Effect of an Alternative Birthing Positions Educational Intervention on Birth Outcomes among Parturient Women in Western Kenya

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ABSTRACT

Context: The second stage of labor is a critical phase that significantly influences maternal and neonatal outcomes. Although alternative birthing positions such as squatting, side-lying, kneeling, and all-fours have been shown to improve birth outcomes, their adoption in many low-resource settings remains low. In Kenya, most women deliver in the lithotomy position, often due to limited awareness, lack of provider support, and restrictive facility practices. Antenatal education may play a vital role in empowering women to adopt evidence-based birthing positions that improve delivery outcomes.

Aim: The study aims to assess the effect of an educational intervention regarding alternative birthing positions on birth outcomes among parturient women in Western Kenya.

Methods: This study utilized a (nonequivalent control group) quasi-experimental design. A total of 481 pregnant women in their third trimester were enrolled from two comparable referral hospitals, with 238 allocated to the intervention group and 243 to the control group. The intervention group received a structured antenatal educational program on alternative birthing positions, while the control group received routine antenatal care. Data was collected using structured questionnaires, observational checklists, and maternity records.

Results: The intervention group experienced a significantly shorter mean duration of second-stage labor (18.9 minutes vs. 62.1 minutes in the control group; t=-18.8, p<0.0001). There was a significant reduction in the rate of episiotomy among the intervention group (4.7% compared to the control group (95.3%), which remained high ($\chi2$ = 306.7, p<0.0001) and intact perineum (62.1.1% vs. 37.9%, p <0.0001) in the intervention versus the control group. Spontaneous vaginal delivery was 56.0% among the intervention group vs. 44% in the control group with p<0.0001. Neonates born to mothers in the intervention group had higher Apgar scores at one minute (≥7) compared to those in the control group (57.4% vs. 42.6%, $\chi2$ = 20.8, p<0.0001).

Conclusion: The educational intervention significantly improved maternal and neonatal outcomes by promoting the use of alternative birthing positions. The use of alternative birthing positions during the second stage of labor results in shorter labor, fewer medical interventions, and improved maternal and neonatal outcomes.

Keywords: Alternative birth position, birth outcomes, education intervention

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1. Introduction

Globally, improving maternal health outcomes remains a top priority within public health and development agendas. Despite progress made toward reducing maternal and neonatal mortality, low- and middle-income countries continue to bear a disproportionate share of preventable maternal deaths and complications during childbirth. According to the World Health Organization *(WHO, 2021)*, an estimated 295,000 women died globally from causes related to pregnancy and childbirth in 2017, with the vast majority occurring in sub-Saharan Africa. Kenya, as part of this region, continues to face challenges in maternal health, with high rates of maternal and neonatal morbidity and mortality reported in both urban and rural health facilities.

One of the most critical phases of labor influencing maternal and neonatal outcomes is the second stage, defined as the period from full cervical dilation to the expulsion of the fetus. Various factors affect the duration, comfort, and outcomes of this stage, including the mother's birthing position *(Gupta et al., 2017; Satone & Tayade, 2023)*. Birthing position refers to the posture adopted by a woman during labor and delivery, particularly during the expulsion phase. While several positions are physiologically and culturally recognized, including squatting, kneeling, side-lying, sitting upright, and all fours, many women globally continue to deliver in the supine or lithotomy position, often with little or no choice in the matter *(Mutinda et al., 2020; Musie et al., 2019)*.

The lithotomy position, characterized by the mother lying flat on her back with legs supported in stirrups, has become the dominant birthing posture within institutional

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settings. Although this position provides convenience for healthcare providers, evidence has shown that it is associated with longer second-stage labor, an increased risk of perineal tears, a higher incidence of assisted deliveries, and compromised fetal outcomes *(Healy et al., 2016; Yadav et al., 2021; Kibuka et al., 2021).*

Despite the proven benefits of alternative birthing positions, their uptake remains remarkably low in many healthcare settings, particularly in Africa. Studies indicate that over 80% of women in Kenya and other East African countries deliver in the lithotomy position, even in the absence of clinical indications for doing so *(Kituku et al., 2019; Jiregna et al., 2024)*. This trend is influenced by several factors, including lack of knowledge among women, institutional practices, healthcare provider preferences, and the absence of supportive infrastructure in delivery wards *(Musie et al., 2019; Mutinda et al., 2020)*. In many cases, women are not informed about the existence or benefits of alternative birthing positions during antenatal care, nor are they allowed to choose during labor.

Education has long been recognized as a powerful tool for health behavior change. In maternal health, antenatal education programs have been demonstrated to enhance birth preparedness, reduce anxiety, increase satisfaction with care, and influence labor-related behaviors, including positioning, breathing techniques, and coping strategies *(Das & Kaur, 2025).* The lack of structured education about birthing positions represents a missed opportunity for empowering women and improving birth outcomes. According to *Bandura*'s Social Cognitive Theory *(1986)*, behavior change is influenced by knowledge, self-efficacy, environmental factors, and modeling. Educating women on birthing positions, including through visual and participatory demonstrations, enhances their confidence in asserting their preferences during labor and adopting positions that optimize birth outcomes.

Recent studies have shown that targeted educational programs can significantly influence the adoption of birthing positions and improve birth outcomes. For example, a randomized controlled trial by *Lin et al. (2018)* in Taiwan found that women who received antenatal education about birthing positions were significantly more likely to adopt upright positions, experienced shorter labor durations, and had lower rates of perineal trauma. Similarly, in Ethiopia, an intervention study by *Jiregna et al. (2024)* reported that women exposed to birth position education were more likely to report satisfaction with care and reduced need for assisted deliveries.

In the Kenyan context, antenatal education typically focuses on nutrition, danger signs in pregnancy, and basic birth preparedness. However, it often neglects critical aspects of labor management, including maternal birthing position choices *(Mutinda et al., 2020)*. Consequently, many women enter labor unprepared to make decisions about birthing posture and may default to whatever position is prescribed by the attending healthcare provider.

Despite the growing body of evidence, educational programs focusing on birthing positions are not widely implemented in Kenya's public health system, including Western Kenya. Furthermore, there is limited research evaluating the direct impact of such interventions on actual birth outcomes in real-world settings.

2. Significance of the study

Educational programs on alternative birthing positions are an integral part of antenatal care. The use of alternative birth positions has a positive effect on birth outcomes *(Mtatina et al., 2022).* However, Kenyan hospitals, including those in Western Kenya, still use lithotomy positions; this position has been associated with perineal tears, increased blood loss, assisted deliveries, and low APGAR scores.

There are limited studies that assess the birth outcome of utilizing alternative birthing positions after educating parturient women to optimize maternal and neonatal outcomes. Given these gaps, the current study aims to evaluate the effect of an educational program on alternative birthing positions on actual birth outcomes among parturient women in Western Kenya. It addresses the need for empirical evidence on how structured maternal education can influence not only maternal choices but also clinical outcomes such as labor duration, mode of delivery, perineal trauma, and neonatal well-being.

This study provides actionable insights to reduce preventable maternal trauma, empower women, and realign clinical practices with evidence to prevent maternal and neonatal complications during delivery. Its findings could inform regional policy reforms and training programs aimed at improving maternal and neonatal outcomes while respecting patient autonomy.

3. Aim of the study

The study aims to assess the effect of an educational intervention regarding alternative birthing positions on birth outcomes among parturient women in Western Kenya.

3.1. Research Hypothesis

Educational programs on alternative birthing positions do not affect birth outcomes among parturient women.

3.2 Operational definition

Birth outcomes are defined in this study as maternal and neonatal aftermaths, such as duration of the second stage of labor, use of episiotomy, mode of delivery, perineal trauma, and neonatal Apgar scores at one and five minutes.

4. Subjects & Methods

4.1. Research Design

This study employed a nonequivalent quasi-experimental (study/control group) design to assess the effect of an educational program on alternative birthing positions on maternal and neonatal outcomes. Two groups were involved: An intervention group that received a structured educational program on birthing positions and a control group that received standard antenatal care without the educational component. Although random allocation

was not applied, the two groups were selected from comparable health facilities, and baseline assessments were conducted to ensure similarity prior to intervention. The design enabled the measurement of both control group and intervention group outcomes in a naturalistic setting while reducing contamination by assigning different health facilities to each group.

4.2. Study setting

The study was conducted in two counties in Western Kenya—Kakamega and Bungoma. These counties were purposively selected due to their high institutional delivery rates, which contribute to the prevalence of lithotomy birthing positions. Kakamega County Teaching and Referral Hospital was selected randomly as the intervention site, while Bungoma County Referral Hospital served as the control site. Both are tertiary-level public hospitals with similar service capacities, infrastructure, and maternal health profiles. Each facility handles an average of 400 to 600 deliveries per month, providing comprehensive obstetric and neonatal services. The geographical separation of the facilities minimized the risk of information transfer between participants in different groups.

4.3. Subjects

The target population for this study consisted of pregnant women in their third trimester attending antenatal care (ANC) clinics at the two selected hospitals. The women were considered eligible if they were between 32 and 37 weeks of gestation, had singleton pregnancies, and were not diagnosed with obstetric complications at the time of recruitment. They were also expected to deliver at the same hospital where they received antenatal care, which enabled continuous follow-up and post-delivery data collection.

The required sample size was determined using Fleiss' formula *(Fleiss, 1971)* for comparing two proportions. Prior studies have indicated a potential increase in the use of alternative birthing positions, from approximately 10% to over 60%, following educational interventions. Using these estimates and setting the power at 80 percent with a 5 percent level of significance, a minimum of 226 participants per group was needed. To account for possible dropouts, the sample was increased to 250 per group. Ultimately, a total of 481 women participated in the study, comprising 238 in the intervention group and 243 in the control group. Nineteen were lost to follow-up.

Systematic sampling was used to recruit participants from antenatal clinic registers at each site. Based on the expected number of eligible women and the required sample size, a sampling interval was calculated. After randomly selecting the first participant, every nth woman was recruited until the target number was reached. Participants were then followed up until delivery. The hospital assigned the group members, with the Kakamega women allocated to the intervention group and the Bungoma women assigned to the control group.

Eligible participants were women with low-risk singleton pregnancies who provided informed consent to participate in the study. Only those intending to deliver at the study hospitals were enrolled to ensure complete follow-up during labor and delivery. Women were excluded if they were carrying multiple pregnancies, had any known complications that could necessitate cesarean delivery, or had conditions that could impair participation, such as severe communication difficulties. Those who planned to deliver elsewhere were also excluded to ensure consistency in data collection and outcome verification.

4.4. Tools and Data Collection

Two main instruments were used for data collection. First,

4.4.1. Structured Interview Questionnaire

It was administered to participants at baseline to gather data on sociodemographic characteristics and obstetric history. Second,

4.4.2. Maternal and Neonatal Outcome Record

Trained labor ward midwives used it to record the birthing position used during delivery, the duration of the second stage of labor, the use of episiotomy, mode of delivery, perineal trauma, Apgar scores at one and five minutes, and postpartum hemorrhage.

4.5. Procedures

This study was conducted in accordance with the ethical standards for research involving human participants. Ethical approval was obtained from the Institutional Research and Ethics Committee of Masinde Muliro University of Science and Technology (MMU/COR:40312VOL6(1)). Additional approvals were obtained from the National Commission for Science, Technology, and Innovation (NACOSTI/P/24/32712) and the respective County Health Departments (Bungoma: CGH/BGM/CDH/VOL1, Kakamega: ERC/234-02/2024).

Verbal informed consent was obtained from all participants after they were explained the study's purpose, procedures, and potential risks and benefits. Participants were assured that their participation was voluntary and that they could withdraw at any time without affecting the care they received. Confidentiality was maintained by assigning unique identification codes to participants, and all data were stored securely in password-protected digital databases and locked cabinets accessible only to the research team.

To ensure validity, the research instruments were reviewed by three maternal health experts for content accuracy and cultural relevance. A pretest was conducted in a different facility with similar characteristics, and feedback was used to refine the tools. The internal consistency of the questionnaire was measured using Cronbach's alpha, with overall tool scores above 0.80 indicating acceptable reliability (structured questionnaire, 0.83; maternal and neonatal outcome record, 0.84). Observational data were cross-referenced with maternity ward records to enhance accuracy and reduce discrepancies.

The educational program was administered during routine antenatal care visits at the intervention site. It

consisted of a structured 30-minute group session delivered by trained midwives and research assistants. The session covered the advantages of alternative birthing positions, such as squatting, side-lying, kneeling, and the all-fours position. Education was delivered through illustrated booklets, interactive discussions, and short videos demonstrating real-life applications of each position. Women were encouraged to ask questions, discuss cultural beliefs, and express their preferences. Each participant received the education twice: Once at enrollment and again during a follow-up visit before delivery. No such education was given to women in the control group, who continued to receive standard antenatal education as offered by the facility.

Data were collected in two phases. During the antenatal period, baseline information was collected using the structured questionnaire. The educational intervention was then delivered to the intervention group. During labor and delivery, the midwives used the observational checklist to document the actual birthing positions used and the corresponding maternal and neonatal outcomes. These records were cross-checked with maternity registers to confirm accuracy. Following delivery, the research team followed up with participants to collect the outcome data. The data collection team consisted of midwives and research assistants trained on the study protocol and ethical procedures. They were not directly involved in labor management, which minimized bias and maintained objectivity in data recording.

4.6 Limitations and Mitigation Strategies

Although the quasi-experimental design offered practical advantages, it lacked randomization, which could introduce selection bias. To mitigate this, the two study sites were matched in terms of delivery volume, staffing, and facility characteristics. Baseline data were also collected to ensure comparability. Observer bias was minimized by training data collectors who were independent of the maternity care team. The follow-up was ensured by maintaining regular contact with participants and coordinating closely with delivery ward staff. These steps strengthened the study's internal validity and enhanced the reliability of the findings.

4.7. Data analysis

All completed data forms were verified, coded, and entered into the Statistical Package for Social Sciences (SPSS) version 28. Descriptive statistics were used to summarize participant characteristics and birth outcomes. Frequencies and percentages were used to describe categorical variables, while means and standard deviations were used for continuous variables. Inferential analysis was conducted to assess the impact of educational intervention. Chi-square tests were used to examine group differences in categorical outcomes such as mode of delivery and use of episiotomy. Independent samples t-tests were used to compare continuous variables such as the duration of the second stage of labor. A p-value of equal or less than 0.05 was considered statistically significant.

5. Results

Table 1 reveals the frequency and percentage distribution of sociodemographic characteristics of participants. A total of 481 parturient women participated in the study, with 238 assigned to the intervention group and 243 to the control group. The mean age in the control group was 31.6±4.4 years, while in the intervention group, it was 31.4±5.0 years. The married state was 77.3% in the intervention group versus 77.4% in the control group, while the single rate was 22.6% in the control group versus 22.7% in the intervention group. Regarding religion, Catholics comprised 5.9% of the intervention group, while Protestants made up 94.1% of the group. In the control group, the percentages were 7.8% and 92.2%, respectively.

Tertiary education was (29.8%) in the intervention group and (1.6%) in the control group, while primary education was (9.9%) in the control group vs. 1.3% in the intervention group. The intervention group also had (27.3%) housewives vs (1.2%) in the control group. Employed participants were (20.6%) in the intervention group vs 0.4% in the control group, while the control group had (98.3%) participants engaged in business vs 37.4% in the control group.

Table 2 provides the status of birth outcomes from previous delivery. The baseline data was collected on the last birth outcome on the last birth position used. The lithotomy position was the most frequently used birth position during the last delivery, with 94.6% of the control group and 93.3% of the intervention group. Only a small percentage of individuals in both groups employed an alternative birthing position, 6.7% from the intervention group and 5.4% from the control group.

The most common maternal complications were perineal tears (35.7% intervention, 32.9% control) and prolonged second stage (36.1% intervention, 24.3% control). The most frequent neonatal complication was not crying immediately after birth (32.3% intervention, 24.3% control).

Table 3 presents a comparison of the utilization of alternative birthing positions before and after educating women on their use. The results reveal that there was no significant difference between both groups before educational intervention on alternative birthing position ($\chi2=0.4$, $p=0.53$); however, after educating parturient women, there were significantly higher rate of uptake of alternative birth position among the intervention group compared to the controls as shown by ($\chi2=168.3$, $p<0.005$)

Table 4 presents a comparison of maternal birth outcomes between the study and control groups. The study evaluated several birth outcomes related to the use of alternative birthing positions, including mode of delivery, onset of labor, perineal outcome, use of episiotomy, amount of blood loss, augmentation during the second stage, and the duration of the second stage of labor.

Also, Table 4 provides the descriptive and inferential statistics for these variables in both groups. The statistically significant components were spontaneous vaginal deliveries without assistance in the intervention group (56.0%) than the control group (44.0%), with a

significant $\chi 2$ value (47.4) and a p-value <0.0001. Spontaneous labor was also more common in the intervention group (51.0%) than in the control group (49.0%), with a significant $\chi 2$ value (4.6) and a p-value of 0.032.

The intact perineum rate is higher among the intervention group (62.1%) and has a lower rate of episiotomies (4.7%) compared to the control group, with significant $\chi 2$ values (37.9% and 95.3%, respectively) and p-values < 0.0001. The control group had a higher rate of blood loss of more than 500 ml, 84.6%, compared to 15.4%, with a significant $\chi 2$ value (27.1) and a p-value < 0.0001. The intervention group had a lower rate of augmentation during the second stage of labor (28.6%) than the control group (71.4%), with a significant $\chi 2$ value (6.6) and a p-value of 0.010.

The intervention group had a significantly shorter mean duration of the second stage of labor (18.9±14.4 minutes) compared to the control group (62.1±32.5 minutes), with a significant t-test value (-18.8) and a p-value < 0.0001.

The intervention group had a higher rate of 1st-minute APGAR scores ≥7 (57.4%) than the control group (42.6%), with a significant $\chi 2$ value (20.8) and a p-value of <0.0001.

Table 5 presents a comparison of neonatal outcomes between the study and control groups. The intervention group had a higher rate of 1st Minute APGAR scores ≥7 (57.4%) than the control group (42.6%), with a significant $\chi 2$ value (20.8) and a p-value <0.0001. However, the 5th-minute APGAR scores showed no significant difference between the groups.

Table (1): Frequency and percentage distribution of sociodemographic characteristics of participants (n=481).

Variables	Total n=481		Intervention n=238		Control n=243	
	No.	%	No.	%	No.	%
Age						
Mean age ± SD	31.5±4.7		31.4±5.0		31.6±4.4	
Range	18-45		19–44		18–45	
Marital status						
Single	109	22.7	54	22.7	55	22.6
Married	372	77.3	184	77.3	188	77.4
Level of education						
None or Primary	27	5.6	3	1.3	24	9.9
Secondary	379	78.8	164	68.9	215	88.5
Tertiary	75	15.6	71	29.8	4	1.6
Occupation						
Housewife	68	14.1	65	27.3	3	1.2
Farmer	35	7.3	35	14.7	0	0.0
Employed	50	10.4	49	20.6	1	0.4
Business	328	68.2	89	37.4	239	98.3
Religion						
Catholic	33	6.9	14	5.9	19	7.8
Protestant	448	93.1	224	94.1	224	92.2
Parity						
0-2	166	34.5	82	34.4	84	34.6
3-5	315	65.4	156	65.6	159	65.4

Table (2): Frequency and percentage distribution of birth outcomes after previous delivery.

Variables	Total		Intervention n=238		Control n=243	
	No.	%	No.	%	No.	%
Birth position used during last delivery						
Alternative position	29	6	16	6.7	13	5.4
Lithotomy position	452	94.0	222	93.3	230	94.6
Maternal complications during the last delivery						
None	171	35.6	67	28.1	104	42.8
Perineal Tears	165	34.3	85	35.7	80	32.9
Prolong the second stage	145	30.1	86	36.1	59	24.3
Neonatal complications during the last delivery						
Not crying immediately after birth	136	28.3	77	32.3	59	24.3
Difficulty in breathing	26	5.4	10	4.2	16	6.6
Birth Injury	34	7.1	22	9.2	12	4.9
None	285	59.2	129	54.2	156	64.2

Table (3): Comparison of the utilization of alternative birthing positions in the second stage of labor before and after education among the study and control groups (n=481).

Variables	Before Education		χ2	P-value	After Education		χ2	p-value
	No.	%			No.	%		
Intervention (n=238)								
Alternative positions	16	6.72			163	68.49		
Lithotomy positions	222	93.28			75	31.51		
Control (n=243)			0.4	0.53			168.3	0.0001
Alternative positions	13	5.35			26	10.70		
Lithotomy	230	94.65			217	89.30		

Table (4): Comparison of maternal outcomes between control and intervention groups (n=481).

Variables	Total n=481		Intervention n = 238		Control n=243		χ^2 (*=t)	P-value
	No.	%	No.	%	No.	%		
Vaginal delivery								
Spontaneous	411	85.4	230	56.0	181	44.0	47.4	<0.0001
Vacuum or Forceps (AVD)	70	14.6	8	11.4	62	88.6		
Onset of labour								
Spontaneous	437	90.9	223	51.0	214	49.0	4.6	0.032
Induced	44	9.1	15	34.1	29	65.9		
Perineal outcomes								
Intact	356	74	221	62.1	135	37.9	96.4	<0.0001
1st-degree tear	105	21.8	8	7.6	97	92.4		
2nd or more degree tear	20	4.2	9	45.0	11	55.0		
Episiotomy								
Yes	213	44.3	10	4.7	203	95.3	306.7	<0.0001
No	268	55.7	228	85.1	40	14.9		
Amount of blood loss								
<500 ml	429	89.2	230	53.6	199	46.4	27.1	<0.0001
≥500 ml	52	10.8	8	15.4	44	84.6		
Augmentation during the second stage								
Yes	35	7.3	10	28.6	25	71.4	6.6	0.010
No	446	92.7	22	51.1	218	48.9		
Duration of second stage (min)								
Mean±SD	45.5±25.16		18.9 ± 14.4		62.1 ± 32.5		-18.8*	<0.0001
Range	17.1-66.2		17.1–20.8		58.0–66.2			

**=t-test*

Table (5): Comparison of neonatal outcomes between control and intervention groups (n=481).

Variables	Total	Intervention n=238		Control n=243		χ^2	P-value
1st Minute APGAR score							
≥7	305	175	57.4	130	42.6	20.8	<0.0001
<7	176	63	35.8	113	64.2		
5th Minute APGAR score							
≥7	340	175	51.5	165	48.5	1.8	0.175
<7	141	63	44.7	78	55.3		

6. Discussion

Improving maternal and neonatal health remains a priority in global reproductive health strategies, particularly in low-resource settings such as Western Kenya. One area that has received increasing attention is the role of birthing positions in influencing labor and delivery outcomes despite the continued use of conventional supine positions. Evidence suggests that alternative birthing positions offer physiological and psychological benefits for both the mother and the newborn *(Berta et al., 2019).* The study aims to assess the effect of an educational intervention regarding alternative birthing positions on birth outcomes among parturient women in Western Kenya.

The findings revealed that at the baseline most used birthing position was lithotomy, and it was associated with maternal and neonatal complications. However, there was a significant improvement in maternal and neonatal outcomes following the intervention, leading to the rejection of the null hypothesis, which stated that educational programs on alternative birthing positions do not affect birth outcomes among parturient women.

Women who received the educational program were more likely to adopt alternative birthing positions, experienced shorter second-stage labor, had lower rates of episiotomy and perineal tears, and achieved improved neonatal Apgar scores. These findings confirm the positive impact of antenatal education on alternative birth positions to improve birth outcomes.

Lin et al. (2018) conducted a randomized controlled trial in Taiwan. They found that women who received structured education in labor positions were more likely to

adopt non-supine postures, resulting in better delivery outcomes. Similarly, a study by *Jiregna et al. (2024)* in Ethiopia found a significant increase in the use of squatting and side-lying positions following a targeted birth preparedness intervention. In line with these findings, the current study demonstrated that women who received an alternative birthing positions educational intervention in Western Kenya were significantly more likely to achieve spontaneous vaginal deliveries (56.0% vs. 44.0%, $p<0.0001$), maintain intact perineum (62.1% vs. 37.9%, $p<0.0001$), and avoid episiotomy (85.1% vs. 14.9%, $p<0.0001$). Additionally, they experienced significantly shorter second-stage labor durations (mean: 18.9 vs. 62.1 minutes, $p<0.0001$) and improved 1-minute Apgar scores (57.4% ≥7 vs. 42.6%, $p<0.0001$), further supporting the effectiveness of structured antenatal education on alternative birthing positions.

The intervention group experienced a significantly shorter second stage of labor compared to the control group. It can be attributed to the gravitational advantage and improved fetal descent associated with upright positions. These findings are consistent with those of *Gupta et al. (2017),* who reported that upright positions facilitated more efficient uterine contractions and fetal alignment, resulting in shorter labor durations. These results were evidenced in this study, as the intervention group experienced shorter durations.

Moreover, the physiological advantage of gravity in upright positions reduces the need for additional interventions. It minimizes maternal perineal tears, which was also evident in this study, as the intervention group had a lower rate of augmentation during the second stage of labor.

The reduced rate of episiotomy and blood loss of less than 500 ml in the intervention group was noteworthy; these findings suggest that the use of alternative birth positions plays a crucial role in minimizing unnecessary obstetric procedures. Studies by *Berta et al. (2019)* and *Satone and Tayade (2023)* have demonstrated that upright birthing positions stretch the perineum more gradually, allowing for better control during delivery and thereby reducing the need for surgical incisions, as well as blood loss.

Spontaneous vaginal delivery was significantly more common in the intervention group, which utilized an alternative birthing position, than in the control group, which utilized a lithotomy position during the second stage. This finding is attributed to the fact that an upright position hastens labor and reduces the risk of complications. This difference is consistent with the results of *Edqvist et al. (2017),* who found that upright positions not only improve maternal control but also reduce the incidence of assisted deliveries and cesarean sections.

The study also observed fewer perineal tears in the intervention group compared to the control group. This reduction may be due to the widening of the pelvic outlet when parturient women assume an alternative birthing position. It also aids in gravity and reduces pressure on the perineum, hence preventing perineal tears. *Healy et al. (2016)* noted that when women are allowed to deliver in positions of comfort, especially side-lying or hands-and-knees, the risk of severe perineal trauma is reduced. These results reinforce the importance of flexibility and maternal choice in labor management.

In terms of neonatal outcomes, babies born to mothers in the intervention group had higher Apgar scores at one minute compared to the control group babies; this demonstrates that alternative birthing positions optimize maternal physiology and biomechanics during labor, which enhances fetal oxygenation, facilitates smoother delivery, reduces birth trauma, and ultimately contributes to good neonatal outcome. These findings are in agreement with the work of *Musie et al. (2019),* who documented improved oxygenation and fetal adaptation in deliveries conducted in an upright position. The enhanced perfusion and oxygen flow, due to reduced aortocaval compression in upright postures, likely contributed to these positive outcomes.

Despite these consistent findings, a few studies have reported inconclusive results regarding the impact of alternative birthing positions. For instance, a study by *Mirzakhani et al. (2020)* found no significant difference in Apgar scores or labor duration between supine and non-supine deliveries. Such inconsistencies may stem from differences in implementation fidelity, cultural factors affecting maternal compliance, or variations in health provider support. In some settings, although women are educated on alternative positions, institutional practices and provider resistance may hinder their ability to act on this knowledge.

Another reason for variability in outcomes may relate to parity and individual pain thresholds. In this study, participants were either primiparous who had limited previous exposure to alternative delivery methods or multiparas women with limited knowledge of alternative birthing positions, or the last birth position was lithotomy. These individual-level barriers underscore the need for continued provider encouragement to parturient women and culturally sensitive health education concerning the utilization of alternative birthing positions. Nonetheless, the overall findings support the importance of utilizing alternative birthing positions to promote better maternal and neonatal outcomes.

7. Conclusion

This study demonstrated that when parturient women are educated on the use of alternative birth positions during the second labor of labor, they make informed choices, which have proven to improve birth outcomes. The intervention group showed markedly higher use of alternative birthing positions, which led to shorter second-stage labor, fewer episiotomies and perineal tears, higher rates of spontaneous vaginal delivery, less blood loss of (less than 500 mL), and improved neonatal Apgar scores. These findings affirm the value of antenatal education as a powerful tool for improving maternal autonomy, comfort, and safety during childbirth. The results highlight the need to empower parturient women with knowledge of alternative birthing positions during Antenatal clinics should make informed choices to improve maternal and neonatal outcomes.

8. Recommendations

Based on the findings of this study, several recommendations are proposed to enhance maternal and neonatal outcomes through improved birthing practices:

First, antenatal care services should incorporate structured education on birthing positions. Women should be encouraged to identify their preferred birthing posture and include it in their birth plans.

Secondly, healthcare providers to support parturient women to utilize alternative birthing positions to improve maternal and neonatal outcomes.

Third, maternity care providers should receive ongoing training on the benefits and support techniques for alternative birthing positions. Midwives and other health care providers should be equipped not only with knowledge but also with attitudes that promote respectful maternity care and maternal autonomy.

Fourth, health facilities should be equipped to accommodate various alternative birthing positions. This accommodation may include the provision of birthing stools, mats, adjustable beds, and adequate space within labor rooms. Creating a physically supportive environment is crucial for translating education into practical application.

Fifth, community engagement strategies should be strengthened to raise awareness of birthing position options. Public health campaigns, women's groups, and community health volunteers can help disseminate culturally sensitive information that challenges outdated norms and promotes safe, evidence-based practices.

Lastly, further research should be conducted to explore barriers to the adoption of alternative birthing positions, including cultural beliefs, provider attitudes, and institutional constraints. Longitudinal studies are also necessary to evaluate the sustainability and long-term effects of such interventions on maternal and neonatal health indicators.

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