



Original Article

Perineal length among Vietnamese women



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ABSTRACT

Objective: Vietnamese clinicians routinely perform episiotomies in the belief that 3rd–4th degree tears may be prevented, based partly on the view that Vietnamese women have a short perineal length that puts them at increased risk of tears. However, there is no evidence to suggest Vietnamese women have a short perineum compared with other populations. We aimed to determine the mean perineal length among Vietnamese women in early labor and in the second stage, and to compare this to findings from similar studies in other populations.

Materials and methods: We undertook an observational study in a tertiary obstetric hospital in Vietnam from October 2014 to June 2015. Pregnant women who presented in early labor with a live singleton cephalic presentation at ≥ 37 weeks gestation were eligible. Perineal length was measured early in the 1st stage of labor (≤ 4 cm dilation) and in 2nd stage of labor (10 cm dilation). Mean perineal length was compared to other populations using *t*-tests.

Results: Of 395 women, 159 (40.3%) were nulliparous and 236 (59.8%) multiparous. Overall the mean perineal length in early labor was 3.4 cm (± 0.4), and did not differ by parity. Mean perineal length among Vietnamese women was significantly shorter ($P < 0.001$) than other populations (means 3.8–4.6 cm). Among 365 women who reached 2nd stage the mean perineal length was 4.3 cm (± 0.6).

Conclusion: The perception that Vietnamese women have a relatively shorter perineal length appears to have some basis and outcomes reported from episiotomy trials may not be generalizable to Vietnamese women.

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Introduction

Episiotomy is the most common obstetric procedure practiced worldwide [1–3]. Vietnamese clinicians routinely perform episiotomies in the belief that 3rd–4th degree tears may be prevented, based, partly, on the view that Vietnamese women have a shorter perineal length that puts them at increased risk of these tears [4]. Cambodian obstetricians and midwives similarly believe that Cambodian women have shorter, less elastic perineums than Caucasian women and that this justifies routine episiotomy (95% episiotomy rate) [5]. This is in contrast to a Cochrane review of eight randomized controlled trials which found that compared to routine

episiotomy, selective episiotomy is associated with a reduced rate of 3rd and 4th degree perineal tears [1]. However, it is noteworthy that South East Asian women were not represented in any of the existing randomized trials.

Third and 4th degree perineal tears (also referred to as severe perineal trauma or obstetric anal sphincter injuries [OASIS]) refer to lacerations that extend to the anal sphincter and disrupts the anal sphincter musculature (third degree tear) or into the anal mucosa (fourth degree tear) [6]. In addition to long term adverse physical and psychological outcomes (pain, faecal incontinence, sexual dysfunction and lifestyle alteration), OASIS can result in increased duration of hospitalization or readmission for repair [7,8]. In high income countries, Asian women are reported to be at increased risk for both episiotomy and OASIS [9–13]. These risks persist after adjustment for other risk factors such as parity, instrumental delivery and birthweight.

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Perineal length is the distance between the posterior fourchette and the midpoint of the anal canal. Shorter perineal length is associated with an increased risk of significant perineal injury [14–17]. There is a perception that among Asian women, physiological and anatomical differences, such as a short perineal length [5,15–17], explain their increased risk of perineal trauma [9–13].

Currently, studies reporting perineal length have been undertaken in populations from the United States [15], United Kingdom [18], the Middle East [16] and Hong Kong [19], but not Vietnam. Therefore, the primary aim of this study among Vietnamese women was to determine the mean perineal length in early first stage and in the second stage of labor, and to compare this to findings from similar studies in other populations. We hypothesized that Vietnamese women would have a similar mean perineal length to other obstetric populations, and that this information could be used to reassure clinicians that a lower episiotomy rate is achievable [4].

Materials and methods

We undertook a cross sectional, observational study in the public delivery suite of Hung Vuong Hospital from October 2014 to June 2015. Hung Vuong Hospital is a tertiary obstetric hospital in Ho Chi Minh City with approximately 16,000 public patients birthing each year. The study population included pregnant women who presented in early labor with a live singleton cephalic presentation at ≥ 37 weeks of gestation, who planned to deliver vaginally and gave written informed consent to participate in the study.

The outcomes were perineal length early in the 1st stage of labor (≤ 4 cm dilation) and in the 2nd stage of labor (on reaching 10 cm dilation). Perineal length was measured with the woman lying on her back with flexed knees. A single-use, disposable, paper tape measure was used to measure the distance from the fourchette to the center of the anus in centimeters (cm) [15–19]. The perineal length measurements were made by 8 midwives who were trained by the investigators (AT, TN) prior to commencement of the study. Trainee and trainer independently measured perineal lengths on eligible women until 4–5 consecutive measurements were the same to the nearest millimeter. In practice this was typically achieved after assessing 5–6 women.

The study procedure was that a research midwife approached women in early labor soon after admission to the prelabor room, and recorded the number of women approached. She explained the study and obtained informed consent and contact information for follow-up (including a personal and a relative's phone number), collected baseline data, measured the perineal length and recorded the cervical dilation. Baseline data included maternal age, ethnicity (Vietnamese or not), parity, level of education, occupation, gestational age, number of previous episiotomies, previous caesarean section(s), and maternal height and weight for calculation of body mass index (kg/m^2). The interval between the 1st and 2nd stage perineal length measurements was also recorded, as was the duration of both 1st and 2nd stage of labor, use and type of analgesia, fetal presentation, operative delivery, episiotomy, infant gender and birthweight. There was no missing information for any of the women recruited to the study. Ethics approval was obtained from the Institutional Review Board of Hung Vuong Hospital.

Data analysis

The sample size calculation was based on the desired precision of the mean perineal length and an expected perineal length in the 1st stage of labor of 3.9 cm (standard deviation ± 1.0 cm) [18]. A

sample of 400 women was required to obtain a 95% confidence interval of ± 1.0 cm around the mean perineal length.

Participant characteristics and postpartum care were described using frequency tabulations and contingency tables, including mean (\pm standard deviation) and median (interquartile range [IQR]) perineal length. Maternal and pregnancy factors were assessed for an association with short perineal length, defined as less than or equal to one standard deviation below the mean perineal length. To allow comparison with published data, analyses were stratified by parity. Nulliparas and multiparas were compared on maternal (e.g., age, education, BMI) and birth characteristics (e.g. type of birth, obstetric interventions) using Chi-squared tests for categorical variables and t-tests for continuous variables. Mean perineal length was compared to findings from published studies of mean perineal length in first stage of labor and at second stage of labor using t-tests.

Results

Although a formal log of women approached was not maintained as anticipated, midwives report that over 90% of women approached agreed to participate in the study. Of 408 women recruited by the trained research midwives, 13 were excluded because they were not in the early stage of labor (cervical dilatation > 4 cm).

Of the remaining 395 women in the final study population, 159 (40.3%) were nulliparous and 236 (59.8%) multiparous. Compared with nulliparas, multiparas were more likely to be older, overweight or obese, and have only primary school education (Table 1). Among multiparas, only 5 (2.1%) women had not previously had an episiotomy including the one woman (0.4%) with a prior birth by caesarean section.

Overall the mean perineal length in early labor was 3.4 cm (± 0.4) (median 3.4 cm IQR 3.0–3.5). Short perineal length (≤ 3.0 cm, $n = 124$, 31.4%) was not associated ($P > 0.25$) with maternal age, parity, body mass index, gestational age or cervical dilation at assessment. However among the 13 women who were not ethnic Vietnamese, only 8% had a short perineum compared to 32% of Vietnamese women ($P = 0.06$).

Mean perineal length was similar for nulliparous and multiparous women (Table 1). Thirty women had an intrapartum caesarean section before the 2nd stage of labor, more commonly among nulliparas (Table 1). For these women only a 1st stage perineal length was available. Among the women who reached 2nd stage the mean perineal length was 4.3 cm (± 0.6) (median 4.3 cm IQR 4.0–4.7) and was again similar for nulliparous and multiparous women (Table 1).

Compared with nulliparas, multiparous women had significantly shorter labor durations, less analgesia, fewer episiotomies and instrumental births, and heavier babies (Table 1). Episiotomy was performed on all nulliparas and 2 (1.5%) women had 3rd degree tears. Forty seven (20.7%) multiparas did not have an episiotomy, and of these 22 (46.8%) had a first degree tear and 2 (1.1%) a 2nd degree tear. No 3rd–4th degree tears were reported among multiparas.

We identified seven studies [14–20] that measured perineal length in the first stage of labor among women with uncomplicated pregnancies and a single cephalic-presenting fetus. We excluded one study [14] where the two investigators got markedly different mean perineal lengths (3.3 ± 0.5 cm versus 4.0 ± 0.5 cm, $P < 0.001$) among women who were similar for height, fetal head circumference and birthweight, suggesting systematic differences and non-comparable measurements. Deering et al. reported an overall mean perineal length of 3.9 ± 0.7 cm among 133 women (56% nulliparas) attending a US Naval hospital [15], a result that

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