IJBPAS, November, 2025, 14(11): 5779-5786

ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

PREGNANCY AND LABOUR OUTCOMES IN SQUAT TYPE TOILET USERS VERSUS WESTERN STYLE TYPE TOILET USERS

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Received 15th July 2024; Revised 20th Sept. 2024; Accepted 21st Oct. 2024; Available online 1st Nov. 2025

https://doi.org/10.31032/IJBPAS/2025/14.11.9425

ABSTRACT

Although it may seem archaic and backward, squatting is a crucial resistance exercise during pregnancy to strengthen the pelvic floor and abdominal muscles, which may help the woman give birth more naturally. In this study, squat toilet seats as opposed to western style sitting toilet seat, as used by pregnant women, were used to evaluate obstetric outcomes. Low risk primigravida between 28 and 32 weeks gestation were enrolled in the outpatient department for an observational prospective study. After matching baseline characteristics, the participants were split into two groups. Group I (n = 60) consisted of women who consistently used squatting toilet seats, whereas group II (n = 60) consisted of women who frequently used western-style toilet seats. Following the pregnancy till birth, obstetric and neonatal outcomes were recorded. The group that squatted experienced fewer vaginal discharges (7% vs. 16%), urinary tract infections (13% vs. 23%), constipations (6% vs. 10%), labour induction (37% vs. 62%), shorter second-stage durations (0.50 vs. 1.14 hours), and a higher incidence of normal vaginal deliveries (97 % vs. 88%). The two groups' mean birth weights (2.73 vs. 2.97 kg) and percentage of NICU hospitalisations (7% vs. 17%) were similar. Users of toilet seats that squatted had numerous beneficial obstetric outcomes, most

notably a higher rate of vaginal deliveries that are normal. In this sense, extensive community-based surveys can disclose the actual consequences of squatting toilet seats on the outcomes of pregnancy and labour.

Keywords: Pregnancy, Labor, Squat type toilet, Western type toilet

INTRODUCTION:

In addition to altering our eating, drinking, and speaking habits, globalisation has also had an effect on the kind of toilet seat that is routinely used. Although the squatting position for micturition or bowel evacuation may seem archaic and backward, it is thought to be the most suitable position since it is consistent with human anatomy and physiology. Because no body part touches the toilet seat directly, it is thought to be more hygienic and helps prevent herpes simplex, UTIs, and other infections. Squatting is recommended as a crucial resistance exercise, especially during the prenatal period, to strengthen the pelvic floor and abdominal muscles, which may help the woman give birth more naturally. Squatting position during pregnancy promotes a baby's quick descent due to gravity and an increase in pelvic diameter of up to 20–30%. It also reduces the risk of perineal tears, instrumentation, and caesarean deliveries **[1, 2]**. Numerous researches have been conducted to determine the ideal position for childbirth. This study compares the obstetric results of two distinct pregnancy toilet positions—sitting and squatting.

METHODOLOGY:

In cooperation with the department of radiodiagnosis, the department of obstetrics and gynaecology conducted a prospective observational study. The institutional ethical committee granted permission for the use of human subjects in research. A total of 120 women were selected from the outpatient department to be low-risk primigravida between 28 and 32 weeks of gestation. These women were divided into two groups, I and II, based on whether they had used a sitting or an Indian-style squatting toilet seat during their pregnancies. The hospital's antenatal care and follow-up procedures were followed. Every woman gave birth while lying supine. The statistical programme SPSS version 20.0 was used to analyse the data. The mean, standard deviation, interquartile range, and percentage difference between groups were calculated as descriptive statistics. The levels of outcome variables and participant demographics were examined using descriptive tests. One way to compare continuous data was with independent sample t tests. Fisher exact test, chi square test, and Mann-Whitney U were used to analyse the categorical data in order to

determine how the variables differed between the two groups. $p<0.05$ was considered statistically significant.

RESULTS:

Per protocol, all of the ladies in our study were primigravidae. The following summarizes the clinical parameters at the time of recruitment: mean cervical length, internal OS diameter, frequency of vaginal discharge and urinary tract infections, and other in **Table 1**. After 36 weeks, the majority of both groups showed head engagement (94%, p=1.000). A comparison of the two groups' labour characteristics is shown in **(Table 1)**. In both groups, postdated pregnancy was the most common reason for inducing labour (p=0.097). The delivery details include the mode of delivery and the frequency of perineal tears are given in **(Figure 1)**. In the squatting group, the mean birth weight at delivery was 2.73±0.38 kg, while in the sitting group it was 2.97±0.32 kg (p=0.054). Four out of 60 babies were admitted to NICU in squatting group as compared to 10/60 in western sitting group, p=0.603.

Table 1: Clinical parameters at the time of recruitment (28-32 weeks gestation) in two groups.

Parameter	Squatting (n=60)	Western Sitting (n=60)	p value
Mean cervical length (cm)	3.60±0.349	3.62±0.420	0.314
Internal OS Closed Open	 60 0	 60 0	1.000
Urinary tract infection N (%)	8 (13)	14 (23)	0.118
Constipation N (%)	2 (3)	6 (10)	1.000
Genital tract infection (culture positive) N (%)	1 (2)	3 (5)	1.000
Vaginal discharge N (%)	4 (7)	10 (16)	0.372

Table 2: Labor characteristics in the two groups

Parameter	Squatting (n=60)	Western Sitting (n=60)	p value
Mean Gestational age at delivery(weeks)	39.28±1.413	39.15±1.323	0.648
Preterm delivery; N (%)	2 (2)	4 (7)	1.00
Bishops score at labor onset; N (%) ≥6 (Favourable) ≤6 (Unfavourable)	 52 (87) 8 (13)	 41 (68) 19 (32)	0.505
Labor; N (%) Spontaneous Induced	 38 (63) 22 (37)	 23 (38) 57(62)	0.097
Membranes rupture; N (%) Spontaneous Artificial	 11 (18) 39 (82)	 8 (13) 52(87)	0.806
Duration of labor (hours) First stage Second stage	 9.84±3.75 0.50±0.51	 9.63±3.39 1.14±5.00	 0.675 0.270

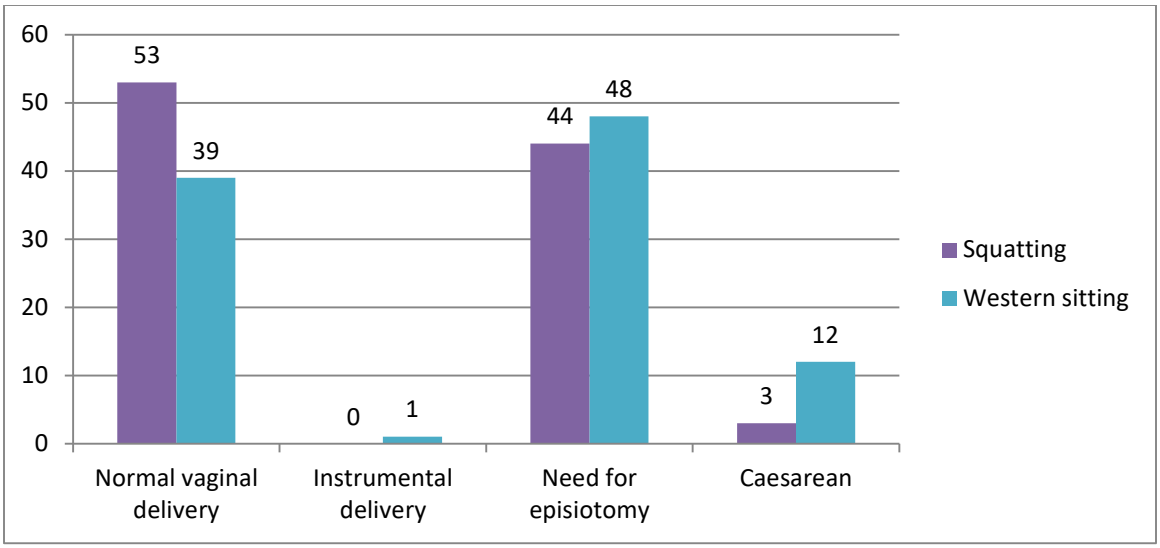

Figure 1: Comparison of delivery outcomes in two groups

DISCUSSION:

In India, the majority of people still squat on their toilet seats. With increased urbanisation comes a growing popularity of western toilet seats. During pregnancy, it is important to use the correct restroom posture because a mother's posture impacts her power, passenger, and passage during labour. There is a dearth of evidence in the literature about the effects of regular toilet posture throughout pregnancy on labour outcomes, despite the fact that numerous studies have documented the impact of labour posture on the outcome of deliveries. This pilot study compares labour outcomes according to the type of toilet seat that expectant mothers opted for.

In our study the mean age of pregnant women using squatting toilet seat was lower (23.24±2.181 years) as compared to women using western sitting toilet (25.52±3.576 years); this age difference was statistically significant ($p<0.001$). The probable explanation is that, in comparison to women of middle and higher socioeconomic class, who are more likely to use western-style toilet seats, the majority of those seeking health benefits from government hospitals belong to lower socioeconomic strata, where squatting seat toilets are more common and the mean age of childbearing is lower. In order to prevent bias resulting from parity and prior births, nulliparity was adopted.

The mean cervical length was 3.60±0.349 cm in the squatting group and 3.62±0.420 cm in the western sitting group at the time of recruitment, according to our study. This difference was statistically not significant ($p=0.314$). At the time of examination, all of the women in both groups had closed internal OS. Therefore, the internal

OS diameter and cervical length were unaffected by the use of various toilet seat styles during pregnancy. Vaginal discharge was common in both groups, although it was comparatively less common in the squatting group (7% vs. 16% in the sitting group; p=0.372); only one person in each group had a genital infection that was confirmed by culture. Thus, there was no discernible relationship between the type of toilet seat used and the occurrence of genital infections. Urinary tract infections were half as common in the squatting group as in the western sitting group (13% and 23%, respectively), although the difference was not statistically significant (p=0.118). Our study's small sample size may be one factor in this. To determine whether the kind of toilet seat and the prevalence of genitourinary infections are correlated, larger sample sizes will be needed for future research. The increased rate of UTIs in both groups may be related to unsanitary living circumstances and inadequate hygiene.

The timing of fetal head engagement, gestational age at delivery, and incidence of preterm were not significantly different between the groups in our study, despite the fact that it has been suggested that squatting improves fetal positioning, encourages rapid baby descent using gravity, and increases pelvic diameter by 20–30%. In both groups, maximum involvement was observed at 36 weeks (94%). The study found that there was no significant difference (p=0.648) in the mean gestational age at delivery in the western sitting group (39.15±1.323 weeks) and the squatting group (39.28±1.413 weeks). Three of the sixty women, or 2% of the squatting group and 7% of the western sitting group, gave birth prematurely (p=1.000).

The majority of participants in our study, or 87% in group 1 and 68% in group 2, had favourable Bishops scores (>6) (p=0.505). 24 out of 63% of the women in the squatting group and 38 out of the women in the western sitting group experienced spontaneous labour onset (p=0.097). Induction of labour was necessary for 26 out of 37% of the squatting group and 62% of the western seated group. Postdated pregnancy was the most common cause of labour induction in both groups. In contrast to 13% in the western sitting group, 18% of the squatting group experienced spontaneous membrane rupture. Moreover, this did not reach statistical significance (p=0.806). In 82% of group 1 and 87% of group 2, artificial membrane disruption was necessary (p=0.806). The current study revealed that the squatting group had a slightly longer mean length of the active phase of labour than the sitting group, although this difference was not

statistically significant (9.84±3.75 vs. 9.63±3.39 hours, p=0.675). Conversely, group I's second stage mean duration was nearly half that of group II's (0.50±0.51 vs. 1.14±5.00 hours, p=0.270).

Labour outcomes in different birthing positions

As per hospital policy, every patient in our study was delivered in a supine posture. A review of the literature on various birthing positions and delivery outcomes has been done, but no study has been conducted to examine the relationship between the type of toilet seat used during pregnancy and obstetric results. According to a meta-analysis, women who were in an upright position experienced shorter labour periods on average—the first stage lasted 66.48 minutes, while the second stage lasted 35.54 minutes **[3]**. When compared to supine or lithotomy positions, the use of any upright or lateral posture did not appear to significantly shorten the duration of the second stage of labour, according to a 2013 Cochrane meta analysis that analysed 25 trials **[4]**. The majority of women in both groups gave birth vaginally, while the squatting group had a higher incidence (97% vs. 87%). Comparably, only 1 participant in the western sitting group required an instrumental birth, and only 3% of the squatting group's women and 13% of the sitting group's women underwent emergency caesarean sections.

In a systematic analysis, Souza *et al* . evaluated the mode of birth in 2220 women (8 studies) and found that the intervention (walking, sitting, standing, kneeling, and squatting) and control groups had nearly identical rates of caesarean sections (CS) (5.5% vs. 5.6%) **[5]**. According to Gizzo, of the recumbent group, 47.8% were delivered vaginally, 26.1% needed an operative vaginal delivery, and 26.1% received caesarean section. 5.8% of patients had CS, 7.1% needed a surgical vaginal birth, and 87.1% of patients were delivered vaginally while in an alternate position (seated, upright, sitting on a ball, and on all fours) ($p<0.001$) **[6]**. The rate of forceps and ventouse delivery was found to be 8.7% in the upright group and 16.3% in the semi-recumbent posture in a research by Gardosi *et al*., with a statistically significant difference ($p<0.05$) **[7]**. According to Nasir *et al*., the squatting group received 11% fewer forceps applications than the supine group (24%), with a p-value of less than 0.05 **[2]**.

Due to the frequent use of episiotomy in all primigravidas, none of the individuals in our study experienced perineal tears. According to Gardosi *et al*., there was a statistically significant ($p<0.01$) difference in the percentage of spontaneous births with intact

perineum and first-degree perineal tears between the upright and semi-recumbent groups (46%) and 32%, respectively. When Nasir squatted in group A, he did not detect any second- or third-degree perineal tears; nevertheless, in group B, he found 9% of patients with significant statistical differences ($p<0.05$) **[2]**.

The squatting group's mean birth weight at delivery was 2.83±0.38 kg, whereas the western sitting group's was 2.97±0.32 kg. However, there was no statistically significant difference between the two groups. Compared to the 10/50 newborns in the sitting group, eight out of 50 babies in the squatting group were admitted to the NICU; the prevalent indications were MSL, respiratory distress, instrumentation, and neonatal jaundice. In terms of NICU admission, there was no statistically significant difference, nevertheless.

The fact that our study was conducted in a hospital and had a small sample size were limitations. Although there were a number of positive outcomes for squatting toilet users, we were unable to detect a statistically significant correlation between regular toilet seat use and obstetric outcomes. Additionally, we were unable to match candidates based on their socioeconomic status at the time of recruitment, which may have contributed to bias as all of the women from lower socioeconomic strata only used squatting seats, whereas those from middle and upper socioeconomic strata used western sitting toilets more frequently. Larger community-based studies are necessary to determine the precise relationship between labour outcomes and regular toilet use. If successful, it might be the simplest and most affordable way to encourage regular delivery.

CONCLUSION

The purpose of the study was to assess the outcomes of pregnancy and labour in the two categories of toilet seat users. In numerous areas, such as the percentage of vaginal deliveries that are normal, the length of the second stage of labour, the decrease in genitourinary infections, etc., we did discover positive results in squatting toilet users. However, because this was a hospital-based study with a small sample size, a precise connection could not be established. To determine the relationship between the type of toilet seat and labour outcomes, extensive community-based surveys should be conducted.

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