

ANALYSIS OF KNOWLEDGE AND ATTITUDES REGARDING PAIN MANAGEMENT IN NURSES WORKING IN NEONATAL UNIT

LATIF Z¹, QASIM S^{2*}

¹College of Nursing, Aziz Bhatti Teaching Gujrat, Pakistan

²Shaikh Zayed Hospital Rahim Yar Khan, Pakistan

*Correspondence author email address: sairaqaassim0092@gmail.com

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Abstract: Effective neonatal pain management is crucial in Neonatal Intensive Care Units (NICUs), yet gaps in knowledge and attitudes among nursing staff can impact the quality of care. Understanding these gaps is essential to developing strategies for improved training and patient care outcomes. **Objective:** To assess the knowledge and attitudes regarding management in nurses working in neonatal ICU. **Methods:** The cross-sectional study was conducted in the Neonatal Intensive Care Unit Hospital from September 2023 to August 2024. A total of 100 neonatal nurses working in the NICU for at least a year were included in the study. Data was collected through a 42-item questionnaire divided into three sections. The first part included 10 questions about nurses' demographics. The second part included 21 questions to inquire about knowledge of neonatal pain management which could be answered on a Likert scale from 1 to 5 with 1 being strongly disagree and 5 being neutral. The last sections included 11 questions to assess nurses' attitudes regarding the subject which could be responded to on a Likert scale. **Results:** Nurses had a poor knowledge level regarding neonatal pain management. 92% of nurses were capable of identifying a neonate in pain, however, 30% wrongly agreed that neonatal pain response was less than adults. 32% of nurses were of the perspective that parents should not be present during invasive procedures. 50% of nurses wrongly thought of sedation as the best pain relief. More than 80% of nurses were positive about palliative care for chronically ill neonates. However, 45% of nurses did not think that surgeries and invasive procedures should ease neonatal pain. **Conclusion:** Poor knowledge and moderately satisfactory attitude were noted in neonatal nurses regarding neonatal pain management. Improvement in awareness programs and training is urgently needed to improve patient care.

Keywords: Attitudes, Knowledge, Neonates, Pain.

Introduction

Chronically ill newborns undergo invasive procedures during hospital stays while admitted to the NICU that can cause pain and discomfort to the neonate. Research shows that neonates feel pain in the same way as other pediatric subjects and adults and respond to pain stimuli through expressions and behaviours.¹ Inadequate management or treatment of pain in neonates can cause short-term impacts including longer hospital stays, intracranial haemorrhage, and failure to thrive, and long-term impacts such as slow neurodevelopment and weak immune system.^{2, 3} Since newborns are not able to express their pain explicitly, a close observation is needed to recognize and manage their pain. Nurses are primary caretakers of neonates in NICU so they must be ethically and morally responsible to pay attention. Studies have shown that the knowledge and attitudes of healthcare professionals in the NICU significantly impact the effectiveness of pain management.^{4, 5}

In Pakistan, all hospitalization patients regardless of age receive standard pain management care but KAP studies have shown that the nurses are not well equipped to treat and manage neonatal pain.^{6, 7} Hence, we conducted this study to assess the knowledge and attitudes regarding management in nurses working in neonatal ICU.

Methodology

The cross-sectional study was conducted in the Neonatal Intensive Care Unit Hospital from September 2023 to August 2024. A total of 100 neonatal nurses working in the NICU for at least a year were included in the study. Nurses on rotation and those who refused to participate were excluded. All participants provided their informed consent to become a part of the study. The ethical committee of the hospital approved the study.

Data was collected through a 42-item questionnaire developed by a review of NICU pain management. The questionnaire was divided into three sections. The first part included 10 questions about nurses' demographics. The second part included 21 questions to inquire about knowledge of neonatal pain management which could be answered on a Likert scale from 1 to 5 with 1 being strongly disagree and 5 being neutral. The last sections included 11 questions to assess nurses' attitudes regarding the subject which could be responded to on a Likert scale. The reliability and validity of the questionnaire were tested and Cronbach's alpha was 0.90.

All data was analysed by SPSS version 24. Percentage was used to present categorical data and mean \pm SD was used to

present continuous data. A p-value less than 0.05 was taken as significant.

Results

A total of 100 neonatal nurses were included in the study with a mean age of 35.9 ± 1.5 years among which all participants were female. 75 nurses (75%) had a bachelor's degree and 40% had 1-5 years of experience with neonates. 30% had received less than 4 hours of pain management training previously while 10% had more than 10 hours of training. The demographic characteristics of study participants are shown in Table I.

The assessment of knowledge is shown in Table II which shows responses of 21 knowledge questions. Nurses had a poor knowledge level regarding neonatal pain management. Although questions 3-5 were an incorrect statement,

52%,16%, and 14% of nurses agreed on it respectively. 92% of nurses were capable of identifying a neonate in pain, however, 30% wrongly agreed that neonatal pain response was less than adults (question 9). 32% of nurses were of the perspective that parents should not be present during invasive procedures. 50% of nurses wrongly thought of sedation as the best pain relief (question 19).

The responses to assess attitudes of nurses regarding neonatal pain management are shown in Table III. More than 80% of nurses were positive about palliative care of chronically ill neonates (questions 1-4). However, 45% of nurses did not think that surgeries and invasive procedures should ease neonatal pain. 40% of nurses found collaboration with staff regarding pain management frustrating.

Table I: Nurses' demographic details

Variables	N (%)	P- value
Mean age	35.9 ± 1.5	0.432
Female Gender	100 (100%)	<0.01
Marital status		0.755
Single	40 (40%)	
Married	60 (60%)	
Qualification		0.038
Diploma	20 (20%)	
Bachelors	75 (75%)	
Masters	5 (5%)	
Experience in peds		0.005
1-5 years	40 (40%)	
6-10 years	25 (25%)	
More than 10 years	35 (35%)	
Prior pain management training		0.164
None	40 (40%)	
< 4 hours	30 (30%)	
5-9 hours	20 (20%)	
More than 10 hours	10 (10%)	
Satisfied with neonatal pain management	90 (90%)	0.209

Table II: Assessment of nurses' knowledge regarding neonatal pain management

Questions	Strongly agree/ Agree	P- value
Narcotics should be administered on a regular schedule in case of chronic pain than on a PRN schedule ^a	81 (81%)	0.188
The next dose of analgesics should only be administered when the patient shows signs of discomfort ^b	26 (26%)	0.887
Discomfort or pain in the neonate can be determined by their biological behaviors ^b	52 (52%)	0.057
If the neonate does not cry or twist his body, analgesics are not required during invasive procedures ^b	16 (16%)	0.004*
Pain relief can be best achieved by intramuscular injection ^b	14 (14%)	0.519
It is permitted to administer opioid analgesics if patients request medication urgently ^a	80 (80%)	0.3
Nurses can always catch signs that a neonate is in pain ^a	92 (92%)	0.127

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Respiratory depression is a serious side effect of narcotics so they should not be recommended in neonates ^b	25 (25%)	0.034*
Neonates show less sensitivity to pain stimulus ^b	30 (30%)	0.640
The narcotics dosage is calculated by its effectiveness rather than by body weight ^a	70 (70%)	0.293
It is important to assess pain and the effectiveness of drugs for effective pain management ^a	90 (90%)	0.5
Patients should experience complete pain relief after treatment ^a	91 (91%)	0.041*
Patients with severe chronic pain require higher drug doses than patients with acute pain ^a	59 (59%)	0.662
For neonatal pain management, non-pharmacological methods should be used alone, not adjuvant to analgesics ^b	13 (13%)	0.003*
The same pain stimulus produces the same pain level in different people ^b	33 (33%)	1.0
Infants in severe pain may fall asleep ^a	90 (90%)	0.439
Painful procedures must be performed in the absence of guardians ^b	32 (32%)	0.540
Subsequent opioid doses must be adjusted according to the patient's responses to ^a	91 (91%)	0.051*
Pain relief in neonates can be most effectively done by sedation ^b	50 (50%)	0.357
Neonatal pain does not affect the growth and development of the infant later ^b	22 (22%)	0.511
Neonates experience long-term negative effects due to pain during childhood ^a	63 (63%)	0.378

a: Correct

b: Incorrect

*Significant

Table III: Assessment of Nurses' attitudes regarding neonatal pain management

Question	Strongly agree/ Agree	P- value
Opioids should be given in neonate palliative care to prevent mental discomfort	90 (90%)	0.458
Nurses prefer consulting with fellow nurses to assess the pain of chronically ill neonates to administer pain relief interventions	88 (88%)	0.437
If opioids are necessary for the palliative care of neonates, I would recommend the family consent for it.	82 (82%)	0.35
Parents need to know that their neonate may experience respiratory distress due to narcotics	90 (90%)	0.56
Surgeries and invasive procedures must be performed to relieve discomfort in chronically ill neonates	54 (54%)	0.23
Life-sustaining interventions are more important for chronically ill neonates than comfort	50 (50%)	0.60
Procedures and intervention methods should be adjusted according to patient comfort	90 (90%)	0.30
Managing a critically ill neonate is stressful	55 (55%)	0.4

Seeing fellow nurses paying inadequate attention to neonatal pain relief is frustrating	55 (55%)	0.189
Collaborating with fellow nurses for the management of pain relief is frustrating	40 (40%)	0.233
Local anaesthesia should be administered to neonates for minor or minimally invasive procedures	90 (90%)	0.061

Discussion

This study was conducted to evaluate the knowledge and attitudes of neonatal nurses regarding the pain management of infants. Nurses had poor knowledge and moderately satisfactory attitudes which shows significant gaps in education and training of nurses. These findings are alarming as inaccurate knowledge can threaten the infant due to wrong pain assessment and treatment. The findings of this study call for urgent improvement in the education and training programs of nurses to alleviate the quality of neonatal care. Local studies and literature on developing countries are consistent with our results.^{8, 9, 10, 11}

Although 80% of the nurses had a professional degree, the training was insufficient with 70% of nurses with no training or minimum training. Despite this, 90% of the nurses were satisfied with the neonatal pain management provided at their institute. These statistics are significantly lower than as reported by studies of developed countries where high-end neonatal care is provided.^{12, 13, 14, 15}

Administration of opioids and narcotics is the responsibility of nurses which is done after an accurate assessment of pain and choosing the best method of its management. However, 14% of nurses in our study opted for intramuscular injection, and 50% preferred sedation as the best option for pain relief which is untrue. This shows the basic knowledge gap in nurses which accounts for poor neonatal care in our country. Comparison studies of KAP scores between neonatologists and nurses show that the former is more well-equipped to prescribe and administer medication due to advanced knowledge and positive attitudes.^{16, 17}

13% of the nurses in the study favored non-pharmacological methods alone without analgesics which is backed by previous studies that recommend non-pharmacological treatment due to their effective pain relief results in infants.¹⁸ This perspective of administering these methods was shared by few nurses as 54% opted to perform invasive procedures and surgeries for pain relief.

Our study has some limitations. The sample of the study was small which prevented the generalization of results. Secondly, the self-reported questionnaire may have contributed to bias in the findings.

Conclusion

Poor knowledge and moderately satisfactory attitude were noted in neonatal nurses regarding neonatal pain management. Improvement in awareness programs and training is urgently needed to improve patient care.

Declarations

Data Availability statement

All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate.

Approved by the department concerned. (IRBEC-032/23)

Consent for publication

Approved

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Not applicable

Conflict of interest

The authors declared an absence of conflict of interest.

Authors Contribution

ZAHIDA LATIF (Principal)

Data Analysis, Drafting, Concept & Design of Study

SAIRA QASIM (Nursing Officer)

Revisiting Critically & Final Approval of version

References

- Shah P, Siu A. Considerations for neonatal and pediatric pain management. *American Journal of Health-System Pharmacy*. 2019;76(19):1511-1520.
- Walker SM, editor Long-term effects of neonatal pain. *Seminars in Fetal and Neonatal Medicine*; 2019: Elsevier.
- Williams MD, Lascelles BDX. Early neonatal pain—a review of clinical and experimental implications on painful conditions later in life. *Frontiers in paediatrics*. 2020;8:30.
- Ishak S, Nfe F, Zakaria SZ S, Adli A, Jaafar R. Neonatal pain: Knowledge and perception among pediatric doctors in Malaysia. *Pediatrics International*. 2019;61(1):67-72.
- Orovec A, Disher T, Caddell K, Campbell-Yeo M. Assessment and management of procedural pain during the entire neonatal intensive care unit hospitalization. *Pain Management Nursing*. 2019;20(5):503-511.
- Neshat H, Hassankhani H, Jabraeili M, Negarandeh R. Organisational challenges of pain management in neonatal intensive care unit: a qualitative study. *BMJ open*. 2023;13(9):e072695.
- Hussein A. DETERMINANTS OF NEONATAL MORTALITIES IN PAKISTAN. 2022.
- Carlsen Misic M, Andersen RD, Strand S, Eriksson M, Olsson E. Nurses' perception, knowledge, and use of neonatal pain assessment. *Paediatric and Neonatal Pain*. 2021;3(2):59-65.
- Alotaibi K, Higgins I, Chan S. Nurses' knowledge and attitude toward pediatric pain management: a cross-sectional study. *Pain Management Nursing*. 2019;20(2):118-125.
- Muteteli C, Tengera O, Gowan M. Neonatal pain management among nurses and midwives at two Kigali

hospitals. *Rwanda Journal of Medicine and Health Sciences*. 2019;2(2):138-146.

11. Wari G, Wordofa B, Alemu W, Habte T. Knowledge and practice of nurses and associated factors in managing neonatal pain at selected public hospitals in Addis Ababa, Ethiopia, 2020. *Journal of multidisciplinary healthcare*. 2021;2275-2286.

12. Popowicz H, Mędrzycka-Dąbrowska W, Kwiecień-Jaguś K, Kamedulska A, editors. Knowledge and practices in neonatal Pain Management of nurses employed in hospitals with different levels of Referral—Multicenter Study. *Healthcare*; 2021: MDPI.

13. Lulie E, Berhanu M, Kassa SF. Knowledge, attitude, and associated factors toward pediatric pain management among nurses at the University of Gondar Comprehensive Specialized Hospital: A cross-sectional study. *SAGE Open Medicine*. 2022;10:20503121221075163.

14. Blomqvist YT, Gradin M, Olsson E. Pain assessment and management in Swedish neonatal intensive care units. *Pain Management Nursing*. 2020;21(4):354-359.

15. Hua Y, Zhang Q, Ting W, Qiu R, Yao W-y, Chen X-l. Pediatric nurse practitioners' knowledge and attitudes regarding pain management study in central China. *The Journal of Continuing Education in Nursing*. 2019;50(6):275-281.

16. Vagnoli L, Mammucari M, Graziani D, Messeri A. Doctors and nurses' knowledge and attitudes towards pediatric pain management: An exploratory survey in a children's hospital. *Journal of pain & palliative care pharmacotherapy*. 2019;33(3-4):107-119.

17. Peng N-H, Lee M-C, Su W-L, Lee C-H, Chen C-H, Chang Y-C, et al. Knowledge, attitudes and practices of neonatal professionals regarding pain management. *European journal of pediatrics*. 2021;180:99-107.

18. Maciel HIA, Costa MF, Costa ACL, Marcatto JdO, Manzo BF, Bueno M. Pharmacological and nonpharmacological measures of pain management and treatment among neonates. *Revista Brasileira de terapia intensiva*. 2019;31:21-26.



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