ORIGINAL ARTICLE

Knowledge, attitudes and barriers pain management by nurses in Iran: A systematic review

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ABSTRACT

Introduction: Pain is a phenomenon that may be experience d every human being. Pain is one of the symptoms of the disease that has negative effects on patients and causes challenges in medical personnel. The aim of the present systematic review was to determine the knowledge, attitude, and pain management status in Iranian nurses.

Methodology: This is a systematic review carried out according to systematic review articles checklist (PRISMA). The search was conducted by two researchers separately. In case of inconsistency, the search was examined by a third researchers. In this study, articles that met the inclusion criteria and published between 2000 to June 2019, were included. The search process was carried out in Iranian and international databases. Data were reported in usinga descriptive method using Excel 2007 software.

Result: According to result 180 articles were extracted in the initial search, of which 50 were excluded from the study, and finally 19 articles entered the data extraction phase. The extracted articles were classified into 4 dimensions of knowledge, attitude, and practice in pain management, nurses'understanding of pain management, nurses' problems in pain relief, and the extent of pain management implementation and assessment, which are described as follows.

Conclusion: Nurses' knowledge, attitude, and managementregarding painmanagementis not in an excellent condition and many studies in Iran should include educational interventions for nurses to help improve their knowledge, attitude, and pain management.

Key words: Pain, Knowledge, Attitude, Practice, Nurse, Systematic Review

INTRODUCTION

Nursing is a profession that plays an effective role in patient care,[1,2] and it is important to provide compassionate nursing care.[2] Nurses cooperate well together and this can improve the health of patients.[3] One of the prerequisites for such goal is to have the specialized knowledge and knowledge required in nursing. Pain control is among the factors that require specialized knowledge.[4,5] Pain control is one of the tasks of nurses.[6] Nurses' pain control can help improve the health of patients and it is essential to improve their knowledge and attitude.[7,8] In fact, all patients are entitled to pain relief, and one of the challenges for nurses is to ensure patient comfort and relieve pain.[9]

Pain is one of the symptoms of the disease that has

negative effects on patients and causes challenges in medical personnel.[10, 11] Pain is a phenomenon that may be experience d every human being.[12-14] So that's the study Den Beuken-Van The prevalence of pain after treatment in cancer patients was 39.3%.[15] also in the study Mansfield et al.showed prevalence of chronic widespread pain is between 0-24%.[16] The pain had adverse effects on patients including poor mental health status,[17] poor quality of life,[18] and sleep disorders.[19] Considering these negative effects, it is necessary to identify the factors affectingthe pain management and relief.[20-22]

Despite the great attention paid to the pain management program in nursing education and care programs, there are still challenges in this regard.[23] So far, various tools have been designed to measure pain in patients or nurses[24-26] and various studies have measured the knowledge and attitude of nurses and nursing students in this regard;[5, 27, 28] however, the results of previous studies have provided different information. So that study showed that nursing students did not have knowledge and attitudes in pain management and assessment.[5] Ekim, et al showed in a study that the highest score ranged between 15-65% and needed further training in this area.[27] Al Qadire et al. also showed that nurses had a lower level of knowledge than other studies.[28] The most common factors associated with inappropriate pain management may include nurses' inadequate knowledge level, wrong assessment, shortage of nursing personnel, and fear of side effects of painkillers.[29]

AIM

Considering the role of nurses in pain control and management, as well as the role of pain in patients' quality of life, it is necessary to have access to sufficient information on knowledge, attitude, and barriers to pain management in nurses. This information can provide the pave the way for deciding o necessary interventions to improve nurses' knowledge, attitude, and barriers to pain management. Therefore, the aim of the present systematic review was to determine the knowledge, attitude, and pain management status in Iranian nurses.

METHODOLOGY

Study protocol

This is a systematic review carried out according to systematic review articles checklist (PRISMA).[30] The search was conducted by two dominant researchers separately in the field of search. In case of inconsistency, the search was examined by a third researchers.

Search strategy

In this study, articles that met the inclusion criteria and published between 2000 to June 2019, were included. The search process was carried out in Iranian databases such as SID, Regional Information Center for Science and Technology (RICST), Mag-Iran, IranDoc, Barakat Knowledge Network System, Iranian National Library and international databases such as PubMed / Medline, Cochrane Library, Scopus, Science Direct, Web of Sciences, Embase, EBSCO, and Google Scholar. The search was performed using MESH-related English words and their Persian equivalents: "Pain", "Nurse", Knowledge "," Attitude "," Understanding "," Barriers "," Perspective "," Painkiller "," Pain Severity "," Pain control barriers "," Pain assessment "," Non-drug pain control "," Iran "and the above keywords were combined using " AND "and" OR "search strategies. An example of a search strategy in Pubmed is as follows:

(Pain[Title/Abstract]) OR Knowledge[Title/Abstract]) OR Attitude[Title/Abstract]) OR Understanding[Title/Abstract]) OR Barriers[Title/Abstract]) OR Perspective[Title/Abstract]) OR Painkiller[Title/Abstract]) OR Pain Severity[Title/Abstract]) OR Pain Control barriers[Title/Abstract]) OR Pain Assessment[Title/Abstract]) OR Non-drug Pain Control[Title/Abstract]) AND Iran[Title/Abstract]) AND Nurse[Title/Abstract])

Inclusion criteria:

Assessment of knowledge, attitude, pain management methods and factors related to the research topic in nurses, availability of full-text articles.

Exclusion criteria:

Interventional studies, case-control studies, review, qualitative and interventional studies, re-publish studies

Data extraction:

A checklist including author's name, year of publication, location, sample size, method, questionnaire used, and findings was designed and used.

Statistical analysis:

Data were reported in using a descriptive method using Excel 2007 software.

RESULTS

According to Figure 1, Number 80 articles were extracted in the initial search, of which 50 were excluded from the study, and finally 19 articles entered the data extraction phase (Figure 1). The extracted articles were classified into 4 dimensions of knowledge, attitude, and practice in pain management,

Table 1: Studies data as well as the Knowledge, attitude, and practice in pain Management Entered into a systematic review

	Author (years)	City	N	Aim	Study population	questionnaire	Result
1	Mamishi et al.(2006)[31]	Tehran	113	Knowledge, attitude, and practice in pain Management	Pain in cancer patients	pain assessment and pain control questionnaire and a questionnaire on the nurses' attitude toward using different pain relief methods in cancer patients	Nurses has a moderate knowledge of and positive attitude towards pain relief in 76% and 86.6% of cases, respectively. Findings revealed that the mean knowledge score of nurses with bachelor's degree, in-service nurses, and nurses working in chemotherapy, radiotherapy, and operating rooms was higher than other nurses. However, there was no significant relationship between knowledge score and marital status, participation in retraining courses, age, work experience, and presence of cancer patient in family or close relatives.
2	Heydari et al.(2008)[32]	Sabzevar	35	evaluated patients' cardiac pain using a knowledge and attitude survey regarding pain relief	patients' cardiac pain	knowledge and attitude survey regarding pain relief	The most commonly used drug was pethidine (36.8%). Also, there was no pain relief re assessment in 41.1% of cases. Mean ± SD of nurses' knowledge score was 11.25 ± 3.9 out of 20. Moreover, a total of 100% of nurses were fully aware of the importance of their role in pain assessment and its effect on pain relief, and 32 (91.4%) of them stated that that non-drug methods were effective in pain relief
3	Zakerimoghadam et al.(2011)[33]	Tehran	100	knowledge of pain	nurses working in ICU	questionnaires on nursing knowledge of pain	Mean ± SD of nurses' pain control and pain nature scoreswere 11.75 ± 3.41 and 9.12 ± 5.46, respectively. Moreover, nurses had high, moderate, and low knowledge of pain nature in 38%, 53%, and 9% of cases, respectively. Findings on postoperative pain control showed that nurses had high, moderate, and low levels of knowledge in 23%, 58%, and 19% of cases, respectively. There was no relationship between demographic characteristics (except for nurses' work place and knowledge level. Also, patients' were more satisfaction with nurses who had higher level of knowledge of postpartum pain control, while there was no relationship between patients' satisfaction with nurses' knowledge of the pain nature was
4	Noghabi et al.(2012)[34]	Bandar Abbas	40		nurses and practical nurses working in the neonatal and NICU wards	using a tool including practice checklist, knowledge and attitude questions	The mean knowledge score of nurses was 10.27 with a possible score range of 4- 16. With regard to relation to attitude, mean attitude score of nursing personnel was 54.22 out of 60 with scores ranging from 46 to 59. Nurses had knowledge scores above 50 about neonatal pain and a positive attitude in 36 nurse (90%). Majority of the correct answers were related to the pain effects and complications and the pain physiology dimensions, while the lowest correct answer was related to pain measurement instruments. There was no statistically significant relationship between nurses' knowledge scores with work experience, marital status, workplace (neonatal and NICU). However, the knowledge score was higher in those with higher levels of education
5	Shahnazi et al.(2012)[34]	Isfahan	90	pain knowledge and attitude about cancer patients		questionnaire on knowledge and constructs of the health belief model (HBM)	With regard to knowledge questions, the mean ± SD of patients was 61.2 ± 16.5 with scores ranging from 30-100 and concerning the attitude dimension, Mean ± SD of patients was 63 ± 11 with scores ranging from 35-95. It was also shown that Mean ± SD of the perceived benefits, perceived barriers, perceived threat, self-efficacy, and cues to action dimensions was 67.8 ± 13.3(min=40, max=100), 46.07 ± 15.7(min=5–max=75), 43.7 ± 17.8 (min=0-max=85), 87.2 ± 16.4 (min=30-max=100), and 78.5 ± 16.8(min=25-max=100)

#	Author(years)	City	N	Aim	Study population	questionnaire	Result
6	Aflatoonian et al.(2017)[9]	Jiroft	102	Attitudepain managements		Nurses Pain Management Attitude Survey (NAS) and Pain Management Principles Assessment Test (PMPAT)	Results showed that nurses have knowledge levels below 50%, 50% -70%, and more than 70% in73 (71.6%), 23 (22.5%), and 6 (5.9%) of cases, respectively. Moreover, nurses had negative (<50%), moderate (50-70%), and positive (>70%) attitude scores in 23 (22.5%), 68 (66.7%), and 11 (10.8%) of nurse, respectively. With regard to the pain management field, nurses' knowledge score ranged from 2 to 31 with a mean ± SD of 14.64 ± 7.32 and their attitudes score of pain management ranged from 44 to 79 with a mean ± SD of 66.71 ± 6.87
7	Hosseinzadegan et al. (2017)[35]	Urmia	114		surgical nurses'	used questionnaires and checklists to assess surgical nurses' knowledge, attitude, and practice in pain management	Mean ± SD of attitude, practice, knowledge scores were 55.54 ± 5.92 (min=13, max=65) 10.46 ± 2.57(min=0 and max=13), and 9.66 ± 2.30(min=0 and max=19), respectively. Findings showed a significant relationship between the total mean scores of nurses' knowledge and attitude about pain management with educational level, but there was no relationship with other demographic characteristics
8	Sadeghy et al. (2016)[36]	Tabriz	49		cancer patients	Barriers Questionnaire II (BQ-II)	Nurses did not have a positive understanding of pain control.

Table 2: Studies data as well as the Nurses' perception of pain control Entered into a systematic review

#	Author(years)	City	N	Aim	Study population	questionnaire	Result
1	Moghadas et al. (2013)[37]	Rasht	113	Nurses' perception of pain control	nurses working in CCU	barriers to the use of methods to reduce needle-related pain	Nurses' perception of communication was equal 3.3(0.97), activity was3.05 (0.92), trust was equal to 3.9 (0.86), and environment was equal to 3.9 (0.93). The overall quality of pain control was 8.4 (1.68) and 3.56 (0.84) respectively. Among the domains studied, the communication domain had the highest score.
2	Karampourian et al. (2016)[38]	Hamadan	-	Nurses' perception of pain control	-	pain perception questionnaire	Findings showed that nurses had poor, moderate, and string perception in 0 (0%), 11 (73.3%), and 4 (26.7%) of nurse, respectively. although most patients (83.3%) reported severe pain, most nurses (53.3%) assessed their patients pain at the moderate level
3	Rad et al. (2015)[39]	Rasht	20	Nurses' perception of pain control	departments of surgery	Idval, E et al's Questionnaire	Only 20 (9.8%) of nurses chose the Strongly agree option on the question, which measured patients' pain from 0-10 times a day. And only 66(32.4%) of nurses completed the Strongly agree option on accepting patient statements about pain.

Table 3: Studies data as well as the Nurses' Problems in Pain Relief Entered into a systematic review

	Author(years)	City	N	Aim	Study population	questionnaire	Result
1	Allahyari, et al. (2006)[40]	Tehran	30	Nurses' Problems in Pain Relief	pediatric wards	barriers to the use of methods to reduce needle-related pain	Nurses' problems were evaluated in four dimensions: management personnel, educational, environmental-equipment, and motivational dimensions. With regard to the management personnel dimension, the most important problems included shortage of nurses' time (96.7%) and inappropriate nurse-patient ratio (93%). Regarding the educational dimension, the most frequent problems were reported to be inaccessibility of pain assessment tools in the pediatric ward (73.4%) and lack of pain education courses (70%). The most frequent problems in the environmental-equipment dimension included inadequate satisfaction with work shifts (86.7%) and inadequate pain relief equipment (63.4%). Also, nurses' inadequate satisfaction with work shifts (86.7%) and inadequate satisfaction with working hours (86.7%) in the motivational dimension were the most important problems for nurses in pain reduction
2	Hossein et al. (2016)[41]	Sabzevar	43	-	-	nurses' problems regarding pain relief	Mean ± SD of the overall score of pain barriers for medical personnel was 112.33 ± 18.65
3	Parvizi et al. (2008)[41]		30		nurses working in pediatric, pediatric emergency, and NICU wards	non-drug pain management methods in children using a self-report questionnaire as well as a questionnaire suggesting solutions to solve problems according to nurse's opinion	The distraction method was the most non-drug pain control method. Very few nurses (3.3%) had information about non-drug pain control methods. From the Nurses' perspective, pain relief problems included lack of equipment (93.2%), environmental problems (90%), child and parent culture problems (80%), lack of education during education (60%), lack of retraining courses (53.3%), insufficient motivation (40%), shortage of personnel (33.3%), and heavy work load (33.3%)
4	Mohebbi and et al(2014)[34]	Tabriz	50		nurses working in the internal and surgical wards of pediatric hospitals	Questionnaire on pain control barriers and problems, and a questionnaire on the priority of problem-solving strategies	Mean ± SD of the overall score of their views on barriers to the most important barriers to proper non-drug pain management in children was 50.82 ± 6.25, and the most important problems from their perspective included long work hours, lack of time, and heavy workload, shortage of personnel, inadequate clinical experience of child care, managers' indifference, inadequate education, lack of child cooperation, inadequate ward facilities, being unaware of recent relevant research results, lack of dedicated room for invasive procedures, nurses' lack of empowerment for pain assessment and, etc. From the nurses' perspective, practical solutions also included increasing the number of nursing personnel, training the child's parents to learn and apply these methods, training personnel how to improve their child's communication skills, managers who encourage competent nurses, provision of executive facilities, methods and training of personnel on how to improve their communication skills with parents of children for participation, etc.
5	Gholami et al. (2019)[43]	Mashhad	81		nurses working in pediatric and pediatric emergency departments	A questionnaire on nurses' problems regarding mental preparation of mother and child for pain relief	Nurses' problems in the personnel-management dimension were as follows: disproportionate nurse-patient ratio, and excessive workload, shortage of nurses' time, managers' indifference. In the educational dimension, problems were reported to be lack of skills in internships and lack of retraining courses, respectively. With regard to the environmental- equipment dimension, nursing problems included insufficient game and entertainment equipment and lack of proper environment for performing the procedures. Also, lack of support from managers and low satisfaction with work shifts were identified as nurses' problems in the motivational dimension

Table 4: Studies data as well as the Implementation of pain management and assessment Entered into a systematic review

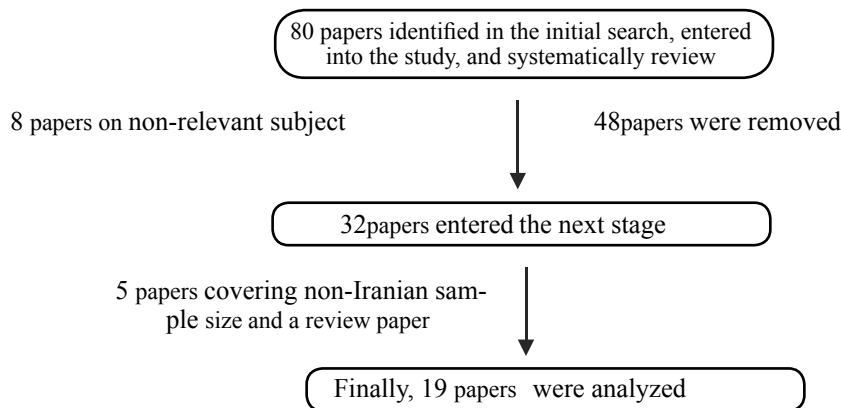|	Author(years)	City	N	Aim	Study population	questionnaire	Result
1	Noghabi et al. (2012)[34]	Bandar Abbas	40	Implementation of pain management and assessment	-	using a tool including practice checklist, knowledge and attitude questions	Mean scores obtained was 4.22. Also showed a very poor practice on nurse's pain assessment and measurement. none of the nurses used a pain measurement tool.
2	Bahrami et al. (2016)[44]		50		nurses working in open heart surgery ward	-	On the adequacy of pain management, nurses stated fully adequate, adequate, and fully inadequate pain management in 5 (4.2%), 111 (94.1%), and 1 (1.6%) cases, respectively. Also, nurses regarded nurses, physicians, and both nurses and physicians responsible for monitoring patient pain in 22 (18.6%), 2 (1.7%), and 94 (79.7%) of nurses, respectively
3	Aflatoonlan et al. (2017)[9]	Jirott	102			Nurses Pain Management Attitude Survey (NAS) and Pain Management Principles Assessment Test (PMPAT)	showed in a study that nurses' pain management knowledge score ranges from 2 to 31 with a Mean ± SD of 14.64 ± 7.32 and their attitudes score of pain management ranges from 44 and 79 with a Mean ± SD 66.71 ± 6.87
4	Rahimi et al. (2017)[45]		138	pain management and assessment	nurses working in NICUs	pain management and assessment tools	The mean pain management and assessment score was 59.16 ± 18.98. The frequency of items selected by nurses in this tool were as follows: 1. Nurses provided care to reduce the pain of newborns in 72.8% of cases.2. Nurses let parents of infants relieve pain in 68.5% of cases. 3. Nurses used non-drug methods of swaddling in 66.7% of cases. 4. Neonatal pain was assessed by 62.9% of nurses at each time providing medical care. 5. Nurses used non-drug methods using sucrose solution in 61.6% of cases. 6. Nurses taught parents about symptoms of facial pain in 58.7% of cases. 7. Neonatal pain was assessed by 52.2% of nurses every 4 hours. 8. A valid pain assessment instrument was used by 36.8% of nurses. The scores of nurses who participated in the workshops were also higher than other nurses.
5	Tatjoman et al. (2019)[46]	Ilam		pain management and assessment	nurses working in the NICU	pain management and assessment tools	The frequency of items selected by nurses in this tool were as follows: 1- Only a small number of nurses (12.1%) Always performed care to reduce neonatal pain. 2- Sometimes option was chosen only by 31% of nurses to allow infants' parents to relieve pain. 3- Sometimes option was chosen by 60.3% of nurses to evaluate infants' pain frequency each time providing healthcare services. Neonatal pain was assessed by 31% of nurses every 4 hours 5- A valid pain assessment instrument was used only by 5.2% of nurses

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│ 80 papers identified in the initial      │
│ search, entered into the study, and      │
│ systematically review                    │
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8 papers on non-relevant subject   48papers were removed

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│ 32papers entered the next stage          │
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5 papers covering non-Iranian sample size and a review paper

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│ Finally, 19 papers were analyzed         │
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Figure 1: Flowcharts for systematic review

nurses' understanding of pain management, nurses' problems in pain relief, and the extent of pain management implementation and assessment, which are described as follows.

The findings of Table 1 show the status of Knowledge, attitude, and practice in pain management in Iranian nurses. According to the findings of this table, there were 8 studies in this field in which knowledge and attitude about pain management were not in excellent condition.

The findings of Table 2 show the results of studies of nurses' perceptions of pain in Iran. According to the findings, 3 studies were conducted in the Nurses of Rasht and Hamadan, which explained the perception of pain control in the findings of the table.

The findings in Table 3 showed the results of systematic reviews of Problems in Pain Relief. There were 5 articles in this field that showed that nurses' problems were in the studied areas.

The findings in Table 4 showed the results of systematic reviews of Problems in Implementation of pain management and assessment there were 5 articles in this field that showed that nurses' problems were in the studied areas.

DISCUSSION

Pain affects the health of patients and calls for special attention.[47,48] The aim of the present systematic review was to determine the knowledge, attitude, and pain management of nurses in Iran. The extracted articles were classified into 4 dimensions of knowledge, attitude, and practice in pain management, nurses' perception of pain control, nurses' problems in pain relief, and frequency of pain management implementation and assessment.

The findings on the knowledge and attitude domain showed varying knowledge and attitude levels ranging from poor to high levels of knowledge and attitude; while the most common most knowledge and attitude scores were at the moderate range. Previous studies on the knowledge and attitude of nurses in Jordan,[49] Saudi Arabia,[25] and India[50] showed that most of them had poor knowledge and attitude, which was inconsistent with the results of the present study. Lui et al. showed in a study in Hong Kong that nurses had a good attitude toward pain management but their practice and attitude were different.[51] Alnajar et al. revealed in a study that 51.5% of nurses had a positive attitude toward pain management in cancer patients,[8] which is consistent with the present study.

The findings also showed that another dimension included nurses' problems regarding pain management. The most important areas of nurses' problems included management, educational, environmental-equipment, and motivational dimensions. Shoqirat showed in a qualitative study that nurses 'problems in pain management were classified in two dimensions: patient-related problems (including patient violence, significant number of companions, etc.), and emergency-related problems (including physicians' mastery of pain management and shortage of nursing personnel). Nurses also emphasized the role of environmental factors on pain management.[52] In the study of in the United States, Czarnecki et al. referred to inadequate physician prescriptions and low priority of pain management as barriers to pain management in nurses.[53] Pretorius also stated in a study that pain management barriers included unwillingness to prescribe pain relievers, lack of time, heavy workload, and nurses' lack of knowledge of narcotic use,[54] which is consistent with the present study.

CONCLUSION

Nurses' knowledge, attitude, and management regarding pain management is not in an excellent condition and many studies in Iran should include educational interventions for nurses to help improve their knowledge, attitude, and pain management.

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Authors contribution: All authors took part in literature search, analysis and manuscript preparation.

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