

Palestinian Nurses' Knowledge and Attitudes Regarding Pain Management

Azzam Nimer¹ and Farid AW Ghrayeb¹

¹Department of Nursing, Faculty of Health Professions,
Al Quds University, Abu-Dis, Jerusalem, Palestine

Abstract- The under-treatment of pain is the most disturbing and annoying symptom for hospitalized patients worldwide, yet it is poorly assessed and managed. Pain undermines a person's quality of life and negatively affects their physical, emotional and spiritual wellbeing. Nurses have a vital role in implementing pain management effectively; therefore inadequate knowledge remains a major barrier to achieving effective pain management. This study aims to assess knowledge levels and attitudes regarding pain management among nurses working in hospitals in south of Palestine. A quantitative cross-sectional study design was utilized to recruit a proportionate sample of 380 staff nurses working in different wards in six governmental and private hospitals in Palestine. A modified Arabic version of Nurses' Knowledge and Attitude Survey questionnaire regarding Pain was used to answer the research questions. The results of the study showed that a mean score of knowledge was 15.5 out of 34 (45.6% out of 100%). This finding indicates that staff nurses had deficit in knowledge and negative attitudes toward pain assessment and management. The findings showed no significant difference in the mean score of knowledge in relation with gender ($p = 0.181$), age-group ($p = 0.399$), level of education ($p = 0.934$), and previous training courses or workshops on pain management ($p = 0.612$), except for the place of work ($p < 0.001$). The results of this study indicate that there are serious challenges to adequate pain management. Curricular evaluation and/or change aiming to promote pain management and correcting the ingrained misconceptions are needed.

Keywords: Knowledge, Attitudes, Pain management, Nurses, Palestinian

I. INTRODUCTION

Insufficient pain management continues to be problematic for hospitalized patients and public health issue worldwide (Al-Shaer et al., 2011; Wysong, 2012). Pain is part of the human experience, as most people will experience it in their lifetime to varying degrees, for various durations, due to different etiologies (Matthews & Malcolm, 2007; Wood, 2002). In clinical settings nurses play a vital role in pain assessment and management, and must be knowledgeable regarding how to best assess and manage pain. Pain may be undertreated as a result of inadequate assessment or the inappropriate use of analgesics, especially opioids (Al-Shaer, Hill, & Anderson, 2011). Although research that has increased the awareness of pain management and has broadened knowledge of effective methods to assess and manage pain, nurses have not adequately used this knowledge to improve the care of patients experiencing pain and many patients still suffer from unnecessary discomfort (Vallano et al. 2006).

Literature reviews have indicated that there is an overall problem with nursing knowledge and attitudes towards pain management. Many nurses lack the education and training for effectively managing pain, resulting in longer hospital stays and reducing the quality of life for patients. Despite guidelines and pharmacologic interventions exist to manage pain, poor assessment and under-medication is well documented globally (Breivik et al., 2009). In addition, the barriers to pain management are numerous and can be related to patients, family caregivers, and health care providers and the care they provide.

Unfortunately, several research studies indicated that nurses have a knowledge deficit regarding pain, and may hold negative attitudes and misconceptions towards (Abdalahim et al., 2011; Siedlecki et al., 2013). Moreover, many nurses have insufficient knowledge about basic mechanisms of action of medications, dosages and uses of certain pharmaceuticals, in addition to other pain management interventions (Lasch et al., 2002). While pain assessment and management is taught as part of the curricula of many nursing programs, it is often not enough in terms of time allotted and depth of academic inquiry to be effective (Abdalahim et al., 2011; Siedlecki et al., 2013).

The consequences of unrelieved pain can be devastating. Its debilitating effects has significantly interferes with the patient's physical, emotional and spiritual well-being, thus can alter the patient's quality of life (Yava et al., 2013; Alexandrina and Jacinta, 2013). Acute pain that is poorly controlled can contribute to complications such as direct medical costs and substantial indirect costs due to days lost from work. When pain is inadequately managed, patients continue to suffer and seek treatment, therefore driving up healthcare expenditures that could have been avoided with proper management (Wells et al., 2008). Research suggests pain negatively affects the endocrine and metabolic system, cardiovascular system, gastrointestinal system, and immune system and is often responsible for stress (Wells et al., 2008). In addition, there is an assumption that pain is highly associated with emotional and physical functioning, and that a reduction in pain will inevitably lead to an improvement in function and patient satisfaction (Turk & Dworkin, 2004).

Several research studies have been conducted to examine health care professionals' knowledge in managing patients' pain. For example, a study was conducted in the United States to examine the attitudes regarding pain of nurses working in 10 separate nursing units in a mid western hospital and to assess their knowledge level (Al-Shaer et al., 2011). One hundred twenty-nine nurses completed the Nurses' Knowledge and Attitudes Survey Regarding Pain (KASRP). It was found that nurses continue to demonstrate inadequate knowledge of pain assessment and pain management interventions. Another study to evaluate nurses' knowledge of pain among 72 nurses who were either hospice or district nurses in the UK found that nurses had a low level of pain knowledge, with relatively special nurses having better knowledge in managing pain (Wilson, 2007). In Palestine, there are no studies that examined Palestinian nurses' knowledge and attitudes regarding pain management. To improve both the quality of care and the quality of life of patients suffering from medical illnesses, we need to assess the current knowledge and attitudes of registered nurses towards pain management. The purpose of this study therefore was to assess the current knowledge and attitudes of registered nurses towards pain management. This line of inquiry is critical because absence of pain is part of the basic human rights to health. Findings from this study add important information to the body of literature regarding nurses' knowledge and attitudes towards pain management in south west-bank, Palestine and programs can be planned and interventions developed to advance the body of general nursing knowledge and the nursing specialty of pain management.

II. METHODOLOGY

Design and sample

A quantitative research method and a descriptive, cross-sectional study design were used. Data were collected from 6 settings (government and private hospitals) that represent the healthcare sector in south of West-Bank in Palestine. The target population was all nurses working in the critical care, emergency department, medical-surgical; oncology, pediatric, renal, and surgical services and who met the sample criteria and agreed to participate in the study. The inclusion criteria were: (i) nurses working with adult inpatients in all units in the participating hospitals; (ii) having worked in the hospital units for at least six months continuously. A sample of 380 consenting registered nurses was drawn using a stratified random sampling method. The response rate was 94.7%. The self-administrated survey consisted of two parts: (i) participants information form and (ii) the nurses' knowledge and attitudes survey regarding pain-Arabic version (NKASRP-A).

The Nurses Knowledge and Attitude questionnaire Regarding Pain (KASRP) was used to measure the nurses' level of knowledge and their attitude toward SCD pain assessment and management. The original NKASRP was developed by Ferrell and McCaffery in 1987 and was revised and updated in 2006 and 2008. This survey of 38 questions has been widely used in western countries. The first 21 items are true/false questions, items 22-36 are multiple choice questions, and items 37 and 38 are case studies. It includes aspects of pain assessment, pharmacological and non-pharmacological interventions and attitudes towards pain management (Ferrell & McCaffery 2006). Content validity of the KASRP was obtained by pain experts and derived from current standards of pain management. The construct validity was established through the comparison of scores from nurses across various levels of expertise. Test-retest reliability was estimated at $r > .80$). The items were

determined to reflect both attitudes and knowledge with an overall coefficient alpha of 0.85 (Ferrell & McCaffrey, 2008).

Ethical Considerations

Ethical approval for the study was obtained from Al Quds University and then from the Ethics Committees of the Palestinian Ministry of Health, as well as, from each hospital. Nurses' privacy was protected by allowing for anonymous and voluntary participation. The purpose of the study was explained to the participants and consent was obtained prior to the data collection. In addition, participation in the study was voluntary, and the participants had the right to withdraw at any stage of the research. Furthermore, the identities of the participants were not disclosed, and only aggregate data were reported.

Data analysis

Data from the KASRP were analyzed using SPSS version 23.0 software. Descriptive statistics, including frequency, percentage, mean and standard deviation were used to describe the demographic data. The percentage of correct and incorrect answers for each item was calculated. Independent sample *t* test, one way ANOVA tests were used to detect differences in mean total score of knowledge in relation to demographic and personal characteristics. A *p*-value of <0.05 was considered statistically significant.

III. RESULTS

Sample Characteristics

A total of 360 nurses completed and returned the study questionnaire. As shown in Table 1, 54.4% of the participants were male, and the average age was 27.7(SD 5.3) years. In addition, more than half of the nurses had a bachelor's degree (59.4%) and were working in medical and surgical wards. Furthermore, 66.1% of nurses had 1 to 5 years of experience.

Table 1 Distribution of the studied sample according to their Socio-demographic data (n = 360)

Characteristics	No. of respondents (n)	(%)
Age-group		
< 20	257	71.4
Between 20 - 25	83	23.1
>25	20	5.6
Gender		
Male	196	54.4
Female	164	45.6
Level of Education		
Diploma	133	36.9

Bachelor	214	59.4
Master	13	3.6
Years of Experience		
1 - 5	238	66.1
6 - 10	82	22.8
11 15	27	7.5
More than 15	13	3.6
Place of training		
Al Mezan Hospital	71	21.1
Hebron government hospital	50	13.9
Al Hussein Gov. Hospital	62	17.2
Al Yamama	43	11.9
BASR	67	18.6
Al Ahli Hospital	62	17.2

Nurses' Knowledge and Attitudes Regarding Pain Management

For each item of the KASRP, the percentages of the correctly answered items in the questionnaire are calculated. Tables 2 present the data concerning the level of knowledge about pain assessment and management which was tested through True and False questions and multiple choice questions. The score ranged from 0 to 34 and the total was calculated using the number of correct answers which were then converted to percentage. The overall mean score of the level of knowledge was 15.5 out of 34 (45.6% out of 100%). The highest score for all questions was 66.6% and lowest score was 18.1%. The participants scored above the recommended score of 80% (McCaffery & Pasero, 1999) in 5 questions and these questions were examining knowledge about pharmacological interventions. They scored between 50% and 70% in six questions and below 50% in 21 questions. The findings revealed that nurses had very poor knowledge about pain assessment and management. For example with regard to True and False questions, only 68 (18.9%) of the 360 participants correctly identified that vital signs are not always reliable. One thirds (n = 121, 33.6%) considered Promethazine (Phenergan) as a reliable potentiates of opioid analgesics. The highest percentages of correct answers were for items 6, 15, 16, 21, and 22, which are about respiratory depression occurrence, spiritual beliefs, opioid addiction, and manifestations of physical dependence following discontinuation of opioid (80.6%, 80.3%, 81.7%, 80.3% and 84.7%, respectively). However, many items received an extremely low percentage of correct answers. For example, twenty-one items did not reach a 50% correct answer rate. Most of these incorrect answers were related to: a) misunderstanding of physical dependence and its manifestations; b) morphine dosing calculations; c) fear of addiction; and d) knowledge of pain medication uses and side effects. For example, only 18.9% knew the peak time of intravenous morphine and 5.3% for oral morphine (see table 3). The difference in the mean score was measured by independent sample *t* test, one way ANOVA tests. Although the sample size is large and the number of participants in each group is equal, it is difficult to detect the significance. when the total score of the questionnaire was compared regarding nurses' gender, age, educational level, and exposure to previous pain education, no significant differences were identified between those characteristics and the total knowledge and attitude score, except for the place of work (hospital), as shown in the results of the one way ANOVA, where the *p* value was <0.001 (Table 4).

Table 2 Correctly Answered Items in the Questionnaire (True/False questions)

Item No.	Item Content	Correct Responses
----------	--------------	-------------------

		n	%
1.	Vital signs are always reliable indicators of the intensity of a patient's pain. (F)	68	18.9
2.	Because their nervous system is under developed, children under two years of age have decreased pain sensitivity and limited memory of painful experiences. (F)	177	49.2
3.	Patients who can be distracted from pain usually do not have severe pain. (F)	109	30.3
4.	Patients may sleep in spite of severe pain. (T)	139	38.6
5.	Aspirin and other non steroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.(F)	96	26.7
6.	Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months. (T)	290	80.6
7.	Combining analgesics that work by different mechanisms (e.g., combining an opioid with an NSAID) may result in better pain control with fewer side effects than using a single analgesic agent. (T)	188	52.2
8.	The usual duration of analgesia of 1–2 mg morphine IV is 4–5 hours. (F)	163	45.3
9.	Research shows that promethazine (Phenergan) and hydroxyzine (Vistaril) are reliable potentiates of opioid analgesics. (F)	121	33.6
10.	Opioids should not be used in patients with a history of substance abuse. (F)	92	25.6
11.	Morphine has a dose ceiling (i.e., a dose above which no greater pain relief can be obtained).(F)	85	23.6
12.	Elderly patients cannot tolerate opioids for pain relief. (F)	209	58.1
13.	Patients should be encouraged to endure as much pain as possible before using an opioid. (F)	71	19.7
14.	Children less than 11 years old cannot reliably report pain, so nurses should rely solely on the parent's assessment of the child's pain intensity. (F)	113	31.4
15.	Patients' spiritual beliefs may lead them to think pain and suffering are necessary. (T)	294	81.7
16.	After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response. (T)	289	80.3
17.	Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real.(F)	117	32.5
18.	Vicodin (hydrocodone 5mg + acetaminophen 500 mg) PO is approximately equal to 5–10 mg of morphine PO. (T)	218	60.6
19.	If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, because this could mask the ability to correctly diagnose the cause of pain. (F)	72	20.0
20.	Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.(F)	175	48.6
21.	Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm.(T)	288	80.0
22.	Narcotic/opioid addiction is defined as a chronic neurobiological disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving(T)	305	84.7

Table 3 Correctly Answered Items in the Questionnaire (Multiple-choice questions)

Item No.	Item Content	Correct Responses	
		n	%

23.	The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is: (oral)	19	5.3
24.	The recommended route administration of opioid analgesics for patients with brief severe pain of sudden onset, such as trauma or postoperative pain, is: (intravenous)	258	71.7
25.	Which of the following analgesic medications is considered to be the drug of choice for the treatment of prolonged moderate to severe pain for cancer patients? (morphine)	187	51.9
26.	Which of the following IV doses of morphine administered over a 4 hour period would be equivalent to 30 mg of oral morphine given q 4 hours? (morphine 10 mg IV)	132	36.7
27.	Analgesics for postoperative pain should initially be given: (around the clock on fixed schedule)	145	40.3
28.	A patient with persistent cancer pain has been receiving daily opioid analgesics for 2months. Yesterday the patient was receiving 200 mg/h morphine intravenously. Today he has been receiving 250 mg/h intravenously. The likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity is: (less than 1%)	248	68.9
29.	The most likely reason a patient with pain would request increased doses of pain medication is: (the patient is experiencing increased pain)	192	53.3
30.	Which of the following is useful for treatment of cancer pain? (all of the above)	178	49.4
31.	The most accurate judge of the intensity of the patient's pain is: (the patient)	133	36.9
32.	Which of the following describes the best approach for cultural considerations in caring for patients in pain? (patient should be individually assessed to determine cultural influence)	262	72.8
33.	How likely is it that patient who develops pain already have an alcohol and/or drug abuse problem? (5%-15%)	80	22.2
34.	The time to peak effect for morphine given orally is: (1-2 h)	68	18.9

Table 4 Independent t Test Results Analyzing the Difference in Mean Total Nurse Knowledge Score Based on gender and previous training

Variable	Mean (SD)	t statistic (df)	95% CI of Difference	P value
Gender				
Male (n=196)	15.3 (2.9)	-1.34 (358)	(-0.98, 0.19)	0.181
Female (n=164)	15.7 (2.7)			
Previous training				
Yes (n=229)	15.3 (3.3)	-0.51 (358)	-1.31, 0.77	0.612
No (n=31)	15.5 (2.8)			

Table 5 One Way ANOVA Test Results Analyzing the Difference in Mean Total Nurse Knowledge Score Based on Age, Level of Education and Place of work

Variable	Mean (SD)	F statistic (df)	P value
Age-group			
Between 20-29 yrs (n=257)	15.4 (2.8)	0.92 (2)	0.399
Between 30-39 yrs (n=83)	15.9 (2.9)		
Others (n=20)	15.3 (2.3)		
Level of Education			
Diploma (n=133)	15.5 (2.7)	0.07	0.934
Bachelor (n=214)	15.5 (2.9)		
Master (n=13)	15.3 (3.0)		
Place of work			
Al Mezan Hospital(n=76)	15.3 (2.9)	8.98 (5)	<0.001
Hebron government hospital(n=50)	14.8 (2.7)		
Al Hussein government Hospital(n=62)	16.3 (2.4)		
Al Yamama(n=43)	15.8 (2.1)		
BASR(n=67)	16.8 (3.0)		
Al Ahli Hospital(n=62)	14.1 (2.5)		

IV. DISCUSSION

This is the first study conducted in Palestine to examine the level of knowledge and attitudes of nursing staff toward pain assessment and management. This study showed that the Palestinian nurses lacked the required knowledge and had misconceptions pain relief interventions. Findings in the mean scores of knowledge of pain and pain management suggests that there is a gap in the understanding of pharmacology related to pain management, as well as deficits in knowledge related to addiction and substance abuse. The minimum 80% score set by the authors of the KASRP was not met. Deficits in knowledge were particularly evident in the areas of analgesic dosing, analgesic ceiling of opioids, and discerning addiction from tolerance and physical dependence. In general, the results indicate that nurses in this study have a poor knowledge of pain assessment and management. This finding was consistent and similar to those obtained by Lui et al. and Tsai et al. The mean score obtained by Lui et al. was 47.72%, while Tsai et al. had an overall score of 49.2% (Lui et al., 2008; Tsai et al., 2007). Furthermore, the results of this study were lower compared to results of previous studies (Al Qadire and Al Khalailah, 2014; Burns et al., 2010). For example, Al Qadire & Al Kalaileh (2014a) also reported a low knowledge score in Jordan (Mean = 19.3, SD 4.7), but it is still higher than that found in this study.

One of the findings of this study is that education does not make any difference to knowledge and attitudes in relation to pain management. This might be due to inadequate preparation in the nursing curriculum and in continuing education. Lack of such program could contribute to poor knowledge about pain assessment and management. It has been well documented in the literature that educational programs improve nurses' knowledge and skills for pain management. Abdalrahim et al. reported an increase in the mean score of knowledge from 45.7% to 75% among nurses following pain management program (Abdalrahim, et al., 2011). Likewise, Qadire had found significant improvement of nurses' knowledge and attitude following six hours of educational course on pain assessment and management (Qadire, 2014b). Thus, it is recommended that the existing syllabus in the nursing curriculum should be reviewed and an intensive and comprehensive program on pain management be set as a mandatory requirement so that student nurses may be prepared well before graduation. More in-service training

should be organized to help nurses' competence in pain assessment and pain management, eliminate knowledge deficits and change attitudes towards effective pain management.

V. IMPLICATION FOR NURSES

This study provides information for hospital and nursing administrators that may guide and ensure the implementation of effective strategies to improve nurses' clinical assessment skills and pain management for patients. Based on this studies review of relevant literature, the need for innovative and effective pain management education for nurses is well documented. It is imperative that all nurses be better educated and be encouraged to be reflective, evidenced-based practitioners (Wilson, 2007). As one of the most trusted professions, nursing has a tremendous responsibility in providing quality care and outcomes. An inadequate knowledge base and limited expertise are barriers to providing patients with the quality outcomes that they expect. The concept of expert nurse remains elusive, and not all nurses will attain expertise in their practice. The attainment of proficiency is the fourth phase of Benner's theory (1984) and attainment of this phase is crucial for the nurse to understand completely the physiology and reasoning. Banning (2008) suggests that proficient clinical reasoning skills can enhance the quality of nursing practice provided through the precision of decision-making. It is proposed that clinical reasoning centers on the synthesis of specific knowledge forms; empirical, aesthetic, personal and ethical (Banning, 2008).

Fisherman (2007) feels that pain management as a human right is a moral imperative that will help medicine return to its humanist roots. "Acknowledging this right is a crucial step in reversing the public health crisis of under treatment of pain". Nurses should recognize knowledge deficits and seek to expand their knowledge base in order to provide safe and ethical care for the patients that they provide care for.

VI. RECOMMENDATIONS

More research is needed regarding nurses' knowledge towards pain management. Further research to identify differences between specialty areas could help to determine if some nursing realms would benefit from more education on pain management. Research to assess the impact of educational interventions with nurses on their knowledge towards pain and pain management would be needed to measure the impact of continuing education programs. Additional research is needed in various geographical and practice settings to determine if deficits determined in this study are prevalent across settings.

VII. CONCLUSION

Nurses' knowledge and attitudes towards pain management was very weak. This is a cause for concern since nurses play a pivotal role in pain management, the results of this study indicate that there are serious challenges to adequate pain management. Lack of knowledge among health care providers including nurses is one of the barriers to effective pain assessment and management. The level of knowledge reflects the quality of care that nurses are providing to patients under their responsibilities. There is an urgent need to improve nurses' pain assessment skills for patients through regular and continues in educational and professional development program. The effect of educational program on nurses' knowledge after implementation needs to be evaluated by future research studies.

ACKNOWLEDGMENT

We would like to express thanks to all the nurses in all departments of the participated hospitals for their cooperation and full support during data collection; Palestinian Ministry of Health and the administrations of hospitals for giving permission for data collection, respectively.

REFERENCES

- Abdalahim, M. S., Majali, S. A., Stomberg, M. W., & Bergbom, I. (2011). The effect of postoperative pain management program on improving nurses' knowledge and attitudes toward pain. *Nurse Education in Practice*, 11(4), 250-255.
- Al Qadire, M., Al Khalaileh, M. (2014a). Jordanian Nurses Knowledge and Attitude Regarding Pain Management. *Nurse Education in Practice*, 4: 1460-1472. <http://dx.doi.org/10.9734/BJMMR/2014/5241>
- Al Qadire, M., Al Khalaileh, M. (2014b). Effectiveness of Educational Intervention on Jordanian Nurses' Knowledge and Attitude Regarding Pain Management. *British Journal of Medicine and Medical Research*, 4(7): 1460-1472.
- Alexandrina de Jesus SL, Jacinta PM (2013) Pain: Knowledge and attitudes of nursing students, 1 year follow-up. *Text Context Nurs* 22:311-317.
- Al-Shaer, D., Hill, P. D., & Anderson, M. (2011). Nurses' Knowledge and Attitudes Regarding Pain Assessment and Intervention. *MEDSURG Nursing*, 20(1), 7-11.
- Banning, M. (2008). Clinical reasoning and its application to nursing: Concepts and research studies. *Nurse Education in Practice*, 8, 177-183. Doi:10.1016/j.nepr.2007.06.004.
- Benner, P. (1984). *From Novice to Expert: Excellence and Power in Clinical Nursing Practice*. Menlo Park, CA: Addison-Wesley.
- Breivik, H., Cherny, N., Collett, B., de Conno, F., Filbet, M., & Foubert, J. (2009). Cancer-related pain: A pan-European survey of prevalence, treatment, and patient attitudes. *Annals of Oncology*, 20(8), 1420-1433.
- Burns, J., Magee, K.T., Cooley, H., Hensler, A., Montana, J., Shumaker, D., Snyder, J., Polk, A.R. (2010). "I feel your pain": A research study addressing perianesthesia health care providers' knowledge and attitudes towards pain. *Journal of PeriAnesthesia Nursing*, 25(1), 24-28. Doi: 10.1016/j.jopan.2009.11.001
- Ferrell, B. R., & McCaffery, M. (2006). City of Hope Knowledge and Attitudes Survey Regarding Pain. Retrieved September 14, 2009 from <http://prc.coh.org/Knowledge%20Attitude%20Survey%208-06>
- Ferrell, B. R., & McCaffery, M. (2008). City of Hope Knowledge and Attitudes Survey Regarding Pain. Retrieved November 20, 2009 from <http://prc.coh.org/Knowledge%20Attitude%20Survey%20-%20updated%205-08.pdf>
- Fisherman, S.M. (2007). Recognizing pain management as a human right: A first step. *Anesthesia and Analgesia*, 105(1), 8-9. Doi:10.1213/01.ane.0000267526.37663.41.

- Lasch, B. A., Greenhill, B. A., Wilkes, G., Carr, D., Lee, M., & Blanchard, R. (2002). Why study pain? A qualitative analysis of medical and nursing faculty and students' knowledge of and attitudes to cancer pain management. *Journal of Palliative Medicine*, 5(1), 57–71.
- Lewthwaite, B.J., Jabusch, K.M., Wheeler, B.J., et al. (2011). Nurses' knowledge and attitudes regarding pain management in hospitalized adults. *Journal of Continuing Education in Nursing*, 2011; 42: 251-7. <http://dx.doi.org/10.3928/00220124-20110103-03>
- Lui, L., So, W., Fong, D. (2008). Knowledge and attitudes regarding pain management among nurses in Hong Kong medical units. *Journal of Clinical Nursing*, 17(15): 2014-2021. <http://dx.doi.org/10.1111/j.1365-2702.2007.02183.x>
- Matthews, E., & Malcolm, C. (2007). Pain management nurses' knowledge and attitudes in pain management practice. *British Journal of Nursing*, 16(3), 174-179.
- Siedlecki, S.L., Modic, M.B., Bernhofer, E., Sorrell, J., Strumble, P., & Kato, I. (2013). Exploring how bedside nurses care for patients with chronic pain: A grounded theory study. *Pain Management Nursing*, 1-9.
- Tsai, F.C., Tsai, Y.F., Chien, C.C., et al. (2007). Emergency nurses' knowledge of perceived barriers in pain management in Taiwan. *Journal of Clinical Nursing*, 16: 2088-2095. <http://dx.doi.org/10.1111/j.1365-2702.2006.01646.x>
- Turk, D.C., & Dworkin, R.H. (2004). What should be the core outcomes in chronic pain clinical trials? *Arthritis Research Therapy*, 6(4), 151-154. Doi: 10.1186/ar1196
- Vallano A, Malouf J, Payrulet P & Banos JE (2006) Prevalence of pain in adults admitted to Catalonian hospitals: a cross-sectional study. *European Journal of Pain* 10, 721–731.
- Wood, S. (2002). Pain: Week 3. Nursing care and implications for nursing. *Nursing Times*, 98(40), 39-42.
- Wells, N., Pasero, C. & McCaffery, M. (2008). Improving the Quality of Care Through Pain Assessment and Management. In *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*, chapter 17. Hughes, R.G. (ed). Rockville, Maryland: Agency for Healthcare Research and Quality. Retrieved from <http://www.ncbi.nlm.nih.gov/books/NBK2658/>.
- Wilson, B. (2007). Nurses' knowledge of pain. *Journal of Clinical Nursing*, 16: 1012-1020. <http://dx.doi.org/10.1111/j.1365-2702.2007.01692.x>
- Wysong, P.R. (2012). Nurses' beliefs and self-reported practices related to pain assessment and nonverbal patients. *Pain Management Nursing*, 1-10.
- Yava A, Cizek H, Ozcan C, Yildiz D, Dizer B (2013) Knowledge and Attitudes of Nurses about Pain Management in Turkey. *Int J of CarSci* 6: 494-505.

AUTHORS

First Author – Azzam Nimer, qualifications, associated institute (if any) and email address.

Correspondence Author – Farid AW Ghrayeb, RN, MSN, PhD, and ghrayeb2000@yahoo.com , fghrayeb@staff.alquds.edu ,
+970597590131.