



일 개 종합병원 간호사의 통증관리 지식과 통증 관리 수행

한지영¹⁾ · 박현숙²⁾ · 진미정³⁾

Nurses' Knowledge and Performance of Pain Management at a General hospital

Ji-Young Han¹⁾ · Hyun-Sook Park²⁾ · Mi-Jung Jin³⁾

1) Department of Nursing Silla University
2) Department of Nursing, Kyungil University
3) Bumin Hospital

Purpose: This study was done to describe level of knowledge and performance of pain management by nurses in general hospitals. **Methods:** The study was conducted from August 1 to 28, 2014 with 141 nurses from a general hospital in B city. Data were analyzed using descriptive statistics, t-test, one-way ANOVA, and Pearson correlation coefficient with SPSS 20.0. **Results:** Average correct response rate for knowledge was 62.7%, indicating poor knowledge of pain management. Mean score for knowledge of pain management was 31.33±3.24 out of 50 (general knowledge about pain 14.02±2.18 out of 20, knowledge on use of analgesics 9.21±1.97 out of 20, knowledge on analgesic classification 8.16±1.00 out of 10). Mean score for performance of pain management was 3.19±.44 out of 4. There was significant difference in knowledge of pain management by age. Performance of pain management differed significantly according to age and type of working unit. No significant relationship was found between knowledge and performance of pain management. **Conclusion:** These findings show that nurses who have good knowledge do not always have good performance of pain management. Therefore, it is necessary to develop new strategies to promote performance as well as continued pain management education to increase ability of nurses to manage pain.

Key words : Knowledge, Nurses, Pain management, Performance

주요어 : 지식, 간호사, 통증관리, 수행

- 1) 신라대학교 간호학과
- 2) 경일대학교 간호학과(교신처자 E-mail: greens@hanmail.net)
- 3) 부민병원

Received October 29, 2015 **Revised** November 26, 2015 **Accepted** January 8, 2016

• Address reprint requests to : Hyun-Sook Park

Department of Nursing, Kyungil University, Gyeongbuk, 712-701, Korea.
Tel: 82-53-600-4109 Fax: 82-53-999-5668 E-mail: greens@hanmail.net

Introduction

Pain is a complex, multidimensional phenomenon. A patient's pain experience is influenced and modified by a number of factors including, experiential, behavioral, emotional, physical and contextual components[1]. Inadequate treatment of pain is an insidious clinical problem in hospitalized patients. This includes delayed healing, a higher rate of complications, anxiety, sleep disturbance, and lowered quality of life[2,3].

Patients have a right for appropriate pain management[4]. Pain management is one of the nursing quality indicators that contribute to the quality of care delivery and outcomes to patients[5]. Pain management is a fundamental component of any pain service and nurses are the key 24-hour providers of pain management in hospital[6]. In clinical settings, nurses have a vital role in pain assessment and management, and must be knowledgeable regarding how best to assess and manage pain[7]. The nurses acknowledged that they needed pharmacological knowledge to underpin their practice of patient assessment, nurse prescribing and drug administration. Several studies have indicated that a pain knowledge deficit is the most important problem regarding pain management and these studies have found that many nurses lack pain management[8-12]. These nurses have misconceptions about pain assessment and the appropriate use of analgesics. Additionally, some nurses lack basic knowledge about the use of opioid analgesics risk of addiction, and interventions related to pain relief[8,9].

Previous studies have examined nurses' knowledge and attitude about pain management[7-9]. In these studies, generally the relationship between knowledge and attitude to pain management was investigated. However, in a few studies the relationship between nurses' knowledge and performance of pain management has been examined. Therefore, more studies are needed to review the identity of knowledge and performance of pain management. This study was done to evaluate knowledge and performance of pain management by nurses in general hospitals. These results may serve as the impetus to develop strategies to increase effective pain management.

Aim of study

The aims of this study were as follows.

- Investigate nurses' knowledge and performance regarding pain management in general hospitals.
- Identify the differences in variables according to general

characteristics.

- Identify the relationship between knowledge and performance regarding pain management.

Methods

Design

This study design was a descriptive survey design, which evaluated nurses' knowledge and performance of pain management in a general hospital.

Participants

The study was conducted using a convenient sampling method at a general hospital in Busan. The G*power 3.1 software was used to decide the required sample size. The power (1- β) was .95 for the correlation analysis at a medium effect size (correlations of $p = .30$) and a significance level of .05. The sample size of 139 was satisfactory for identifying nurses' knowledge and performance of pain management. Of the 150 surveys distributed, 141 were returned, yielding a 94.0% rate of return. Data were collected from August 1 to 28, 2014.

Instruments

Data were collected through self-report questionnaires that included nurses' knowledge, performance of pain management and demographic characteristics.

● Nurses' knowledge of pain management

Nurses' knowledge about pain management was measured using by scale by Watt-Watson[13] which has been used in previous research evaluating nurses' knowledge about pain management[8,9]: general knowledge (e.g., patients may sleep in spite of severe pain) about pain 20 items, knowledge on the use of analgesics (e.g., Morphine has a dose ceiling) 20 items, knowledge on analgesic classification (e.g., Ibuprofen, Opioid/Non-opioid) 10 items. Correctly scored items were assigned a score of one and incorrect or unanswered items were scored zero. Total scores were summed and ranged from 0-50. Higher scores were associated with a higher knowledge about pain management. Watt-Watson[13] reported Cronbach' α .82 and Cronbach' α in this study was .72.

● Nurses' performance of pain management

Nurses' performance of pain management was measured using a tool by Jo[14] which has been used in pervious research[15]. It consists of three subscale: pain assessment 8 items, pain intervention 6 items, and pain evaluation 5 items. Responses to items were scored on a four-point Likert scale (1 = never, 4 = always). Jo[14] reported Cronbach' α .91 and Cronbach' α in this study was .89.

Procedure

The recruitment procedure was applied after obtaining ethical approval from the institutional review board (IRB) (1041449-201407-HR-005). Following study permission by the nursing department, we contacted head nurses of particular units. Then we explained in detail the study aims and procedure and participants' role. Nurses who agreed to participate signed a written consent form and completed the questionnaire. The questionnaires were delivered to each head nurse who distributed the questionnaires to the nurses. Finally, completed questionnaires were collected by researchers. Anonymity was guaranteed as consent forms and completed questionnaires were separated and no coding of individual identification was used on the questionnaires.

Data analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) (version 20). Descriptive statistics were used to describe the sample characteristics. Differences in variables according to general characteristics were analyzed by t-test, ANOVA followed by post hoc Scheffé's comparison. Relationships between knowledge and performance of pain management were analyzed by Pearson's correlation coefficients.

Results

General Characteristics of Participants

Demographic information is described in Table 1. More than half of participants (55.3%) were 20-25 years, and 30.5% (n=43) had 1-3 years of clinical experience. Less than half of participants (42.6%) work on surgical units, and most respondents (93.6%) were staff nurses. Majority of nurses (78.7%) were diploma holders and 87.2% (n=123) were single.

Table 1. General Characteristics (N=141)

Characteristics	Categories	n (%)
Age (yr)	20-25	78(55.3)
	26-30	42(29.8)
	≥31	21(14.9)
Clinical experience	<1	29(20.6)
	1 ≤ -<3	43(30.5)
	3 ≤ -<5	33(23.4)
	≥5	36(25.5)
Clinical area	Medical	25(17.7)
	Surgical	60(42.6)
	Special unit	45(31.9)
	Pediatrics	11(7.8)
Position	≤ Charge nurse	9(3.4)
	Staff nurse	132(93.6)
Education Level	College	111(78.7)
	University	30(21.3)
Marital status	Married	18(12.8)
	Single	123(87.2)
Religion	Christian	15(10.6)
	Buddhist	28(19.9)
	None	94(66.7)
	Others	4(2.8)

Knowledge and Performance of Pain management

Table 2 shows nurses' knowledge and performance of pain

Table 2. Knowledge and Performance of Pain Management (N=141)

Variables	M ± SD	Min	Max	Range
Knowledge of pain management	31.33 ± 3.24	21.00	40.00	0-50
General knowledge about pain	14.02 ± 2.18	7.00	18.00	0-20
Knowledge on the use of analgesics	9.21 ± 1.97	5.00	15.00	0-20
Knowledge on analgesic classification	8.16 ± 1.00	5.00	10.00	0-10
Performance of pain management	3.19 ± 0.44	1.68	4.00	1-4
Pain assessment	3.20 ± 0.48	1.75	4.00	1-4
Pain intervention	3.07 ± 0.47	1.33	4.00	1-4
Pain evaluation	3.33 ± 0.51	1.40	4.00	1-4

management. Out of a possible 50 points, the average knowledge score was 31.33 ± 3.24 . Scores ranged from a minimum of 21 to high of 41. The mean scores of the 3 subcategories were general knowledge 14.02 out of 20, use of analgesics 9.21 out of 20, and analgesics classification 8.16 out of 10. The mean score for performance was 3.19 ± 0.44 on a 4-point scale.

Differences in Knowledge and Performance of Pain management by general characteristics

Table 3 shows differences in variables according to general characteristics. No statistical difference existed in knowledge scores with respect to clinical experience, clinical area, position, educational level, marital status, religion. There was significant difference in knowledge of pain management by age ($F = 3.43$, $p = .019$). Performance of pain management differed significantly age ($F = 3.15$, $p = .027$) and type of work unit ($F = 4.86$, $p = .003$). But Scheffé's post-hoc test showed no difference between groups

Table 3. Differences in Variables According to General Characteristics

(N=141)

Characteristics	Categories	Knowledge of pain management	Performance of pain management
		M \pm SD	M \pm SD
Age (yr)	20-25 ^a	29.94 \pm 3.03	3.15 \pm 0.45
	26-30 ^b	31.64 \pm 3.36	3.31 \pm 0.39
	≥ 31 ^c	31.67 \pm 3.35	3.14 \pm 0.48
	F	5.07* (a=b=c)	2.20
	p	.008	.115
Clinical experience	<1	30.68 \pm 3.67	3.12 \pm 0.43
	1 \leq <3	30.95 \pm 2.87	3.15 \pm 0.43
	3 \leq <5	31.30 \pm 3.79	3.17 \pm 0.47
	≥ 5	32.34 \pm 2.73	3.32 \pm 0.42
	F	1.68	1.45
p	.174	.230	
Clinical area	Medical ^a	32.33 \pm 3.30	3.27 \pm 0.30
	Surgical ^b	31.20 \pm 3.39	3.32 \pm 0.40
	Special unit ^c	30.95 \pm 3.10	3.01 \pm 0.52
	Pediatrics ^d	31.27 \pm 3.26	3.10 \pm 0.29
	F	.96	4.86* (a=b=c=d)
p	.412	.003	
Position	\leq Charge nurse	32.32 \pm 2.65	3.33 \pm 0.33
	Staff nurse	31.27 \pm 3.31	3.18 \pm 0.45
	t	.91	.98
	p	.362	.328
Education Level	College	31.01 \pm 3.31	3.17 \pm 0.43
	University	32.03 \pm 2.50	3.33 \pm 0.43
	t	-1.82	-1.85
	p	.071	.067
Marital status	Married	32.20 \pm 1.79	3.27 \pm 0.53
	Single	31.20 \pm 3.42	3.18 \pm 0.43
	t	1.19	.84
	p	.237	.405
Religion	Christian	29.60 \pm 3.04	3.10 \pm 0.35
	Buddhist	31.25 \pm 3.71	3.21 \pm 0.51
	None	30.78 \pm 3.17	3.20 \pm 0.44
	Others	29.24 \pm 3.27	3.36 \pm 0.46
	F	1.11	.42
p	.347	.736	

* Scheffe's post-hoc test

The correlations of Knowledge and Performance of Pain management

Table 4 shows the correlation matrix of knowledge and performance of pain management. There was no relationship between knowledge and performance of pain management.

Table 4. Correlations between Knowledge and Performance of Pain Management (N=141)

	Knowledge of pain management
	r (p)
Performance of pain management	.10 (.235)

Discussion

Accurate knowledge and application of pain management principles are essential to clinical nursing practice as they directly and positively impact patient outcomes[7]. In this study, nurses' knowledge and performance of pain management at a general hospital was investigated.

Nurses' knowledge score for pain management was 31.33 of 50 that is generally poor. This result was lower than the results obtained in other studies[8,9]. Nurses' knowledge of pain management was not statistically significant different for general characteristics except for age. Knowledge of pain management was significantly statistical different according to age, but Scheffé's post-hoc test showed no difference between groups. This result was consistent with results obtained from other studies[9,16]. These results may be related to continued experience that engenders better overall knowledge of care of the patient experiencing pain.

Regarding clinical experience, the scores did not differ significantly by groups but nurses who reported 5 or more work years (M= 32.34) scored higher than other groups. Regarding education level, nurses with a bachelor degree (M= 32.03) obtained higher score than nurses with a diploma degree (M= 31.01), but the difference was not statistically significant.

The mean score for performance was 3.19 of 4, similar to previous findings[14,15]. Performance of pain management differed significantly by age and type of work unit. Nurses over 36 years of age had the highest score on performance of pain management (M=3.40). This was consistent with literature reviewed[14,15]. Although work unit showed a statistically

significant difference, there was no difference between groups by Scheffé's post-hoc test. Surgery Nurses obtained the highest scores while special unit nurses obtained the lowest scores on performance of pain management. This was inconsistent with a previous study[15]. In addition, the highest score for knowledge of pain management was for medical units while highest score for performance of pain management was for surgical units. These results support the conclusion that the barriers to effective pain management are more complex than a lack of nurses' knowledge, suggesting that education is not adequate when inappropriate behaviors are maintained by attitudes, social and structural problems[17]. Nurses with work experience was not significantly different between groups. This was consistent with Tak and Kim[15], while inconsistent with Jo[14]. However the score for performance of pain management increased as nurses became more experienced in nursing. Education level too did not shows significant difference in performance of pain management which was consistent with previous studies[14,15].

The results of this study showed that there were no significant correlations between knowledge and performance of pain management. Knowledge on analgesic classification of 3 subcategories had a significant positive correlation with performance of pain management. These results indicate that nurses who have good knowledge do not always have good performance of pain management. The results of this study demonstrated that educational approaches must be accompanied by interventions in care systems that directly influence the routine behaviour of clinicians including the breaking down of barriers within the multidisciplinary team and implementing comprehensive pain management programmes[18].

These findings strongly suggest the need to continue education about pain management and develop new strategies for performance of pain management for nurses. Nurses should be provided with ongoing pain management courses which cover pain assessment skills, pharmacological treatment, nonpharmacological treatment and the myths and misconception about pain management. Continuing education would work best when combined with a strong policy framework to ensure that knowledge is reinforced with established routines of competent nursing practice in pain management[20]. Also, one way to increase performance is to set-up a 24-hour standby group of pain consultants to deal with patients' pain anytime[19,21].

This study does have limitations. The limited sample size and the convenience sample approach do not allow for generalization

of study results. Thus, continued investigation is needed.

Conclusion

Nurses' knowledge and performance of pain management are essential components of effective pain management. The results of this research identify nurses' knowledge and performance of pain management. Drawing from the study results, nurses lack knowledge of pain management but these deficiencies cannot fully explain the relation between knowledge and performance, specifically whether increased knowledge itself results in increased pain relief for patients. Therefore, pain education should be developed with a structured pain curriculum and be used as regularly updated course for nurses.

References

1. Carter B. Child and infant pain: Principles of nursing care and management. London: Chapman & Hall; 1994. <http://dx.doi.org/10.1007/978-1-4899-3366-9>
2. Silver J, Mayer RS. Barriers to pain management in the rehabilitation of the surgical oncology patient. *Journal of Surgical Oncology*. 2007;95(5):427-435. <http://dx.doi.org/10.1002/jso.20780>
3. Mehta A, Chan LS. Understanding of the concept of "Total pain": A prerequisite for pain control. *Journal of Hospice & Palliative Nursing*. 2008;10(1):26-32. <http://dx.doi.org/10.1097/01.njh.0000306714.50539.1a>
4. Joint Commission on Accreditation of Healthcare Organizations. Comprehensive accreditation manual for hospitals: The official handbook. III. Oakbrook Terrace: Joint Commission on Accreditation of Healthcare Organizations; 2003.
5. American Nurses Association. Nursing care report card for acute care. Washington, DC: American Nurses Association; 1995.
6. Coulling S. Nurses' and doctors' knowledge of pain after surgery. *Nursing Standard*. 2005;19(1):41-49. <http://dx.doi.org/10.7748/ns2005.05.19.34.41.c3859>
7. Al-Shaer D, Hill PD, Anderson MA. Nurses' knowledge and attitudes regarding pain assessment and intervention. *Official Journal of the Academy of Medical-Surgical Nurses*. 2011;20(1):7-11.
8. Hwang KH, Ryoo EN, Park KS. A study of the nurses' knowledge and attitude about pain management. *Journal of Korean Academic Society of Nursing Education*. 2007;13(1):41-51.
9. Kim SH, Park SY. A university hospital nurses' knowledge and attitude about cancer pain management. *Journal of the Korea Academia-Industrial cooperation Society*. 2012;13(1):254-263. <http://dx.doi.org/10.5762/kais.2012.13.1.254>
10. Lee SW, Kim HS, Kim SY, Hong YS, Kim EK. Patient satisfaction with cancer pain management. *Korean Journal of Hospice and Palliative Care*. 2003;6(1):22-33.
11. Kim MJ, Park JA, Shin SJ. Pain and pain management in hospitalized cancer patients. *Journal of Korean Academy of Fundamentals of Nursing*. 2008;15(2):161-170.
12. Kim HK, Lee HS, Hwang KH, Yoo YS, Lee SM. Positive and negative determinants for pain management in both cancer patients and their nurses. *Journal of Korean Academy of Fundamentals of Nursing*. 2006;13(1):68-75.
13. Watt-Watson JH. Pain management: Nursing perspective. St Louis: Mosby Year Book; 1992.
14. Jo EK. Nurses' knowledge and performance of cancer pain management [master's thesis]. Daegu: Keimyung University; 2010.
15. Tak HH, Kim KH. A study on performance of pain management and perceived barriers of pain care among hospital nurses. *Nursing Science*. 2012;24(1):23-34.
16. Gong SW, Bang JY, Seo MS, Hyun SS, Kim HJ, Lee MA, et al. Knowledge and attitudes of oncology nurses toward cancer pain management. *Journal of Korean Academic Society of Adult Nursing*. 2004;16(1):5-16.
17. Comley AL, Banks JC. Pain management: Clinician survey and institutional needs assessment. *Baylor University Medical Center Proceedings*. 2000;13(3):230-235.
18. Brown ST. Outcomes analysis of a pain management project for two rural hospitals. *Journal of Nursing Care Quality*. 2000;14(4):28-34. <http://dx.doi.org/10.1097/00001786-200007000-00006>
19. Wang HL, Tsai YF. Nurses' knowledge and barriers regarding pain management in intensive care units. *Journal of Clinical Nursing*. 2010;19(21-22):3188-3196. <http://dx.doi.org/10.1111/j.1365-2702.2010.03226.x>
20. Sterman E, Gauker S, Krieger J. Continuing education: A comprehensive approach to improving cancer pain management and patient satisfaction. *Oncology Nursing Forum*. 2003;30(5):857-864.
21. Lai YH, Chen ML, Tsai LY, Lo LH, Wei LL, Hong MY, et al. Are nurses prepared to manage cancer pain? A national survey of nurses' knowledge about pain control in Taiwan. *Journal of Pain & Symptom Management*. 2003;26(5):1016-1025.