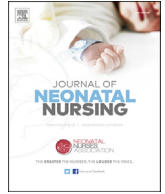




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Original Article

Neonatal nurses' self-reported practices, knowledge and attitudes toward premature infant pain assessment and management

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ABSTRACT

Aim: To identify neonatal nurses' self-reported practices, knowledge and attitudes toward premature infant pain assessment and management.**Method:** An exploratory cross sectional mixed methods survey.**Findings:** Of the 127 surveys distributed, 86 were returned (68% response rate). Those with postgraduate education had higher knowledge and reported more positive attitudes. Comfort measures and analgesia for painful procedures were reported as used more often in term infants. Analgesia was not used for endotracheal intubation. This was attributed to non-prescribing of analgesia by doctors.**Conclusion:** Nurses reported a positive attitude toward infant pain assessment and management but a low level of knowledge about premature infants' response to pain. The non-use of analgesia for painful procedures presents a formidable challenge to changing practice. Evidenced based strategies may overcome barriers.

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Introduction

Premature infants in Neonatal Intensive Care Units (NICU) are subjected to prolonged and repetitive exposure to painful stimuli, inducing adverse long-term physiological, behavioural and hormonal complications (Gitto et al., 2012; Lago et al., 2009, 2012; New South Wales Government, 2004; Pasek and Huber, 2012). A heightened perception to pain and continuous noxious stimuli results in the infant entering a withdrawn state over time, to conserve energy (Badr et al., 2010; Evans, 2001; Grunau et al., 2006). These changes potentially have detrimental developmental and psychological consequences lasting into adulthood (Gitto et al., 2012; Polkki et al., 2010; Stevens et al., 2008). Often healthcare professionals are unaware of the infants' response to pain and continue painful procedures with little knowledge of the long-term effects (Byers and Thornley, 2004).

Pain should be routinely monitored, assessed, documented and communicated to facilitate best practice pain management (Herr et al., 2006). Premature infants are unable to verbalise pain and

the neonatal nurse plays an advocacy role for patient comfort, quality and safety of care (Australian Commission on Safety and Quality in Health Care, 2014). Nurses' accurate pain assessment is the cornerstone for optimal pain management.

Complexities of pain assessment in NICU environments are further compounded by premature infants' inability to self-report pain (New South Wales Government, 2004; Stevens et al., 2010). Non-systematic documentation and varying opinions about pain assessment were reported in the Australian setting (Byers and Thornley, 2004; Polkki et al., 2010). This may be attributed to differences in nurses' knowledge, attitudes and interpretation of pain (Harrison et al., 2009). In a large Neonatal Unit in Western Australia, pain assessment practice guidelines were developed and implemented in 2013 (Government of Western Australia Department of Health, 2006). It was unknown whether neonatal nurses' practice was consistent with the policy. The purpose of this project was to identify nurses' self-reported practices, knowledge and attitudes toward premature infant pain assessment and management.

Method

A quality improvement project was undertaken using a self-

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report cross sectional mixed methods survey. Data were collected in July 2014.

Setting

The Neonatal Unit of a tertiary Woman and Newborn's Hospital in Western Australia consists of four nurseries designed for the care of sick and premature neonates. There are approximately, 6000 deliveries per year with 2290 premature births (Government of Western Australia Department of Health, 2006). The pain assessment policy utilised the Premature Infant Pain Profile (PIPP) for infants less than 33 weeks gestational age (GA) (Stevens et al., 1996) and the Pain Assessment Tool (PAT) (Spencer et al., 2005) for infants greater than 33 weeks.

Participants

The population of 182 nurses and midwives consisted of Registered Nurses (RNs), Enrolled Nurses (ENs), Registered Midwives (RM), Registered Nurses participating in a Graduate Certificate in Neonatal Nursing (RNNC). Note: a graduate certificate is recognised as a postgraduate qualification. The following group had all completed a postgraduate qualification: RNs with a postgraduate qualification (NNTs), Clinical Nurses (CNs), Clinical Educators (CE) and Clinical Nurse Consultants (CNCs). For the purposes of reporting, here nurses refer to all designations of nurses and midwives. Nurses were eligible to participate if they had been assessed as 'competent' in the admission of premature infants (<37 weeks GA). Competency was determined following an in-house program and assessment by the CE. Approximately 130 nurses met this criterion.

Survey development

The survey was adapted (with permission) from two published descriptive surveys by Akuma and Jordan (2012) and Polkki et al. (2010). There were 44 items arranged into five sections: participant characteristics, knowledge and attitudes towards premature infant pain, practices regarding analgesia and comfort measures used by nurses, practices of pain assessment, medications, clinical governance, and training. Four categories of GA were assessed; less than 27 weeks, 28 to 32 weeks, 33 to 36 weeks and 37 weeks to 28 days. Question types included open ended questions and fixed choice questions formatted as either Likert-type rating scales or categorical scales.

Survey testing was undertaken using Lynn's Method (1986) to determine clarity, content validity and apparent internal consistency. A panel of six experts reviewed the draft survey and an 83% level of agreement rate was achieved. Minor wording changes were made for clarity only.

Data analysis

Data were entered into the SPSS (IBM Corporation, 2013) for Windows, version 22. Descriptive statistics were used to summarise participant characteristics. The Likert-type scales were treated as ordinal data and reported as median and interquartile ranges. All negatively worded items were reverse coded. Demographic data and difference in nurses' attitudes and knowledge toward premature infants were analysed using the Mann-Whitney *U* test. A *p*-value of less than 0.05 was considered statistically significant. Open ended questions were analysed using content analysis to identify themes.

Ethical considerations

The project was registered as a hospital Quality Improvement Activity (registration number 6692) and approval was obtained from the University Human Research Ethics Committee (SONM29-2014). Participants were informed that completion of the survey was voluntary and anonymous. Consent was implied on return of completed surveys.

Results

Of 127 surveys distributed, 86 participants responded (68% response rate). All surveys were included; some had sections that were incomplete. Note: there are differing numbers of response for certain survey items. Participants' mean years of nursing experience was 15 years ($SD \pm 11.1$) with a mean of almost 10 years ($SD 7.3$) NICU experience. Approximately half of the participants (52.3%) had children of their own. Forty three (50%) participants held a postgraduate qualification with 26 (30.3%) qualifications reported as Neonatal Nursing and 17 (19.7%) other areas such as Midwifery and Paediatrics. The participant characteristics are shown in Table 1.

Nurses' attitudes and knowledge toward premature infant pain

In this section 11 of the 13 items measured nurses' knowledge about and attitudes toward premature infant pain (Table 2). A five point Likert-type scale was used (Strongly Agree = 4, Agree = 3, Neutral = 2, Disagree = 1, Strongly Disagree = 0). Table 2 shows that for five of the 13 items there was a significant difference in responses by nurses with a postgraduate qualification compared to nurses without. Those with a postgraduate qualification were also more aware of the premature infants' pain physiology and hypersensitivity to pain and the dangerous long term effects of pain. There were no differences between participants with children and those without.

Perceptions about premature infant pain

Six items were used to assess participants' perceptions about premature infant pain. Almost all (85, 99%) agreed neonates were able to experience pain. Participants were asked to rank, using a 10

Table 1
Participant characteristics.

	Participants (n = 86)	Percentage (%)
Gender		
Female	83	96.5
Male	3	3.5
Children		
Yes	45	52.3
No	41	47.7
Nursing Position		
Clinical Nurse Consultant (CNC)	1	1.2
Level Two Registered Nurse (CN)	13	15.1
Neonatal Trained Nurse (NNT)	17	19.8
Registered Nurse (RN)	43	50.0
Registered Midwife (RM)	2	2.3
Enrolled Nurse (EN)	5	5.8
Other	5	5.8
Registered Nurse Neonatal Course (RNNC)	3	
Clinical Educator (CE)	1	
Not Specified	1	
Missing	1	

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