



ELSEVIER

Contents lists available at ScienceDirect

## Midwifery

journal homepage: [www.elsevier.com/midw](http://www.elsevier.com/midw)

## Use of pharmacological and non-pharmacological labour pain management techniques and their relationship to maternal and infant birth outcomes: Examination of a nationally representative sample of 1835 pregnant women

Jon Adams, PhD (Professor of Public Health)<sup>a,\*</sup>, Jane Frawley, MSc (PhD Candidate)<sup>a</sup>, Amie Steel, PhD (Postdoctoral Research Fellow)<sup>a,b</sup>, Alex Broom, PhD (Associate Professor of Sociology)<sup>c</sup>, David Sibbritt, PhD (Professor of Epidemiology)<sup>d</sup>

<sup>a</sup> Faculty of Health, University of Technology Sydney, Level 7, Building 10, 235-253 Jones Street, Ultimo, NSW 2006, Australia

<sup>b</sup> Endeavour College of Natural Health, level 2, 269 Wickham St, Fortitude Valley, Brisbane, QLD 4006, Australia

<sup>c</sup> School of Social Science, Level 3, Michie Building, St Lucia Campus, University of Queensland, St Lucia, QLD 4072, Australia

<sup>d</sup> David Sibbritt Faculty of Health, UTS, Level 7, Building 10, 235-253 Jones Street, Ultimo, NSW 2006, Australia

## ARTICLE INFO

## Article history:

Received 26 May 2014

Received in revised form

1 December 2014

Accepted 31 December 2014

## Keywords:

Childbirth

Infant health

Labour pain

Pain management

Pregnancy outcome

## ABSTRACT

**Aim:** women use various labour pain management techniques during birth. The objective of this study is to investigate women's use of pharmacological and non-pharmacological labour pain management techniques in relation to birth outcomes.

**Methods:** a sub-survey of a nationally representative sample of pregnant women ( $n=1835$ ) from the Australian Longitudinal Study on Women's Health.

**Results:** our analysis identified women's use of water for labour pain management as decreasing the likelihood of their baby being admitted to special care nursery ( $OR=0.42$ ,  $p < 0.004$ ) whereas the use of epidural increased this likelihood ( $OR=3.38$ ,  $p < 0.001$ ) as well as for instrumental childbirth ( $OR=7.27$ ,  $p < 0.001$ ). Epidural and pethidine use decreased women's likelihood of continuing breast-feeding ( $ORs=0.68$  and  $0.59$ , respectively, both  $p < 0.01$ ) whereas the use of breathing techniques and massage for pain control increased the likelihood of women continuing breast-feeding ( $ORs=1.72$  and  $1.62$ , respectively, both  $p < 0.01$ ).

**Conclusions:** our study illustrates associations between the use of both pharmacological and non-pharmacological labour pain management techniques and selected birth outcomes while controlling for confounding variables. There remain significant gaps in the evidence base for the use of non-pharmacological labour pain control methods and our findings provide a platform with which to develop a broad clinical research programme around this topic.

© 2015 Elsevier Ltd. All rights reserved.

## Introduction

A range of maternal and infant birth outcomes – including vaginal tears, instrumental childbirth (forceps/ventouse suction), the admission of the baby to a special care nursery, breast-feeding initiation, and breast-feeding duration amongst others – remain significant issues in high-income countries such as Australia and the US.

Recent Australian data show 30.2% of birthing women experience a vaginal tear that required stitches (Li et al., 2011). Research has identified vaginal tearing may result in short-term and long-term

morbidity, such as pain, discomfort, and sexual dysfunction (Beckmann and Garrett, 2006; Rathfisch et al., 2010) with 15% of women still experiencing painful intercourse up to three years following initial tearing (Beckmann and Garrett, 2006). Meanwhile, 11.6% of birthing women in Australia have a forceps or vacuum extraction (Li et al., 2011). Forceps deliveries have been identified as associated with stress incontinence, overactive bladder, anal incontinence, and vaginal prolapse (Handa et al., 2012), as well as third degree and fourth degree perineal lacerations (O'Mahony et al., 2010; Hirayama et al., 2012). Another significant birth outcome is the admission of the baby to special care nursery to receive specialised medical care and treatment not available on the postnatal ward and which may be related to preterm birth including premature rupture of membranes (Carter et al., 2012). The admission to a special care nursery occurs with 14.2% of all babies born in Australia (Li et al., 2011). Ninety-two per cent of birthing

\* Corresponding author.

E-mail addresses: [Jon.adams@uts.edu.au](mailto:Jon.adams@uts.edu.au) (J. Adams), [jane.frawley@uts.edu.au](mailto:jane.frawley@uts.edu.au) (J. Frawley), [Amie.steel@uts.edu.au](mailto:Amie.steel@uts.edu.au) (A. Steel), [a.broom@uq.edu.au](mailto:a.broom@uq.edu.au) (A. Broom), [david.sibbritt@uts.edu.au](mailto:david.sibbritt@uts.edu.au) (D. Sibbritt).

women in Australia initiate breast-feeding of their newborn within the first four days following birth (Australian Institute of Family Studies (AIFS), 2008) and the percentage of babies fully breastfed decreases significantly over time with approximately 46% of babies remaining fully breastfed at four months of age (Australian Institute of Family Studies (AIFS), 2008). Increased duration of breast-feeding has been identified as holding a number of health benefits for mother, baby, and wider community (Oddy, 2001; Beral, 2002; Leon-Cava et al., 2002; Bouwstra et al., 2003; Gartner et al., 2005).

In Australia, childbirth predominantly takes place in a hospital (96.9%) and most commonly this is a public hospital (69.9% of birthing women) rather than a private hospital (30.1% of birthing women) (Li et al., 2011). The management of labour pain is most commonly achieved in high-income countries through the use of pharmacological pain management techniques (Li et al., 2011; National Health Service, 2012) which aim to relieve the pain of labour (Jones et al., 2012) and whose use appears to have increased in recent years (Laws and Sullivan, 2009; Li et al., 2011). In Australia, a substantial number (75%) of women utilise a range of pharmacological pain management techniques during labour, most commonly nitrous oxide (gas) (50.0%), epidural (29.7%), or systemic opioids (e.g. pethidine) (22.0%) (Li et al., 2011). A selection of non-pharmacological pain management techniques are also potentially available to women during childbirth which aim to help women cope with pain during labour (Jones et al., 2012) and include breathing techniques, the use of water (bath, water birth and/or shower), massage, acupuncture/acupressure, transcutaneous electrical nerve stimulation (TENS) machine, and hypnotherapy. Unfortunately, there is a lack of empirical data examining the prevalence of these techniques for pain management.

While identifying quality evidence to support the efficacy of selected pharmacological pain management techniques, a recent Cochrane review also highlights the association of some pharmacological labour pain control methods with a number of adverse effects (Jones et al., 2012). For example, research has identified concerns about the ability for infants to suckle in the first two hours after birth following the mother's use of pethidine (Nissen et al., 1995; Ransjo-Arvidsson et al., 2001) and some pilot research suggests pethidine use may negatively affect breast-feeding duration (Riordan et al., 2000). Previous investigation has also identified an association between a range of adverse outcomes relating to breast feeding – including a reduction in the effectiveness of breast-feeding within the initial week postpartum, increased incidence of partial or supplemented breast-feeding and an increased likelihood of the mother ceasing breast-feeding earlier – and intrapartum epidural use for labour pain management (Henderson et al., 2003; Torvaldsen et al., 2006; Wiklund et al., 2009). In contrast, although most non-pharmacological pain management options are non-invasive and may appear safe for mother and baby their efficacy remains unclear due to a lack of high quality evidence (Jones et al., 2012).

Given the extensive range of labour pain control methods potentially available to women and the many gaps in our current understanding around the implications of their use, this paper draws on a nationally representative sample of women to provide an examination of the relationship between the use of a range of both pharmacological and non-pharmacological pain management techniques and maternal and infant birth outcomes.

## Methods

### Sample

The study sample was drawn from the Australian Longitudinal Study on Women's Health (ALSWH). ALSWH is a longitudinal population-based survey examining the health of over 40,000

Australian women. Women in three age groups ('young' 18–23, 'mid-age' 45–50 and 'older' 70–75 years) were randomly selected from the national Medicare database, to explore a variety of factors affecting health and wellbeing of women over a 20-year period. Respondents have been shown to be broadly representative of the national population of women in the target age groups (Brown et al., 1999). The present study is based on a sub-sample of the 'young' cohort, who were aged 31–36 years in 2009 ( $n=8012$ ). For the sub-sample 2445 women who completed the 2009 ALSWH survey (Survey 5) and who identified they were pregnant or had recently given birth were invited to participate in an additional survey administered in 2010. Ethics approval for the sub-study reported here was gained from the relevant ethics committees at the University of Newcastle (#H-2010\_0031), University of Queensland (#2010000411) and the University of Technology Sydney (#2011-174N).

### Demographics

A number of demographics were examined including age, marital status, number of children, highest educational qualification attained, income management, area of residence, and health insurance cover.

### Medical history

The women were asked to provide details of diagnosed health conditions in the previous three years (e.g. heart disease, bronchitis, depression) and health symptoms (e.g. indigestion, back pain, premenstrual tension) in the previous 12 months. Women were also asked about any pregnancy-related health conditions (e.g. pre-eclampsia, anaemia, tiredness) for their most recent pregnancy. The location of the birth was also recorded (i.e. public hospital, private hospital, birthing centre, home, other).

### Pain management techniques

The women were asked to indicate if they used any treatment to relieve pain during labour and/or birth. The list of treatments included both pharmacological (i.e. gas, pethidine and epidural) and non-pharmacological (i.e. breathing techniques, massage, hypnotherapy, TENS machine, bath/birthing pool/shower, acupressure/acupuncture) techniques.

### Birth outcomes

Women were asked if they had experienced a range of maternal birth outcomes (vaginal tear requiring stitches, use of forceps/ventouse suction, premature birth, caesarean section before going into labour, caesarean section after labour started, induction of labour, labour lasting more than 36 hours, episiotomy [cutting of vagina], medical removal of placenta, and excessive blood loss requiring extra blood or fluid by drip) and infant birth outcomes (baby admitted to special care nursery, low birth weight baby, initiation of breast-feeding, and continuation of breast-feeding beyond six weeks).

### Statistical analysis

$\chi^2$  analyses were used to examine the association between two categorical variables. Bivariate analyses were conducted between each outcome and all of the pain management, demographic and medical history variables. Logistic regression models were used to determine the association between pain management techniques and birth outcomes. Any variables with a bivariate  $p > 0.25$  were entered into the respective multivariate logistic regression models,

Download English Version:

<https://daneshyari.com/en/article/10515683>

Download Persian Version:

<https://daneshyari.com/article/10515683>

[Daneshyari.com](https://daneshyari.com)