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Der Pharmacia Lettre, 2016, 8 (4):108-111  
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## Effects of Training Programs on Knowledge and Attitudes of Nurses about Postoperative Pain

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### ABSTRACT

Postoperative pain is a common experience in patients hospitalized in surgical units. Therefore, controlling and mitigating it are one of the priorities in nursing. The purpose of this study is to determine the effects of training on the knowledge and attitudes nurses about postoperative pain in patients hospitalized in surgical units of teaching hospitals of Kerman, Iran, in 2014. This study uses a quasi-experimental design and is conducted on 60 nurses working at surgical units of teaching hospitals of Kerman, Iran, who were selected randomly through cluster sampling. For data collection, we used the Zanolin attitudes questionnaire and the Brockopp-Warden Pain Knowledge/Bias Questionnaire (BWPKBQ). We analyzed the data with the SPSS software product, v19, using parametric and nonparametric statistical tests (paired t-test and Spearman's rank correlation coefficient). The mean score of knowledge increased from  $13.61 \pm 3.76$  before the intervention to  $19.35 \pm 2.16$  after the intervention. The mean score of attitudes grew from  $80.58 \pm 7.09$  before the intervention of to  $86.91 \pm 5.49$  after the intervention. A significant increase was observed in the scores of knowledge and attitudes after the intervention ( $P < 0.0001$ ). Pain management training programs both increased the knowledge and changed the attitudes of nurses about pain management and control.

**Keywords:** knowledge, training, nurse, pain relief, attitudes

### INTRODUCTION

In many medical conditions, pain is an important symptom and is significantly associated with patients' quality of life of and performance. Surgery is considered today as the treatment for many diseases and injuries [1]. Approximately more than 72 million patients receive surgery every year only in the US [2] of which, approximately 43 million patients suffer postoperative pain [3]. Since surgery was considered as a therapeutic option, pain has always associated it [4]. Pain is a stress-inducing phenomenon that affects the patients' way of life, satisfaction and comfort. It can cause discomfort, loss of control, fatigue, and impairment in quality of life, sexual activity, personal relationships, the meaning of life, work performance, sleep and the performance of daily activities[5]. The importance of pain is so much that the American Pain Society has named it as the fifth symptom of vitality [6]. McCaffery was the first to state, in 1968, that pain is what and where the patient claims it [7]. The 2001 report by the American Pain Society indicates that 4.3% of the patients who had received surgery have reported inadequate relief of critical pain. Also 4 in every 10 patients have reported inadequate relief of moderate to severe chronic

pain[8]. Lack of adequate pain relief may lead to increased length of stay and the resulting poor medical outcomes [9] .can lead to increased risk of chronic pain due to the physiological and psychological harms to patients (including impaired wound healing, increased metabolic rate and cardiac output, defects in insulin response, increased production of cortisol and increased fluid retention [10] . Accordingly, the control and management of pain after surgery is a priority in care and treatment (Schreiber. Because directly engaged in providing 24-hour care for patients, nurses play a major role in the assessment and management of pain [11]. Many studies show that although pain is of utmost importance to patients, it is in the last degree of importance for nurses since they do not understand the pain felt by the patients as a palpable problem[12]. Therefore, nurses have a crucial role in the chain of pain assessment and relief [13]. They are constantly required to make decisions about pain management including decisions on the level of pain and the need for palliatives. Thus, effective control includes the prediction of decision-making processes that expand through the knowledge about pain and its treatment [14]. According to conducted studies, barriers to effective pain management and control include: inadequate knowledge in the fields of assessment, monitoring and treatment especially the frequent use of opioid analgesics, and the negative attitudes of health care providers toward controlling pain [12, 14] . The results of a study by Lui Tes et al. (2008), which was conducted to assess the knowledge and attitudes of nurses about pain management in hospitals of Hong Kong, showed that the majority of nurses have little knowledge and wrong attitudes about pain management [15, 16]. The results of another study by Akbas et al. (2008), which was designed to assess the knowledge of nurses working at teaching hospitals in Turkey, showed their inadequate knowledge about providing care for patients with pain and about pain management methods [17]. Salvado-Hernandez et al. (2009) also assessed the knowledge and attitudes of nurses working at surgical units in a hospital in Spain and concluded that the knowledge of the majority of them is low [18]. Sa'adati (2006) conducted a study to assess the impact of training programs on the knowledge and attitudes of nurses and concluded that the level of knowledge in the community under study was low before training. Based on studies by the American Society of Critical Care Medicine, despite the growth in the knowledge of pain assessment and management in the last two decades, health care workers have difficulty in taking care of patients with pain and pain is not controlled effectively. The first reason is the lack of trained health workers [19]. Some studies have shown that training the staff not only leads to an improvement in job skills but also to changes in attitudes, personality development, enhanced self-esteem, and increased morale and motivation [20]. Training programs are a potential way to improve knowledge and an opportunity to address negative attitudes and beliefs. However, it is difficult to prove a clear relationship between training programs and the achievement of desired results in pain management [21]. Since nurses play a vital role in providing patients with comfort and relief from pain, the present study is conducted to evaluate the effects of training programs on the knowledge and attitudes of nurses about postoperative pain in patients hospitalized in surgical units of teaching hospitals of Kerman, Iran, in 2014.

## MATERIALS AND METHODS

This study was conducted as a quasi-experimental intervention (with pretest-posttest design) on 60 nurses working at surgical units of teaching hospitals of Kerman, Iran, who were selected randomly using quota sampling (Hospital A: 30; Hospital B: 18; and Hospital C: 12). The requirements of entry into the research community included: minimum 2 years related experience in surgical wards[7] , lack of training on management and pain management, and willingness to participate in the study. Data collection instruments included a questionnaire consisted of three parts: demographic items, knowledge items and attitude items. To assess the variable of knowledge, we deployed the standardized Brockopp-Warden Pain Knowledge/Bias Questionnaire (BWPKBQ) which was developed by Brockopp et al. in 2004. This questionnaire consists of 21 true-false items with a total score range of 0-21. Also, in order to assess the attitudes of nurses about pain management, we used the 21-item Zanolin questionnaire. This questionnaire features a 5-point Likert scale from 1 to 5 (strongly agree to strongly disagree) and was developed by Zanolin et al. in 2007. The scientific validity of knowledge and attitudes questionnaires was confirmed through content validity analysis by specialists in the field. Also, the reliability of knowledge and attitudes questionnaires was confirmed by Cronbach's alpha coefficients of 0.75 and 0.81, respectively. After obtaining necessary authorizations by referring to the hospitals, we randomly sampled the population and obtained their consent for participation in the study. Then, we conducted the pretest prior to the training program with the presence of the researcher and without the use of references over a specified period of time. After that, we held a two-day training workshop followed by a post-test one week later. Data collected from the test were analyzed with SPSS software product version 19 using descriptive and inferential statistics (paired t-test, Spearman's rank correlation coefficient, and the Kruskal-Wallis test).

## RESULTS

Based on the results of this study, all of the participants were female, 81.7 percent of which were nurses and 18.3 percent were head nurses with a mean age of  $35.8 \pm 7.36$  and a work experience of  $12.25 \pm 7.82$  years. Only 43.3 %

of the participants used a scale for pain assessment. 66.7% of the participants read books and journals for obtaining information. The results also showed that the mean score of knowledge increased from  $13.61 \pm 3.76$  before the intervention to  $19.35 \pm 2.16$  after the intervention. The mean score of attitudes also grew from  $80.58 \pm 7.09$  before the intervention to  $86.91 \pm 5.49$  after the intervention. These are indicative of a significant difference ( $P < 0.0001$ ) (see Table 1). However, the lowest rate of false knowledge and attitudes was related to the use of placebo analgesics for malingering patients and to the use of opioid analgesics to relieve pain - which had created an improper attitude in relation to pain relief (see Table 2). An examination of the demographic data showed that there is a direct and significant relationship between studying books and journals and the improvement of knowledge and attitudes in the community under study ( $P < 0.01$ ). Despite the increase of knowledge in general and orthopedic surgery units compared with other units, there was no significant relationship between hospital units and increased levels of knowledge and attitudes ( $P < 0.11$ ). However, improved attitudes in general and cardiac surgery units were shown to be significant ( $P < 0.01$ ).

**Table 1: Comparison of knowledge and attitudes about postoperative pain before and after the training of nurses working at surgical units of teaching hospitals of Kerman, Iran, in 2013**

	Variable	Mean $\pm$ SD	Estimated mean differences at the 95% confidence interval	P-Value
Knowledge	Before Intervention	$13.61 \pm 3.76$	5.73 (4.70, 6.76)	<0.0001
	After Intervention	$19.35 \pm 2.16$		
Attitudes	Before Intervention	$80.85 \pm 7.09$	6.33 (8.73, 3.92)	<0.0001
	After Intervention	$86.91 \pm 5.49$		

**Table 2: Comparison of knowledge and attitudes about postoperative pain before and after the training of nurses working at surgical units of teaching hospitals of Kerman, Iran, in 2013**

Row	Scales	Knowledge		Correct Attitude	
		Before Intervention	After Intervention	Before Intervention	After Intervention
1	The use of placebo analgesics may be effective in the case of malingering patients.	16.7%	93%	41.7%	66.7%
2	Respiratory depression in patients receiving opioid analgesics is a rare problem.	43.3%	98.3%	40%	43.3%
3	Withdrawal symptoms in patients receiving opioid analgesics are a sign of addiction to the drug.	28.3%	58.3%	21.7%	65%

## DISCUSSION

The present study is conducted to evaluate the effects of training on the knowledge and attitudes of nurses with regard to pain management. The results show that training has a positive impact on knowledge and attitudes. This finding is consistent with the results of studies by McAuliffe (2009)[22], and Oldenmenger (2011) [23]. However, the results of a study by Machira (2013) on the effects of training interventions on the knowledge of pain contradict the result of this study hence indicating a negative relationship between training programs and knowledge of pain with the difference that Machira’s study was performed on nurses who cared after elderly patients or provided end-of-life care [5]. The results of a study by McNamara (2012) on 59 nurses participating in pain management training sessions suggest the effectiveness of training programs in improving the knowledge, attitude and skills of nurses about postoperative pain management [21]. The fear of patients’ becoming addicted or dependent on opioids often leads to inadequate treatments of pain. This fear is often expressed by health professionals, patients and their families due to inadequate knowledge of the low risk of addiction. Table 2 presents evidence of low knowledge and correct attitude in connection with the use of opioid analgesics in this study. According to a 2005 report by Coulling on “the fear of opioids” among nurses and doctors, more than a third of respondents expressed concern over addiction to opioids and respiratory depression. Studies have shown that even long-term administration of opioids is associated with very low levels of addiction (less than 1%). The combined use of (multiple) opioids and other drugs that debilitate the central nervous system (CNS) increases the likelihood of respiratory problems. The application of opioid analgesics to patients is helpful in preventing such serious complications [24] . The impact of reading journals, textbooks, and guidebooks on the increase of knowledge is another finding of the study. This finding is consistent with the findings of studies by Ferral (2000) [9] and Kiani(2016) [25]. It was expected that taking care of patients who experienced pain could lead to the increase of knowledge and the formation of positive attitudes among nurses. However, despite the increase of knowledge and improvement of attitudes about pain among the participants, no significant difference was observed in the present study. This shows the mutual effectiveness of training programs and clinical experiences.

**CONCLUSION**

Pain is one of the most common reasons for patients to ask healthcare professionals for help. Nurses are the most important members of this group and play an important role in the reduction of pain since they spend a lot of time at patients' bedside. Lack of participation in training courses on pain management during study or employment years is the main reason for the low knowledge of nurses regarding this issue. Holding well-structured training programs in this study led to the improvement of knowledge and attitudes among the participants.

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