

Labour Outcomes Among Low-Risk Women Using WHO Labour Care Guide Versus WHO Modified Partograph

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Abstract

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Objectives: To compare the outcomes of labour in terms of labour duration and mode of delivery using WHO Labour Care Guide and WHO modified partograph in low-risk pregnant women.

Study Design: Randomized controlled trial.

Settings and duration of study: Gynae & Obs Department Unit II Holy Family hospital Rawalpindi, between November 2024 and April 2025

Methodology: There were 120 low-risk pregnant women with cephalic presentation, spontaneous labour, full term, and singleton pregnancies. Admission cervical dilation of above 8cm and head station of > +1 were excluded. All the women were allocated into two study groups through lottery method. Patients in group no. 1 were given care according to WHO modified partograph. Patients in group no. 2 were given care

according to Labour Care Guide. Partograph was filled by post graduate resident (who was trained on labour care guide workshop). Duration of labour was noted among two groups. Partograph was followed till delivery and mode of delivery was evaluated.

Results: Frequency of requirement for cesarean section among World Health Organization Labour Care Guide group was 02 (3.33%) and in modified partograph monitoring of labour group was 13 (21.67%) (p-value = 0.0024). Group 1 had the active phase of labor for 115.55 ± 57.35 minutes, which was

substantially shorter than group 2's duration (183.95 ± 63.30 minutes) ($P = 0.0001$).

Conclusion: This study concluded that the World Health Organization Labour Care Guide is more efficacious when reducing the frequency of cesarean section compared to modified partograph monitoring of labour.

Introduction

The World Health Organization created the partograph, a paper-based tool for tracking labor during pregnancy. It is a graphic record of labor progress that shows the state of the mother and fetus. The proper prevention and treatment of prolonged labor and its problems depend on the partograph, a straightforward chart used to record information about the state of a woman and her unborn child during labor as well as the progress of the labor.^{1,2} Using a partograph is recommended by the WHO when labor is not proceeding as it should.³ It acts as a warning system and facilitates the early stages of labor transfer, augmentation, and termination decision-making.⁴

According to WHO, 99% of maternal fatalities worldwide occurred in underdeveloped countries, with obstructed labor being the primary reason.⁵ The WHO created a composite partograph in 1994 that shows the latent phase, which lasts for eight hours, followed by the active period, with alert and action lines. While the action line assists in starting the proper actions, the alert line assists personnel in identifying indications of a departure from the norm. The WHO created a revised partograph in 2000 that eliminated the latent phase to make it more user-friendly and straightforward because there is always a chance that improper actions would be made if the latent phase receives too much attention.⁶ The WHO created a new labor management tool called the Labour Care Guide (LCG) in place of the partograph, which has revised definitions and durations for the first and second stages of labor. Documentation of the LCG begins when cervical dilatation is ≥ 5 cm during the active period. During labor and delivery, the LCG seeks to advance the use of woman-centered, respectful, and evidence-based care.^{7,8} The labor care guide will enhance rather than diminish the goals of the original partograph. The promotion of high-quality, considerate, and caring care for all women, babies, and their families is one of the best practices that the Labour Care Guide will support in response to developments.⁹ According to a study conducted in India by Divya and Rekha (2022) on the effect of the WHO LCG on lowering the number of cesarean sections at a tertiary facility, the study group's cesarean delivery rate was 1.5%, whereas the control group's was 17.8% ($P=0.0001$). The study group's active phase of labor lasted considerably less time than the control group's ($P<0.001$).¹⁰ Additionally, WHO has suggested an LCG user handbook.¹¹

The findings of this study will guide healthcare providers in making informed decisions by the women about their labour. This study will provide an evidence about importance of companionship of choice during labour and also will highlight the importance of empowering women in management of her labour. Since the Labour Care Guide was just released, there aren't many research comparing it to the WHO-modified partograph at the moment.

MATERIALS AND METHODS:

120 low-risk pregnant women who visited the Gyne & Obs Department Unit II Holy Family hospital in Rawalpindi between November 2024 and April 2025 and had full-term, singleton pregnancies, cephalic presentations, and spontaneous labor were chosen for this randomized controlled trial. The WHO sample size calculator was used to perform the following calculations: sample size = 60 patients each group (a total of

120), significance level = 5%, test power = expected population proportion P1 = 1.5%, expected population proportion P2 = 17.8%.¹⁰ Head station more than +1 and cervical dilatation greater than 8 cm at admission were not included.

Women who met the inclusion and exclusion criteria gave their informed consent. Using a lottery, all of the ladies were divided into two research groups. Group No. 1 patients received treatment in accordance with the WHO modified partograph. Group No. 2 patients received care in accordance with the Labour Care Guide. Before agreement was obtained, participants were informed of the study's risks and benefits as well as the voluntary nature of participation. Participants in the study were kept anonymous. History and examination was performed in all patients. A maternal evaluation was conducted. Each sufferer was permitted to have one friend. For pain alleviation, the right analgesia was administered. It was recommended that patients stay mobile. The fundal, lateral, and pelvic grips were used to measure the fetus's height, estimated weight, engagement, liquid, volume, lie, presentation, and position during the obstetrical examination. The position, regularity, and rate of the fetal heart sound were determined. The pelvic examination was done to assess the presenting component, its station, cervical dilatation, effacement, position, consistency, presence of intact membranes, and color of liquid in case of ruptured membranes. In order to rule out cephalopelvic disproportion, the pelvis was assessed. The postgraduate resident who completed the partograph received training at the Labor Care Guide Workshop. Two groups' labor durations were recorded. The partograph was adhered to till delivery, and the delivery method was assessed.

SPSS version 25.0 was used. The mean \pm standard deviation included age, parity, and labor duration. Frequencies and percentages were used to indicate the mode of delivery, maternal education, and occupation. Quantitative factors (labor duration) were compared between the groups using the independent sample t-test. The qualitative variable (method of delivery) comparison was done using the chi-square test. A P-value of less than 0.05 was considered significant.

RESULTS:

The study's participants ranged in age from 18 to 40, with a mean age of 27.89 ± 5.29 years. Women in groups 1 and 2 had mean ages of 27.72 ± 4.81 and 25.53 ± 5.68 years, respectively. Ninety-six (80.0%) of the patients were in the 18–30 age range. The mean gestational age was 38.87 ± 1.06 weeks, with a range of 37 to 42 weeks. Group 1 and Group 2 had mean gestational ages of 38.75 ± 0.93 weeks and 38.80 ± 1.91 weeks, respectively. 2.05 ± 1.01 was the mean parity. A mean height of 159.87 ± 18.99 cm was recorded. A mean weight of 78.52 ± 9.76 kg was recorded. A mean BMI of 28.91 ± 2.83 kg/m² was recorded. Table I displays the distribution of the various variables. According to Table II (p-value = 0.0024), the frequency of need for a cesarean section was in 02 (3.33%) of the World Health Organization Labour Care Guidelines group and in 13 (21.67%) of the partograph monitoring of labor group. Group 1 had the active phase of labor for 115.55 ± 57.35 minutes, which was substantially shorter than group 2's duration (183.95 ± 63.30 minutes) ($P = 0.0001$). Group A and Group B had mean newborn weights in kilograms of 2.75 and 2.76, respectively. At one minute and five minutes, group A's mean APGAR score was 8.04 and 9.06, respectively, but group B's was 8.26 and 9.1 (Table III). Regarding the perinatal outcomes, there was no discernible difference between the two groups.

Table-I: Distribution of different variables (n=120).

		Group 1 (n=60)	Group 2 (n=60)
		Number (%)	Number (%)
Age (years)	18-30	45 (75.0%)	51 (85.0%)
	31-40	15 (25.0%)	09 (15.0%)
GA (weeks)	37-39	48 (80.0%)	47 (78.33%)
	40-42	12 (20.0%)	13 (21.67%)
Parity	0-2	50 (83.33%)	51 (85.0%)
	>2	10 (16.67%)	09 (15.0%)
Profession	Housewife	38 (63.33%)	37 (61.67%)
	Employed	22 (36.67%)	23 (38.33%)
Education	Uneducated	17 (28.33%)	18 (30.0%)
	Educated	43 (71.67%)	42 (70.0%)

Table-II: Comparison of outcome in both groups (n=120).

	Group 1 (n=60)		Group 2 (n=60)		P-value
	CS	SVD	CS	SVD	
Mode of delivery	02 (3.33%)	58 (96.67%)	13 (21.67%)	47 (78.33%)	0.0024
Duration of labour (min)	115.55 ± 57.35		183.95 ± 63.30		0.0001

Table-III: Comparison of perinatal outcome in both groups (n=120).

	Group 1 (n=60)	Group 2 (n=60)	P-value
Neonatal weight (kg)	2.75 ± 0.19	2.76 ± 0.2	0.967
Apgar Score at 1 Minute	8.04 ± 0.9	8.26 ± 0.93	0.130
Apgar Score at 5 Minute	9.06 ± 0.9	9.1 ± 0.67	0.373

DISCUSSION:

I have conducted this study to determine the outcome of the World Health Organization Labour Care Guidelines versus modified partograph monitoring of labour. In my study, frequency of requirement for caesarean section among World Health Organization Labour Care Guidelines group was in 02 (3.33%) and in modified partograph monitoring of labour group was in 13 (21.67%) (p-value = 0.0024). The active phase of labor lasted 115.55 ± 57.35 minutes in group 1 compared to 183.95 ± 63.30 minutes in group 2 (P = 0.0001). Pandey et al conducted a study comparing the LCG to standard monitoring with a partograph to determine whether it was successful in reducing the frequency of complications associated with vaginal delivery as well as a reduction in the frequency of employment of caesarean sections and noted that successful non-assisted vaginal delivery occurred in 93.4% cases versus 76.3% with partograph monitoring.¹⁰ Caesarean sections were only required in 1.5% of patients managed with LCG, while it was required in 17.8% of cases managed with modified partograph only.¹¹ Total maternal complications were seen in 0.9% and 1.8% cases with LCG and partograph respectively, while no complications were seen in the neonates.

In a study¹², 1735 pregnant women were plotted using the New WHO Labour Care guidance; 1668 (96%) of the patients had vaginal deliveries, whereas 67 (4%) had cesarean sections. Prior to the creation of the new WHO labor care guidance, it was discovered that 1082 (94%) of all cesarean sections performed

on patients were performed during the latent phase of labor, while only roughly 67 (6%) were performed during the active phase. The majority of patients who had LSCS during the active phase of labor had fetal distress (29, 43%), cephalopelvic disproportion (21, 31%), non-progression of labor (13, 20%), and deep transverse arrest (about 4; 6%).¹²

In their analysis of 62,415 parturients' labor patterns across 19 centers, Zhang et al.¹³ showed that it could take more than 6 hours for labor to proceed from 4 to 5 cm of dilatation and more than 3 hours for labor to move from 5 to 6 cm of dilatation. Furthermore, regardless of parity, labor advanced at a comparable but slower rate prior to 6 cm of dilation. However, due to rapid progress—much faster in multiparas than in nulliparas—the curve becomes steeper at 6 cm of dilatation. Therefore, they recommended that the active phase of labor begin at 6 cm dilatation, a recommendation that the ACOG approved in 2014.¹⁴

The active phase of labor was characterized by the WHO-updated recommendations¹⁵ as beginning at 5 cm of dilatation, which is where the LCG begins. A maximum of 18.5 hours has been allowed by the LCG between 5 cm of dilatation and full dilatation. Abnormal labor is successfully distinguished from normal labor during this time. In study group cesarean section rate was 1.47%. By contrast, the control group showed 17.8%. Twelve (50%) of the 24 cesarean deliveries conducted in the control group were caused by labor arrest during the active phase, three (12.5%) by labor arrest during the second stage, and nine (37.5%) by fetal distress. Up to now, our center's primary CD conducted during spontaneous labor (Robson groups 1 and 3) has contributed about 17.7%.¹⁶

According to Abalos et al. (2018), pregnant women who have good labor outcomes experience varying lengths of spontaneous labor. Some women may go through labor for lengthier periods of time and still give birth vaginally without experiencing any negative labor outcomes. These findings cast doubt on the current clinical practice's flexible limitations for determining whether a patient's extended first or second stages of labor warrant obstetric intervention.¹⁷ In their thorough systematic evaluation of partograph use, Bed Well et al. (2017) determined that effective referral networks, human resources, health professional competency, health worker acceptance, and health system support were all essential for successful partograph usage. Finding restrictions on the partograph's use in a clinical setting and the possible effects on its use were the main goals of the review.¹⁸

Utilizing the modified WHO Partograph is associated with a considerable reduction in the rate of cesarean sections, protracted labor, and neonatal intensive care admissions, per a comparative study on the partograph's efficacy in labor management carried out in India by Ninama and Gandhi (2019). The study also raises the possibility that partograms could work well in environments where access to medical resources is limited.¹⁹ However, a study conducted at a sizable referral facility in Tanzania discovered that compared to comparable women hospitalized during the active stage of labor, low-risk women treated during the latent period had greater rates of interventions, including caesarian sections.²⁰

Overall, there is no proof that partogram use lowers or raises the rate of cesarean sections or has any impact on other elements of labor care, according to a 2013 systematic analysis by Lavender et al. on the impact of partogram use on outcomes for women in spontaneous labor at term. No partograph design is superior to another when it comes to the outcomes for mothers and newborns, according to a comparison of various designs. The partograph should not be routinely used as part of routine labor management and care, according to the review. Given that partographs are already widely used and widely recognized, the study recommended that their usage cannot be discontinued and that the

necessity of them be assessed locally.²¹

LCG was developed to track the progression of labor holistically by minimizing needless interventions, and it is said to be better than standard of care in this regard. It encompasses other elements of women-centered care, like pain management and psychological support. It is suggested that rather than altering the partogram, other elements should be enhanced in order to improve the quality of intrapartum care. Health system elements that have been proposed for reform include the lack of health-related human resources, the accessibility of medical equipment and supplies, and the referral system.⁵

CONCLUSION:

This study concluded that the World Health Organization Labour Care Guide is more efficacious when reducing the frequency of cesarean section compared to modified partograph monitoring of labour. So, we recommend that World Health Organization Labour Care Guide should be used routinely in every woman for reducing the frequency of cesarean section.

Conflict of interest: No

Disclosure: Not any.

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