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RESEARCH ARTICLE

THE IMPACT OF AN EDUCATIONAL PROGRAM FOR NURSES ON HOW TO MANAGEMENT PAIN IN CHILDREN IN GOVERNMENTAL PEDIATRIC HOSPITALS IN KHARTOUM STATE.

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Key words:-

pain, management, nurses, children.

Abstract

Background: An Interventional study was conducted in Governmental Pediatric Hospitals in Khartoum State. Distribution of (169) nurses in five different hospitals is as follows (15%) from Gaffer Ibaouf, (7 %) from Abdurrahman Al Mahdi, (44%) from Mohammed Alamein Hamed Pediatric Hospital, (17%) from Ahmed Gassim and (17%) from AlBulk pediatric hospital. This study is aimed to assess the impact of an educational program for nurses on how to manage pain in children.

Methodology: Data was collected by interviewing candidates using questionnaires that covered objectives under study and Data was analyzed by using SPSS (Statistical package for social sciences) computer program.

Results: The deficits in pain management can be improved by implementing pain education programs. Nurses scored low in having knowledge and attitudes towards pain prior to pain education; whereas, a significant improvement in their knowledge and attitude after the delivery of pain education was explicit.

Conclusion: The deficits in pain management can be improved by implementing pain education programs.

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Introduction:-

Untreated, acute, recurrent, or chronic pain related to disease or medical intervention may have significant and lifelong physiological and psychological consequences. As with all other medical conditions, the first step in the treatment process is the accurate diagnosis of the problem. Thus, pain assessment provides the foundation for all pain treatment⁽¹⁾

AAP (American Academy of Pediatrics) and the APS (American Pain Society) support the ethical mandate to treat appropriately all pediatric pain and suffering. This policy statement focuses on common acute pain experiences. Most acute pain experienced in medical settings can be prevented or substantially relieved.⁽²⁾

Comprehensive pediatric care considers all aspects of distress and also should address these aspects in a compassionate, effective, timely, and multidimensional manner. Anxieties that are experienced by children and other symptoms that contribute to suffering need to be considered in the treatment plan for pain. Effective pain

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management thus generally involves an interdisciplinary therapeutic approach with a combination of pharmacologic, cognitive-behavioural, psychological, and physical treatments. ⁽²⁾

In a hospital setting, pain and response to treatment, including adverse effects, should be monitored routinely and documented clearly and in a visible place, such as on the vital sign sheet, to facilitate treatment and communication among health care professionals. ⁽³⁾

Materials and Methods:-

Study Design:

Pre and Post-test, a quasi-experimental study design was used and one group for pre and post-test. This study focus on the impact of an Educational Program for nurses on how to manage pain in Children in governmental Pediatric Hospitals in Khartoum State, Sudan.

Study Area:

Governmental pediatric hospital in Khartoum state. There are five, Gaffer Ibnaouf, Abdurrahman Al Mahdi, MohammedAalamen Hamed, Ahmed Gassim and AlBulk pediatric hospital.

Study Population:

All categories of nurses working in these pediatric governmental hospitals in Khartoum State.

Inclusion criteria:

1. Full-time pediatric nurses in governmental pediatric hospitals in Khartoum State.
2. Fully qualified nurses working in these pediatric hospitals at least for six months.
3. Caregiver nurses.

Exclusion criteria:

Nurses in pediatric hospitals in Khartoum State, part-time nurses and nurses who refuse to participate in this study.

Sampling and sample size:

Calculated by using the standard formulas for determining Sample size:

$$n = N / 1 + N (D^2)$$

n: Is the desirable sample size

N: Is the population size (universe).

D: Is the degree of accuracy desired (or the accepted margin of error) and is usually set to 0.05.

Simple random sampling, all staff names were taken from every hospital then made this name in the separated numeric list to any hospital. Also, choose a random number from the list for any hospital according to the proportion of hospital from the total sample size.

Data collection tools and techniques:

Standardized self-interviewing Questionnaires with questions related to participant's demographic background, knowledge towards pain assessment in children that includes:

1. Part-I: consists of six items on personal data mainly professional qualification, year of experience and attend a training course in pain assessment and management.
2. Part 1: contains questions that determined the availability of pain assessment tools for measuring pain intensity in her ward.
3. Part 2: contains questions that examine, study sample knowledge regarding pain assessment and pain assessment tool.

Data collection technique:

Data was collected by the researcher and research team, the collection of data and teaching the education program was done by small group discussion. The researcher went to a different department in a certain hospital and stayed with a group of nurses before data collection. The purpose of the study was explained and the study sample was asked for their consent. Data collected firstly using predesigned structured interview questions to assess the knowledge and attitude of study sample regarding pain assessment among children, then education program was introduced as lecture and small group discussion, six months later after program implementation data recollected again using the same methods.

Analysis and Data processing:

Data were analyzed using SPSS (Statistical package for social sciences) program.

Ethical consideration:

Official consent was obtained from the research committee at Alneelain University. Permission was secured from the Federal Ministry of Health – State Ministry of Health and the Department research management. Then written consent was obtained from the hospital's research committee after that consent form signed from head nurses to any hospital participated in the study. The last a proxy consent from the participants themselves.

Confidentiality maintained throughout the research process. The proposal, including the questionnaire, was approved by the ethical and scientific committees of the Faculty of Nursing Sciences, Alneelain University.

Results:-**Table 1:-**Distribution of the study group regarding demographic data

| Variable | Frequency | sd | ± | Mean | Percent ⁴ |
|-------------------------------|-----------|------|---|------|----------------------|
| Age | | 35.5 | | | |
| | | ±.54 | | | |
| 20_30 | 33 | 19.5 | | | |
| 31_40 | 68 | 40.2 | | | |
| 41_50 | 54 | 32 | | | |
| 51_60 | 14 | 8.3 | | | |
| Total | 169 | 100 | | | |
| Gender | | | | | |
| Male | 13 | 7.7 | | | |
| Female | 156 | 92.3 | | | |
| Total | 169 | 100 | | | |
| Years of experience | | | | | |
| 5 years or less than | 42 | 24.9 | | | |
| More than 5 years | 127 | 74.1 | | | |
| Total | 169 | 100 | | | |
| Education level | | | | | |
| Certified nurse | 99 | 58.6 | | | |
| B .S.C | 33 | 19.5 | | | |
| Diploma | 35 | 20.7 | | | |
| M.S.C | 2 | 1.2 | | | |
| Total | 169 | 100 | | | |
| Years of pediatric experience | | | | | |
| 5 years or less than | 53 | 31.4 | | | |
| More than 5 years | 116 | 68.6 | | | |
| Total | 169 | 100 | | | |

N= 169

Table 2:-Assessment of attending training courses in pain assessment and management in children in their institutions

| | Pre | | Post | |
|-------|-----------|-------------|-----------|-------------|
| | Frequency | Percentage% | Frequency | Percentage% |
| Yes | 24 | 14.2 | 143 | 84.6 |
| No | 145 | 85.8 | 26 | 15.4 |
| Total | 169 | 100 | 169 | 100 |

The result shows a change after education program 84.6% of nurses received the trained course in pain assessment and management (P. value 0.00)

| Paired Samples Test | | | | | | | | |
|---------------------|----------------|-----------------|---|--------|--------|--------|-----|-----------------|
| Paired Differences | | | | | | t | Df | Sig. (2-tailed) |
| Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | | |
| | | | Lower | Upper | | | | |
| s6 - Y6 | .70414 | .50713 | .03901 | .62713 | .78116 | 18.050 | 168 | .000 |

Table 3:-Assessment of the common method used in pediatric Department for pain management in governmental pediatric hospitals in Khartoum state

| | Pre | | Post | |
|--------------------------------------|-----------|-------------|-----------|-------------|
| | Frequency | Percentage% | Frequency | Percentage% |
| Pharmacological | 47 | 27.8 | 7 | 4.1 |
| Nonpharmacological | 9 | 5.3 | 4 | 2.4 |
| Pharmacological & No pharmacological | 113 | 66.9 | 158 | 93.5 |
| Total | 169 | 100 | 169 | 100 |

The result show change in method used to manage pain after education program among nurses in governmental pediatric hospitals in Khartoum state where about 93.5 % used the Pharmacological & No pharmacological method but before education program only 66.9 % of them used the two methods (P. value 0.00)

| Paired Samples Test | | | | | | | |
|---------------------|----------------|-----------------|---|---------|--------|-----|-----------------|
| Paired Differences | | | | | T | df | Sig. (2-tailed) |
| Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | Lower | Upper | | | |
| -.49704 | .92017 | .07078 | -.63678 | -.35730 | -7.022 | 168 | .000 |

Table 4:-Knowledge about pharmacological Therapy to pain in children among nurse in governmental pediatric hospitals in Khartoum state

| | Pre | | Post | |
|--------------|-----------|-------------|-----------|-------------|
| | Frequency | Percentage% | Frequency | Percentage% |
| Good | 7 | 4.1 | 12 | 7.1 |
| Fair | 8 | 4.7 | 56 | 33.1 |
| Poor | 154 | 91.2 | 101 | 59.8 |
| Total | 169 | 100 | 169 | 100 |

The result show change in knowledge after education program among nurses in governmental pediatric hospitals in Khartoum state regarding pharmacological Therapy to pain among children that reflect the nurses had good knowledge (about 7.1 %) after education program. It was only 4.1 % before. (P. value 0.000)

| Paired Samples Test | | | |
|---------------------|---|----|-----------------|
| Paired Differences | t | df | Sig. (2-tailed) |
| | | | |

| Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | 6.403 | 168 | .000 |
|--------|----------------|-----------------|---|--------|-------|-----|------|
| | | | Lower | Upper | | | |
| .34911 | .70880 | .05452 | .24147 | .45675 | | | |

Table 5:-Knowledge about nonpharmacological Therapy to pain in children among nurse in governmental pediatric hospitals in Khartoum state

| | Pre | | Post | |
|--------------|-----------|-------------|-----------|-------------|
| | Frequency | Percentage% | Frequency | Percentage% |
| Good | 7 | 4.1 | 49 | 29 |
| Fair | 28 | 16.6 | 65 | 38.5 |
| Poor | 134 | 79.3 | 55 | 32.5 |
| Total | 169 | 100 | 169 | 100 |

The result show change in knowledge after education program among nurses in governmental pediatric hospitals in Khartoum state regarding non pharmacological Therapy to pain among children, which show that nurses had good knowledge (about 29 %) after the education program. Only 4.1 % of them had good knowledge before. (P. value 0.00)

| Paired Samples Test | | | | | | | |
|---------------------|----------------|-----------------|---|--------|-------|-----|-----------------|
| Paired Differences | | | | | T | df | Sig. (2-tailed) |
| Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | Lower | Upper | | | |
| .72189 | .97568 | .07505 | .57373 | .87006 | 9.619 | 168 | .000 |

Table 6:-Knowledge about Side Effect of Morphine used for pain in children among nurses in governmental pediatric hospitals in Khartoum state.

| | Pre | | Post | |
|--------------|-----------|-------------|-----------|-------------|
| | Frequency | Percentage% | Frequency | Percentage% |
| Good | 1 | .6 | 37 | 21.9 |
| Fair | 8 | 4.7 | 32 | 18.9 |
| Poor | 160 | 94.7 | 100 | 59.2 |
| Total | 169 | 100 | 169 | 100 |

The result show change in knowledge after education program among nurses in governmental pediatric hospitals in Khartoum state regarding Side Effect of Morphine to pain among children which show that nurses had good knowledge (21.9 %) after education program from only .6 % before .

| Paired Samples Test | | | | | | | |
|---------------------|----------------|-----------------|---|---------|-------|-----|-----------------|
| Paired Differences | | | | | T | df | Sig. (2-tailed) |
| Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | Lower | Upper | | | |
| .85207 | 3.30341 | .25411 | .35041 | 1.35373 | 3.353 | 168 | .001 |

(P. value 0.001)

Table 7:-Knowledge about Topical Anesthetic Cream (EMLA), among nurse in governmental pediatric hospitals in Khartoum state

| | Pre | | Post | |
|--------------|-----------|-------------|-----------|-------------|
| | Frequency | Percentage% | Frequency | Percentage% |
| Good | 31 | 18.3 | 144 | 85.2 |
| Fair | 0 | 0 | 0 | 0 |
| Poor | 138 | 81.7 | 25 | 14.8 |
| Total | 169 | 100 | 169 | 100 |

The result show change in knowledge after education program among nurses in governmental pediatric hospitals in Khartoum state about Topical Anesthetic Cream that show nurses developed good knowledge (85.2 %) after education program from only 18.3 % before. (P. value .000)

| Paired Samples Test | | | | | | | |
|---------------------|----------------|-----------------|---|---------|--------|-----|-----------------|
| Paired Differences | | | | | T | df | Sig. (2-tailed) |
| Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | Lower | Upper | | | |
| 1.33136 | 1.10584 | .08506 | 1.16343 | 1.49929 | 15.651 | 168 | .000 |

Table 8:-the attitude of nurses regarding Appropriate Analgesics Administration for a child with multiple traumas in a pediatric emergency in governmental pediatric hospitals in Khartoum state

| | Pre | | Post | |
|---|-----------|-------------|-----------|-------------|
| | Frequency | Percentage% | Frequency | Percentage% |
| Opioids must be used with care in small boluses with continuous monitoring | 35 | 20.7 | 86 | 50.9 |
| Opioids must be used with care in large boluses with continuous monitoring | 20 | 11.8 | 34 | 20.1 |
| Not applicable | 114 | 67.5 | 49 | 29 |
| Total | 169 | 100 | 169 | 100 |

The result show change in nurse's attitude regarding Appropriate Analgesics Administration for a child with multiple traumas in a pediatric emergency after education program that reflect the nurses became had a proper attitude about 50.9 % but before education program, 67.5 % of them had incorrect attitude (P. value 0.000)

| Paired Samples Test | | | | | | | |
|---------------------|----------------|-----------------|---|--------|-------|-----|-----------------|
| Paired Differences | | | | | T | Df | Sig. (2-tailed) |
| Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | Lower | Upper | | | |
| .68452 | 1.21438 | .09369 | .49955 | .86950 | 7.306 | 167 | .000 |

Table 9:-The attitude of nurses regarding Appropriate Analgesics Administration for a children with superficial Burn in a pediatric emergency in governmental pediatric hospitals in Khartoum state

| | Pre | | Post | |
|---|-----------|-------------|-----------|-------------|
| | Frequency | Percentage% | Frequency | Percentage% |
| Rapid analgesia e.g. paracetamol and If more severe superficial burn need I.V | 57 | 33.7 | 116 | 68.6 |
| Rapid analgesia e.g. paracetamol and If more severe superficial burn need .IM | 112 | 66.3 | 53 | 31.4 |
| Total | 169 | 100 | 169 | 100 |

The result show change in nurse's attitude regarding Appropriate Analgesics Administration for children with multiple traumas in pediatric emergency after education program that reflect that : nurses attitude improved to 50.9 % from only 20.7% . Before education program 67.5 % of them said this is not applicable, but after only 29% stated that. (P. value 0.000)

| Paired Samples Test | | | | | | | |
|---------------------|----------------|-----------------|---|--------|-------|-----------------|------|
| Paired Differences | | | | T | Df | Sig. (2-tailed) | |
| Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | Lower | Upper | | | |
| .36310 | .63270 | .04881 | .26672 | .45947 | 7.438 | 167 | .000 |

Table 10:-Cross tabulation of Training course Vs. fallow stander care to ongoing pain assessment and management among children in governmental pediatric hospitals in Khartoum state pre educational program Cross tabulation of Training course Vs. following standered care to ongoing pain assessment and management among children in governmental pediatric hospitals in Khartoum state regarding pre educational program.

| | | | | | Total |
|-------|--|------|-------|-------|--------|
| | | Good | Fair | Poor | |
| Yes | | 4 | 2 | 18 | 24 |
| | | 2.4% | 1.2% | 10.7% | 14.2% |
| No | | 12 | 19 | 114 | 145 |
| | | 7.1% | 11.2% | 67.5% | 85.8% |
| Total | | 16 | 21 | 132 | 169 |
| | | 9.5% | 12.4% | 78.1% | 100.0% |

(r=.16, p= .395)

Having a training course on cross-tabulation by nurse's attitude regarding fallow stander care to ongoing pain assessment and management among children yielded highly statistically significant association before education program P value=.3 r .16

Table 11:-Cross tabulation of Training course Vs. following standered care to ongoing pain assessment and management among children in governmental pediatric hospitals in Khartoum state post educational program.

| | | | | | | Total |
|-------|-----|--|-------|-------|------|--------|
| | | | Good | Fair | Poor | |
| | Yes | | 62 | 69 | 12 | 143 |
| | | | 36.7% | 40.8% | 7.1% | 84.6% |
| | No | | 16 | 9 | 1 | 26 |
| | | | 9.5% | 5.3% | .6% | 15.4% |
| Total | | | 78 | 78 | 13 | 169 |
| | | | 46.2% | 46.2% | 7.7% | 100.0% |

Having training course on cross tabulation by nurse's attitude regarding following standered care to ongoing pain assessment and management among children yielded highly statistically significant association after education program. ($r=-.23$, $p= .089$)

Discussion:-

An Interventional study was conducted to study the impact of pain assessment and management, educational program on knowledge and attitude of nurses. In the present study, the participant were nurses and most of them from the age group of 31 to 40 years old by 40.2%, certified nurses. Male by 58.6 % and female by 92.3% table (1).

Pretest the nurses use pharmacological (27.8%) more than non-pharmacological (5.3%) table (3). Our finding is comparable to the quantitative descriptive study (2019), which was conducted with an aim to assess the knowledge of no pharmacological methods of pain management among registered general nurses at Bandura Hospital. The following conclusion was drawn from the research findings: the study showed that the nurses have poor knowledge regarding non-pharmacological pain management, most of the nurses focus more on pharmacological pain management than nonpharmacological therapies which are given less attention. ⁽⁴⁾

The majority (93.5%) of participant nurses started to use Pharmacological & non pharmacological pain management posttest which was significant (P. value 0.00) table (3).

Also participant nurses had change in knowledge after education program regarding non pharmacological therapy to pain in children where the nurses who had good knowledge increased from 4.1 % before education program to 29 % after. (P. value 0.00) Table5. This finding is comparable to the study done in Port Said (Egypt) named Impact of an Educational Program for Pediatric Nurses on Non-Pharmacological Pain Management in Hospitalized Children. The results demonstrated very low nurses' knowledge of non- pharmacological methods for pain management before the intervention, with statistically significant improvements after the intervention ($p<0.001$). The study concludes that training the nurses in the use of non-pharmacological methods of pain management in hospitalized children have a positive impact on their related knowledge and practice ⁽⁵⁾. Non-pharmacological methods have played a recognizable important role in the management of chronic pain. ⁽⁶⁾

Other study supported present study named Increasing Nurses' Knowledge and Behavior Changes in Non-pharmacological Pain Management for Children in China. This study implemented pain education for Chinese nurses using a pre-posttest design and compared their use of non-pharmacological methods in children's post-operative pain management. Results show that nurses' use of most of these methods for pain relief increased significantly, which helped to improve the quality of care for children ⁽⁷⁾

In addition other original researches supported present study (Nurses' use of non-pharmacological methods in children's postoperative pain management: educational intervention study) This paper is a report of study of the impact of an educational intervention in pain management on nurses' self-reported use of non-pharmacological methods for children's postoperative pain relief and their perceptions of barriers that limited their use of these methods. Conclusion of the study was the educational intervention had a positive effect on nurses' use of several non-pharmacological methods. Regular dissemination of updated information to nurses on these pain management methods is recommended to maintain the positive changes. Nevertheless, education alone was not sufficient to optimize nurses' use of these methods, as various barriers limited their practice. ⁽⁸⁾

Participant nurses had change in knowledge after education program regarding pharmacological therapy to pain in children that show that nurses had good knowledge about 7.1% from only 4.1 % before education program (P. value 0.00) table (4).

As pretest most of participant nurses had poor knowledge regarding Side Effect of Morphine to pain in children by (94.7%) pretest table (6). This findings are in accordance with a study done in Saudi Arabia named 'Knowledge and attitudes of nurses toward pain management'. This study further demonstrated the lack of knowledge and the inappropriate approaches to addiction and respiratory depression originating from opioid use⁽⁹⁾. Other study supported the findings (Nurses' Knowledge, Attitudes, and Practices: Regarding Children's Pain) shows the result that most nurses demonstrated the lack of knowledge about the incidence of respiratory depression and thought that children over-report their pain.⁽¹⁰⁾

In our study there was a change in knowledge after education program among participant nurses regarding Side Effect of Morphine to pain in children where the nurses good knowledge raised from 21.9 % from only .6 % before education program. Table (6) This was a significant change (P. value 0.001) . (P. value 0.001)

Regarding Knowledge about Topical Anesthetic Cream (EMLA), among participant nurse 81.7 % had poor knowledge before education program which dropped to 14.8 after . At a study done in 2011 named Knowledge, attitude and practice of pediatric critical care nurses towards pain reflect more scientific approaches like Eutectic Mixture of Local Anesthetic (EMLA), local anesthetic infiltration and judicious use of sedatives were not adopted routinely.⁽⁸¹⁾

In our study at posttest the good knowledge of participant nurses increased to 85.2% from 18.3 before the education program (P. value .000).Table (7)

Regarding attitude of participant nurses: There was a change in nurse's attitude regarding appropriate analgesics (opioid) administration for children with multiple traumas in pediatric emergency after education program: Where 50.9 % of nurses had correct attitude after education program from only 20.7 % before. (P. value 0.000) table (8). A study which was different from ours was named Pediatric Nurses' Beliefs and Pain Management Practices: An Intervention Pilot that reflect Nurses' scores on the opioid kinetics items were low in the pretest period and unfortunately remained low after the intervention. They believe that these findings indicate the need for the intervention to be stronger and perhaps the need for a booster especially for nurses with incorrect scores at the immediate posttest period.⁽¹²⁾

In our study only 33.7% of participant nurse's had good attitude as pretest regarding appropriate analgesics administration for children with superficial burn in pediatric emergency. After education program participant nurses good attitude raised to 68.6% (P. value 0.000) Table (9). Our study is comparable to a previous study named Nurses' experiences of caring for burn injured children in pain. Their conclusion: Nurses in dealing with pediatric burn injured patients have good skills in pain management. However the routine use of pain treatment during dressings as an extensive standard treatment needs to be illuminated.⁽¹³⁾

Most of the nurses (85.5%) in our study claimed that they did not receive any previous pain training pretest table (2). So, these nurses have a poor attitude to follow standard care to ongoing pain assessment and management among children by (67.5%) Table (10). Post-test this nurses poor attitude reduction to (6 %) table(11).

Professional training programs regarding pain management are required to enhance better understanding of the usefulness and application of pain assessment⁽¹⁴⁾ previous study named Student Nurses' Knowledge, Attitudes, and Self-Efficacy of Children's Pain Management: Evaluation of an Education Program in Taiwan (2006). The purpose of this study was to examine the effectiveness of a pediatric pain education program (PPEP) for student nurses and The results demonstrated that student nurses gained significant knowledge of pediatric pain, expressed more appropriate attitudes, and reported greater self-efficacy in children's pain management after attending PPEP. Their knowledge of analgesic pharmacotherapy did not significantly improve. These results suggest that PPEP should be integrated into pediatric nursing curricula to enhance knowledge and skills regarding children's pain management during the early stage of a nursing career.⁽¹⁵⁾

The previous study found the most significant barrier to effective pain management is nurses' reliance on their own subjective judgment⁽¹⁶⁾. Therefore, the implementation of pain education is regarded to increase nurses' adherence to pain assessment as it adds further values to the essence of pain management for hospitalized patients⁽¹⁷⁾.

Conclusion:-

The deficits in pain management can be improved by implementing pain education programs. Nurses scored low in having knowledge and attitudes towards pain prior to pain education; whereas, a significant improvement in their knowledge and attitude after the delivery of pain education was explicit.

Recommendations:

1. to increase in the number of qualified nurses in governmental pediatric hospitals in Khartoum state.
2. Emphasize on pain assessment and management knowledge and skills in nursing institutes curriculum for nursing students .
3. Professional training and follow-ups for nurses working in the clinical field to introduce update pain assessment and management.
4. Future research studies are needed to assess the impact of pain education program on a wider nursing population including different health care sectors in Sudan.

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