

## Effect of Educational Programs on Knowledge and Attitudes of Surgical Nurses Regarding Pain in Taif Hospitals

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### Abstract

**Background:** Previous literature revealed that patients experiencing unnecessary pain after surgery. Unalleviated pain following surgery increases patients' morbidity and mortality. Nurses play a central role in pain assessment and management. Thus evidence-based knowledgeable is essential for nurses to provide a high quality care of pain. Pain educational programs have a positive effect on nurses' knowledge and attitudes regarding pain which is reflected on nurses' ability to manage pain with high level of competency.

**Methodology:** The sample composed of a convenience sample of 90 nurses working in the acute surgical wards of hospitals in Taif City. Data were collected before and after conducting an educational pain program using demographic data and 'Nurses' Knowledge and Attitudes Survey Regarding Pain' (NKAS) questionnaires to assess the knowledge and attitudes base of nurses working in these acute surgical settings.

**Results:** After completing the pain program, a statistically significant relationship was found between the nurses' level of education ( $p = 0.03$ ) and years of experience ( $p=0.01$ ) with their NKAS scores. There are statically significant differences between scores before and after attending the educational pain program for both types of nurses. The pain educational program improved nurses' knowledge and attitudes towards pain assessment and management ( $p<0.05$ ).

**Discussion:** The results are consistent with the results of previous studies. The results of this study could help nursing managers set policies for their nurses about attending specific pain programs and develop a strong pain reporting system. In addition, results could encourage nursing colleges to include more standardized pain material in their curricula.

**Keywords:** Knowledge, Attitudes, Nurses, Pain, Surgical, Quality, Program

### Literature review

Pain is the most frequently reported complaint made by patients (Abdalahim, Majali and Bergbom 2008). Nurses play a central role in the management of patients' pain (Rejeh *et al.* 2009). Furthermore, nurses play an essential role in the management of patients' pain following surgery as they are the health-care professionals who provide 24-hour care (Tsai *et al.* 2007).

Despite considerable advancements in the field of pain management, a plethora of research indicates that a considerable proportion of patients experience extreme levels of pain after surgical intervention (Schafheutle, Cantrill and Noyce 2001). It has been asserted that current pain management practices are sub-optimal (Schafheutle, Cantrill and Noyce 2001). Unrelieved pain after surgery impacts greatly on the morbidity and mortality of patients. Many authors have attributed nurses unsatisfactory professional practices in pain management as being consequences of a lack of knowledge and inadequate attitudes relating to pain and its management (McNamara, 2012; Rejeh *et al.* 2009;

Gordon *et al* 2008). It is also associated with lack of evidence-based training programs (McNamara, 2012).

Previous studies revealed common knowledge deficits and poor attitudes among nurses as evidenced by low NKAS scores. Some of these deficits were related to fears of using opioid analgesics and related side effects especially addiction. Broekmans *et al.* (2004) investigated nurses' attitudes towards opioid analgesics and it was established that almost half the sample (49.9%) of 350 nurse respondents believed addiction was a substantial side-effect of chronic opioid therapy for pain. Mistaken beliefs and exaggerated fears associated with the likelihood of the development of respiratory depression in patients receiving opioids are also widely documented in the literature (Coulling, 2005).

Further knowledge deficits in relation to pharmacology of analgesics are clear from the extensive literature available. Nurses play a central role in the administering of pain relieving medications and they must be able to interpret dosages, actions, routes of administration and be familiar with any adverse effects of

these medications. Lewthwaite *et al.* (2011) conducted a study to investigate nurses' knowledge and attitudes regarding pain from a sample of 324 nurses. The results low scores in all pharmacology based questions. Similarly, Reiman and Gordan (2007) established that only 18.3% of 295 nurses correctly answered an item in relation to an equi-analgesic dosage of analgesics. One item frequently answered incorrectly in many research studies relates to the use of non-steroidal anti-inflammatory drugs (NSAIDs) (Brown, Bowman and Eason 1999).

Many empirical studies have highlighted that nurses did not know that non-pharmacological therapies are useful in the treatment of severe pain, as well as mild to moderate pain (Wang and Tsai 2010; Yildirim, Cicek and Uyar 2008; Lui, So and Fong 2008). Data has also revealed that nurses do not believe that patients may sleep in spite of severe pain (Wang and Tsai 2010). Nevertheless, studies found that more than 70% of nurses believed they were successful in managing pain despite the low mean scores (Brown, Bowman and Eason 1999).

Nurses believe that most patients over-reporting their pain intensity. This poor nurses' attitudes was reported consistently in the literature (Wang and Tsai 2010; Yildirim, Cicek and Uyar 2008). One of the most basic principles of pain assessment is realizing the subjective nature of pain (McCaffery and Ferrell 1995). The majority of nurses in one study (84%) agreed that the patient is the most accurate judge of pain intensity (Lai *et al.* 2003). Similarly, other studies found that nurses believed that the patient's evaluation of pain is most accurate (Wang and Tsai 2010; Lui, So and Fong 2008; Reiman and Gordon 2007).

In order to be competent in the provision of high-quality pain management, nurses must be knowledgeable in all facets of pain management and the evidence-based strategies underpinning these practices (Lewthwaite *et al.* 2011). Ineffective pain management leads to great suffering and may increase morbidity and mortality (Jastrzab *et al.* 2003). Effective pain management depends on the skills, knowledge and attitudes of the healthcare professionals (Lewthwaite *et al.*, 2011).

It has been well documented in the literature that educational programs improve nurses' knowledge and skills for pain management. Abdalrahim *et al.* (2011) reported an increase in the mean score of knowledge from 45.7% to 75% among nurses following pain management program. Similarly, Qadire *et al.* (2014) had found significant improvement of nurses' knowledge and attitude following six hours of educational course on pain assessment and management. Several researchers showed the need for appropriate educational interventions to enhance nurses' knowledge and attitudes regarding pain (Lewthwaite *et al.* 2011; Huth, Wang and Tsai 2010; Rahimi-Madiseh, Tavakol and Dennick 2010)

The aim of the study is to determine the baseline level of knowledge and attitudes regarding pain of Taif surgical nurses. The study was conducted to answer the three research questions:

1. What are knowledge levels of pain assessment and management of surgical nurses?
2. What are nurses' attitudes toward pain in surgical units?
3. What are effects of educational pain programs on attitudes and knowledge of pain among surgical nurses?

## Methodology

### Research design

A quazi-experimental, pre-post intervention study design was used to assess nurses' knowledge and attitudes regarding pain in post-surgery in Taif city. Surveys were used to accomplish this study before and after completing a standardized pain program.

### Sample

A sample of 90 nurses was selected conveniently from surgical units from different hospitals in Taif city. The inclusion criteria were all registered nurses working in surgical units and able to read and interpret English language. Nurses who found difficulty understanding English and those who didn't give direct care to patients like managers were excluded.

### Instrumentation

Data were collected using two questionnaires: demographic data and 'Nurses' Knowledge and Attitudes Survey Regarding Pain' (NKAS) questionnaires to determine the knowledge and attitudes of nurses working in acute surgical settings. NKAS was developed by Betty Farrell and Margo McCaffery in 1987. It consists of 37-item and designed to measure a nurse's knowledge and attitudes regarding pain. All items are equally weighted, with the maximum score being 37. A higher score indicated a higher number of correct answers.

### Data collection Procedure

Approval of doing research was obtained from the institutional Review Board (IRB) of hospitals where the study was conducted in Taif city. Disclosure of the study was explained to all nurses participated in the study. All other ethical issues (anonymous of participants, data security...etc.) were declared clearly to all participants. The questionnaires (demographic & NKAS) then distributed to all nurses included in the study. After that, a standardized educational pain program was presented to all participants. At the end of program, nurses who completed the study again filled the NKAS.

## Results

### Participants' demographics

A total of 90 nurses participated in study and completed the educational program. 54 (60 %) were males and 36 (40 %) were females.

**Table 1:** Basic characteristics of study population

Basic Characteristics	Registered Nurses N=65	Practical Nurses N=25	p-value
Age in years (means ± SD)	28 ± 3.6	22.2 ± 5.6	0.63
Sex	M= 58.5% F= 41.5%	M= 61.5% F= 38.5%	0.28
Experience in years (means ± SD)	7 ± 4.6	5 ± 3.3	0.07
Experience in surgical wards	5 ± 2.5	3 ± 1.7	0.09

**Table 2** Nursing scores on NKAS before and after applying pain program

	Before intervention		After Intervention		T-test	p-Value
	n	Mean scores	N	Mean scores		
Registered Nurses	68	17.6 ±4	65	26.7 ± 6.8	3.86	.003
Practical Nurses	32	11.2	25	18.9 ± 5.6	3.21	.025

More than two third of participants have a bachelor degree in nursing (72.2 %). The average age of nurses was about 27 years. The age of most nurses was between 26 and 31 (68.9%). Most participants had 2 – 12 years of experience in nursing (71.4%). Most nurses had 4-6 years' experience in surgical wards. No one attend evidence-based pain program, see table (1).

The nurses' response rate was high before (93.1%) and after (98.3%) completing the pain educational program. Data of questionnaires obtained before implementing pain program were analyzed to study relationship between nurses' characteristics and total scores. Results revealed no statistically significant relationship between nurses' variables and total score of NKAS (> 0.05).

On the other hand, after completing the pain program, the mean scores for all the questionnaire items were increased. A statistically significant relationship was found between the nurses' level of education (p = 0.03), and years of experience (p=0.01) with their scores in the NKAS questionnaire.

According to t-test, there are statically significant differences between scores before and after attending the educational pain program for both types of nurses: practical and registered nurses. But registered nurses had higher scores than practical nurses, see table (2). Nurses with more experience had higher scores than nurses with less experience (p < 0.05). On the other hand, analysis of age and gender showed no significant differences (p > 0.05).

The pain educational program improved nurses' knowledge and attitudes towards pain assessment and management (p<0.05).

**Discussion**

This study was designed to assess nurses' knowledge and attitudes regarding surgical pain. The total score of NKAS was changed significantly after applying education. The results are consistent with the results of previous studies

(Abdalrahim et al, 2011; Lewthwaite et al. 2011; Huth, Wang and Tsai 2010 ).

Several nursing characteristics were examined to assess their relations with pain knowledge and attitude. The results showed significant association between NKAS scores and level of education and experience in general and surgical nursing wards, after attending education. The findings were consistent with most previous literature (Lewthwaite et al. 2011; Gordon et al 2008). On the other hand, this study could not establish any significant relations between nurses' age and sex and their scores of pain knowledge and attitude. The results conform with most previous studies (McNamara, 2012; Rejeh et al. 2009).

All answers to items of questionnaire were improved after education for both practical and registered nurses. The study found misperception of nurses about postoperative pain which corrected by giving evidence-based pain program. This is reflected by the significant improvement in most tool items.

Some inconsistencies were found between the findings of this study and previous studies which could be related to differences in sample size and nurses variables, in addition to differences in health delivery system in Taif.

Nurses acknowledge usefulness and impacts of such programs on their understanding and response to pain.

**Conclusion and recommendation**

Applying pain educational programs can improve nurses' knowledge and attitudes regard pain. The results of this study could help nursing managers set policies for their nurses about attending specific pain programs. In addition, it could help them develop a strong reporting and follow up system of nurses in their pain management. Finally, results could encourage nursing colleges to include more standardized pain material in their curricula.

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