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# Venous thromboembolism risk and postpartum lying-in: Acculturation of Indian and Chinese women

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#### ABSTRACT

*Objective:* many cultures have a set time of traditional rest in the postpartum period. There is limited information on how this activity may potentially increase the risk of venous thromboembolism (VTE). We aimed to investigate VTE risk by determining the prevalence of the cultural practice of postpartum "lying-in", quantifying activity and determining the factors that influence this tradition in women from China and the Indian subcontinent (India, Bangladesh, Pakistan and Sri Lanka) at an Australian tertiary referral hospital. *Design:* we surveyed a prospective cohort of 150 women aged  $\geq$  18 years who self-identified culturally as from the Indian subcontinent or Chinese, at baseline ( $\geq$  32 weeks gestation) and at follow-up (six to eight weeks postpartum). Demographic details collected included VTE risk factors such as caesarean section, lack of graduated compression stockings (GCS), postpartum haemorrhage greater than 1000 mL, comorbidities and

immobility. We quantified postpartum activities and investigated factors that might influence inactivity. *Results:* there were 100 women identifying as from the Indian subcontinent and 50 women identifying as Chinese recruited at the baseline of over 32 weeks' gestation. Most of the study participants (85%) rested in the postpartum period for cultural reasons. Of the women surveyed, 51% rested in bed as much as possible in the postpartum period. We found a significant correlation between increased number of children and decreased overall immobility or rest (P = 0.03). Overall, 91% of participants had relative live-in help, and this significantly increased the risk of immobility by more than six-fold (odds ratio [OR], 6.17; 95% CI, 1.6–23.5; P = 0.008). Furthermore, a vaginal compared to a caesarean birth increased immobility risk by almost 3.5 times (OR, 3.4; 95% CI, 1.20–9.4; P = 0.021).

*Conclusions:* acculturation is highly individualised, however postpartum rest remains prevalent in women who identify themselves culturally as from the Indian subcontinent or as Chinese. Inactivity and comorbidities compounded the impact of cultural postpartum rest, and put women at increased risk for VTE.

*Implications for practice:* targeted, culturally appropriate, postnatal education should include VTE-prevention information to women who intend to practise postpartum rest.

#### Introduction

Venous thromboembolism (VTE) consists of deep vein thrombosis (DVT) and/or the life threatening condition of pulmonary embolism (PE). Inactivity contributes to Virchow triad of risk factors during the puerperium for VTE. This triad includes abnormalities in the vessel wall, abnormalities in the circulating blood and stasis of blood flow (Bagot et al., 2008). These events are well known contributing factors for VTE, increasing the probability of VTE during pregnancy, with the risk greatest during the postpartum period (Heit et al., 2005; Pomp et al., 2008). The reported incidence of VTE in pregnancy and the

postpartum period varies between study populations. An Australian study has found the incidence to be 1.14 per 1000 births (Sharma et al., 2008) with estimates in other literature ranging from 0.6 to 1.88 per 1000 births (Chan et al., 2001; Gherman et al., 1999; Jacobsen et al., 2008; James et al., 2006; Meng et al., 2015).

PE continues to be a leading cause of maternal deaths in countries with good maternity resources (Bates et al., 2016; Royal College of Obstetricians and Gynaecologists, 2015; Sultan et al., 2013). Recent targeted strategies have resulted in improved maternal morbidity and mortality and in reductions in preventable deaths (Royal College of Obstetricians and Gynaecologists, 2015). Inactivity (specifically, great-

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er time spent sitting or lying down) increases the risk of PE (Kabrhel et al., 2011). Women who are 'lying-in' aim to spend as much time as possible sitting and resting. Sultan (2013) found the peak pregnancy VTE risk period was the first three weeks after birth, with a 22-fold increase for a VTE event compared to outside the pregnancy period. A two-fold increase in VTE risk has been reported to continue for up to 175 days compared to similarly aged non-pregnant women (Galambosi et al., 2017).

In Australia, the National Health and Medical Research Council (NHMRC) consensus recommendation for prevention of VTE events is to 'minimise immobilisation of women' (NHMRC, 2009). To our knowledge there is no published research that quantifies postpartum activity related to cultural constraints, aimed at understanding immobility and VTE risk.

The cultural practice of postpartum resting occurs in the period during which women are most vulnerable to VTE. Traditionally, Indian and Chinese women rest for 30 to 40 days after giving birth. This period is referred to in China as 'zuo yue zi' ('doing the month') (Chien, 2006; Holroyd et al., 2011; Katbamna 2000). This practice may confer benefits such as improving opportunities for touch, promoting attachment in the mother–infant dyad and promoting breastfeeding. A secluded rest period supports attachment theory, a biological imperative for the mother–infant dyad to be in close contact to promote survival through the secure attachment and close proximity to a primary caregiver (Bowlby, 1969). However, the associated immobility of cultural rest may increase the risk of VTE. The prevalence of this embedded practice among migrant women is poorly studied, particularly among women from India.

Acculturation is the process in which members of one cultural group adopt the beliefs and behaviours of another group, often a dominant one (Redfield et al., 1936; Trimble, 2003). The process applies to migrants as a result of exposure to culturally different people and social influences. Some cultural practices are changed by personal desire; others may alter due to more practical reasons as they are no longer feasible to engage in, such as for geographical or financial reasons. Maintaining cultural connection through embedded ritual can add to a women's sense of identity, reinforce values and provide family connection, support and a sense of belonging (Abraído-Lanza et al., 2006), which can be particularly important during the period of pregnancy and infant care. Mental health is strongly linked to good social support and cohesion (Chen et al., 2013). Even simple traditions can have great meaning, adding strong threads to the sometimes tenuous cultural fabric for migrants. Healthcare providers need to ensure that important support gained from cultural practices are not dismissed or diminished through lack of understanding. To ensure culturally competent best care, accurate information should be provided. The assumptions of healthcare providers relating to cultural practices of migrant groups are best informed by targeted research, which was the basis for our study.

Our primary objective was to investigate the postpartum VTE risk in a group for whom immobilisation is an embedded cultural practice. Our secondary objective was to quantify and assess the factors that influence mobility through understanding ethno-specific postpartum risk factors for VTE during the postpartum time as well as acculturation in respect to immobility practice only.

#### Methods

#### Design

We conducted a prospective cohort study at Westmead Hospital, a tertiary referral hospital in the Western Sydney Local Health District, Australia. We administered two surveys that were study-specific: one with baseline information questions and a second postpartum followup survey. Survey content was developed in consultation with an expert panel including the hospital midwifery managers for antenatal and postnatal care, a lactation consultant and clinical midwives.

Cultural content was based on literature review and clinical experience of locally observed practices that impacted on movement. Other cultural practices such as dietary restrictions were not included. Questions of support were detailed to more fully understand this practice with survey questions such as 'Do you plan to have someone other than your husband live with you to help you with the baby?' including follow-up questions on who they would be, how long they planned to stay, will they come from another country and can they speak English.

Postpartum daily activity questions were separated into sections on any participation in housework, cooking, exercise, food shopping or visiting family /friends and a section on some participation but they were not primarily responsible for activities such as individual questions on 'Were you the person who: usually bathed your baby, usually was the one who changed your baby's nappy' and we also asked if they 'usually did all the housework'.

Due consideration and care was given to construction of the simple survey to ensure high levels of literacy were not required. The two surveys were pilot-tested and validated with Chinese and Indian women who spoke a language other than English at home. We then modified the surveys to ensure ease of understanding and reduce the complexity of questions, and re-trialled the surveys. Clear questions on postpartum medical history of participants were asked, including diagnosis of VTE, anticoagulant use, graduated compression stockings (GCS) use and reasons for visiting their doctor. Open-ended and freetext response questions were included in the follow-up survey to capture all events, e.g. "What did you spend most of your day doing?" and "Did you feel satisfied with the rest you were able to get?".

Recruitment occurred in the waiting room of the antenatal clinic and on the postnatal ward, and occurred on varying days to capture different groups of high-risk and low-risk women and women from different clinics.

#### **Participants**

We recruited women aged 18-45 years who stated that they culturally identified themselves as from the Indian subcontinent (India, Bangladesh, Pakistan and Sri Lanka) or as Chinese, and who were booked to gave birth at Westmead Hospital (n=150). We did not recruit women on the basis of their country of birth. Exclusion criteria included insufficient English literacy or an anticipation that the baby would be admitted to an intensive care unit after birth. To be included in the follow-up survey, women had to be discharged from hospital with their baby. We excluded women whose babies spent time in the intensive care unit because those women tend to have different levels of activity, travelling frequently into hospital to be with their baby. Our sample size was determined by time and funding constraints.

#### Recruitment and data collection

We collected data from February to September 2013. This process involved the combination of both interview and extraction of routinely collected data from the hospital electronic health records. Information such as smoking status, body mass index (BMI) at first antenatal hospital booking visit, birth details, admission of baby to neonatal intensive care, postpartum haemorrhage and diagnosis on readmission was retrieved.

The first baseline survey was completed at the time when written consent was gained. Women were recruited after 32 weeks' gestation or in day one or day two of the postpartum period. The follow-up survey took place at six to eight weeks after birth, by phone interview. A single researcher recruited and surveyed 142 women and a further eight were recruited and surveyed by a second researcher. A single researcher conducted all phone interviews for the follow-up survey, ensuring consistency between interviews.

Significant risk factors for VTE were recorded, and included caesarean section (CS) delivery, BMI  $\geq$  30 at first-visit booking,

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