

# Pain knowledge and attitude: a survey among nurses in 23 health institutions in Western Ethiopia

Ağrı bilgisi ve yaklaşımı: Batı Etiyopya'daki 23 sağlık enstitüsündeki hemşireler arasında bir anket

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## Abstract

Effective pain management requires a sound knowledge of pain and its treatment. Researches indicated that inadequate knowledge and inappropriate attitudes of nurses regarding pain management have a significant impact of treatment and patient care. The aim of this study was to assess the level of knowledge and attitude among health care professionals in Anfillo Woreda health centers and private small clinics in West Ethiopia. A cross-sectional survey was used to self-administer four Likert scales validated and adopted 22 pain related items by 89 nurses of three health centers and twenty small clinics. Descriptive data analyses were used. Item-total correlation and Cronbach's alpha were computed. The overall mean correct answer for all the 22 items was 49.8%; meaning health care providers were able to correctly answer 49.8% of items on average. Besides, only 3.8% of them scored above the passing score of 70%. The widespread pain related misconceptions identified is of concern demanding continuing education for nurses and pain management quality improvement initiatives so as to alleviate the consequences of poor knowledge and inappropriate attitude towards pain management.

**Keywords:** Attitudes; knowledge; nurse; pain management

## Özet

Etkili ağrı yönetimi, sağlam bir ağrı bilgisi ve tedavisini gerektirir. Araştırmalar, ağrı yönetimi konusunda yetersiz bilginin ve hemşirelerin uygunsuz yaklaşımların, tedavi ve hasta bakımında önemli bir etkiye sahip olduğunu göstermiştir. Bu çalışmanın amacı, Batı Etiyopya'da bulunan özel, küçük kliniklerde ve Anfillo Woreda sağlık merkezlerinde sağlık bakımı profesyonellerin arasında bilgi ve yaklaşım seviyesini değerlendirmektir. Kesitsel ankette, 3 sağlık merkezi ile 20 küçük kliniğin 89 hemşiresi tarafından onaylanan ve benimsenen 22 ağrı ile ilgili maddeleri içeren kendi kendine uygulanan 4 Likert skalası kullanıldı. Tanımlayıcı data analizleri kullanıldı. Madde toplam korelasyon ve Cronbach alfa hesaplandı. Tüm 22 madde için doğru cevabın genel ortalaması %49.8 idi; yani ortalama olarak maddelerin %49.8'ini sağlık bakımı sağlayıcıları doğru olarak cevaplandırdı. Ayrıca, bunların sadece %3.8'i, geçme skoru olan %70'in yukarısında skor almıştır. Yaygın ağrı ile ilgili saptanmış yanlış kavramlar, ağrı yönetimine karşı uygunsuz yaklaşım ve yetersiz bilginin sonuçlarını hafifletmek için ağrı yönetimi kalite iyileştirme girişimleri ve hemşireler için sürekli eğitim talebini önemli hale getirmiştir.

**Anahtar kelimeler:** Yaklaşım; bilgi; hemşire; ağrı yönetimi

## Introduction

Pain is one of the most common but also the most feared symptoms that patients experience during the course of a disease (1). The international association for the study of pain (IASP) has defined pain as an unpleasant sensory and emotional experience arising from actual or potential tissue damage (2).

Unrelieved pain causes unnecessary suffering for the patient complicating the bereavement process for their families (3). The social and mental pain suffered by patients with life threatening diseases intensifies the physical pain they experience. Failure to treat the

total pain of the patient is one of the most common reasons why patients fail to achieve adequate symptomatic relief (4).

Effective pain management requires a sound knowledge of pain and its treatment. The fact that pain management is one of the most important aspects of patient care and is most relevant to all nurses emphasize that the responsibility that rest on the shoulders of nurses for the comfort of patients far greater than that of other medical staffs (5). Research results indicate that the attitudes, beliefs and knowledge of nurses regarding pain management have significant impacts on treatment and patient care (6,7). Therefore, nurses should have

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a solid foundation of knowledge about pain management and develop a positive attitude towards it to assess patients' condition and to deliver individualized care to each one so as to reduce discomfort and enhance the quality of life

Several studies in both developed (5,8-16) and developing (17) countries that assessed the knowledge of nurses regarding pain and its management demonstrated deficiency has been noted in the area of attention given to and assessment of pain, opioid related issues, general principles of pain management, pain management in children; and non-pharmacologic aspect of pain management.

A qualitative survey conducted in 2005 among health professionals from four Ethiopian Universities demonstrated that pain was undertreated due to various reasons amidst of which professionals' poor knowledge was at the forefront (18). Yet, there is no evidence to understand the real knowledge gap in the country. Besides, it is the nurses who have a frequent contact to care the patients so it is inevitable to understand the knowledge towards pain management status. Thus, this study was conducted to assess the knowledge and attitude of pain management among conveniently selected private and public health institution nurses in the Western region of Oromia, Ethiopia.

### **Materials and Methods**

#### *Study Setting*

The study was conducted in Western Oromia region Kellem Wollega Zone Anfillo Woreda located 694 kms from Addis Ababa city. It has 3 health centers, and 20 private small clinics. The health centers are organized in terms of case teams (emergency case team, OPD case team, and delivery case team) and the nurses assigned in each health center work in rotation. Among other professional (Health officers and pharmacy technicians) in the health institutions, nurse in in 3 governmental health centers namely Ashi, Shebel and Muggi are counted to be 21, 21 and 19 respectively; thus a total of 62 nurses. Similarly, 12 of the small private clinics (located in the remote rural area) have one nurse each while the remaining 8 have 2 nurses each.

#### *Study Design and Participants*

A cross-sectional survey was used to self-administer a questionnaire by 90 nurses from the three health centers and twenty small clinics during February 10-20, 2013. For this study, all the nurses in the study setting were included. Of all, only one questionnaire from the nurse in the Shebel Health Center was returned incomplete and discarded.

#### *Study Tools*

To assess the knowledge and attitude towards pain, a questionnaire that contain 22 items having a four Likert scales called SD (Strongly Disagree), D

(Disagree), A (Agree), and SA (Strongly Agree) were adopted from previously validated tools (14,16) apart from the socio-demographic characteristics. The tool was prepared and administered via English.

The internal consistencies of the 22 knowledge and attitude assessment items were very good as evidenced by the overall Cronbach's Alpha or reliability of the items was 0.842. Moreover, no significant improvement was detected up on deletion of any of the items. The last item (23<sup>rd</sup> item) of the questionnaire was added by the investigators to determine the nurses' opinion whether they have learnt about pain and its management during their academic career.

The 22 items focuses on domains which are deemed to be the minimum but crucial competences regarding pain and its management. These includes: attention given to and assessment of pain (Items 1, 4, 6, 11, 12, 13, 15, 16, 21); Opioid related issues (Items 2, 5, 8, 10, 17, 18, 19, 20); General principles of pain management (Items 3, 4, 7, 16, 22); Pain management issues in children (Items 8 and 9); and Non-pharmacologic aspect of pain management (Item 14). As it is vividly seen some of the items are multidimensional assessing more than one domain of pain and its management. The correct answer for the items area mutually exclusive agreeing or disagreeing.

#### *Data Management and Analysis*

To assure the data quality, the survey tool was filled and returned quickly by the participants either in a class room or their practice site. No freedom was given to participants either to consult medical texts or discuss among themselves.

Each correctly answered item was recoded as "1" (coalescing the strongly or plainly extent for agreeing and disagreeing scales accordingly) and the incorrect one as "0" in a similarly collapsing scheme. Thus, the maximum raw score achievable for an individual participant would be 22 which would be equal to a 100% correct response score.

The correct answer score for each nurse was the quotient of the number of correctly answered items as divided by the maximum possible correct answer which is 22. The mean of these scores was used to generate the overall correctness score either for each department or for all participants per se. In a similar manner, the correct answer score for each item was calculated by dividing the number of participants who correctly answered each item to the total participants' number. The raw scores were analyzed and tabulated to determine the mean score and overall percentage score.

To aid interpretation of the raw and mean scores, only one study was retrieved that used the concept of cutoff point for good (acceptable) level of knowledge

and stated 80% score as a cutoff (19). On the other hand, the American Medical Association (AMA) delivers a certificate to participants who accomplished and scored 70% in its recent online course on pain management (20). Therefore, to be less conservative as it is a first survey, we have chosen an acceptable passing score of 70%. Besides, a checklist to gather participants' socio demographic characteristics was also used.

Item-total correlation and Cronbach's alpha were computed using SPSS for Windows version 20. Results were prepared using narrations, means, percentages, figure and tables.

#### Ethics

A formal letter written from school of pharmacy, Jimma University to Student Research Program (SRP) and permission was obtained from Ethical Approval Committee. After explaining the study objective and procedure, the necessary clearances to conduct the study were obtained from the respective district health offices, and participants' informed consent were gained prior to dissemination of the questionnaires.

#### Results

##### Sample Description

Out of the 89 nurses, males consisted of 63.6% and majority (70.7%, 93.9%) of the participants was below 30 years old with a mean age of  $26.6 \pm 5.4$  years and diploma by level of education (Table 1). This table also shows that greater number (59.6%) of respondents had less than 5 years of experience followed by 5-10 years of experience (16.2%) and almost all the participants were nurse by profession working in rotation in the case teams called emergency case team, OPD case team, and delivery case team.

**Table 1.** Summary of demographic characteristics of respondents in the three governmental health centers and twenty private small clinics in Anfillo Woreda, 2013 (n=89).

Variables	Frequency (n)	Percentage (%)
<b>Gender</b>		
Female	32	36.0
Male	57	64.0
<b>Level of education</b>		
Diploma	84	94.4
Degree	5	5.6
<b>Years of service</b>		
< 5 years	53	59.6
5 - 10 years	14	15.7
>10 years	22	24.7

##### Knowledge and Attitude Scores

Table 2 presents the percentage of all the participants from each health facilities who correctly answered each items. Majority (78.1%) correctly answered the item which highlights the use of non-pharmacological intervention like distraction in a form music or relaxation for managing pain, whereas only few (24.4%) succeeded to correctly answer the

pharmacological question item stating "when a patient requests increasing amounts analgesics to control pain, this usually indicates that the patient is psychologically dependent".

The overall mean correct answer for all the 22 items was 49.8% meaning the health care providers were able to correctly answer 49.8% of items on average. Besides, only 3.8% of them scored above 70%. Nevertheless, though paradoxical, 78.8% of the participants believed they have adequately learnt about pain and its management early in their academic carriers. All most all (21 out of 22) the questions were correctly answered below the passing score (Table 2).

As elucidated in Figure 1 which demonstrates average scores on the 5 domains of pain management, the only aspect that participants performed well was regarding the benefit of non-pharmacological ways of managing pain. On the contrary, the domains on general principles of pain management, attention paid to and assessment of pain, question pertinent to opioid, and issues regarding pain management in children were only answered correctly in rate way below the 70%.

#### Discussion

This empirical study sought to establish the contemporary knowledge and attitude regarding pain management of nursing professionals working in three public health centers and twenty private small clinics in western Ethiopia, and it has to be interpreted in to the social context. It used a contextually modified general tool assessing the various domains of pain. The Achieved appropriate and high response rate is satisfactory in providing findings which can be generalized, and reassures an indicative interpretation of the target population of nursing professionals in that specific region and Ethiopia as a whole.

The various researchers employed similar tools like the current study discouraged distinguishing between items measuring knowledge and attitudes for the reason that some items measuring knowledge also determine the respondents' attitude. They suggested that data should be analyzed in terms of complete scores as well as analyzing group of contextually akin items (19,21). Therefore, the data were analyzed and evaluated in terms of overall percentage scores obtained. Additionally, an analysis of group items was conducted to establish areas of strength and also areas of weakness in terms of respondents' pain knowledge and attitudes. Such kinds of examining items are crucial to establishing content areas that need to be strengthened. As depicted in Table 3, comparisons of overall score were made with other bunch of studies retrieved through inclusive but targeted literature review. Domain by domain or item to item comparison was

**Table 2.** Item wise mean correct answer score of nurses' knowledge and attitudes (n=89).

Items	% mean score
1. Lack of pain expression does not mean lack of pain (A).	50.3
2. Giving narcotics on a regular schedule is preferred over PRN schedule for continues pain (A).	41.6
3. When a patient requests increasing amounts of analgesics to control pain, this usually indicates that the patient is psychologically dependent (D).	22.0
4. A patient should experience discomfort prior to giving the next dose of pain medication (D).	27.2
5. Patient receiving narcotics on a PRN basis may be likely to develop clock-watching behaviors (A).	59.0
6. The most accurate judge of the intensity of the patient's pain is the patient (A).	61.7
7. When a patient in pain is receiving analgesic medication on a PRN basis, it is appropriate for the patient to request pain medications before the pain returns (A).	55.2
8. Because narcotics can cause respiratory depression, they should not be used in pediatric patients (D).	24.5
9. Children cry all the time; therefore, diversional activities are indicated rather than actual pain medications (D).	35.4
10. The most suitable dose of morphine for a patient in pain is a dose that best controls the symptoms; there is no maximum dose (i.e. a level that must not be exceeded) for morphine (A).	40.1
11. It may often be useful to give a placebo to a patient in pain to assess if he is genuinely in pain (D).	50.5
12. For effective pain treatment of cancer pain it is necessary to continuously assess the pain and the efficacy of therapy (A).	62.3
13. It is the patient's right to expect total pain relief as a consequence of treatment (A).	47.6
14. Distraction, for example, by the use of music or relaxation, can decrease the perception of pain (A).	70.3
15. Estimation of pain by a health professional is a valid measure of pain as a patient's self-report (D).	37.7
16. Patients having severe chronic pain often need higher dosages of pain medications than patients with acute pain (A).	57.3
17. Increasing analgesic requirements are signs that the patient is becoming addicted to the narcotic (D).	26.9
18. If a patient and/or patient family member reports that a narcotic is causing euphoria, she/he should be given a lower dose of the analgesic (D).	35.4
19. One fourth of patients receiving narcotics around the clock become addicted (D).	25.7
20. The preferred route of administration of narcotic pain relievers to patients with pain is IM (D).	28.1
21. Patients can be maintained in a pain free state (A).	58.4
22. Patients with chronic pain should receive pain medications at regular intervals with or without the presence of discomfort(A)	45.6
<b>Overall correct answer score</b>	<b>44.8</b>

Key: A= Agree (correct answer corresponding items) D= Disagree (correct answer for that corresponding items)

not made due to the assumption that participants of the current study were consistent in their score, thus it would be a mere duplication to do so.

The mean percentage score obtained on this survey was 49.8% with a range of between 22.0%-70.3%. The mean score obtained in this present study is well lower than other similar studies on variety of nursing populations and the passing score set by the AMA (20). Except the studies which used tools that the current investigators adopt, the remaining studies' survey tools were very specific in the various domains and challenging to score high. Despite this fact, nurses of the other set up scored high as illustrated in Table 3. It has been asserted that if a nurse receives a score below the threshold of 80% (19) or 70% (20), his/her ability to care for patients experiencing pain is considerably compromised. Of particular concern, only 1.5% of respondents in this present study achieved a score of 70% or greater on the survey which further substantiates the magnitude of knowledge deficits and poor attitudes.

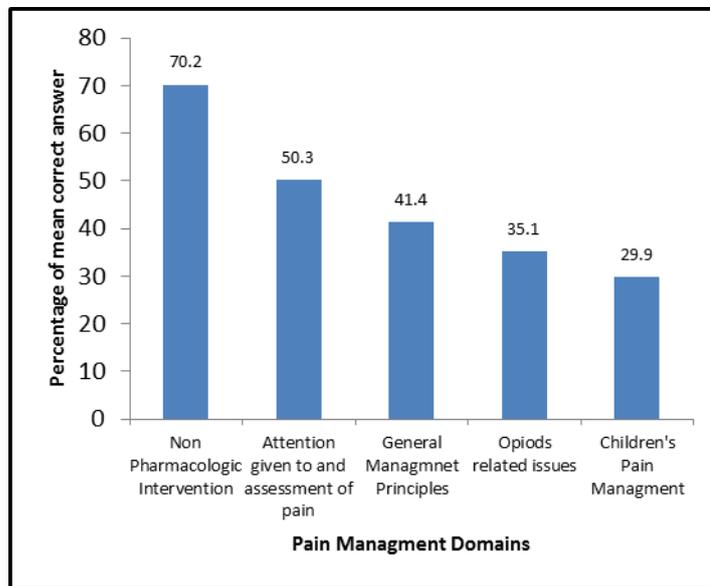
Pain is one of the most common reasons for patients to seek medical attention and one of the most prevalent medical complaints, professionals need to demonstrate competencies in appropriately assessing and reassessing pain based on detailed evaluation of the patient's self-report (22). In this present study, analysis of the items which ascertained knowledge and attitudes regarding attention paid to and assessment of pain were discouraging all in all. The nurses demonstrated significant misconceptions in all the components of this domain namely items related to placebo as diagnostic means; the role of pain estimation by professionals; dosage timing in chronic pain, the authenticity of patients pain reporting. The misconception noted in this study regarding the attention paid to and assessment of pain has also been demonstrated in other settings (14,16).

The second salient issue this survey reveals was the participants were also lacking not only regarding pain assessment skills but also the general principles of pain management. Unfortunately, all nurses scored

**Table 3.** Summary of previous comparator studies

Author and date of studies	Country	Sample Size	Tool name	Items used	Over all mean correct answer (%)	Content similarity with the current study (%)
Current study	Ethiopia	89	-	22	49.8	-
Ho et al. 2013 (10)	Malaysia	84	KASRP	37	99	43
Moceri and Drevdahl 2012 (13)	USA	91	KASRP	37	76.0	43
Vickers 2011 (19)	Ireland	94	KASRP	39	65.7	41.0
Lui et al. 2008 (12)	Hong Kong	143	NKASRP-C	25	52.3	52
Zanolin et al. 2007 (16)	Italy	3457	PAK	21	51.3	100
Wilson 2007 (15)	UK	72	KASRP	20	71.9	64
Visentin et al. 2001 (14)	Italy	669	-	16	58.8	100
Lebovits et al. 1997 (5)	USA	689	-	17	64.7	68.7
Clarke et al. 1996 (8)	USA	120	KASRP	37	62	41.0
Kubecka et al. 1996 (11)	USA	123	KASRP	37	67.4	43
Hamilton and Edgar 1992 (9)	Canada	318	KASRP*	37	63.9	41.0

\*The items included in this tool are very detail and challenging as compared items in our study which are very basic.



**Figure 1.** Percentage of mean correct answer by pain management domains

less than the passing score level in all items categorized in the general principles of pain management. Particularly, higher level of mistaken belief was observed in increasing dose for chronic pain and other form of uncontrolled pain. Preference towards a PRN base and delaying medication till patients become symptomatic was observed in a similar fashion as it was demonstrated in other studies too (23-25). Such misunderstanding would leave patients undertreated and contribute to transformation of minor treatable pains to a centrally sensitized adamant to manage pain.

Best practice standards recommended an integrated approach to pain management which should comprise of the utilization of the combination of both pharmacological and non-pharmacological therapies for the optimal alleviation of pain (26,27). As elucidated in Table 2 and Figure 1, a considerable number of respondents were correct regarding the role of non-pharmacologic therapy, whilst nurses demonstrated extensive misconceptions and

knowledge deficits in numerous areas of basic pharmacological knowledge which related to: drug action, routes of administration, drug uses, and untoward effects of opioid analgesics and selection of drug dosages. In the present study, pharmacology based items were the domain of weakest performance which is congruent with other international research studies who have also established that nurses illustrated the poorest knowledge and attitudes in the area of pharmacological aspects of pain and its management. High prescription rate of IM and PRN were demonstrated to be a sign of poor quality pain management (22,28-30).

Moreover, the exaggerated fear towards opioid related side effects and addiction, which is proven to be nonexistent to significant level in various studies (26,27,31), was revealed among the participants of this study via the misconception to the item that assessed prevalence of addiction in opioid treated patients. Even if the one item that was correctly

answered by the participants regarding non-pharmacologic management of pain may not demonstrate the practitioners entire knowledge on this aspect, it can at least definitely exhibits their positive attitude towards its role in managing pain. Various evidences have well demonstrated that the role of non-pharmacological interventions is gaining recognition as an adjuvant intervention of pain.

The greatest misconception was seen among the nurse regarding pediatrics pain management which is also demonstrated by studies in other settings (14,32), albeit the score in the others' were higher than this study. The global misunderstanding that children do not feel pain has been well disproved by studies that demonstrated that children have lower pain thresholds, poor central modulation, immature inhibitory pathways, and to the worst unmanaged pain in their early life can produce behavioral derangement in their posterity (33). Despite the various strengths of this study, the fact that the data was only collected in one setting, the possibility of information bias from non-respondents might compromise its inferential power.

To conclude, the survey demonstrated a strong cross-sectional view of nurses who presumed to spend more of their time with patients as compared to other professionals. The global consensus that pain education is poorly emphasized in nurses is augmented and substantiated by the findings of this study.

Overall, the findings in this current study have revealed extensive knowledge deficits, far from optimal and inappropriate attitudes of health care providers working in different health facilities within the context of pain management. Thus, an intensive and comprehensive educational initiative should be tailored to meet the specific needs of health care provides at different education levels. Besides, further endeavors such as quality improvement program should be rolled out with in health care organizations which could include different strategies aimed at enhancing the knowledge and improving the practices of pain management.

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#### References

- Wilson IB. End-of-life care in HIV disease: let's talk. *J Gen Intern Med* 1997;12(12):784-6.
- IASP.Pain:<http://www.iasppain.org/Education/Content.aspx?ItemNumber=1698> Accessed on 06 June 2014.
- Donnelly AJ, Golembiewski JA, Rakic AM. Perioperative Care. Chapter 8, In: Alldredge BK, Corelli RL, Ernst ME, Guglielmo BJ, Jacobson PA, Kradjan WA, Williams BR, Eds. *Koda-Kimble and Young's Applied Therapeutics: The Clinical Use of Drugs*. 10th edition, Philadelphia: Lippincott Williams & Wilkins. 2013;147-74.
- Dihle A, Helseth S, Kongsgaard UE, Paul SM, Miaskowski C. Using the American Pain Society's patient outcome questionnaire to evaluate the quality of postoperative pain management in a sample of Norwegian patients. *J Pain* 2006;7(4):272-80.
- Lebovits AH, Florence I, Bathina R, Hunko V, Fox MT, Bramble CY. Pain knowledge and attitudes of healthcare providers: practice characteristic differences. *Clin J Pain* 1997;13(3):237-43.
- Practice Guidelines for Acute Pain Management in the Perioperative Setting: A Report by the American Society of Anesthesiologists Task Force on Pain Management, Acute Pain Section. *Anesthesiology* 1995;82(4):1071-81.
- Gordon DB, Pellino TA, Miaskowski C, McNeill JA, Paice JA, Laferrriere D, et al. A 10-year review of quality improvement monitoring in pain management: recommendations for standardized outcome measures. *Pain Manag Nurs* 2002;3(4):116-30.
- Clarke EB, French B, Bilodeau ML, Capasso VC, Edwards A, Empoliti J. Pain management knowledge, attitudes and clinical practice: the impact of nurses' characteristics and education. *J Pain Symptom Manage* 1996;11(1):18-31.
- Hamilton J, Edgar L. A survey examining nurses' knowledge of pain control. *J Pain Symptom Manage* 1992;7(1):18-26.
- Ho SE, Ho CC, Pang Yuen H, Lexshimi R, Choy YC, Jaafar MZ, et al. A study of knowledge and attitudes of registered nurses towards pain management in an urban hospital. *Clin Ter* 2013;164(3):215-9.
- Kubecka KE, Simon JM, Boettcher JH. Pain management knowledge of hospital-based nurses in a rural Appalachian area. *J Adv Nurs* 1996;23(5):861-7.
- Lui LY, So WK, Fong DY. Knowledge and attitudes regarding pain management among nurses in Hong Kong medical units. *J Clin Nurs* 2008;17(15):2014-21.
- Moceri JT, Drevdahl DJ. Nurses' knowledge and attitudes toward pain in the Emergency Department. *J Emerg Nurs* 2014;40(1):6-12.
- Visentin M, Trentin L, de Marco R, Zanolin E. Knowledge and attitudes of Italian medical staff towards the approach and treatment of patients in pain. *J Pain Symptom Manage* 2001;22(5):925-30.
- Wilson B. Nurses' knowledge of pain. *J Clin Nurs* 2007;16(6):1012-20.
- Zanolin ME, Visentin M, Trentin L, Saiani L, Brugnolli A, Grassi M. A questionnaire to evaluate the knowledge and attitudes of health care providers on pain. *J Pain Symptom Manage* 2007;33(6):727-36.
- Klopper H, Andersson H, Minkkinen M, Ohlsson C, Sjöström B. Strategies in assessing post operative pain--a South African study. *Intensive Crit Care Nurs* 2006;22(1):12-21.
- Ministry of Health. *National Pain Management Guideline*. Ethiopia, Bole Printing, 2007.
- Vickers N. Knowledge and attitudes regarding pain among surgical nurses in three teaching hospitals in Ireland, Dublin City University, Master of Science thesis, 2011, <http://doras.dcu.ie/16608/> Accessed on 06 June 2014.
- American Medical Association. Pain management CME series,2013,<https://www.ama-assn.org/ama/pub/physician-resources/pain-management.page> Accessed 06 June 2014.
- Tsui SL, Lo RJ, Tong WN, Yang JC, O'Regan AM, Ng KF, et al. A clinical audit for postoperative pain control on 1443 surgical patients. *Acta Anaesthesiol Sin* 1995;33(3):137-48.
- Vijayan R. Managing acute pain in the developing world. *Pain Clinical Updates* 2011;19(3):1-7 [http://iasp.files.cms-plus.com/Content/ContentFolders/Publications2/PainClinicalUpdates/Archives/PCU\\_193\\_web\\_revised\\_139026040011\\_3\\_4.pdf](http://iasp.files.cms-plus.com/Content/ContentFolders/Publications2/PainClinicalUpdates/Archives/PCU_193_web_revised_139026040011_3_4.pdf) Accessed 06 June 2014.
- Kim MH, Park H, Park EC, Park K. Attitude and knowledge of physicians about cancer pain management: young doctors of South Korea in their early career. *Jpn J Clin Oncol* 2011;41(6):783-91.
- Lewthwaite BJ, Jabusch KM, Wheeler BJ, Schnell-Hoehn KN, Mills J, Estrella-Holder E, et al. Nurses' knowledge and attitudes regarding pain management in hospitalized adults. *J Contin Educ Nurs* 2011;42(6):251-7.

25. Marks RM, Sachar EJ. Undertreatment of medical inpatients with narcotic analgesics. *Ann Intern Med* 1973;78(2):173-81.
26. Kral LA, Ghafoor VL. Pain and Its Management. Chapter 7, In: Alldredge BK, Corelli RL, Ernst ME, Guglielmo BJ, Jacobson PA, Kradjan WA, Williams BR, Eds. *Koda-Kimble and Young's Applied Therapeutics: The Clinical Use of Drugs*. 10th edition, Philadelphia: Lippincott Williams & Wilkins. 2013;112-46.
27. Manterola C, Vial M, Moraga J, Astudillo P. Analgesia in patients with acute abdominal pain. *Cochrane Database Syst Rev* 2011;(1):CD005660.
28. Fine PG. The use of opioids in pain management. <http://www.accesscme.org/PDFs/PN808.pdf> Accessed 06 June 2014.
29. Sloan PA, Montgomery C, Musick D. Medical student knowledge of morphine for the management of cancer pain. *J Pain Symptom Manage* 1998;15(6):359-64.
30. Peker L, Celebi N, Canbay O, Sahin A, Cakir B, Uzun S, et al. Doctors' opinions, knowledge and attitudes towards cancer pain management in a university hospital. *Agri* 2008;20(2):20-30.
31. Gordon DB, Dahl JL, Miaskowski C, McCarberg B, Todd KH, Paice JA, et al. American pain society recommendations for improving the quality of acute and cancer pain management: American Pain Society Quality of Care Task Force. *Arch Intern Med* 2005;165(14):1574-80.
32. Randall C. Pharmaceutical prescribing for children. Part 2. Analgesia and prescribing for children in pain. *Prim Dent Care* 2005;12(4):127-32.
33. Tanne JH. Children are often undertreated for pain. *BMJ* 2003;327(7425):1185.

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