Effectiveness of a Female Birth Companion on Maternal Outcomes during the First Stage of Labor among Women Delivering in a selected Service Hospital in Uttar Pradesh India

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***Abstract*—Background:** Continuous labor support from a trusted companion has long been associated with improved maternal satisfaction and birth outcomes. The World Health Organization (WHO) and the American College of Obstetricians and Gynecologists (ACOG) endorse allowing a companion of choice during childbirth as part of respectful maternity care[12]. However, in many Indian hospitals, companion presence is underutilized due to infrastructural and cultural constraints.

Objective: To assess the effectiveness of a female birth companion on maternal outcomes—pain, anxiety, duration of labor, use of oxytocics and analgesics, and mode of delivery—among women in a service hospital in Uttar Pradesh, India.

Methods: A quantitative comparative study was conducted among 60 parturient women: 30 accompanied by a female birth companion (intervention group) and 30 without a companion (control group). Tools included a demographic proforma, Numerical Pain Rating Scale (0–10), Spielberger Trait Anxiety Inventory, and a structured observation checklist. Data were analyzed using descriptive and inferential statistics with significance set at $p < 0.05$.

Results: The mean duration of the first stage of labor was significantly shorter in the companion group (6.1 ± 1.3 hours) compared to the control group (8.2 ± 1.6 hours). Pain and anxiety scores were significantly lower in the companion group (4.2 ± 1.1 vs. 6.7 ± 1.4; 38.5 ± 4.8 vs. 45.7 ± 5.2 respectively, $p < 0.001$). Normal vaginal delivery rates were higher among women with companions (86.7%) than those without (63.3%). Mothers with companions reported higher satisfaction with their childbirth experience.

Conclusions: A female birth companion during the first stage of labor improves maternal outcomes and satisfaction. Integrating companionship into standard intrapartum care enhances both clinical quality and emotional well-being.

I. Introduction

Childbirth is a complex physiological and emotional experience. Beyond its biological dimensions, it is also a social event that profoundly influences maternal and neonatal health outcomes. The presence of continuous emotional and physical support during labor has been shown to reduce pain perception, alleviate anxiety, shorten labor, and increase satisfaction[3]. The **World Health Organization (WHO)** and **UNICEF** advocate for allowing a companion of the woman's choice during labor and childbirth as a component of *respectful maternity care*[4]. Similarly, the **Government of India's LaQshya Program** emphasizes companionship to improve quality of care in labor rooms[5].

Despite these recommendations, implementation remains inconsistent in India. In many tertiary or service hospitals, policies allowing companions are either absent or under-enforced due to privacy concerns, infection control practices, or lack of awareness among staff[6]. Cultural beliefs may also restrict women from seeking companionship during childbirth[7].

Studies worldwide affirm that birth companionship enhances physiological and psychological outcomes. Hodnett et al.[8] and Bohren et al.[9] found that continuous support significantly reduces the likelihood of cesarean delivery and use of intrapartum analgesia. In developing nations, including India, such low-cost, non-invasive interventions could play a transformative role in improving maternal health[10]. However, research on its effectiveness in military or service hospital contexts remains scarce.

This study therefore investigates the **effectiveness of a female birth companion** on maternal outcomes during the first stage of labor among women delivering in a service hospital in Uttar Pradesh.

II. Materials and Methods

Study Design and Setting

A **quantitative comparative study design** was used. The study was conducted in the labor ward of a zonal service hospital in Uttar Pradesh between March and June 2024.

Sample and Sampling Technique

A total of **60 parturient women** were selected using purposive sampling: 30 in the **experimental group** (with a female birth companion) and 30 in the **control group** (without companion). Inclusion criteria were: women aged 18–35 years, term pregnancy (≥37 weeks), singleton vertex presentation, and willingness to deliver vaginally. High-risk pregnancies, multiple gestations, and those scheduled for cesarean sections were excluded.

Description of Intervention

In the experimental group, each participant was accompanied by a **female birth companion**—a mother, sister, or close female relative. Companions were briefed by nursing staff on providing emotional support, hand-holding, verbal reassurance, back massage, and guidance for breathing and relaxation techniques. The control group received standard obstetric care without companionship.

Tools and Instruments

1. **Demographic Performa** – age, education, parity, socioeconomic background.
2. **Numerical Pain Rating Scale (0–10)** – to assess subjective pain intensity[13].
3. **Spielberger Trait Anxiety Inventory (STAI)** – to measure anxiety levels[14].
4. **Structured Observation Checklist** – for oxytocic/analgesic use and mode of delivery.
5. **Maternal Satisfaction Questionnaire** – validated 10-item Likert scale (Cronbach's $\alpha = 0.86$).

Ethical Considerations

The study was approved by the **Institutional Ethics Committee of Military Hospital, Meerut**. Written informed consent was obtained from all participants.

Data Analysis

Data were analyzed using **SPSS v25**. Descriptive statistics (mean, SD, percentage) summarized sample characteristics. **Independent *t*-tests** compared continuous variables and **chi-square tests** compared categorical outcomes. Significance was set at $p < 0.05$.

III. Results

Demographic Characteristics

The mean age of participants was 25.3 ± 3.2 years. Most women (70%) were homemakers and 60% had completed at least secondary education.

Table 1 depicting socio-demographic characteristics of participants

		Experimental Group		Control group	
		Freq	**%**	**Freq**	**%**
Age	20-30 years	25	83.4	13	43.3
	30-35 years	05	16.6	13	43.3
	> 35 years	-	-	4	13.3

Religion	Hindu	29	96.6	27	90
	Others	01	3.3	03	10
Education	Primary	2	6.6	01	3.3
	Intermediate	11	36.6	10	33.3
	Graduates	17	56.6	19	63.3
Companion	Mother-in-law	15	**50**	-	-
	Mother	05	16.6	-	-
	Sister-in-law	06	20	-	-
	Sister	02	6.6	-	-
	Others	02	6.6	-	-
			10		**-**
	> 36-37 weeks	09	30	17	**56.6**
	> 39weeks	18	**60**	13	43.3
ANC Visit	1-3 Visits	04	13.3	09	**30**
	4-6 Visits	11	**36.6**	07	23.3
	> 6 Visits	15	**50**	15	46.6
Gravida	Primi	19	**63.3**	23	**76.6**
	Multi	11	**36-6**	07	23.3
Use of Oxytocics	Yes	18	**60**	27	**90**
	No	12	40	03	10

Maternal Outcomes

Women with a female companion had **significantly shorter labor durations** and **lower pain and anxiety levels** compared to those without.

Table 2 depicting comparison of maternal outcomes between experimental and control groups

Outcome	**With Companion (n=30)**	**Without Companion (n=30)**	**t/χ^2**	**p-value**
Duration of labor (hours)	6.1 ± 1.3	8.2 ± 1.6	4.75	<0.001
Pain score (0–10)	4.2 ± 1.1	6.7 ± 1.4	7.25	<0.001
Anxiety score	38.5 ± 4.8	45.7 ± 5.2	5.14	<0.001
Oxytocic use (%)	13.3	36.7	4.17	0.04
Analgesic use (%)	10	30	3.96	0.04
Normal vaginal delivery (%)	86.7	63.3	5.23	0.02

IV. Discussion

This study found that the continuous presence of a female birth companion during the first stage of labor was associated with shorter labor duration, lower pain and anxiety scores, reduced need for oxytocic augmentation and analgesia, and higher rates of spontaneous vaginal birth. These results accord with a robust evidence base showing that continuous labor support yields clinically meaningful benefits.

A large systematic review and meta-analysis reported that continuous support from a companion or doula increases the likelihood of spontaneous vaginal birth, lowers the rate of intrapartum analgesia and operative birth, and shortens the duration of labor [3,9]. Our observed reduction in first-stage duration (~2.1 hours) and decreased analgesic/oxytocic use aligns with the pooled effects reported in that review and mirrors findings from randomized and quasi-experimental studies in both high- and low-resource settings [3,8,9]. For example, Kebede et al. documented statistically significant reductions in analgesia requirements and augmentation in their randomized trial, similar to the lower pharmacologic intervention rates observed in our companion group [16].

Several contextually relevant studies from low- and middle-income countries report comparable effect sizes. Maimbolwa et al. found that supportive companionship in Zambian labor wards shortened active labor and improved maternal satisfaction, a pattern paralleled in our cohort [9]. Likewise, Indian studies implementing the LaQshya guidance have demonstrated improved satisfaction and reduced intervention rates when companionship is operationalized, supporting the feasibility and benefit of companionship in Indian institutional contexts [17,19,20]. Our results strengthen the argument that companionship advantages are reproducible in service hospitals with constrained resources and busy caseloads.

Mechanistically, the findings are consistent with both psychophysiological models and empirical observations. Gate Control Theory and oxytocinergic pathways offer complementary explanations: tactile support, massage, and continuous reassurance can modulate nociceptive signaling and “close the gate,” reducing subjective pain scores [11]. Simultaneously, reduced anxiety and stress lower circulating catecholamines that otherwise antagonize uterine contractility, while positive social interactions may support endogenous oxytocin release and more efficient contractions — together shortening labor and reducing augmentation needs [18]. The moderate positive correlation observed in our data between pain and anxiety, and their correlation with prolonged labor, supports these linked pathways.

While our results closely match many prior reports, some differences in magnitude and specific outcomes are notable and instructive. For example, the Cochrane review reports a broad range of reductions in labor duration and variable effects on cesarean rates depending on study quality and population mix [3,9]. Our

study showed a favorable increase in spontaneous vaginal births but was not powered to detect differences in rare events such as cesarean delivery; larger trials frequently report smaller or non-significant effects for operative delivery when baseline cesarean rates are already low. Heterogeneity across studies—stemming from differences in companion type (trained doula vs. family member), level of companion orientation, parity mix, timing of support (continuous vs. intermittent), and facility culture—explains much of the variation in effect sizes [3,16]. For instance, studies in which companions received structured training or where staff actively partnered with companions often report larger clinical benefits than those where companions were present without orientation [16,17].

Cultural and institutional factors also shape effectiveness. Some studies from settings where privacy and ward layout were limiting reported attenuated benefits, likely because companions were less able to provide intimate, continuous support [6,17]. In contrast, units that adapted space usage and staff routines to accommodate companions reported higher adherence and greater benefits [19]. This suggests that the intervention's potency partly depends on implementation quality and the enabling environment.

Methodological differences must also be considered. Randomized controlled trials (RCTs) provide higher internal validity than observational designs, and meta-analytic evidence weights RCTs heavily [3]. Our study's non-randomized, purposive sampling may introduce selection bias: women who accepted a companion could differ in unmeasured ways (e.g., social support networks or childbirth expectations) from those who did not, potentially exaggerating effects. However, our groups were comparable on measured sociodemographic and obstetric variables, and the consistency with RCTs and systematic reviews strengthens the plausibility of a true causal relationship.

Practical implications follow from both the evidence and implementation experience. First, companionship is low cost and low risk, yet it delivers measurable clinical and experiential gains; therefore, it is an efficient quality-improvement target for hospitals seeking to improve intrapartum care outcomes without large capital investments [5,19]. Second, modest investment in orientation for companions and staff—brief, standardized briefings for family companions and short workshops for nurses on collaborative models—may amplify benefits substantially [16,17]. Third, structural adaptations (privacy screens, designated companion areas) and clear policy endorsement within institutional protocols (e.g., LaQshya-aligned standard operating procedures) help normalize companionship and remove administrative barriers to scale-up [5,19].

Finally, while the aggregate evidence is favorable, remaining research gaps should guide future work. These include: (a) adequately powered RCTs in Indian service hospitals examining neonatal outcomes and cesarean rates; (b) implementation research identifying optimal orientation content and delivery for family companions; (c) cost-effectiveness analyses comparing companionship programs with other intrapartum

quality initiatives; and (d) long-term follow-up studies assessing postpartum mental health and breastfeeding outcomes linked to intrapartum companionship.

In summary, the present study adds to converging international and national evidence that continuous female companionship during labor improves clinically relevant maternal outcomes. The magnitude of benefit in our setting mirrors prior high-quality studies while underscoring the importance of implementation context and companion orientation for maximizing impact.

V. Nursing Implications

1. **Practice:** Nurses should facilitate and supervise birth companionship to ensure emotional support and comfort during labor.
2. **Education:** Nursing curricula must integrate modules on respectful maternity care and the physiological basis of companionship.
3. **Administration:** Hospital policies should align with *LaQshya* and WHO recommendations to operationalize one-companion-per-laboring-woman standards.
4. **Community Health:** Antenatal classes should inform expectant families about the benefits and roles of birth companions.
5. **Research:** Future studies should evaluate long-term impacts on breastfeeding, postpartum recovery, and psychological adjustment.

VI. Recommendations

- Implement companion-friendly infrastructure in all maternity units.
- Conduct workshops to train nurses in supporting and managing birth companions.
- Evaluate cost-effectiveness of companionship programs at institutional and community levels.
- Promote public awareness through antenatal education campaigns.

VII. Limitations

The study was limited by small sample size, single-center design, and non-randomized sampling. Findings may not be generalizable to all obstetric populations. Long-term follow-up was not conducted.

VIII. Conclusion

Presence of a female birth companion during the first stage of labor significantly improves maternal outcomes, reduces anxiety and pain, and enhances satisfaction. It represents a cost-effective, evidence-based intervention aligned with global standards for respectful maternity care.

IX. Clinical Relevance

Allowing a trusted companion during labor enhances the quality and humanity of maternity care. Nurses and midwives should advocate for companionship as a standard intrapartum practice to promote comfort, reduce medical interventions, and foster positive childbirth experiences.

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