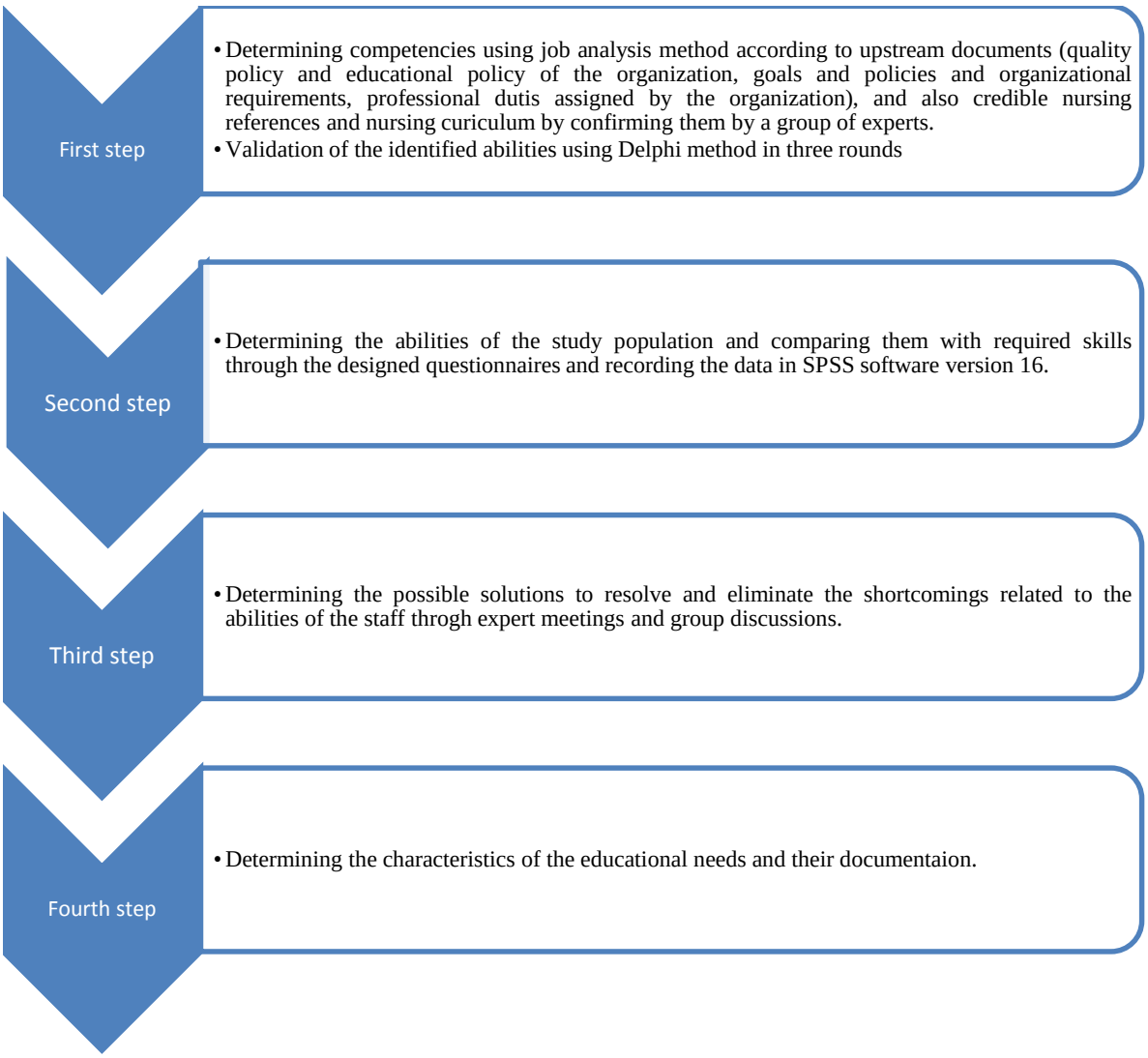

Figure 1. Steps of educational needs assessment according to ISO 10015 standard

Table 1. Demographic data of participants

Major	Level of education	Age	Gender (N.O.)	Ward	Post	Number
Nursing←	Bachelor's degree 85.5%	38±0.8	Female (64)	Emergency	Head nurse Nurse	1 13
				Pediatric	Head nurse Nurse	1 9
				Internal medicine	Head nurse Nurse	1 9
	Master's degree 14.4%		Male (36)	General surgery	Head nurse Nurse	1 6
				Gynecology and obstetrics	Head nurse Nurse	1 10
				Operation room	Nurse	5
				CCU	Head nurse Nurse	1 7
				ICU	Head nurse Nurse	1 7
				NICU	Head nurse Nurse	1 12
				Nursing office	Clinical supervisor Educational supervisor Nursing manager	4 1 1

Table 2. Overall results obtained through ISO 10015 steps

Title	General	Specialized	Management
Competencies identified through job analysis	39	285	12
Competencies verified through Delphi technique	48	303	10
Shortcomings (gaps) between available and required competencies	8	36	5
Final identified educational needs	7	33	5

staff of emergency departments of Gilan Province, Iran, by applying Delphi method to assess general competencies, Hasandoost *et al.* identified and categorized 10 communication skills, 8 emergency management skills, and 12 personal character skills (8). Although there are other studies evaluating nursing skill needs, to the best of the author's knowledge, those studies incorporate only one method of identifying the needs of the nurses, whereas in this study three methods of: Job Analysis technique, Delphi technique, and ISO 10015 were used, which makes this study unique in this area (9, 10).

As there is a need for filling in the knowledge gaps of the operative nurses as a part of the healthcare system, at the second stage of the standard used in this study, the present researchers evaluated the competencies and skills of the nurses and then compared them to the required competencies. Compared with most of the previous studies conducted on determining the knowledge gap of the nurses, which used a 5-point Likert scale, they used a 7-point Likert scale added to the credibility of the results (11, 12).

At the third stage of the investigation, a working group of 10 experts were assigned to discuss the possible solutions to diminish and fill the knowledge gaps identified in the previous stage of the study. A variety of solutions were proposed including: participation of nurses in training courses (direct education), self-learning (self-guided education), clinical training (at the patients' bedside), studying guidelines, information exchange (learning with help of colleagues), periodic assignments, participation in seminars and scientific congresses, holding sessions on sharing experiences, reporting and analyzing cases with active participation of the staff (active learning), correction and reformation of implemented methods, redesigning procedures, role playing (active learning), problem solving (active learning), group discussion (active learning), using simulators (demonstrative learning), and brainstorming (active learning). In addition to the abovementioned methods of training nurses, previous studies suggested that

Table 3. Educational needs of hospital wards

Ward	General needs	Mean ± Standard deviation	Specialized needs	Mean ± Standard deviation
Emergency	Reporting in nursing	2.9±0.5	Triage	3.1±0.5
	Hemovigilance	3.4±0.6	CVP measurement	3±1
	Emergency trolley	3.8±0.6	ABG interpretation	2.9±0.4
	Adult CPR	3.9±0.6	Multiple trauma	3±0.6
	Crisis management	3.1±0.5	Ventilator instruction	3.1±0.4
	Patient safety	3.3±0.4		
	Risk management	3.6±0.9		
Pediatric	Suturing first layer of skin	2.7±0.5	Pediatric and neonatal CPR	3.9±1
	Splinting	2.9±0.8	Cardiac arrhythmia	2.6±0.8
	Skin traction care	2.6±0.7	Fluid therapy in pediatrics and neonates	3.2±0.9
	Colostomy care	2.6±0.6	Ventilator instruction	2.4±0.9
	Reporting in nursing	3.1±0.7		
	Tracheostomy care	2.6±0.9		
	Hemovigilance	3.4±0.8		
	Emergency trolley	3.2±0.8		
	Adult CPR	3.1±0.8		
	Suture removal	3.7±0.7		
	Foley catheter and drain care	3.7±1		
	Crisis management	3.4±0.9		
	Patient safety	3.6±0.8		
	Risk management	3.8±0.6		
General surgery	Reporting in nursing	2.3±0.5	Pulmonary embolism	2.9±0.4
	Tracheostomy care	3.8±0.9	Shock and its types	3±0.4
	Adult CPR	3.6±0.7	Cardiac arrhythmia	2.7±0.8
	Emergency trolley	3.2±0.6	Loss of consciousness in patients	2.8±0.8
	Hemovigilance	3.8±1.1		
	Crisis management	3.2±0.3		
	Patient safety	3.5±0.5		
	Risk management	3.7±0.5		
Internal medicine	Hemovigilance	3.6±0.6	ECG interpretation	3.3±0.5
	Skin traction care	3.6±0.8	ABG interpretation	3.1±1.2
	Crisis management	3.3±0.5	Ventilator instructions	3.7±0.7
	Patient safety	2.9±0.3		
	Risk management	3.8±0.9		
NICU	Suturing first layer of skin	3.2±0.7	Chest x ray interpretation	3.1±0.8
	splinting	3.2±0.8	Cardiac arrhythmia	3.2±0.9
	Skin traction care	3±0.8	Cadaver care	3.9±1
	Colostomy care	3.5±0.9		
	Reporting in nursing	3.8±0.8		
	Hemovigilance	3.5±0.9		
	Adult CPR	3.6±1.1		
	Crisis management	3.2±0.4		
	Patient safety	3.5±0.8		
	Risk management	3.5±0.8		

Table 3. Continued

Ward	General needs	Mean ± Standard deviation	Specialized needs	Mean ± Standard deviation
ICU	Skin traction care	3.2±1.2	Ventilator instructions	3±0.6
	Reporting in nursing	3.7±0.8	Patient sensory support techniques	3.6±0.9
	Crisis management	3.3±1		
	Risk management	3.6±0.6		
CCU	Reporting in nursing	3±0.7	ABG interpretation	2.9±0.5
	Hemovigilance	3.7±0.6	Ventilator instructions	2.7±0.7
	Skin traction care	3.5±0.7		
	Patient safety	3.4±0.5		
	Risk management	3.9±0.5		
Operation room	hemovigilance	2±0.6	Cardiac arrhythmia	2.6±0.2
	Emergency trolley	3.1±0.6	Preoperative mental preparation of patients	3.3±0.2
	Reporting in nursing	2.9±0.4	Recovery care	3.2±0.3
	Crisis management	3.5±0.6	ECG interpretation	3.2±0.3
	Patient safety	3.2±0.5	ABG interpretation	3.2±0.3
	Risk management	4.2±0.9		
Obstetrics and gynecology	Suturing first layer of skin	3.3±0.5	Shock and its types	3.1±0.5
	splinting	3.5±0.7	Cardiac arrhythmia	3±0.7
	Skin traction care	3.4±0.6	Neonatal resuscitation	3.4±0.8
	Colostomy care	3.6±0.6		
	Reporting in nursing	3±0.5		
	Tracheostomy care	3.9±0.5		
	Hemovigilance	3.9±0.5		
	Adult CPR	3.7±0.7		
	Crisis management	3.3±0.4		
	Patient safety	3.6±0.6		
	Risk management	3.7±0.5		
Nurse and head nurse office	legal and disciplinary rules in nursing	3±0.7	Staff educational needs assessment	2.5±0.6
	Budgeting in nursing	3.1±1	Patients educational needs assessment	2.4±0.8
	Conflict management	3±1.4		
	Islamic management	3±0.9		
	Quality management	2.9±0.8		

providing educational grants for nurses to take part in needed courses could help in training the staff with their knowledge gaps (12, 13). Compared with similar studies conducted on educational needs of nurses in Iran, this study provides the most comprehensive methods of education which could be used in training staff with their required skills.

At the fourth stage, the present researchers determined and recorded the educational needs based on ISO 10015 standard. In this stage, all of the identified shortcomings with a possible educational solution were considered as an educational need, while the shortcomings which were due to structural problems and required redesigning or correction of the educational process were considered only as a general shortcoming, not an educational one. In this study, out of the 8 general, 36 specialized and 5 management gaps, only 7, 33, and 5 were considered as educational gaps, respectively.

Studies with similar purpose to this investigation were conducted before. In a study investigating educational needs of nurses of endoscopy ward, Yu et al. reported that the knowledge gaps of the staff were patients' safety, nursing process, and infection control in the endoscopy ward (14). In another study designed to evaluate educational needs of medical emergency department technicians of Tehran emergency center, Ezati et al. found similar results to the present findings, reporting that the most prevalent

educational needs were professional legal problems, crisis management and principles of report writing, and taking care of patients with burns(15). Another study aiming at needs assessment of nursing staff of hospitals affiliated with Tehran University of Medical Sciences, Tehran, Iran, carried out in the year 2015 by Mehdizadeh et al. was also in line with this study. They identified these needs: communication skills, reporting skills, crisis management, principles of wound care, nursing care before and after surgical operations, triage in hospital, hospital infection control systems and principles of sterilization, acquaintance with Intensive care unit ward, betterment of patients' nutrition, controlling nosocomial infections, nursing care in total parenteral nutrition (TPN), nursing care in total hip or knee arthroplasty, breast milk, acquaintance with cardiac care unit, principles of working with anesthesia devices, maintenance of operation room devices, nursing care and new medicinal developments, cardiopulmonary resuscitation (CPR) of pediatrics and adults, intubation, nursing care in oxygen therapy and assisted ventilation, nursing care in water and electrolyte disorders, nursing care in emergency department, nursing care in diabetes, gynecological diseases, blood transfusion, local anesthesia and pain management, nursing care in respiratory emergencies, basic clinical physical examinations in nursing, nursing care in ill children, breast diseases, training with fractures and their nursing cares, complications of casting and how to treat them, postpartum hemorrhage, gestational diabetes, nursing care in the toxicology emergencies, serum therapy and maintenance of peripheral venous access, interpretation of chest x-ray for nurses, patient education, prevention of cardiovascular disease, suction of airways, burn emergencies, hand hygiene, nursing care in venous thromboembolism, nursing care in pediatric infectious disease, nursing care in neonatal respiratory disorders, interpretation of electrocardiogram and cardiac arrhythmias and their nursing care, nursing care in patients with loss of consciousness, and different patient positions (16).

As mentioned above, there are many similarities between the findings of this investigation with the results of the previous studies. This is due to the fact that educational research in different fields of nursing and even other relevant medical professions have basically similar principles and structures and these similarities are to be expected. However, what makes this study important is the fact that this study was carried out across a variety of nursing wards, making it more comprehensive and complete compared with previous studies in this field which mostly focus on the nursing staff of only one nursing ward.

Strength and limitations: besides being more complete than similar studies, this study does have a number of noteworthy strengths: This study utilized the ISO 10015 standard which has not been used in medical area as much as non-medical researches; a 7-point Likert scale was used instead of a 5-point one, also adding the credibility of the findings, using three methods of needs assessment of Delphi, job analysis and ISO 10015 together, and evaluating each of those from two prospective of the nurses and their direct supervisor; proposing numerous solutions which could be utilized to fill the identified knowledge gaps, and including all of the target study population in the investigation were other features.

On the other hand, this study had some limitations: the large scope of nursing services necessitates evaluating more skills, which were not possible due to the fact that Razi hospital of Torbat Heydarieh is a general hospital not having some medical wards and equipment.

To conclude, in the need assessment of nurses of Razi hospital of Torbat Heydarieh, Iran, we found out that priority, specialized, generalized, and management competencies were the most important educational gaps of the nurses. Regarding specialized training, analysis of ABG (Atrial blood gas), ventilator settings, and cardiac arrhythmias were the most important identified knowledge gaps. Regarding general knowledge gaps, hemovigilance was found the most important educational needs of the nurses across all wards. At the end of the study, educational programs were designed and planned to tackle the identified knowledge gaps of the nurses based on the proposed solutions mentioned earlier in the study.

Recommendations: The authors recommend that future studies should be designed widely to evaluate and target educational needs of nursing staff in different cities of Khorasan-Razavi province, or even everywhere in Iran. In addition, the educational needs of other medical staff such as paramedic staff and midwives should be evaluated. The present researchers also recommend that future studies fully utilize ISO 10015 to design and plan educational activities to evaluate their effectiveness.

Ethical consideration: Ethical issue (including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the author.

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