A STUDY OF TRAUMA NURSING CORE COMPETENCY AMONG STAFF NURSES IN VIETNAMESE GENERAL HOSPITALS

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ABSTRACT:

Background: Patients with trauma are common in Vietnam, resulting in the high demand of qualified and competent nursing care for this population. However, in Vietnam trauma nurses' competency has been limited. The objectives of this research were to assess and compare trauma nursing core competency (TNCC) among staff nurses at Vietnamese general hospitals.

Methods: Cluster sampling was used to recruit 439 Vietnamese nurses from 9 hospitals throughout the country. The measurement of TNCN content was developed for this study by literature review and interview of experts. The research tool composed of 8 dimensions with 48 items. The Content Validity Index was .90 and the Cronbach's alpha coefficient was .95.

Result: The overall TNCN level of staff nurses was relatively high ($\bar{x}$ = 3.01, SD = .37). Also the level of TNCC of staff nurses between male and female were not significantly different among education backgrounds (secondary, college, and bachelor). The levels of TNCC of staff nurses were significantly different among working experience groups (F = 11.73, p<0.01), especially between groups from one to 3 years and group over 10 years' experience ($\bar{x}$ = 2.61, SD = .28 and $\bar{x}$ = 3.10, SD = .35, respectively; Sheffé p<0.01).

Conclusion: This study found a relatively high level of TNCC of staff nurses in Vietnam. It is recommended that Nurse Managers should consider staff rotation and shifts especially among novice staff nurses (less than 3 years).

Keywords: Trauma, Nursing, Core-competency

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INTRODUCTION

Trauma is a significant problem worldwide, the leading cause of death for all age groups less than 44 years old [1]. The injury costs the United States hundreds of billions of dollars annually [2]. It is one of the most pressing health problems in the United States today, but the problem continues to go largely unrecognized. In Thailand while the average number of patients with trauma's deaths resulting from motor vehicle crashes alone is 13,260 deaths per year from 2002 to 2006, approximately 5 million people were injured, and several hundreds of thousands became permanently disabled during that same period [3]. Vietnam nowadays is also suffering from the burden of patient with trauma. It is reported that trauma is one of the ten leading causes of death in Vietnam with 43.77/100,000 people of years of life lost in Vietnam are attributed to injuries [4]. This burden requires an appropriate traumatic care services due to high prevalence of traumatic patients.

Traumatic care and trauma nursing care have three phases: pre-hospital, emergency rehabilitations. Staff nurses provide the continuum of care in trauma nursing crosses all boundaries and takes place in all settings from pre-hospital care, through acute and primary settings to the patient's place of residence. Trauma nursing is a multidimensional specialty area in nursing with evolving unique needs and challenges related to education and practice. Although competency of

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staff nurses in developed countries has been advanced, nurses in developing countries, such as ASEAN countries are insufficiently competent [5].

Trauma Nursing Core-Competency (TNCC) of staff nurses is composed of basic knowledge, skills, and attitudes as perceived by staff nurses within the multiple dimensions of legal and ethical practice, comfort enhancement, cooperation, partnership/ guidance, leadership and management, critical thinking for caring, risk management, and clinical practice to perform the core functions of staff nurses role. Trauma core competency of staff nurses is highest possible standard in all relevant aspects of nursing as well as in the specialist aspects due to the unique characteristics of its subjects [6-8].

TNCC of staff nurse is important to ensure patient safety and improve the quality of trauma nursing care [9]. There appeared to be consistent relationships among TNCC of staff nurse and patient outcomes, a consistent pattern of results was reported in trauma care, with richer TNCC associated with lower failure to rescue rates, lower inpatient mortality rates, and shorter hospital stays. The pattern of findings is less consistent regarding the association between TNCC and complications or adverse events [10]. In long-term care high TNCC is associated with higher likelihood of discharge to home decreased adverse events, higher functional status, and lower mortality rates [11].

In Vietnam, TNCC is still lacking standards in education, administration, research, and clinical areas [12]. In general hospitals, where almost all trauma patients admitted, the critically injured patients receive initial trauma care from nurses. This situation needs nurses who have high competency of traumatic care to prevent death in these patients [13-15]. There are several factors that are related to TNCC, but some of the most prevalent that have been identified include: gender, working experience, education background, continuing education, working place, and work rotation [16-28].

Baird found that gender, preconceived notions and theory are refined through encounters with many actual practical situations [17]. Rezwan indicated that there is a significant relationship between gender and clinical competency ($t=2.21$, $P<0.05$) [18]. Females achieved significantly more clinical competency than males. However, research has not found a significant relationship between gender and clinical competence [19].

Pitayavatanachai analyzed the factor influencing nursing core competency and found that experience were important individual information that has an affectation on nursing competency [20]. According to Baird, by experience, preconceived notions and theory are refined through encounters with many actual practical situations [17]. Due to the vast differences in experience, there was significant variation in level of trauma nursing core competency.

According to Benner, education background, preconceived notions and theory are refined through encounters with many actual practical situations [21]. Continuing education can provide an effective foundation for necessary competencies [22]. There were countless references to the important of education in developing nursing competency. Longenecker reported the importance of continuing and ongoing educational support for those in managerial/leadership positions [23]. Franklin, Carr, and Padden indicated that trauma nursing course experience was not significant to self-perceived trauma competency [24].

Work rotation paves the way to seeing more trauma patient [25]. Work rotation was found to be the most important enabling factor for management as to acquire and maintain competencies. Due to the differences in rotation history, there was significant variation in level of trauma nursing core competency [26]. Positive relationship between nursing competency and working place was supported. Personal-place theory has demonstrated that there is a relationship between employees' perception of working place characteristics and their work behavior [27]. Positive nursing work place enables nurses to demonstrate professional practice, such as decision-making capability. Due to the vast differences in working place, there was significant variation in level of trauma nursing core competency [28].

A gap exists in the literature on the incorporation of relevant trauma competence as it relates to nurse specialty practitioners. Currently, Vietnam does not have TNCC of staff nurses and there are no studies conducted until present. It is imperative that the current level of trauma core competency of staff nurses should be explored. Therefore, the objectives of this study were: (1) to assess trauma nursing core competency among staff nurses in Vietnamese general hospitals and (2) to compare trauma nursing core competency of staff nurses among groups in various units, personal background data with desired to assess core competency reflected the strength and weakness of their competency and assess basic core competency pre and post orientation, to determine the learning needs of both older nurses and new graduates.

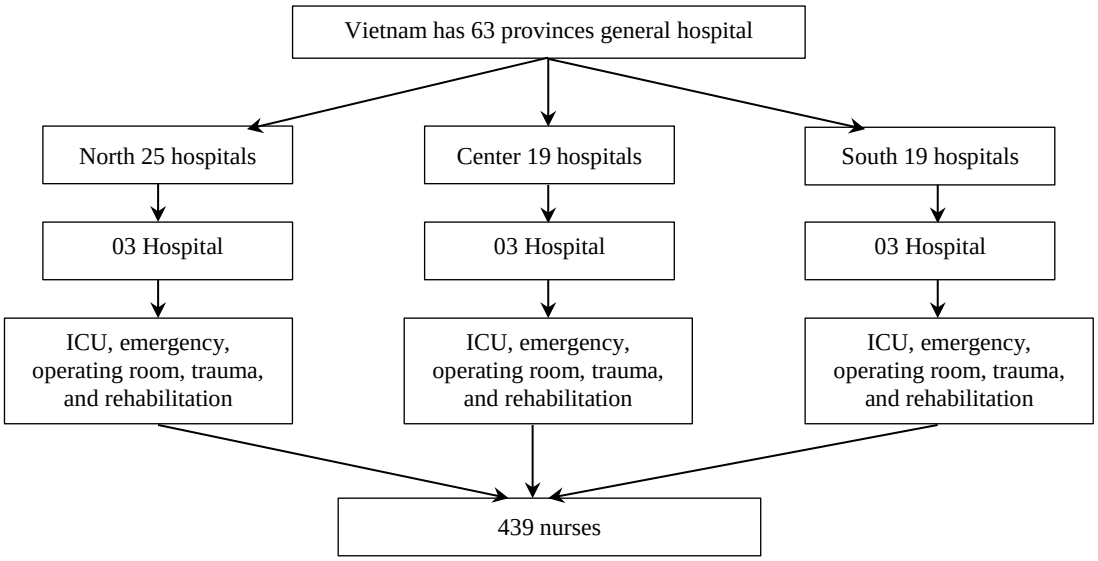


Figure 1 Cluster sampling

METHODS

A cross-sectional survey design was employed to study TNCC among general hospitals in Vietnam.

Sample

Sample in this study were staff nurses who were employed full-time and worked in their positions at least one year as staff nurses in emergency department, ICU, operative department, in trauma patient department, and rehabilitation department in Vietnamese general hospitals. The sample size of this study was calculated by using Yamane formula [29]. Total staff nurses are approximately 80,000 [12]. The sample size was 399 staff nurses. Considering the questionnaire attrition response, 10% of the sample size (40 subjects) was added into the sample making 439 staff nurses in total since the expected overall response rate was approximately 90 percent.

Sampling

Cluster sampling was used to choose participants. Vietnam has 63 provinces divided into three regions. Each province has one provincial general hospital: North 25 hospitals, Center 19 hospitals, and South 19 hospitals. Each area was chosen randomized 3 general hospitals by simple random sampling. Five departments in each hospital were chosen; ICU, emergency, operating room, trauma, and rehabilitation. All of 439 staff nurses in these departments were invited to participate in this study (Figure 1).

Measurement

Research instrument was a questionnaire consisting of two parts: the demographic data and the trauma nursing core competency (TNCC) for staff nurses. Demographic data about the subjects was also collected, including information such as gender, education level, continuing education, working experience, working place, and work rotation. TNCC was developed based on the review of literature and interview ten experts. This instrument includes 48 items in eight dimensions: (1) Legal and ethical practice consist 5 items, (2) comfort enhancement consists of 5 items, (3) Cooperation is composed of 5 items, (4) Partnership/guide includes 5 items, (5) Leadership and Management composed 6 items (6) Critical thinking for caring consist of 7 items, (7) risk management consist of 6 items, and technique are composed of 9 items. Content Validity of this instrument was .90 and reliability of self-perceived was conducted and found to be acceptable with a Cronbach's alpha was .95.

TNCC assessment form was used to collect data on participants' self-perceived competency level. The instrument used a five-point Likert Scale (0 = not competent, 1 = slightly competent, 2 = some-what competent, 3 = competent enough, 4 = very competent). The score of nursing competency ranged from 0–4, containing five ranks; thus, the mean score of nursing competency was divided into five levels by using the class interval formula $\bar{x} = (\bar{x}_{max} - \bar{x}_{min})/k$. Furthermore, in order to keep the intervals from overlapping, 0.01 was added to each subsequent lower limit [30]. Therefore, a Mean score 0.00–0.80 determined a low TNCC; Mean score 0.81–1.60 determined a relatively low

Table 1 Frequency and percentage of the subjects categorized by gender, working place, working experience, educational level, continuing education, and work rotation (n=418)

Demographic characteristics	Frequency	%
Gender		
Male	107	25.6
Female	311	74.4
Working place		
Emergency room	110	26.3
Trauma Department	97	23.2
ICU	80	19.2
Rehabilitation	69	16.5
Operating room	62	14.8
Working experience (years) (Mean = 9.85, SD = 6.77, range 1 – 31 years)		
Group 1 (0-1)	3	0.07
Group 2 (>1 – 3)	20	4.78
Group 3 (>3 – 5)	35	8.37
Group 4 (>5 – 10)	169	40.43
Group 5 (> 10)	191	46.35
Education level		
Secondary clinical practice (2 years)	239	57.1
College degree of nursing (3 years)	111	26.6
Bachelor degree of nursing (4 years)	68	16.3
Continuing education		
Trained	105	25.1
Not trained	313	74.9
Work rotation		
Rotated	125	29.9
Not rotated	293	70.1

Table 2 Mean, standard deviation, and level of TNCC as perceived by staff nurses in Vietnamese general hospitals (n=418)

Trauma nursing core competency	Number of items	Mean	SD	Level
Leadership and management	6	3.24	.45	High
Critical thinking for caring	7	3.23	.55	High
Legal and ethical practice	5	3.12	.40	Relatively high
Comport enhancement	5	3.10	.42	Relatively high
Cooperation	5	3.00	.43	Relatively high
Partnership/ Guide	5	2.90	.46	Relatively high
Clinical practice	9	2.84	.61	Relatively high
Risk management	6	2.75	.61	Relatively high
Overall	**48**	**3.01**	**.37**	**Relatively high**

TNCC, Mean score 1.61–2.40 determined a moderate TNCC, Mean score 2.41–3.20 was a relatively high TNCC, and Mean score 3.21–4.00 was a high TNCC.

Ethical considerations

Approval to conduct the study was received from the Research Ethics Committee under Vietnamese Ministry of Health. The questionnaires were distributed to the participants with a cover page explaining the purpose and the methods of the study and providing assurance regarding the anonymity, voluntary and confidential nature of the response. To maintain confidentiality, the data were collected without identifiers. An anonymous consent form was obtained by marking the section that indicated consent to participation in the study. The returned questionnaires were put in envelop and were collected by the researcher and research assistants.

Analysis

The data were analyzed using the statistic package for social science (SPSS version 17) to perform the frequency, percentage, and mean, standard deviation (SD), and Student's t-test, one-way ANOVA coefficient analysis to answer the research questions.

Table 3 The different of trauma nursing core competency among five group of experience (n = 418)

Trauma nursing core competency	G1 (n = 3)		G2 (n = 20)		G3 (n = 35)		G4 (n = 169)		G5 (n = 191)		F	Sig.	Sheffé									
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD			G12	G13	G14	G15	G23	G24	G25	G34	G35	G45
Leadership and management	2.38	.25	2.85	.28	3.21	.50	3.22	.42	3.31	.45	7.85	.00	.42	.01	.01	.00	.03	.00	.00	1.0	.74	.37
Critical thinking for caring	1.76	.41	2.90	.41	3.24	.63	3.18	.53	3.32	.52	9.32	.00	.00	.00	.00	.00	.16	.17	.00	.98	.91	.10
Legal and ethical practice	2.80	.52	2.88	.26	3.11	.38	3.11	.39	3.16	.41	2.99	.01	.99	.68	.66	.50	.22	.09	.01	1.0	.94	.68
Comfort enhancement	2.66	.23	2.81	.45	3.06	.37	3.08	.40	3.16	.44	4.30	.00	.98	.50	.42	.25	.18	.04	.00	.99	.73	.44
Cooperation	2.60	.34	2.72	.35	2.89	.41	2.97	.41	3.08	.44	5.41	.00	.99	.79	.57	.29	.61	.09	.00	.85	.10	.09
Partnership/ Guide	2.38	.78	2.60	.37	2.75	.41	2.90	.42	2.97	.48	5.13	.00	.92	.64	.25	.16	.77	.04	.00	.36	.07	.68
Clinical practice	2.62	.57	2.18	.62	2.77	.68	2.82	.61	2.94	.55	7.74	.00	.74	.99	.98	.89	.00	.00	.00	.99	.55	.31
Risk management	1.94	.67	2.18	.42	2.69	.62	2.71	.61	2.88	.58	8.46	.00	.96	.22	.17	.05	.02	.00	.00	1.0	.41	.06
Overall	**2.37**	**.27**	**2.61**	**.28**	**2.96**	**.39**	**2.99**	**.36**	**3.10**	**.35**	**11.73**	**.00**	**.83**	**.05**	**.02**	**.00**	**.00**	**.00**	**.00**	**.99**	**.23**	**.04**

Table 4 The different of trauma nursing core competency among unit of staff nurses (n = 418)

Trauma nursing core competency	RE (1) (n = 69)		OR(2) (n = 62)		ER (3) (n = 110)		TD (4) (n = 97)		ICU (5) (n = 80)		F	Sig.	Scheffé									
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD			G12	G13	G14	G15	G23	G24	G25	G34	G35	G45
Leadership and management	3.13	.45	3.18	.36	3.21	.44	3.20	.48	3.46	.42	6.61	.00	.98	.00	.99	.99	.00	.87	.81	.00	.00	1.0
Critical thinking for caring	3.25	.58	3.21	.42	3.14	.55	3.03	.55	3.58	.45	13.34	.00	.99	.00	.35	.94	.00	.13	.73	.00	.00	.71
Legal and ethical practice	3.14	.40	2.97	.36	3.08	.35	3.17	.43	3.23	.42	4.33	.00	.23	.00	.06	.61	.74	.99	.90	.90	.14	.60
Comfort enhancement	3.10	.49	3.03	.39	3.02	.41	3.12	.41	3.24	.39	3.48	.00	.90	.07	.76	1.0	.45	.99	.82	.52	.02	.59
Cooperation	3.01	.42	2.98	.39	2.87	.40	3.07	.47	3.09	.44	3.95	.00	.99	.65	.82	.65	.83	.94	.38	.99	.01	.03
Partnership/ Guide	2.83	.51	2.89	.38	2.85	.41	2.93	.49	3.02	.47	2.24	.06	.97	.55	.99	.98	.18	.79	1.0	.75	.15	.81
Clinical practice	2.58	.84	2.72	.50	2.70	.55	3.07	.49	3.05	.50	11.95	.00	.76	.02	.01	1.0	.00	.00	.77	1.0	.00	.00
Risk management	2.49	.64	2.64	.53	2.76	.51	2.70	.66	3.12	.54	12.11	.00	.72	.00	.98	.76	.00	.28	.05	.00	.00	.95
Overall	**2.92**	**.44**	**2.94**	**.31**	**2.94**	**.33**	**3.03**	**.38**	**3.23**	**.31**	**9.95**	**.00**	**.99**	**.00**	**.64**	**1.0**	**.00**	**.39**	**.99**	**.01**	**.00**	**.50**

RESULTS

Demographic data

Subjects were 25.6% male and 74.4 % female. As showed in the Table 1, the mean age of subject was 33.07 years old and standard deviation was 7.092. The majority of subjects had earned a secondary clinical practice certificate of nursing (57.2%). Sixty-eight (16.3%) subjects held a bachelor's degree of nursing, while 111 (26.6%) subjects held college's degree of nursing. Of the total subjects, 26.3% worked on emergency room, 19.1% worked on ICU, 14.8% worked on Operating room, 23.2% worked on in trauma department and 16.5% worked at rehabilitation department. In addition, the number of years the subjects had worked as nurses with the mean score of 9.85, a standard deviation of 6.77 and range from one to thirty-one years. The data also showed that one fourth of subjects (25.1%) trained and more than one fourths of the subjects (29.9%) had rotated during their work.

Trauma nursing core competency

As illustrated in Table 2, the overall score of TNCC as perceived by staff nurses in Vietnamese general hospital were at the relatively high with a mean score 3.01 and standard deviation of .37. For each dimension, the level of nursing competency in Legal and ethical practice was relatively high level ($\bar{x}$ = 3.12, SD = .40), Comport enhancement and coordination were at relatively high level ($\bar{x}$ = 3.10, SD = .42), and ($\bar{x}$ = 3.00, SD = .43) respectively. The dimension of partnership/ guide, risk management, clinical practice that were also at a relatively high ($\bar{x}$ = 2.93, SD = .46), ($\bar{x}$ = 2.75, SD = .61), ($\bar{x}$ = 2.84, SD = .61). Leadership and management, and Critical thinking for caring were at high level ($\bar{x}$ = 3.24, SD = .45), and ($\bar{x}$ = 3.23, SD = .55), respectively.

The difference of trauma nursing core competency among several participants

To examine the difference of TNCC among demographic groups: gender (male and female), continuing education (trained and not trained), work rotation (rotate and not rotate) of staff nurses at Vietnamese general hospitals. Independent t-test was used for data analysis. The results showed different levels of TNCC in Clinical practice male ($\bar{x}$ = 3.02, SD = .48) and female ($\bar{x}$ = 2.77, SD = .62) had significance with $p < 0.05$. And the different level of TNCC in Leadership and management, Legal and ethical practice, Cooperation, Clinical practice between rotate group and not rotate group of staff nurses had significance with $p < 0.05$.

To examine the difference of TNCC among working experience: group 1 (0–1 year), group 2 (>1–3 years), group 3 (>3–5 years), group 4 (>5–10 years) and group 5 (>10 years), education level, and unit of staff nurses at Vietnamese general hospitals. One-way ANOVA test were used for data analysis. The results showed in Table 3 indicate that there were significant difference of TNCC between group 1 and group 4, group 1 and group 5, group 2 and group 3, group 2 and group 4, group 2 and group 5, group 4 and group 5, $p < 0.05$. The results also showed that there was difference of TNCC of staff nurses at ICU with all others units have significance, $p < 0.05$. Moreover, there was significant difference in all dimensions of TNCC between ICU and ER, $p < 0.05$ (Table 4). In addition, there was no significant difference of TNCC between educations level of staff nurses at Vietnamese general hospitals.

DISCUSSION

Trauma nursing core competency as perceived by staff nurses

The finding in this study indicates that TNCC ranked relatively high level contrary to the finding of the study done by Pitayavatanachai and similar to Aphicharttbutra [31]. The former author studied levels of competency of professional nurses in a university hospital in Thailand where the mean score was high at 3.68, while the latter author reported that the total competency of professional nurses in primary, secondary and tertiary hospital in the northern region of Thailand were at a moderate level. The potential reason is that the nurses were from different levels of the hospital. In this study, all of staff nurses came from same level, general hospitals in Vietnam compared with the subjects that Aphicharttbutra who studied in primary, secondary and tertiary hospitals in Thailand [31].

When considering each dimension, Leadership and management, and Critical thinking for caring were at high level ($\bar{x}$ = 3.24, SD = .45), and ($\bar{x}$ = 3.23, SD = .55). However, the level of nursing core competency in Legal and ethical practice, Comport enhancement, coordination, partnership/ guide, risk management, and clinical practice were also at a relatively high level. The high levels of critical thinking, leadership and management in this study were same with level of nursing competencies of RN in Zhongshan hospital in China [32]. It may be associated with the nursing education reform that was conducted in Vietnam. Increasing students' critical thinking, leadership and management skills were considered as the

important outcomes of the new curriculum design. This was a good sign because there were many training courses on nursing leadership and management.

In dimension of Leadership and management there were 3 items at high level: Managing the physical place ($\bar{x}$ = 3.35, SD = .57), Organizing work follow ($\bar{x}$ = 3.33, SD = .57), Participating in the unit planning ($\bar{x}$ = 3.27, SD = .55). In dimension of Critical thinking for caring, there were 3 items at high level: Maintains awareness and the treatment modalities ($\bar{x}$ = 3.50, SD = .56), Provides patient centered care ($\bar{x}$ = 3.34, SD = .63), and critically analyzes data and evidence ($\bar{x}$ = 3.24, SD = .78). Therefore, the score of these dimensions is still low ($\bar{x}$ = 3.24, SD = .45), and ($\bar{x}$ = 3.23, SD = .55). The reason is that Vietnamese people were trained in affective control. In addition, the need to preserve harmonious relations would ensure that the acts of impoliteness (such as challenging another person's viewpoint) are avoided as much as possible [13].

The dimension of Legal and ethical practices at a relatively high level ($\bar{x}$ = 3.12, SD = .40). However, there was one item at high level: Applies ethically sound solutions to complex issues related to individuals, populations and systems of trauma care ($\bar{x}$ = 3.44, SD = .57). This was good information because staff nurses concerned about human right of patients and understood nursing role when they provided nursing care.

All items of Comfort enhancement and partnership/guide at relatively high level and overall score were at relatively high level ($\bar{x}$ = 3.10, SD = .42) and ($\bar{x}$ = 2.90, SD = .46) but the score was good because nowadays nurses understand that in nursing care, patient is center of every activity and this is the most important standard in 25 standards of the core competencies of general nurse which was approved by Vietnamese Nursing Council in 2012 [12].

There was only one item at high level that accurately assessed patients ($\bar{x}$ = 3.25, SD = .57) while the overall score of coordination was at relatively high level ($\bar{x}$ = 3.00, SD = .43). In trauma care resuscitation of a traumatic patient is a crisis situation both for the injured patient who has a life-threatening condition and the trauma team members who are responsible for timeliness of care. Since lives can be saved with optimal care and appropriate management, rapid resuscitation is critical [5]. Delay in treatment and errors in judgment are considered to be the leading cause of preventable deaths.

There were 3 items at high level: Apply immobilization and assistive devices ($\bar{x}$ = 3.55, SD = .60), Provide appropriate instrumentation and supplies ($\bar{x}$ = 3.40, SD = .72), perform initial assessment and maintain a patent airway ($\bar{x}$ =3.24, SD = .72). The overall score of Clinical practice which was at relatively high level ($\bar{x}$ = 2.84, SD = .61), could be due to regular performance/ practice of the skill by staff nurses at general hospitals, hence they displayed confidence in those clinical skills [33]. The lowest of Risk management core competency ($\bar{x}$ = 2.75, SD = .61) might be related to the situation that the number of nursing student in Vietnam is high and not enough place for practice and just have standard for license before becoming staff nurse at hospitals in 2012 [12].

The difference of trauma nursing core competency among several groups of staff nurses

The result showed that there was significant difference of level of TNCC in Clinical practice male ($\bar{x}$ = 3.02, SD = .48) and female ($\bar{x}$ = 2.77, SD = .62), $p < 0.05$ because male staff nurses and female staff nurses got the education program and same role in general hospitals. However, in some technical skills in trauma care need more power of muscle like transfer patient or apply immobilization [33]. There was no significant difference of TNCC between rotated and not rotated nurses, while the difference of level of TNCC in Leadership and Management, Legal and ethical practice, Cooperation, Clinical practice between rotated group and not rotated group of staff nurses showed significant difference $p < 0.05$ because nowadays health policy in Vietnam allow all hospitals to manage finances by themselves [34]. To explain for the non-significant difference of TNCC between trained and not trained may be due to most hospitals provide only in-service training on traumatic care for nurses and there was no accreditation for those courses [13].

The reason for significant difference of TNCC among experience group 1 and group 4, group 1 and group 5, group 2 and group 3, group 2 and group 4, group 2 and group 5, group 4 and group 5 may be related to work experience. Benner created a competency framework from novice to expert and found that nurses who have more experience have greater competency [21]. This was encouraged as evidence that the more experience nurses gained and possess professional development during service, the more competency or capability they have. She further analyzed the factors influencing nursing competency and found that experience was important for an individual to form an affectation

on nursing competency. The average years of nursing work experience was 9.85 years. Thus, nurses can get good experience from their continued clinical work [35].

There was significant difference of TNCC of staff nurses at ICU with all others units, and there was significant difference in all dimension of TNCC between ICU and ER. This was due to the vast differences in background experience and job performance of those with ICU experience who thought that they were more competent in most of the trauma skills identified, most likely related to previous experience. With that said, it is possible to increase the competence level of the TNCC by increasing the training and providing practical, real-world training and application in an ICU setting [11].

The result showed that there was no significant difference TNCC among groups of education which might be due to core competency or outcome of education system in Vietnam not related to trauma core competency of staff nurses at Vietnamese general hospitals. The finding of this study showed that 57.2% of staff nurses have a secondary clinical practice certificate of nursing. It indicated that most of staff nurses have received moderate level of nursing education on trauma nursing core competency which was relatively high [36]. On the other hand, in most Vietnamese general hospitals the role of staff nurses' daily role is same for all nurses at all level of education [13].

LIMITATIONS

The results of this study should be interpreted with the understanding that there were some limitations. The instrument was developed for the first time and not enough information was revealed on how self-assessment of the competencies was related to the quality of actual care given to the patients and the peer-evaluation of TNCC. There were also not enough research studies conducted in this topic in Vietnam context to compare findings.

RECOMMENDATIONS

This study found a relatively high level of TNCC of staff nurses in Vietnam. Nevertheless, the non-differences in competency of nurses regarding the education background and training, highlights the need for an improvement of education programs for this specialty. Moreover, it is recommended that the policy maker would consider staff rotating and shift working, especially staff nurses who have 3 years of working experience or lower as means to enhance nurses' core competency.

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