Hot Topic

Midwives' experiences of assessing and managing neonatal pain

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ORIGINAL

Abstract

Background: The assessment and management of pain in neonates cared for in a neonatal intensive care unit (NICU) are crucial aspects of care provided daily to safeguard their wellbeing. However, there is a dearth of research exploring midwives' experiences of the management of neonatal pain.

Aim: To explore midwives' experiences of assessing and managing neonatal pain.

Methods: The study adopted a qualitative research approach. Data were collected via a face-to-face, semi-structured interview using an interview schedule self-designed by the researchers. Seven midwives with a minimum of two years' working experience at the sole NICU in Malta were included. The data were transcribed verbatim and thematic analysis was carried out.

Findings: Midwives assess neonatal pain by using behavioural and physiological indicators. However, neonates' inability to self-report pain, time and work constraints, and the lack of use of established neonatal pain assessment tools, hinder midwives from carrying out a thorough pain assessment. While participants reported using both non-pharmacological and pharmacological pain management strategies, barriers are also encountered. These barriers include parents' fears, the recent COVID-19 restrictions, neonates requiring critical care and the midwives' desensitisation to pain.

Conclusion: Neonatal pain assessment and management by midwives requires improvement. Recommendations include the implementation of educational and practice interventions, together with the introduction of pain assessment guidelines.

Keywords: midwives, assessment, management, neonatal pain, neonatal intensive care unit (NICU)

Introduction

According to the International Association for the Study of Pain (IASP) the revised definition of pain is '*an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage*' (IASP 2018:online). Pain is a subjective feeling that can be experienced by anyone: this study focuses on pain experienced by neonates, as described from the midwives' perspectives when assessing and managing neonatal pain on an NICU.

Pain in neonates has many short- and long-term detrimental effects and may also lead to a disrupted perception of pain during subsequent years (Pölkki et al 2018). Neonatal pain often goes unnoticed (Pölkki et al 2018) and, as a result, undertreated due to the challenges in assessment (Boyle et al 2018). This is concerning as neonatal pain assessment is crucial to provide the appropriate management (Boyle et al 2018).

Pain assessment and management are key to reducing neonatal pain and studies have been conducted to investigate the different strategies implemented by health care professionals (Boyle et al 2018, Pölkki et al 2018). However, most studies focus on neonatal staff practices; research exploring midwives' experiences with neonatal pain is lacking. In Malta, midwives are among the professionals who provide neonatal care on the NICU it is, therefore, essential to explore midwifery understandings and proficiencies. The aim of this study was to explore midwives' experiences of assessing and managing neonatal pain when working on the NICU.

Methods

A qualitative research design was adopted to obtain an in-depth understanding of midwives' experiences of assessing and managing neonatal pain. The study was undertaken at the NICU in Malta in December 2020 using purposive sampling.

Participants were recruited until no new findings were emerging, which ultimately resulted in seven participants being interviewed in this study. The inclusion criteria comprised of midwives of any age who had a minimum of two years' working experience at the NICU.

All eligible midwives were provided with a study information leaflet and requested to express an interest in participation. Participating midwives underwent a single, face-to-face interview which lasted around 30 to 45 minutes and was carried out in the English language. Each interview was audio-recorded with the participants' permission.

A semi-structured interview proforma using broad questions was designed by the researchers using relevant literature. This structure allowed study participants to narrate their experiences and probes were also used to obtain a more detailed understanding of their descriptions. Prior to commencing each interview study participants signed a consent form and, to maintain confidentiality, midwives' names were replaced by a number. Permission for data collection from the identified research setting of the hospital were granted by all the relevant personnel. Ethical approval was granted by the Faculty of Health Sciences Research Ethics Committee of the University of Malta.

Data analysis

The audio-recorded interviews were transcribed verbatim prior to initiating data analysis. Thematic analysis was undertaken using a six-phase process (Braun & Clarke 2006) with themes and sub-themes identified.

Results

Seven midwives were recruited with ages between 25 and 45 years. Their working experience at the NICU ranged from two to 20 years, with a mean of seven years. The themes and sub-themes identified are shown in Table 1.

Theme 1: Neonatal pain assessment

This theme represents participants' practices to assess neonatal pain. Findings revealed that midwives mainly focus on two aspects: physical and physiological indicators.

Sub-theme 1.1: Evaluating physical indicators

All seven midwives reported the neonate's cry as the first and clearest indication of pain, often described as a *'distinctive'* cry. Midwives reported first ruling out the neonate's basic needs upon crying, by changing the nappy and/or feeding the neonate:

'… it's usually a shrill cry when they're in pain' (Midwife 5).

Midwives commented that a neonate might show signs of pain on handling that can provide an indication of where the baby is experiencing pain. Additionally, a participant said that, although she attempts to assess physical indicators on intubated neonates, it is difficult because of sedation:

'… you assess if the baby is comfortable or if he's fighting the vent … but it's challenging since he would be sedated' (Midwife 4).

Sub-theme 1.2: Observing physiological indicators

Vital signs were reported to be important factors when assessing neonatal pain, with heart rate and respiration rate being the most observed parameters:

'… you notice that the heart and respiratory rate goes up when they're in pain …' (Midwife 1).

Moreover, most of the study participants relied on parameters displaying the physiological responses to pain as they felt that these are elicited immediately and it allows them to act straight away. This is especially so in cases of post-operative and sedated neonates since they are not able to display many physical responses to pain:

'… we focus more on the parameters, especially if they're post-op' (Midwife 4).

Table 1. Themes and sub-themes identified.

Theme	Sub-themes
1. Neonatal pain assessment	1.1 Evaluating physical indicators 1.2 Observing physiological indicators
2. Challenges of assessing neonatal pain	2.1 Unknown cause of pain 2.2 Limited by workload 2.3 Reliance on clinical judgement rather than tools
3. Care practices	3.1 Non-pharmacological practices 3.2 Pharmacological practices
4. Limitations of care implementation	4.1 Lack of parents' involvement 4.2 Intensive care 4.3 Desensitisation over time

Theme 2: Challenges of assessing neonatal pain

The second theme focuses on the challenges midwives face when assessing neonatal pain at the NICU.

Sub-theme 2.1: Unknown cause of pain

The most challenging aspect of assessing neonatal pain was the fact that neonates are preverbal and therefore cannot explain their pain:

'… since the baby can't tell you why he's upset or he's in pain, it's very difficult to assess' (Midwife 2).

Sub-theme 2.2: Limited by workload

Midwives' workload and time constraints were reported to cause additional difficulties in carrying out pain assessments. Some argued that low staffing levels did not allow them enough time to adequately assess pain, since they would typically be caring for more than one neonate:

'When we're limited with staff the work increases so you would have less time …' (Midwife 5).

Sub-theme 2.3: Reliance on clinical judgement rather than tools

Most participants stated that they were unaware of established neonatal pain assessment tools and that the NICU does not use those that are available. Midwives recognised that, without the use of such tools, their assessment is subjective. It was also reported that this might cause confusion, especially when handing over the care of the neonate to different staff.

Participants stated that having a guide to follow when assessing a neonate might help prevent this and allow more objective pain assessments to be carried out. Additionally, most reported that this would positively impact the management they would subsequently provide:

'… you find discrepancies in how people judge … I think with the tool this would not be the case' (Midwife 7).

Theme 3: Care practices

This theme identified the different practices of midwives managing neonatal pain at the NICU.

Sub-theme 3.1: Non-pharmacological practices

Swaddling was the most reported non-pharmacological method to help ease the neonate's pain. Some midwives also mentioned the use of non-nutritive sucking. Additionally, participants claimed that they encouraged parents' involvement in the management of their neonate as they believed that this leads to more positive pain-relieving results:

'… we try to give them [parents] *the baby to hold and to do skin-to-skin …'* (Midwife 7).

Sub-theme 3.2: Pharmacological practices

The use of medications was particularly reported when midwives recalled pain management in post-operative or sedated neonates. Moreover, it was recurrently reported that participants often resort to pharmacological pain management as it provides an immediate pain-relieving effect for the neonate:

'Medication is more effective than non-pharmacological methods … you can see an immediate effect …' (Midwife 4).

Additionally, participants claimed that no standard pain management strategies are implemented on their unit and pain is currently assessed in a subjective manner which ultimately results in different care provided by each midwife:

'… we all manage pain differently, depending on the baby's case …' (Midwife 1).

Theme 4: Limitations of care implementation

The final theme reports the barriers midwives encounter which prevent them from carrying out appropriate pain management.

Sub-theme 4.1: Lack of parents' involvement

Midwives reported that fear holds parents back from holding their baby and performing skin-to-skin, as they see their infant as being vulnerable, and they felt this denied the neonates effective pain management. Additionally, all the participants reported that the recently implemented COVID-19 measures at the NICU resulted in extremely limited visiting hours for parents. Consequently, the midwives felt that they were restricted in involving parents in their infant's pain management.

'… it's very difficult … because visiting hours, they're reduced now. They're [parents] *only coming here for about two hours …'* (Midwife 3).

Sub-theme 4.2: Intensive care

A common limitation in non-pharmacological pain management is that many neonates admitted to the NICU require intensive care, usually have multiple intravenous lines, wires monitoring vital signs, and may even be intubated. Midwives feel that these greatly hinder them from implementing non-pharmacological pain-relieving methods:

'It's quite difficult … with all the lines and ETT to hold him or swaddle him' (Midwife 3).

Sub-theme 4.3: Desensitisation over time

Some participants claimed that, since they witness and perform painful procedures daily, they have become desensitised, which might imply that their perception of neonatal pain because of such procedures is lessened. In fact, they went on to say that they often

carry out procedures without implementing any pain-relieving measures:

'… we obviously do know that certain procedures cause pain … but we just have to do it' (Midwife 6).

Discussion

All seven midwives in this study reported the neonate's cry as an essential indicator of pain, which is similar to the findings of Boyle et al (2018). In addition, as also reported by Boyle et al (2018), the study participants reported signs of neonate irritability and discomfort upon handling as suggestive of neonatal pain.

Results from this study show that the assessment of a neonate's facial expression was a missing factor. This supports findings from the study by Pölkki et al (2018) which found that nurses who worked in NICUs and used established protocols on neonatal pain assessment and management also observed facial expressions as an additional factor.

Midwives in this study revealed that vital signs are used as markers for neonatal physiological responses to pain, as also found by Pölkki et al (2018). Additionally, most participants considered physiological indicators to be the most reliable pain indicator as they believed such responses occur immediately and enable care to be delivered promptly. Interestingly, this finding has not been reported in any other published study; this novel finding could be the result of the in-depth interview.

A daily challenge midwives faced was an inability to understand the exact cause of the neonate's pain, since neonates are unable to self-report, which supports findings from other studies (Boyle et al 2018, Pölkki et al 2018).

Time constraints and workload were two major issues that interfered with a thorough pain assessment. This is comparable to the results obtained by Mehrnoush et al (2017). Interestingly, participants in Huang et al's (2018) study preferred to use the Neonatal Pain, Agitation and Sedation Scale (N-PASS) as it assesses pain in a short timeframe, reflecting the limited time neonatal staff have to carry out neonatal pain assessments due to their high workload.

Most of the participant midwives were unaware of established neonatal pain assessment tools, in contrast to findings by Pölkki et al (2018), which found nurses were aware of such tools. The midwives added that, since their NICU does not use any pain assessment tool, they felt that their pain assessment was insufficient.

Midwives fear that carrying out subjective assessments is a cause of confusion which can impede effective pain management, especially when handing over the neonates' care to another member of staff. This is similar to the findings of Boyle et al (2018). Midwives also expressed their wish for the implementation of pain assessment tools as they believed that carrying out more standardised pain assessment leads to consistent pain management (Pölkki et al 2018).

Results obtained from this study have shown that swaddling and non-nutritive sucking were commonly reported non-pharmacological pain management practices. These findings are comparable to Pölkki et al's findings (2018). Oral sucrose was also commonly administered to neonates in some studies (Courtois et al 2016, Pölkki et al 2018). However, its use was not reported by any of the midwives in this study.

Findings also showed that parents' involvement in their infant's pain management was highly encouraged. In fact, implementation of skin-to skin care as a pain management strategy has been previously suggested (Courtois et al 2016). Relevant literature also shows that breastfeeding can serve as good pain management (Fitri et al 2020). However, none of the midwives in this study claimed to encourage mothers to breastfeed their infants to alleviate pain. This may be due to a factor stated by Pölkki et al (2018), who found that breastfeeding was seldom encouraged due to the neonates' ill state of health. Due to parents' fears of the neonate's vulnerable state, midwives also recalled parents' lack of involvement in their infant's pain management.

Use of pharmacological pain management was mostly reported when midwives recalled cases of post-operative or sedated neonates. By contrast, Courtois et al (2016) found that, when carrying out a heel prick to obtain a blood sample, some neonatal staff used analgesia. This may imply that, locally, midwives resort to pharmacological analgesia only in cases of intensive procedures, making its use less common, and consequently reducing the potential ill effects of medications in neonates. However, participants in this study reported preferring to use pharmacological pain management as they claimed that it had more immediate and effective results. This finding contrasts with those obtained by Courtois et al (2016) and Pölkki et al (2018); both found that non-pharmacological pain management was more common.

Additionally, findings revealed the lack of pain management guidelines at the local NICU. Mehrnoush et al (2017) found that different approaches regarding pain management are adopted due to a lack of pain management protocols. This may lead to mismanagement of pain due to varying perceptions of pain by different midwives. Moreover, Pölkki et al (2018) found that NICUs with written guidelines had pain assessment and management carried out more frequently and thoroughly. Therefore, implementing such guidelines at the local NICU might prove to be beneficial.

Another finding which emerged was midwives' concern with the reduced visiting hours due to the COVID-19 pandemic. This is a unique finding obtained by this study since such restrictions have only been in place due to the situation when data were collected. Nonetheless, this further hinders parents from having the opportunity to participate in their infant's pain management.

Finally, this study showed that some midwives are no longer affected by the painful procedures they witness or carry out themselves. This finding in fact coincides with that obtained by Mehrnoush et al (2017), who expressed that desensitisation to pain negatively affects the pain management provided. This is of great concern as it may possibly lead to mismanagement of the neonates' pain.

Limitations

As this was a small-scale study using purposive sampling and a small sample size, it is possible that data saturation was not achieved. Additionally, the lack of anonymity and the presence of a researcher as the interviewer might have influenced participants' narratives, resulting in social desirability bias.

Conclusion

This study sought to explore midwives' experiences of assessing and managing neonatal pain on a NICU. The findings suggest this is influenced by a variety of factors. When assessing neonatal pain, participants reported both physical and physiological indicators which compared well with relevant studies. However, midwives also claimed to encounter some challenges, such as the neonates' inability to express pain together with time and work constraints. Additionally, findings revealed midwives' lack of awareness of neonatal pain assessment tools.

Non-pharmacological and pharmacological pain management strategies were reported as being implemented by the participants. However, midwives in the current study reported mostly relying on pharmacological pain relief. Findings also revealed the limitations which midwives encounter when managing neonatal pain. A finding which also emerged from this study highlighted the impact on pain management of limited visiting hours due to COVID-19 measures.

Recommendations

Given the participants' current pain assessment challenges, it is recommended that the use of established neonatal pain assessment tools is introduced in the NICU to perform more consistent and objective assessments and allow more effective continuity of care. Pain management guidelines are also recommended for use in the NICU to facilitate standardised pain management practices.

Since research exploring midwives' experiences of assessing and managing neonatal pain is generally lacking, it is recommended that more studies exploring this cohort's practices are conducted, together with further research exploring the views of other neonatal staff, such as neonatal nurses and paediatricians, so that neonatal pain is explored from a broad perspective.

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References

Boyle EM, Bradshaw J, Blake KI (2018). Persistent pain in neonates: challenges in assessment without the aid of a clinical tool. *Acta Paediatrica* 107(1):63-7.

Braun V, Clarke V (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology* 3(2):77-101.

Courtois E, Droutman S, Magny J, Merchaoui Z, Durrmeyer X, Roussel C, Biran V, Eleni S, Vottier G, Renolleau S, Desfrere L, Castela F, Boimond N, Mellah D, Bolot P, Coursol A, Brault D, Chappuy H, Cimerman P, Kanwaljeet A, Carbajal R (2016). Epidemiology and neonatal pain management of heelsticks in intensive care units: EPIPPAIN 2, a prospective observational study. *International Journal of Nursing Studies* 59:79-88.

Fitri SYR, Lusmilasari L, Juffrie M, Bellieni CV (2020). Modified sensory stimulation using breastmilk for reducing pain intensity in neonates in Indonesia: A randomized controlled trial. *Journal of Pediatric Nursing* 53:e199-e203. https://doi.org/10.1016/j.pedn.2020.04.004 [Accessed 23 September 2021].

Huang X, Li L, Zhou J, He F, Zhong C, Wang B (2018). Evaluation of three pain assessment scales used for ventilated neonates. *Journal of Clinical Nursing* 27(19-20):3522-9.

International Association for the Study of Pain (IASP) (2018). *IASP terminology*. https://www.iasp-pain.org/Education/Content.aspx?ItemNumber=1698 [Accessed 7 August 2020].

Mehrnoush N, Ashktorab T, Heidarzadeh M, Momenzadeh S, Khalafi J (2017). Factors influencing neonatal pain management from the perspectives of nurses and physicians in a neonatal intensive care unit: a qualitative study. *Iranian Journal of Pediatrics* 28(1):e10015. https://doi.org/10.5812/ijp.10015 [Accessed 23 September 2021].

Pölkki T, Korhonen A, Laukkala H (2018). Nurses' perceptions of pain assessment and management practices in neonates: a cross-sectional survey. *Scandinavian Journal of Caring Sciences* 32(2):725-33.

Scicluna L, Pace Parascandalo R. MIDIRS Midwifery Digest, vol 31, no 4, December 2021, pp 414-418.