Journal of Medicine, Nursing & Public Health

Maternal Views on Neonatal Pain Treatment in the Newborn Unit of Nakuru Referral Hospital – Kenya

Deborah Kemunto Kereri

ISSN: 2706-6606

Stratford Peer Reviewed Journals and Book Publishing
Journal of Medicine, Nursing & Public Health
Volume 4||Issue 1||Page 73-86||May||2021|
Email: info@stratfordjournals.org ISSN: 2706-6606

Maternal Views on Neonatal Pain Treatment in the Newborn Unit of Nakuru Referral Hospital – Kenya

[1]*Deborah Kemunto Kereri & Salome Oyiela Otenyo[2]

[1]Lecturer: Egerton University, Nakuru, Kenya

***Corresponding Author's Email: debrah.kereri@egerton.ac.ke**

[2]Lecturer: Egerton University, Nakuru, Kenya

Email: Salome.Otenyo@egerton.ac.ke

How to cite this article: **Kereri, D., K. & Otenyo, S., O. (2021). Maternal Views on Neonatal Pain Treatment in the Newborn Unit of Nakuru Referral Hospital – Kenya.** ***Journal of Medicine, Nursing & Public Health,*** **4(1), 73-86.**

Abstract

The study aimed at exploring the maternal views in pain treatment in the newborn unit (NBU), Nakuru referral Hospital. The study was a cross-sectional survey using a semi-structured questionnaire. The study was conducted in the NBU of Nakuru referral Hospital located in Nakuru Town, the administrative center of Nakuru County. The sample size for the study was 108 mothers of neonates admitted to the NBU. Data were collected using a researcher-administered questionnaire. Data were summarized using descriptive statistics. Mean, standard deviation (SD) and range were computed for continuous variables while frequencies were used for categorical variables. Chi-square test was used to check for significant relationship between categorical variables. Independent samples t-test was used to compare means for continuous variables. For all statistical tests, a *p*-value < .05 was considered to be statistically significant. Majority of mothers who were interviewed (95.1%, n = 97/102) reported that their neonates felt pain while hospitalized in the neonatal unit. From this study most mothers believe that their neonates experience pain varying from mild to severe pain while admitted in the NBU. Majority of mothers have expressed their wish to be totally involved during painful procedures during the hospitalization period. In order to manage this pain appropriately there is need to improve the clinical practice by creating more awareness HCPs on the importance of involving mothers in planning and managing procedural pain in neonates. The use Non pharmacological methods of pain management should be encouraged and utilized in the resource limited set ups especially in neonatal units.

Keywords: *Maternal/parental views, neonate, pain treatment, newborn unit (NBU)*

Introduction

Hospitalized neonates in neonatal units, worldwide, undergo multiple and repeated painful procedures in the course of hospitalization (Allegaert et al., 2016; Aziz et al., 2018; LoBiondo-Wood & Haber, 2014; Lotto & Linhares, 2018; Mariyam et al., 2019; Nwanodi, 2016; Zubaidah & Naviati, 2018). These procedures that occur routinely as part of care cause pain at a time when the neonate is physiologically immature and developmentally vulnerable (Zubaidah & Naviati, 2018). Epidemiological studies in high income countries in Europe including (LoBiondo-Wood & Haber, 2014) and France (Aziz et al., 2018) show that neonates undergo 12-14 painful procedures per day. Studies in other high income countries like North America (Zubaidah & Naviati, 2018) and Australia (Aziz et al., 2018) have reported relatively less number of painful procedures with most procedures being performed during the first three days of life.

In low and middle-income countries (LMICs) neonates equally undergo many painful procedures. In China, neonates are reported to undergo 6.0 painful procedures per day (Mariyam et al., 2019) which is comparable to the 7.5 painful procedures per day reported in South Korean NICUs (Leandro et al., 2020). Although there are limited studies on prevalence of pain in neonatal units in Sub-Saharan Africa (SSA), a recent study in Kenya showed that neonates underwent an average of four procedures per day (Açikgöz et al., 2017).

Despite the exponential increase in knowledge on neonatal pain and pain treatment strategies, procedural pain treatment remains inadequate in neonatal units globally (Feital et al., 2016; Kim & Choi, 2017a; Leandro et al., 2020; Lotto & Linhares, 2018). In Europe, (Jamshidi et al., 2018) reported that only less than 10% of the 42,413 painful procedures experienced by 430 neonates over a two-week period were performed with some form of pharmacological or non-pharmacological pain relief. In North America, (Sujatha et al., 2017) reported slightly better pain management practices with 54% of the 3508 tissue-damaging procedures performed on 582 neonates in 14 Canadian NICUs, over a one week period, being performed with some form of pain relief.

Procedural pain remains severely undertreated in neonatal units in LMICs. In China, none of the 10,633painful procedures performed on 108 neonates in the course of hospitalization were accompanied by any form of analgesia (Jamshidi et al., 2018). A similar trend of under-treatment of procedural pain has been reported in neonatal units in SSA. A recent survey by Açikgöz et al. (2017) in neonatal units in Kenya showed a comparable situation to the Chinese NICUs. Not a single painful procedure was performed with any form of pain relief, and yet a majority of these procedures were associated with moderate to severe pain intensity (Feital et al., 2016).

The poor procedural pain practices in neonates continues despite the empirical evidence that repeated and untreated pain in neonates has deleterious immediate and long-term consequences (Abusaad et al., 2017; Allegaert et al., 2016; Hertel et al., 2019; Rahman & Al-Mosawi, 2017; Zubaidah & Naviati, 2018). On the short-term, repeated and untreated pain lead to tachycardia, sleep disturbance, poor weight gain, increased consumption of oxygen, irritability, delayed healing, and impaired emotional bonding (Açikgöz et al., 2017; Aziz et al., 2018). On the long-term untreated pain may result in poor brain development, exaggerated response to subsequent painful experience, and impaired behavioral and emotional disorders in childhood and early adolescent (Feital et al., 2016; Kim & Choi, 2017a; Leandro et al., 2020; Lotto & Linhares, 2018).

Problem Statement

Neonates undergo multiple and repeated painful procedures during hospitalization often without adequate pain relief (Açikgöz et al., 2017; Hertel et al., 2019; Mariyam et al., 2019; Zubaidah & Naviati, 2018). The high number of painful procedures and the sub-optimal pain treatment in these extremely vulnerable neonates occurs despite the empirical evidence that repeated and untreated pain in neonates has severe immediate and long-term consequences including, poor weight gain, impaired brain growth, altered responses to subsequent painful experiences, and development of behavioral and social disorders during childhood and adolescent period (Açikgöz et al., 2017; Aziz et al., 2018; Li & Duan, 2018; Nwanodi, 2016).

Although mothers have been known to play a critical role in the assessment and treatment of pain (e.g. through breastfeeding) they are often overlooked and excluded by HCP during painful procedures (Feital et al., 2016; Leandro et al., 2020). Maternal involvement is however very crucial during diagnostic and care-related activities as they (mothers) could identify pain cues and provide non-pharmacological pain treatment interventions. For parents to identify pain cues in neonates, and for the parent-driven interventions to be used in the neonatal unit, HCPs must actively involve them in the care of their neonates, including during procedures, throughout the hospitalization period.

Specific Objective

The specific aim of the study was to determine the maternal views on neonatal pain and pain treatment.

Parental Views Concerning Neonatal Pain and Pain Treatment Practices

Many studies have examined parental views on pain treatment in the NICU. Jamshidi et al. (2018) surveyed 95 parents to determine their views on infant pain in the neonatal unit. Eighty-five percent of the parents believed that their neonates experienced pain while admitted in the NICU, 55% felt their neonates experienced some pain while 15% felt that the neonates experienced a lot of unnecessary pain. Some parents, on the other hand, did not expect their neonates to experience pain in the course of hospitalization.

Parents have reported that the pain experiences by their neonates cause psychological stress. Additionally, parental feelings of helplessness, not being able to protect their neonates while in pain, and not knowing how to help the neonate during painful procedures has been associated with stress (Feital et al., 2016; Leandro et al., 2020). Feelings of disappointment and frustration have been reported among parents from seeing or knowing their neonates were experiencing (Anand et al., 2017). The ability to comfort a neonate has been viewed as a central component of parental roles. The unmet parental need to protect and support the neonate, feeling of loss of control and mismatched perceptions between HCPs and mothers on procedural pain treatment are contributing factors to parental stress (Jamshidi et al., 2018).

A study by Feital et al. (2016) in the UK on parental perception of their neonate's pain in the NICU among 12 parents showed that parents were unprepared for the neonate's pain and did not expect their neonate to experience pain as part of the NICU experience. More than half of the parents felt they needed more information about their neonate's health needs and medical care, including pain care, early during hospitalization. Others felt too overwhelmed by the NICU environment to absorb new information. Whereas parents uniformly expressed feeling of being unprepared for the neonate pain, there were differences in their preference for information about neonate pain that was suggestive of individual variations in stress and coping. A study by Kim

and Choi, (2017b) reported similar findings in which parents expected to receive unbiased information on neonatal pain in a supportive manner.

Additionally, relationship between parental stress and mismatch between HCPs 'and parents' perceptions about neonatal pain has been reported in numerous studies (Açikgöz et al., 2017; Aziz et al., 2018; Mariyam et al., 2019). Hertel et al. (2019) reported that parents believed HCPs disregarded or underrated their neonates' pain. More specifically, parents felt that HCPs did not respond promptly to and consistently manage their neonates' pain (Allegaert et al., 2016). Similar findings have been reported by (Mariyam et al., 2019) whereby parents were less satisfied with neonate pain treatment and had less confidence in HCPs' ability to manage pain.Unlike these studies (Feital et al., 2016; Kim & Choi, 2017a), (Açikgöz et al., 2017) reported that 82% of the parents were generally satisfied with pain management practices in the neonatal unit.

Parents are, however, concerned about safety of medications used for pain treatment. Parents are concerned about complications (Feital et al., 2016) addiction (Anand et al., 2017), and sedation from analgesics (Hertel et al., 2019). In this respect, acknowledging and encouraging expression of parental concerns is important for optimal pain treatment in neonates.

Theoretical Framework

The study utilized the Promoting Action on Research Implementation in Health Services (PARiHS) framework to explain how research can be implemented to practice. The PARiHS framework was developed by Kitson, Harvey, and Mc Cornack (1998) and later refined by Rycroft-Malone (2004). This multidimensional framework was developed in an attempt to represent the complexity of the change processes involved in implementing research into practice. The PARiHS framework comprises of three interacting elements: evidence (E), context (C) and facilitation (F). The framework is an appropriate framework to examine the social processes that contribute to everyday practices and how the factors interrelate in promoting and sustaining evidence-based practices.

Evidence: This is defined as knowledge derived from a variety of sources that has been subjected to testing and has been found to be credible. It encompasses codified and non-codified sources of knowledge, including research evidence, clinical experience including professional knowledge, patient preferences and experiences, and local information. It is argued that successful implementation of evidence into practice is more likely to occur when research, clinical and patient experience are located towards the high-end of the low-high continuum. In this case, evidence is placed at the high-end of the continuum when, for example, the research (qualitative or quantitative) is well conceived and conducted and when there is a consensus around it. In the case of clinical experience, high is experience that has been made explicit and verified through critical reflection, critiqued and debated upon. Patient experience is high when patient preferences are used as part of the decision making process, and when patient narratives and experiences are seen as a valid source of evidence. Implementing such evidence in practice involves negotiation and developing a shared understanding about the benefits, risks, and advantages of the new over the old. This process however, requires careful management, and one that is not done in isolation but as a team effort (Helfrich et al., 2010).

Context: Research has demonstrated that the context can be a potent mediator of the implementation of evidence into practice. The context in which healthcare practice occurs can be seen as infinite as it takes place in a variety of settings, communities, and cultures that are all

influenced by economic, social, political, fiscal, historical, and psychosocial factors (Rycroft-Malone el al., 2004). In the PARiHS framework, the term context refers to the environment or setting in which people receive healthcare services, or in the context of getting research evidence into practice, the environment or setting in which the proposed change is to be implemented (Helfrich et al., 2010)

Organizations that could be described as "learning organizations" are those that are more conducive to facilitating change because they create learning cultures that pay attention to individuals, group processes and organizational systems. Such a context is characterized by decentralized decision making, an emphasis on the relationship between manager and worker, and a management style that is facilitative rather than ordering (Rycroft- Malone el al., 2004).

Leaders have a key role to play in transforming cultures and are, therefore, influential in shaping a context that is ready for change. Transformational leaders, as opposed to those who command and control, have the ability to transform cultures to create contexts that are more conducive to the integration of evidence into practice. These types of leaders inspire staff to have a shared vision and do so in a stimulating, a challenging, and an enabling way. This, in turn, results in clear roles and effective teamwork and organizational structures. The significance to implementation and change is that effective leaders have the ability to bring the "science" component of healthcare practice together with the "art" component into caring actions (Helfrich et al., 2010).

An additional component of the context that seems to play a role in shaping its readiness for implementation of evidence into practice is that of evaluation. Measurement generates evidence on which to base practice and is part of the evaluation or feedback process that demonstrates whether or not changes to practices are appropriate, effective, and/or efficient. The PARiHS framework proposes that context is crucial in ensuring a more conducive environment to get evidence into practice. More specifically, it is proposed that a strong context is when there is clarity of roles, decentralized decision making, valuing of staff, transformational leaders, and a reliance on multiple sources of information on performance, will make the chances of successful implementation of context more likely.

Facilitation: There is an emphasis on the need for appropriate facilitation to improve the likelihood of success of implementation of evidence into practice. The type of facilitation, and the role and skill of the facilitator that is required is determined by the "state of preparedness" of an individual or team, in terms of their acceptance and understanding of evidence, the receptivity of their place of work or context in terms of the resources, culture and values, leadership style, and evaluation activity. Facilitators work with individuals and teams to enhance the process of implementation of evidence into practice (Rycroft- Malone el al., 2004).

It is proposed that a facilitator has a key role to play in affecting the context in which change takes place as well as in working with practitioners to make sense of the evidence being implemented. In the context of the PARiHS framework, facilitation refers to the process of enabling (making easier) the implementation of evidence into practice. Thus, facilitation is achieved by an individual carrying out a specific role (a facilitator), which aims to help others (Helfrich et al., 2010). Facilitation indicates that facilitators are individuals with the appropriate roles, skills, and knowledge to help individuals, teams, and organizations apply evidence into practice. High facilitation relates to the presence of appropriate facilitation while low facilitation entails the absence of appropriate facilitation or inappropriate facilitation. Appropriate facilitation may encompass a range of roles and interventions, depending on the needs of the

situation. Facilitation is organized in the 3 broad themes of purpose, role, and skills and attributes. Purpose of facilitation can vary from a focused process of providing help and support to achieve a specific task ("task") to a more complex, holistic process of enabling teams and individuals to analyze, reflect, and change their own attitudes, behaviors, and ways of working ("holistic"). As the approach moves toward holistic, facilitation is increasingly concerned with addressing the whole situation and the whole person (Rycroft-Malone, 2004).

The role of a facilitator ranges from a practical role of assisting change to a more complex multifaceted role. In the models of health promotion that explicitly employ a facilitator, the emphasis is on external facilitators using an outreach model to work with several primary healthcare practices, providing advice, networking, and support to help them establish the required health prevention activities. Consequently, the facilitator's role is concerned with enabling the development of reflective learning by helping to identify learner needs, guide group processes, encourage critical thinking, and assess the achievement of learning goals. In these different situations, the skills and attributes required of the facilitator would be different. To fulfill the potential demands of the role, facilitators are likely to require a wide repertoire of skills and attributes. Arguably, skilled facilitators would be ones who could adjust their role and style at the different phases of an implementation or development project. Facilitation and facilitators have key roles to play in the implementation of evidence into practice. While there is still some conceptual clarity to be gained about how facilitators may differ from other change agent roles, it is suggested that fundamentally the facilitator role is one that supports practitioners to change their practice. This is likely to include the need to work with practitioners to particularize and translate different types of evidence into practice, as well as to assist individuals and teams to transform the practice environment so that the implementation context is conducive to change.

Methods

The study was a cross-sectional survey using a semi-structured questionnaire. A descriptive design was adapted for the study since it enables description of possible behavior, attitude, values and characteristics at a point in time (Gathii et al., 2019).

The study was conducted in the NBU of Nakuru referral Hospital located in Nakuru Town, the administrative center of Nakuru County. Rift Valley Provincial Hospital is under the Ministry of Health (MOH) and it is the referral Hospital of Nakuru County. The hospital has a newborn unit with a bed capacity of 30 neonates and an average admission of about 150 neonates per month (Rift Valley Provincial Hospital records, 2016. unpublished).

The study population comprised of mothers of neonates admitted to the NBU. The sample size for the study was determined using the following formula

nf = n/1+n) N (Gathii et al., 2019)

Where: nf = The desired sample size (if the target population is greater than 10, 000).

n= The desired sample size (when the target population is greater than 10,000).

N= The estimate of the population size.

nf = 384

1+ (384/150)

= 108

Respondents were selected using census method whereby all parents with neonate admitted to the newborn unit were eligible for interview. To be recruited for the study the mother ought to have completed 72 hours post-delivery. It was anticipated that by the third postnatal day the mother would have sufficiently recovered from delivery-related fatigue to voluntarily consent to the study (Kennel & McGrath, 2005). Mothers who had delivered in the hospital and the neonate hospitalized for at least 72 hours were included in the study. Mothers with terminally ill neonates were excluded from the study.

Data were collected using a researcher-administered questionnaire. The questionnaire was adopted for use. The tool has been used widely in various studies and it was reviewed by my supervisors for content and found to be acceptable for use in the study. The tool was formulated to check the various domains of parental involvement. The questionnaire had10-point Likert scale questions and open-ended questions that measured either positive or negative response to statements which respondents were expected to respond to. The researcher approached mothers individually on discharge from the NBU and obtained consent before proceeding to administer the questionnaire. Once the questionnaires were completed, the researcher scrutinized them for completeness before safely keeping them in a lockable cabinet.

Data were scrutinized for completeness and accuracy of information at the end of every field day. Questionnaires were then coded and entered into Epidata 3.1 database to control for data entry errors. It was later exported to Statistical Package for Social Sciences (SPSS) version 20.0 for analysis. SPSS computer program has a function of data editing which is run to check for completeness and consistency. For missing values due to omissions, the corresponding questionnaire was traced for scrutiny and the values entered where appropriate. For missing data due to non-response, pair wise deletion was carried out during descriptive analysis and imputation done during logistic analysis.

Data were summarized using descriptive statistics. Mean, standard deviation (SD) and range were computed for continuous variables while frequencies were used for categorical variables. Chi-square test was used to check for significant relationship between categorical variables such as health care support, verbal information received, parental preference and parental presence during painful procedures. Independent samples t-test was used to compare means for continuous variables (e.g., age of mother, like years of training). Multiple binary logistic regression was done to identify significant predictors of parental involvement in neonatal pain treatment and controlling for confounders. For all statistical tests, a p-value $< .05$ was considered to be statistically significant.

Stratford Peer Reviewed Journals and Book Publishing
Journal of Medicine, Nursing & Public Health
Volume 4||Issue 1||Page 73-86||May||2021|
Email: info@stratfordjournals.org ISSN: 2706-6606

Results

Demographic Characteristics

A total of 102 mothers completed the questionnaire. The mean age of respondents was 24.4 years (SD = 6.0, range 15-27). Duration of hospitalization ranged from 3-24 days (mean = 8, SD = 5.0). None of the parents had had a neonatal experience before.

More than half of the mothers (59%, n = 60/102) had secondary education, 22.5% had primary education while the rest (18%, n = 19/102) had primary education.

Maternal Views on Neonatal Pain

Majority of mothers who were interviewed (95.1%, n = 97/102) reported that their neonates felt pain while hospitalized in the neonatal unit.

Level of Pain Expected

Mothers rated their infant pain as severe, moderate or least on a scale of 1-10. Two fifths of the mothers (40.2%, n = 41/102) felt that their neonates experienced the worst pain while the majority (84.3%, n = 86/102) felt their neonates experienced the least pain. Nearly all mothers (95%, n = 97/102) did not expect their neonates to experience any pain during the hospitalization period while 95 (93%) expected their neonates to get some form of pain relief during procedures. All mothers believed that their neonates experienced pain while nearly one half (48%) were concerned about their neonates developing complications from procedural pain.

Maternal Confidence on Staffs on Neonatal Pain

Half of the mothers 52 (51%) strongly agreed that they were confident in staff to tell when the baby is in pain while only 3 (3%) disagreed. The mean scale score was 1.64 (SD = 2.0) which is equivalent to agree as per the order of the responses with regard to staff confidence (Figure 1).

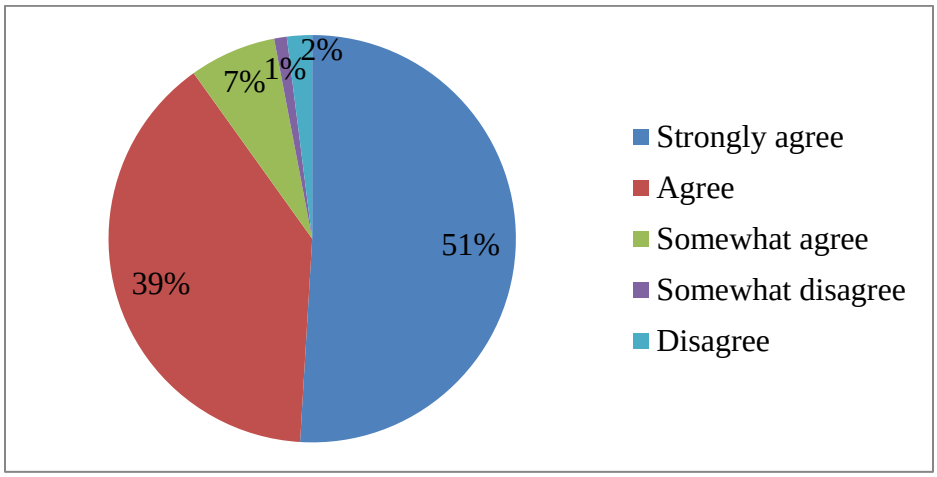

Figure 1 Maternal confidence in staff to tell when neonate was in pain

Pain Medication to the Neonate

Slightly more than half (55.9%, n = 57/102) of mothers reported that their neonates received pain medication. Nearly half (46.1%) of the mothers reported to have received other medication to calm the neonate (Figure 2)

Stratford Peer Reviewed Journals and Book Publishing
Journal of Medicine, Nursing & Public Health
Volume 4||Issue 1||Page 73-86||May||2021|
Email: info@stratfordjournals.org ISSN: 2706-6606

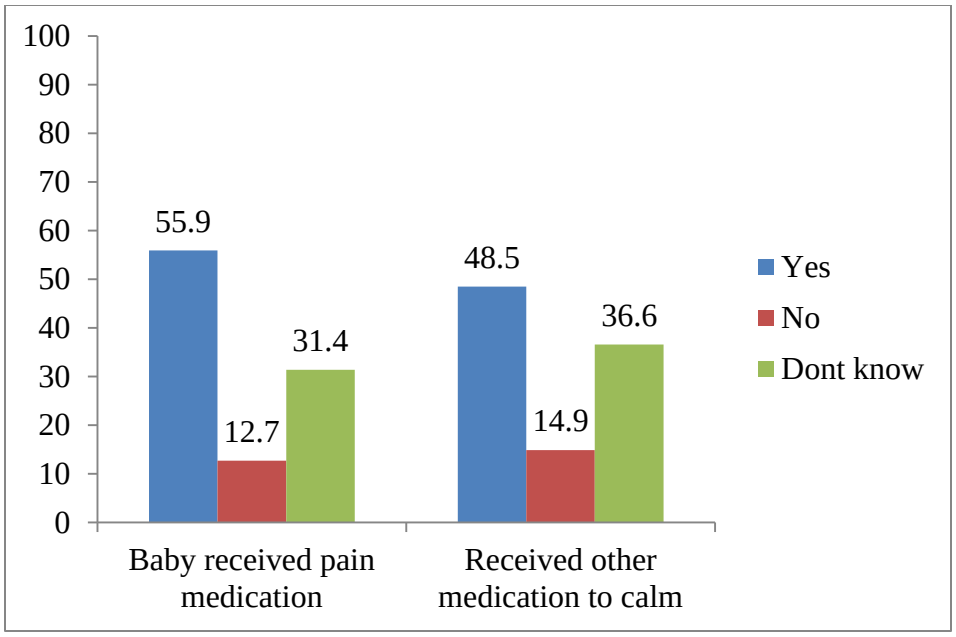

Figure 2 Maternal views on 'Pain medication'

Reduction of Pain Due to Medication

One third (32%, n = 32/102) of mothers reported much reduction in pain with pain medication while 26% felt that the pain went away with the pain treatment given (Figure 3).

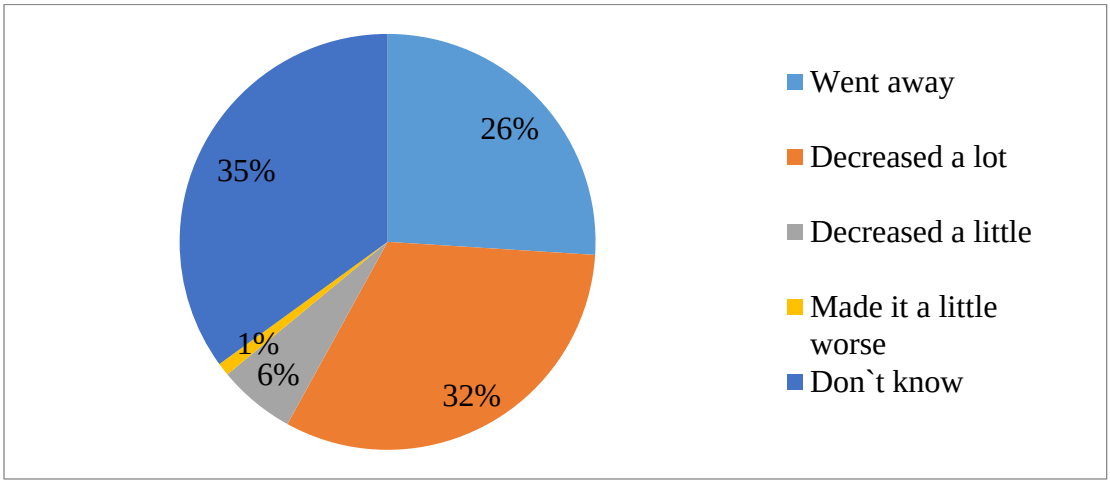

Figure 3 Reduction of pain using pain medications

Satisfaction with Pain Treatment

Nine mothers did not respond to the question on satisfaction with pain treatment. Nearly four fifths of those who responded (78.5%, n = 73/93) were very satisfied or satisfied with the pain medication while 14% were unsatisfied (Figure 4).

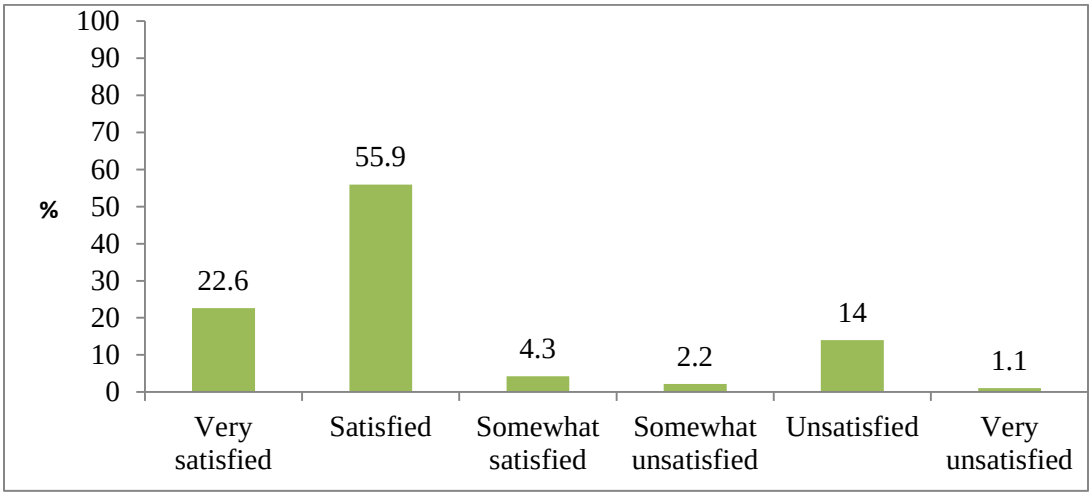

Figure 4 Satisfaction with pain medication

Maternal Concerns on Effects of Pain on the Neonates

Two fifths of mothers (n = 40/102) were concerned that that the pain medication would make the neonate very sleepy while 18.6% were afraid that the neonate would become addicted to pain medication (Table 1).

Table 1 Effects of pain medication on neonates

Medication effect	Frequency (%)
Become addicted	19(18.6)
Stop breathing	14(13.7)
Be very sleepy	40(39.2)
Didn't get enough	4(3.9)
Not worried	41(40.2)

Provision of Verbal and Written Information

Half (53%, n = 54/102) of the mothers who were interviewed received verbal information on pain treatment, 34.3% received some information while (13.7%) received little information on pain care. However, (47.1%, n = 48/102) of mothers reported not to have received any verbal information about pain relief. All mothers did not receive any written information about pain control. Of the 54 mothers who received verbal information about pain control, the majority received the information occasionally (52%) and on admission (43%) (Figure 5)

Stratford Peer Reviewed Journals and Book Publishing
Journal of Medicine, Nursing & Public Health
Volume 4||Issue 1||Page 73-86||May||2021|
Email: info@stratfordjournals.org ISSN: 2706-6606

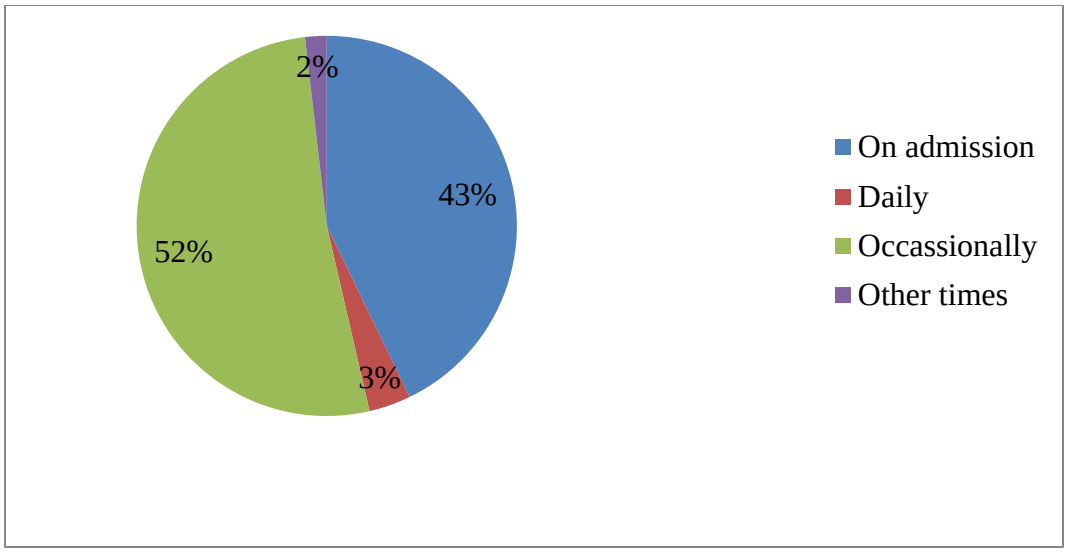

Figure 5 **Frequency of verbal information**

Provision of Verbal Information

Nurses (27.4%, n = 47/171) provided most information about pain relief to mothers. They were followed by doctors (16%, n = 27/171) and other mothers (12.3%, n = 21/171) this was a multiple-response question and thus the total responses were more than the number of respondents (Figure 6).

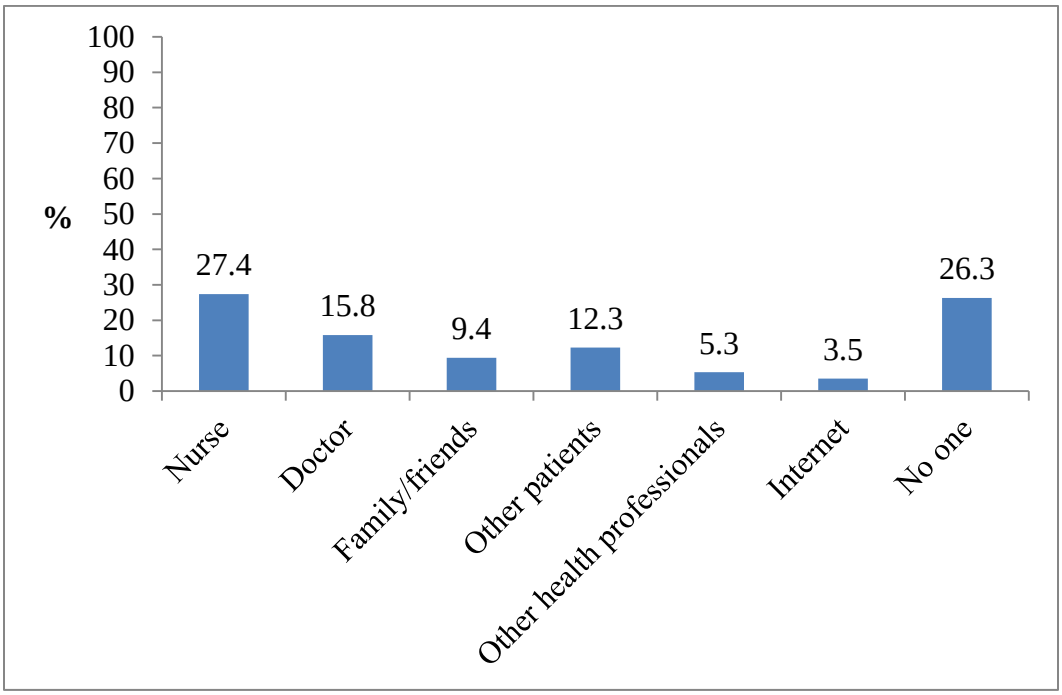

Figure 6 Source of information on pain control

Maternal Satisfaction with Information on Pain Control

Forty-two (42.2%) of the mothers were unsatisfied with the information received on pain control (29.4%, n = 30/102) were satisfied and only 13.7% were very satisfied with the information received.

Majority of mothers (88.2%, n = 90/102) agreed that HCPs were supportive about their concerns on their neonates' pain, 11(10.8%) somewhat agreed while only 1(1%) disagreed that the HCPs were supportive with their concerns about their baby's pain

Discussion

Maternal Views about Neonatal Pain and Pain Treatment

Majority of mothers (95.1%, n = 97) felt that their neonates experienced pain while admitted in the newborn unit. This finding is consistent with findings by (Zubaidah & Naviati, 2018) in the UK where 85% of the parents believed that their hospitalized neonates experienced pain. Two fifths of the mothers described the pain their neonates experienced as a lot. This is a significantly less proportion of mothers compared with what was reported by (Leandro et al., 2020) in the UK where 90% of the mothers felt their neonates had experienced a lot of pain during the hospitalization period. The difference could probably be explained by the differences in cultures between Kenya and UK. In high-income countries, any slight pain is expressed with much feeling unlike in the African culture where pain expression is viewed as a trait of being weak (Allegaert et al., 2016).

A significant number of mothers (48%, n = 49) were concerned that pain experienced by their neonates during hospitalization was likely to cause immediate medical complications. This number is comparable to the 51% reported by Franck and colleagues (2004) in the UK. The similarity is due to the fact that pain is universal and mothers globally have concerns about pain in their neonates.

Half of the mothers (52.9%, n = 54) reported to have received verbal information about pain treatment which is similar to what was reported by (Mariyam et al., 2019) in the UK where 58% of the parents received verbal information. Information about pain treatment is shared with mothers while in the NBU but the information shared is never comprehensive. We found that (43.1%, n = 44) of the mothers were satisfied with the information received, with the nursing staff providing information in most instances (27%, n = 47/171). This finding is consistent with Franck and associates' (2004) finding in the UK where 41% of the parents reported of receiving information from nurses. The fact that nurses are always with patients may explain their dominance as sources of information about pain.

Half of the mothers (55.9%) felt that their neonates had received pain medication and nearly three quarters were satisfied with the pain medication given. These results however contradicts a study by (Allegaert et al., 2016) in the unit that found that procedural pain was not treated and, thus it would be logical to assume that the finding is as a result of a social desirability bias. Nonetheless, our results contrasts also with (Anand et al., 2017) findings in the UK where only16% (n = 43/257) of the parents were dissatisfied with the pain treatment. (Açikgöz et al., 2017) also found that 82% of parents were satisfied with pain treatment practices. The higher satisfaction with pain treatment in the UK could be due to availability of information about pain treatment among mothers. In our study, a substantial number of mothers were worried about pain medication with (18.6%) fearing that their neonates would become addicted to the medication. A

similar concern among parents had been reported by (Allegaert et al., 2016) where 23% of parents were afraid that their neonates would be addicted to the medication.

Conclusion

Maternal involvement through their views in neonatal pain treatment is very crucial to neonates. From this study most mothers believe that their neonates experience pain varying from mild to severe pain while admitted in the NBU. Information about pain and pain care is important and this was provided verbally mainly by the nurses. Pharmacological and non-Pharmacological methods of pain management were utilized in this study. Majority of mothers have expressed their wish to be totally involved during painful procedures during the hospitalization period.

Recommendations

In order to manage this pain appropriately there is need to improve the clinical practice by creating more awareness HCPs on the importance of involving mothers in planning and managing procedural pain in neonates.

The use Non pharmacological methods of pain management should be encouraged and utilized in the resource limited set ups especially in neonatal units.

Written information in form of charts should be availed at the unit to create more awareness to the mothers on issues concerning pain in neonates.

References

Abusaad, F. E. S., Aziz, R. A. El, Aziz, E. S. A. El, & Nasef, N. A. E. (2017). The Effectiveness of Developmentally Supportive Positioning on Preterm Infants' Pain Response at Neonatal Intensive Care Units. *American Journal of Nursing Science*, *6*(1), 63–71.

Açikgöz, A., Çiğdem, Z., Yildiz, S., Demirüstü, C., Yarar, M., & Akşit, A. (2017). A Turkish Adaptation of the Neonatal Pain/Agitation, Sedation Scale (N-PASS) and Its Validity and Reliability. *Indian Journal of Fundamental and Applied Life Sciences*, *7*(2), 5–11.

Allegaert, K., Anker, J. N. Van Den, Allegaert, K., & Anker, J. N. Van Den. (2016). Neonatal Pain Management: Still in Search for the Holy Grail. *International Journal of Clinical Pharmacology and Therapeutics*, *54*(7), 514–523.

Anand, K. J. S., Eriksson, M., Boyle, E. M., Avila-Alvarez, A., Andersen, R. D., Sarafidis, K., Polkki, T., Matos, C., Lago, P., Papadouri, T., Attard-Montalto, S., Ilmoja, M. L., Simons, S., Tameliene, R., van Overmeire, B., Berger, A., Dobrzanska, A., Schroth, M., Bergqvist, L., … Carbajal, R. (2017). Assessment Of Continuous Pain In Newborns Admitted To Nicus In 18 European Countries. *Acta Paediatrica, International Journal of Paediatrics*, *106*(8), 1248–1259.

Aziz, D. E. A. E.-, Aziz, M. A. A. El, Adly, R. M., & Sallab, S. M. E. (2018). Improving Nurses ' Performance Towards Non- Pharmacological Pain Management Among Neonates In Neonatal Intensive Care Unit. *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, *7*(4), 82–97.

Feital, K., Herdy, V., Pereira, L. J., Pereira, D., Teresa, M., Rosa, D. S., & De, R. R. B. (2016). Clinical Management Of Pain In The Newborn : Perception Of Nurses From The Neonatal Intensive Care Unit. *Journal of Research Fundamental Care Online*, *2*(3), 47–54.

Gathii, K. J., Wamukuru, D. K., Karanja, D., Muriithi, W., & Maina, K. (2019). *Research Methods, Data Analysis & Defences (Building Competences in Education and Social Sciences Research)* (1st ed.). Education and Social Sciences Research Association of Kenya (ESSRAK).

Hertel, V. L., Colósimo, L. A. M., & da Silva, P. R. (2019). Perceptions Of Nursing Professionals Front The Pain Of Newborns In A Neonatal Intensive Therapy Unit. *Acta Scientiarum - Health Sciences*, *41*(1), 1–6.

Jamshidi, F., Almasi, S., Hesami, Z., Ghanbari, M., & Mehmannavazan, M. (2018). A Systematic Review of A Type of Therapeutic Methods For Reducing Pain And Progress in Childbirth in Iran. *Egyptian Academic Journal of Biological Sciences, E. Medical Entomology & Parasitology*, *10*(1), 37–61.

Kim, E., & Choi, M. (2017a). *Factors Affecting Nursing Interventions for Pain among Nurses in Neonatal Intensive Care Unit*. *23*(2), 179–189.

Kim, E., & Choi, M. (2017b). Factors Affecting Nursing Interventions for Pain among Nurses in Neonatal Intensive Care Unit. *CHNR*, *23*(2), 179–189.

Leandro, I., Neves, S., Arakaki, M., Miranda, R., Silva, R., & Tosta, R. (2020). *Neonatal Pain : Characterization Of The Physiotherapist ' S Perception In The Neonatal Intensive Care Unit*. *2*(3), 1–6.

Li, F., & Duan, J. (2018). A Comparative Analysis On The Effectiveness Of Ropivacaine And Bupivacaine In Combined Spinal And Epidural Analgesia For Labor Pain And Their Impact On Maternal And Neonatal Outcomes. *International Journal of Clinical and Experimental Medicine*, *11*(4), 4048–4055.

LoBiondo-Wood, G., & Haber, J. (2014). *Nursing Research: Methods and Critical Appraisal for Evidence-Based Practice* (8th Editio). Elsevier.

Lotto, C. R., & Linhares, M. B. M. (2018). Skin-to-skin" contact in pain prevention in preterm infants: Systematic review of literature. *Trends in Psychology*, *26*(4), 1715–1729.

Mariyam, M., Hidayati, I. N., & Alfiyanti, D. (2019). Knowledge and Attitudes of Nurses About Pain Management in Neonates in the Perinatology Room and PICU / NICU. *Media Keperawatan Indonesia*, *2*(2), 19–24.

Nwanodi, O. B. (2016). Labor Pain Treated with Acupuncture or Acupressure. *Chinese Medicine*, *7(4)*, 133–152.

Rahman, A., & Al-Mosawi, K. M. (2017). Effectiveness of An Educational Program upon Nurse's Knowledge concerning Facilitated Tucking Position during Venipuncture at Neonatal Intensive Care Unit at AL-Battol Teaching Hospital in Diyala Governorate. *International Journal of Scientific and Research Publications*, *7*(10), 412–424.

Sujatha, S., Samson, R., & Amalraj, C. (2017). *Sucrose and Facilitated Tucking for Pain Among Neonates Receiving Vaccination , in Puducherry*. *9*(3), 260–263.

Zubaidah, Z., & Naviati, E. (2018). Relationship Knowledge and Attitude of Nurses with Pain Management Practices in Neonates. *Jurnal Ilmu Keperawatan Anak*, *1*(2), 8-15.