

Impact of Birth Companion on Maternal and Neonatal Outcomes in Primigravida Women During Labour: A Prospective Observational Study

M Geetha, Lokesh P S, Mohammed Thaha S, Sahasyaa Adalarasan*

Introduction: Birth companionship is a low-cost, evidence-based intervention recognized by the World Health Organization as part of respectful maternity care. While it has shown impactful effects on childbirth outcomes, limited data exist regarding its impact on primigravida women, a group often more vulnerable to prolonged labour, anxiety, and medical interventions.

Methods: The aim of this study is to assess the effect of a birth companion on maternal and fetal outcomes in primigravida women during labour. This prospective observational study included primigravida women admitted in active labour at two tertiary centres in Chennai between March 2024 and March 2025. A total of 500 patients were included and divided into two groups: Group A (n=250) with a chosen female birth companion present throughout labour, and Group B (n=250) without a companion. Data were collected using a structured proforma on labour duration, mode of delivery, maternal satisfaction, neonatal APGAR scores, NICU admission, and breastfeeding initiation. Statistical analysis was performed using IBM SPSS Statistics for Windows, Version 21.0 (IBM Corp., Armonk, New York, USA). Comparisons between groups were performed using the Chi-square test for categorical variables and the independent t-test for continuous variables. A *p*-value of less than 0.05 was considered statistically significant.

Results: Women with a birth companion showed significantly shorter labour durations, including a reduced first stage (6.7 ± 1.3 vs. 7.5 ± 1.6 hours; $p < 0.001$) and second stage of labour (42.3 ± 9.8 vs. 51.7 ± 12.1 minutes; $p < 0.001$). The cesarean section rate was significantly lower in the companion group (9.2% vs. 16.0%; $p = 0.01$), along with a lower rate of instrumental deliveries (10.4 vs. 13.6%; $p < 0.05$). Women with a birth companion also required less IV analgesia (35.6 vs. 61.2%; $p < 0.001$), with a higher proportion having no analgesia use (64.4 vs. 38.8%; $p < 0.001$). Maternal satisfaction (score ≥ 8) was greater in the companion group (65.2 vs. 40.8%; $p < 0.001$). Neonatal outcomes were also improved in the companion group, with higher APGAR scores at 5 minutes (91.2 vs. 84.4%; $p = 0.03$), fewer NICU admissions (5.6 vs. 11.6%; $p = 0.01$), and earlier initiation of breastfeeding within 1 hour (72.8 vs. 55.6%; $p < 0.001$). The incidence of fetal distress was lower in the companion group (8.8 vs. 15.2%; $p < 0.05$), while the initiation of immediate skin-to-skin contact was significantly higher (76.4 vs. 55.2%; $p < 0.001$).

Conclusion: The presence of a birth companion during labour was significantly associated with improved maternal and neonatal outcomes among primigravida women. Women supported by a companion had shorter first and second stages of labour, higher rates of spontaneous vaginal delivery, and reduced need for iv analgesia and cesarean section. Importantly, they also reported higher maternal satisfaction scores and better emotional well-being. Neonatal outcomes also improved notably. Infants born to women with companions had higher APGAR scores, fewer NICU admissions, and earlier initiation of breastfeeding. This study supports routine implementation of birth companion policies in institutional deliveries, particularly in public health settings.

Introduction

Childbirth is one of the most important events in a woman's life. The World Health Organization (WHO) recommends a companion of choice during labour and

childbirth as part of good maternity care [1]. A birth companion is a person chosen by the woman to provide continuous emotional, practical, reassurance, comfort measures, guidance, help in communication with staff, and informational support during labour [2]. This makes birth companionship an important part of intrapartum

Institute of Obstetrics and Gynecology, Rajiv Gandhi Government General Hospital, Chennai, India and Madras Medical College, Chennai, India

Correspondence to: Sahasyaa Adalarasan, Institute of Obstetrics and Gynecology, Rajiv Gandhi Government General Hospital, Chennai, India and Madras Medical College, Chennai, India. E-mail: surgeonsahasyaa@gmail.com

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care, because continuous support can help women during labour and birth [1,2].

For primigravida women, labour and childbirth may bring fear, uncertainty, and low confidence because it is their first birth experience [3]. Studies on first-time mothers show that structured preparation and companion-based support can reduce childbirth fear and improve the mother's ability to cope with labour [3,4]. Support during childbirth can also help women feel more prepared and less stressed during the process [4]. Previous research also shows that labour support can protect the woman's dignity during childbirth and reduce mistreatment in the facility [5]. However, implementation is still limited in many places because of space, staff attitude, and facility protocols [6].

Studies from different settings have shown that labour companionship is linked with shorter labour duration, lower cesarean section rates, less use of analgesics, and better maternal satisfaction [7-10]. In primigravida women, supportive care during labour has also been linked with reduced pain and better coping during delivery [8-10]. This shows that continuous support does not only help emotionally but also affects the way labour progresses and how the woman experiences childbirth [7-10].

Despite these findings, there is a lack of studies among primigravida women in India, and many hospitals do not use birth companionship in a routine way [4,6]. Therefore, this study was done to assess the impact of a birth companion on maternal and fetal outcomes in primigravida women during labour.

Materials and Methods

Study design and setting

This was a prospective observational study conducted in the Institute of Obstetrics and Gynaecology, Chennai, and the Institute of Social Obstetrics and Kasturba Gandhi Hospital for Women and Children, Chennai. The study was carried out over a period of 12 months from 2024 to 2025. Primigravida women admitted in active labour were included in the study. The objective was to assess the impact of a birth companion on both maternal and fetal outcomes during labour in primigravida women.

Ethical considerations

The study protocol was reviewed and approved by the Institutional Ethics Committee before the commencement of the research (IEC Approval number: MMC /Approval/28062024). Written informed consent

was obtained from all patients before enrolment, and confidentiality of patient information was maintained throughout the study.

Study population and sample size

The study population consisted of primigravida women admitted in active labour during the study period. A total of 500 women were included in the study and were divided into two equal groups: the birth companion group (250 women) and the no birth companion group (250 women). Sample size was calculated using an expected prevalence of spontaneous vaginal delivery of 80% among women with birth companionship based on previous studies, with a 95% confidence level and 5% absolute precision. The minimum required sample size was approximately 246 participants per group. To improve study power and account for possible incomplete data, 250 participants were included in each group, giving a total sample size of 500.

Inclusion and exclusion criteria

Patients aged between 18 and 35 years were included in the study. Primigravida women with a gestational age between 37 and 42 weeks, single-fetus pregnancy, and cephalic presentation were included. Women accompanied by a female birth attendant who is a family relative were included. Multigravida women were excluded from the study. Women with gestational age less than 37 weeks, multiple pregnancy, and malpresentations such as non-cephalic presentation were excluded. Those with male companions or unrelated birth attendants were not included. Women with maternal medical disorders were also excluded from the study.

Study Grouping

Participants were categorized based on the presence of a birth companion during labour. As this was an observational study, participants were not randomized. Women were allocated to the birth companion or no-companion group according to their preference and institutional policy. Group A included women who had a female family member of their choice continuously present throughout labour, while Group B included women who underwent labour without a companion.

Outcome Measures

Outcome measures were defined to assess both maternal and neonatal parameters. Primary maternal outcomes included the duration of each stage of labour (first, second, and third stages) and the mode of delivery, categorized as spontaneous vaginal delivery,

instrumental delivery, or lower segment cesarean section (LSCS). Secondary maternal outcomes included pain perception and emotional experience during labour, maternal satisfaction score (scored out of 10), and the time of initiation of breastfeeding. Fetal and neonatal outcomes included APGAR score at 5 minutes, requirement for neonatal intensive care unit (NICU) admission, and early initiation of skin-to-skin contact and breastfeeding.

Data Collection

Data were collected prospectively using a structured proforma. The proforma included demographic details, obstetric history, labour progression, maternal outcomes, neonatal outcomes, and patient satisfaction scores. Labour progression was monitored using the WHO partograph to ensure standardized recording of cervical dilatation, uterine contractions, and fetal status. All participants were enrolled after obtaining informed consent. Relevant clinical parameters were recorded during labour, delivery, and the immediate postpartum period. Maternal satisfaction scores were obtained 12 hours after delivery through a structured interview using a standardized questionnaire.

Data Management

All collected data were entered into Microsoft Excel (Microsoft Corporation, Redmond, Washington, USA) for organization and storage. Data were checked for completeness, consistency, and accuracy before analysis. Participant confidentiality was strictly maintained throughout the study.

Statistical Analysis

Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) software, version 21.0 (IBM Corp., Armonk, New York, USA). Continuous variables were expressed as mean $\pm$ standard deviation, while categorical variables were expressed as frequencies and percentages. Baseline demographic and antenatal characteristics between groups were compared using the Chi-square test for categorical variables and the independent t-test for continuous variables. A *p*-value of less than 0.05 was considered statistically significant.

Risk and Benefit Assessment

The study did not impose any physical risk on participants. All women received standard obstetric care as per institutional protocol. The intervention studied was the presence of a birth companion providing emotional and physical support, without any alteration to routine medical management. Participants were informed that

they were free to withdraw from the study at any stage without affecting their medical care.

Results

A total of 500 primigravida women were included in the study and were equally divided into two groups: the companion group and the no companion group. The demographic characteristics were comparable between the two groups. Most of the women in both groups belonged to the 23 to 27 years age group. Educational status was similar, with the majority having a high school education, and socioeconomic status was also comparable between the groups. There were no statistically significant differences between the groups with respect to age distribution ($p = 0.91$), educational status ($p = 0.76$), socioeconomic status ($p = 0.84$), or gestational age at admission ($p = 0.42$), indicating good baseline comparability. The mean gestational age at admission was 38.9 ± 1.0 weeks in the companion group and 39.0 ± 1.1 weeks in the no companion group (Table 1).

The companion group had better labour and neonatal outcomes compared with the no companion group. The first stage of labour was 6.7 ± 1.3 hours in the companion group and 7.5 ± 1.6 hours in the no companion group. The second stage of labour was 42.3 ± 9.8 minutes in the companion group and 51.7 ± 12.1 minutes in the no companion group. The third stage of labour was

Table 1: Demographic, educational, socioeconomic, and antenatal details of participants

Variable	Group a (with birth companion)	Group b (without birth companion)
Age group (years)		
18–22	82 (32.8%)	76 (30.4%)
23–27	104 (41.6%)	108 (43.2%)
28–32	52 (20.8%)	54 (21.6%)
33–35	12 (4.8%)	12 (4.8%)
Education		
Primary school	62 (24.8%)	67 (26.8%)
High school	114 (45.6%)	107 (42.8%)
College or above	74 (29.6%)	76 (30.4%)
Socioeconomic status		
Lower (Class IV & V)	132 (52.8%)	138 (55.2%)
Middle (Class III)	88 (35.2%)	83 (33.2%)
Upper (Class I & II)	30 (12.0%)	29 (11.6%)
Mean gestational age (weeks $\pm$ SD)	38.9 ± 1.0	39.0 ± 1.1

similar in both groups. Spontaneous vaginal delivery was more common in the companion group, with 80.4% compared with 70.4% in the no companion group, while cesarean section was lower in the companion group at 9.2% compared with 16.0% in the no companion group. Instrumental delivery was also lower in the companion group, at 10.4% compared with 13.6% in the no companion group. IV analgesia was used less often in the companion group, with 35.6% receiving IV analgesia and 64.4% not requiring analgesia, whereas in the no companion group 61.2% received IV analgesia and 38.8% did not require analgesia. High maternal satisfaction was reported by 65.2% in the companion group compared with 40.8% in the no companion group. Breastfeeding within 1-hour

was seen in 72.8% of women in the companion group compared with 55.6% in the no companion group, and skin-to-skin contact was initiated in 76.4% of women in the companion group compared with 55.2% in the no companion group. APGAR score at 5 minutes was 8 to 10 in 91.2% of newborns in the companion group and 84.4% in the no companion group. Fetal distress was lower in the companion group at 8.8% compared with 15.2% in the no companion group. NICU admission was also lower in the companion group at 5.6% compared with 11.6% in the no companion group (Table 2).

The first stage of labour and second stage of labour were significantly shorter in the companion group ($p < 0.001$ for both), indicating improved labour progression in the companion group. The cesarean section rate was significantly lower in the companion group ($p = 0.01$), indicating fewer operative deliveries. Use of IV analgesia was also significantly lower in the companion group ($p = 0.04$), indicating better pain coping during labour. Maternal satisfaction was significantly higher in the companion group ($p < 0.001$), indicating a better childbirth experience. Early initiation of breastfeeding within 1 hour was significantly higher in the companion group ($p < 0.001$), indicating better postnatal practices. Apgar score at 5 minutes was significantly better in the companion group ($p = 0.03$), indicating better neonatal condition at birth. NICU admission was significantly lower in the companion group ($p = 0.01$), indicating better neonatal outcome. Skin-to-skin contact was significantly higher in the companion group ($p < 0.001$), indicating better maternal-infant bonding. Fetal distress was significantly lower in the companion group ($p = 0.04$), indicating improved fetal well-being (Table 3).

Overall, the presence of a birth companion during labour was associated with better maternal and neonatal outcomes. The companion group had shorter labour duration, lower cesarean section rate, lower analgesia use, higher maternal satisfaction, better early breastfeeding, better APGAR score, lower NICU admission, and lower fetal distress. These findings suggest that birth companionship is associated with improved labour outcomes among primigravida women.

Discussion

The present study showed that birth companionship was associated with improved maternal and neonatal outcomes. Women with a companion had shorter first and second stages of labour, lower caesarean section rate, less IV analgesia use, higher maternal satisfaction, earlier breastfeeding initiation, better 5-minute APGAR score,

Table 2: Maternal and neonatal outcomes in group A and B

Outcome	Group A (with birth companion)	Group B (without birth companion)
Duration of labour		
First stage (hrs)	6.7 ± 1.3	7.5 ± 1.6
Second stage (mins)	42.3 ± 9.8	51.7 ± 12.1
Third stage (mins)	11.2 ± 3.2	11.7 ± 3.5
Mode of delivery		
Spontaneous vaginal delivery	201 (80.4%)	176 (70.4%)
Instrumental delivery	26 (10.4%)	34 (13.6%)
Cesarean section (LSCS)	23 (9.2%)	40 (16.0%)
Use of analgesia		
No analgesia	161 (64.4%)	97 (38.8%)
IV analgesia	89 (35.6%)	153 (61.2%)
Maternal satisfaction score		
0–4 (Low)	18 (7.2%)	46 (18.4%)
5–7 (Moderate)	69 (27.6%)	102 (40.8%)
8–10 (High)	163 (65.2%)	102 (40.8%)
Breastfeeding initiation within 1 hour	182 (72.8%)	139 (55.6%)
Apgar score at 5 minutes		
8–10	228 (91.2%)	211 (84.4%)
5–7	20 (8.0%)	34 (13.6%)
<5	2 (0.8%)	5 (2.0%)
Fetal distress	22 (8.8%)	38 (15.2%)
Meconium-stained liquor	29 (11.6%)	34 (13.6%)
Postpartum hemorrhage	7 (2.8%)	10 (4.0%)
NICU admission	14 (5.6%)	29 (11.6%)
Skin-to-skin contact initiated	191 (76.4%)	138 (55.2%)

Table 3: Summary of statistically significant maternal and neonatal outcomes by study group

<i>Outcome</i>	<i>With birth companion</i>	<i>Without birth companion</i>	<i>p-value</i>
Mean duration of 1st stage of labor (hours)	6.7 ± 1.3	7.5 ± 1.6	<0.001
Mean duration of 2nd stage of labor (mins)	42.3 ± 9.8	51.7 ± 12.1	<0.001
Cesarean section rate	23 (9.2%)	40 (16.0%)	0.01
IV analgesia use	89 (35.6%)	153 (61.2%)	0.04
High maternal satisfaction (score ≥8)	163 (65.2%)	102 (40.8%)	<0.001
Breastfeeding initiation within 1 hour	182 (72.8%)	139 (55.6%)	<0.001
Apgar score 8–10 at 5 minutes	228 (91.2%)	211 (84.4%)	0.03
NICU admission	14 (5.6%)	29 (11.6%)	0.01
Skin-to-skin contact initiated	191 (76.4%)	138 (55.2%)	<0.001
Fetal distress	22 (8.8%)	38 (15.2%)	0.04

Table 4: Summary of previous studies on birth companionship and maternal outcomes

<i>Study/Author</i>	<i>Key findings</i>	<i>Reference</i>
Bohren et al. (2017)	Continuous support significantly improved spontaneous vaginal delivery rates, reduced epidural use, and enhanced maternal satisfaction.	[2]
Yesildag & Golbasi (2023)	Web-based and motivational support significantly reduced childbirth fear and increased self-efficacy in primigravida women.	[3]
Munkhondya et al. (2020)	Companion-integrated childbirth preparation improved self-efficacy and reduced fear; emotional support was beneficial for primigravidas.	[4]
Wahdan & Abu-Rmeileh (2023)	Presence of a companion reduced obstetric violence and mistreatment in health facilities; increased emotional safety.	[5]
Kabakian-Khasholian et al. (2015)	Women valued companionship for emotional safety; hospitals lacked policies to implement this support in Arab countries.	[6]
Sobczak et al. (2023)	Doulas and labour support reduce cesarean rates, preterm birth, and improve maternal satisfaction, especially in low-income women.	[7]
Aslantaş & Çankaya (2023)	Birth ball exercises during labour decreased pain intensity and shortened labour, mirroring effects of physical companionship.	[8]
Adler et al. (2020)	Continuous support during labour was associated with better satisfaction, especially among primigravidas in induced labour scenarios.	[11]
De Vries (2017)	Ethical critique emphasized that absence of companions can make the mother invisible in institutional settings; companionship is ethically essential.	[12]
Lansky et al. (2019)	Educational exposure and presence of companions reduced perceived obstetric violence and promoted dignified maternity care.	[13]
Wonde & Mihretie (2019)	Obstructed labour was linked to poor outcomes in women without early support; emotional and clinical monitoring needed.	[14]
Amin et al. (2024)	Social/emotional support during antenatal care improved maternal-fetal attachment and reduced antenatal anxiety in primigravidas.	[15]
Morhason-Bello et al. (2008)	Nigerian women, especially primigravidas, preferred companionship but faced institutional restrictions in accessing it.	[16]
McGrath & Kennell (2008)	Doula support reduced cesarean rates, shortened labour, and reduced oxytocin use in first-time mothers.	[17]
Akbarzadeh et al. (2014)	Supportive care during labour significantly reduced pain intensity and increased maternal satisfaction, comparable to acupressure.	[18]

lower NICU admission, higher skin-to-skin contact, and less fetal distress. These findings suggest that continuous emotional and physical support during labour may improve the childbirth experience and help women cope better during delivery [1-2].

Findings in the present study were similar to previous studies, which also showed that birth companionship and continuous support during labour were associated with shorter labour duration, lower need for operative delivery and analgesia, better maternal satisfaction, earlier breastfeeding initiation, improved APGAR scores, and reduced neonatal intensive care unit admission. Earlier studies also reported that companion-based preparation reduced childbirth fear and improved self-efficacy in primigravida women, while other studies found that companionship reduced obstetric violence, improved emotional safety, and supported respectful maternity care. Similar benefits were also seen with doula support, birth ball exercises, and continuous emotional support, which further strengthen the present findings [2-18] (Table 4).

Birth companionship works through continuous support during labour by providing emotional reassurance, physical comfort, improved communication with healthcare staff, and patient advocacy, which reduces fear and improves coping ability during childbirth[2]. Future research on birth companions should focus on practical implementation, especially in low-resource settings where challenges such as limited space, lack of privacy, and resistance from healthcare providers in tertiary care centers can hinder adoption. Implementation studies are essential to identify feasible strategies to integrate birth companions effectively into existing healthcare systems. In addition, there is a need to develop structured training programs for birth companions so that they can provide meaningful emotional and physical support during labor, rather than simply being present. Such training can enhance the overall effectiveness of birth companion programs and improve maternal and neonatal outcomes [1].

This study has several limitations. First, the observational design limits the ability to establish causality. Second, although baseline demographic and antenatal characteristics were comparable between groups, residual confounding due to unmeasured factors such as maternal anxiety, family support, and personal preferences cannot be excluded. Third, no multivariable regression analysis was performed to adjust for potential confounders. Finally, the study was conducted in two

tertiary care institutions in Chennai, which may limit the generalizability of the findings to other healthcare settings.

Conclusion

This prospective observational study assessed the impact of birth companionship on maternal and fetal outcomes among 500 primigravida women. The findings support wider implementation of birth companion policies and suggest potential benefits for maternal and neonatal outcomes among primigravida women. Women supported by a companion had shorter first and second stages of labour, higher rates of spontaneous vaginal delivery, and reduced need for IV analgesia and cesarean section.

Women supported by a companion also reported higher maternal satisfaction scores, better emotional well-being, and a greater sense of control and dignity during childbirth. Neonatal outcomes also improved notably. Infants born to women with companions had higher APGAR scores, fewer NICU admissions, early skin-to-skin contact, and early initiation of breastfeeding. These outcomes suggest that inclusion of a birth companion may be a valuable component of respectful maternity care and is consistent with WHO recommendations. The intervention requires minimal resources but yields high returns in maternal comfort, clinical safety, and neonatal well-being.

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