Vol. 2 No. 2 (2025)
ONLINE ISSN :3007-309X
PRINT ISSN :3007-3081
Journal of Medical & Health Sciences Review

IMPACT OF WHO LABOR CARE GUIDE ON REDUCING CESAREAN SECTIONS AND ITS USABILITY BY HEALTHCARE PROFESSIONALS AT A TERTIARY CARE HOSPITAL, KARACHI.

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ARTICLE INFO:

Keywords:
Labour Care Guide, caesarean section, intrapartum monitoring, maternal outcomes, neonatal outcomes, randomized controlled trial

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Article History:
Published on April 20, 2025

ABSTRACT

Objective: To evaluate the impact of the WHO Labour Care Guide (LCG) on reducing primary caesarean section rates, improving labor outcomes, and determining its usability among healthcare providers in a tertiary care hospital in Karachi.

Methods: This open-label randomized controlled trial conducted at Department of Gynecology and Obstetrics of Jinnah Postgraduate Medical Centre, Karachi from September, 2024 to February, 2025. The Study included 284 term pregnant women who were randomly assigned to either LCG-based monitoring or standard care using the modified partograph. Baseline characteristics were comparable between groups. Primary outcome was mode of delivery. Secondary outcomes included duration of active labor, maternal complications, neonatal outcomes, and provider acceptability assessed through a structured Likert-scale questionnaire.

Results: The caesarean rate was significantly lower in the LCG group (12.7%) compared with standard care (23.9%). Active labor duration was shorter with LCG monitoring (5.1 ± 1.7 vs. 6.0 ± 1.9 hours). Maternal and neonatal outcomes, including postpartum hemorrhage, puerperal sepsis, Apgar scores, and NICU admissions, were similar between groups. Most healthcare providers reported high ease-of-use and satisfaction with the LCG.

Conclusion: Use of the WHO Labour Care Guide resulted in fewer caesarean deliveries, more efficient labor progress, and high provider acceptability without compromising maternal or neonatal safety. Incorporating the LCG into routine intrapartum care may support evidence-based labor management in high-volume tertiary settings.

INTRODUCTION

The global increase in caesarean section (CS) rates has become a significant public-health concern, with many low- and middle-income countries reporting increased rates in the absence of concurrent improvements in maternal or neonatal outcomes [1]. Pakistan mirrors this global trend with an almost two-fold increase in CS rates over the last decade, placing an increased demand on tertiary hospitals and exposing women to potential surgical risk when CSs are undertaken in the absence of clear clinical indication [2]. Aside from implications for maternal and neonatal outcomes, these avoidable caesarean deliveries also have long-term consequences for future pregnancies, given the multiplicative risks associated with repeated caesarean delivery.

Inconsistent approaches to labour monitoring and wide variation in clinical decision-making thresholds have been implicated as factors that contribute to increasing CS rates. The previously recommended modified WHO partograph has received criticism for outdated labour thresholds, lack of focus on supportive care, and limited applicability to current labour patterns [3]. The World Health Organization (WHO) developed the WHO Labour Care Guide (LCG) in 2020, as part of a concerted initiative to reform intrapartum care and improve decision-making based on available evidence [4]. The LCG incorporates recent physiological definitions of labour progression, focuses on continuous supportive care, and provides clearer thresholds for abnormal labour in line with recent recommendations by professional bodies such as ACOG and the International Federation of Gynecology and Obstetrics [5].

Initial international reports suggest that the LCG may improve clinical vigilance, team communication, and can lead to reductions in intrapartum interventions, including primary caesarean deliveries [6]. A recent randomized controlled trial also found that the LCG was associated with a large and significant reduction in CS rate when compared to standard intrapartum monitoring [7]. However, data from overburdened public-sector labour wards in South Asia is lacking, despite likely differences in implementation and local labour ward culture created by high patient volume, staffing shortages, and the broad spectrum of patients seen in this setting. Pakistan's current rise in CS rates, and the need for feasible, practical, standardized labour-monitoring tools in the absence of universally-applicable decision aids in low-resource settings makes the LCG a promising approach in need of further assessment in real-world tertiary-care settings. The primary objective of this study is to determine the effect of the WHO Labour Care Guide on primary caesarean delivery rates. Secondary objectives include a qualitative analysis of its usability, acceptability, and perceived difficulty among healthcare professionals in a high-volume obstetric unit in Karachi.

METHODOLOGY

It was an open label randomized controlled trial conducted in the Department of Gynecology and Obstetrics of Jinnah Postgraduate Medical Centre, Karachi from September, 2024 to February, 2025, with the objective to compare the impact of WHO Labour Care Guide (LCG) on labor outcome (primarily the reduction in primary cesarean delivery) and to find out its usability. Ethical approval was obtained before starting the study and written informed consent was obtained from all the participants. 284 Pregnant women fulfilling the eligibility criteria were recruited. A consecutive sampling was performed where the participants were the pregnant women who reported to the OPD or labour room in spontaneous labour. After confirmation of their eligibility, they were randomized in 1: 1 ratio to either intervention or control group to receive labour monitoring either by WHO LCG (intervention) or by standard care with

modified partograph (control). The randomization was done after the data collection of baseline information to reduce allocation bias. Blinding was not possible since this was an open-label trial where both the clinical staff and participants could not be masked due to the use of two different methods of monitoring. All clinical management decisions including the decision to perform a cesarean delivery were left to the obstetric team caring for the women to avoid compromising patient safety.
Women were included in the study if they were 18–40 years of age with singleton, cephalic, and term pregnancy (37–40 weeks' gestation) as assessed by LMP and dating scan. Labour had to have been of spontaneous onset, with intact membranes or spontaneous rupture, and fetus to be viable. The exclusion criteria were presence of any medical or obstetric comorbidity (hypertension, diabetes mellitus, renal or pulmonary disease, intrauterine growth restriction, fetal malformation or anomaly, breech presentation, placenta previa, multiple gestation, postdates pregnancy, previous history of cesarean delivery) or use of epidural analgesia during intrapartum period (because of different effect of analgesia on labour progression in both groups).
At the time of admission, details of obstetric and demographic profile were noted including parity, onset of labour, duration of labour, rupture of membranes, risk factors if any were noted. Patients in the intervention arm were monitored using WHO Labour Care Guide (LCG) which provides a structure for well-being of mothers, well-being of fetus, labour progress, support measures being provided and helps with timely identification of deviations of normal labour. The control group patients continued to be monitored as per the standard intrapartum care with modified WHO partograph as per the hospital protocol. Maternal and fetal monitoring was continued in both groups with continuous surveillance to maintain clinical safety and prompt necessary interventions.
The primary outcome was mode of delivery (rate of primary cesarean section) in both groups. Secondary outcomes included the duration of active labour, maternal morbidities (postpartum hemorrhage, puerperal sepsis) and duration of hospital stay. The immediate neonatal outcomes such as Apgar score at 5 minutes and admission to NICU were also noted. Usability of the WHO LCG was determined with help of healthcare providers who used it in form of a self-administered questionnaire based on 5-point Likert scale for difficulty in use, acceptability, satisfaction and learning curve of the tool.
Data entry was made on Microsoft excel and analysis was done with the help of SPSS 21. Quantitative variables were presented as mean±SD and categorical variables were summarized as frequencies and percentages. Comparison of quantitative variables between the two groups was done with independent t-test and the categorical variables were compared by chi-square or fisher's exact test as appropriate (as per the rule of expected count in each cell). The two-sided p-value of <0.05 was taken as significant.

RESULTS

All 284 enrolled women finished the study and were included in the final analysis. The baseline demographic and obstetric characteristics were similar in both groups, which shows that the randomization worked. Table 1 summarizes these characteristics and shows that there were no statistically significant differences in maternal age, gestational age, parity, or cervical dilation at the time of admission.
Women who were monitored with the WHO Labour Care Guide (LCG) had a much lower rate of primary caesarean delivery. In the LCG group, 18 women (12.7%) had a caesarean delivery, while in the standard care group, 34 women (23.9%) had a caesarean

delivery. This is a statistically significant difference, as shown by the p-value in Table 2. Graph 1 shows this important result visually by showing the clear difference in caesarean section rates between the two groups.

Women who were monitored with the LCG had active labour that lasted for an average of 5.1 ± 1.7 hours, while women in the control group had active labour that lasted for an average of 6.0 ± 1.9 hours. Overall, maternal complications stayed low. There were 3 women (2.1%) in the LCG group and 6 women (4.2%) in the standard care group who had postpartum haemorrhage. There was also one woman in each group who had puerperal sepsis. The average length of stay in the hospital was also a little shorter for the LCG group. Table 2 shows these results in detail, along with the p-values that go with them.

The neonatal outcomes were encouraging in both groups, as shown in Table 3. In the LCG group, 6 newborns had a five-minute Apgar score of less than 7, and in the standard care group, 9 newborns had the same score. There was no statistically significant difference between the two groups. In the same way, 7 newborns who were monitored with the LCG and 10 newborns who got standard care had to go to the NICU. No deaths of newborns were reported.

Healthcare providers said they had good experiences with LCG. Table 3 shows the results of the Likert-scale feedback. Most users said the tool was easy to use and that they were very happy with how useful it was in a clinical setting. Graph 2 shows the percentage of staff who said the guide was easy to use and that they were happy with it overall.

Overall, using the WHO Labour Care Guide led to fewer caesarean deliveries, faster labour progression, and high acceptance among healthcare providers, all while keeping neonatal safety profiles similar.

Table 1: Baseline Characteristics of Study Participants

Variable	LCG Group (n=142)	Standard Care (n=142)	p-value
Mean Age (years)	26.8 ± 4.1	27.0 ± 4.3	0.62
Gestational Age (weeks)	38.4 ± 0.9	38.3 ± 1.0	0.41
Nulliparity (%)	54%	52%	0.74
Cervical Dilatation at Admission	4.1 ± 1.2	4.0 ± 1.3	0.57

Table 2: Maternal Outcomes

Outcome	LCG Group	Standard Care Group	p-value
Caesarean Delivery (%)	12.7%	23.9%	0.015
Active Labor Duration (hrs)	5.1 ± 1.7	6.0 ± 1.9	0.003
Postpartum Hemorrhage	3 (2.1%)	6 (4.2%)	0.31
Puerperal Sepsis	1 (0.7%)	1 (0.7%)	1.00
Hospital Stay (days)	2.1 ± 0.6	2.4 ± 0.7	0.008

Table 3: Neonatal Outcomes and Provider Acceptability

Outcome	LCG Group	Standard Care Group	p-value
Apgar <7 at 5 min	6 (4.2%)	9 (6.3%)	0.43
NICU Admissions	7 (4.9%)	10 (7.0%)	0.48
Ease of Use (Likert)	81% easy/very easy	—	—
Satisfaction	84% satisfied	—	—

Figure 1: Comparison of primary caesarean section rates between the LCG group and standard care group.

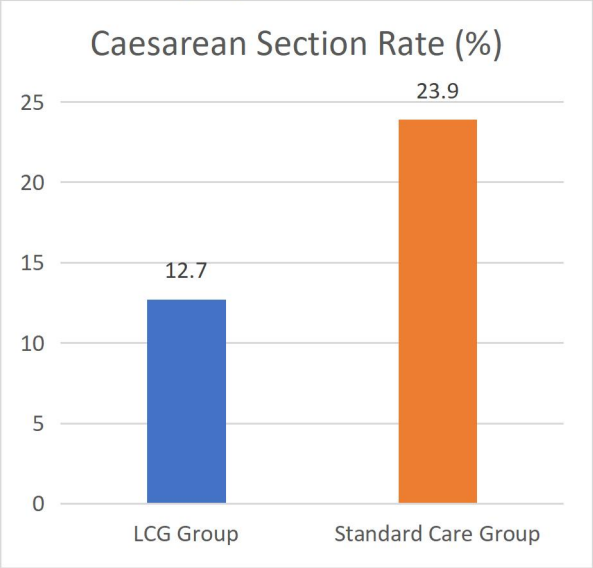
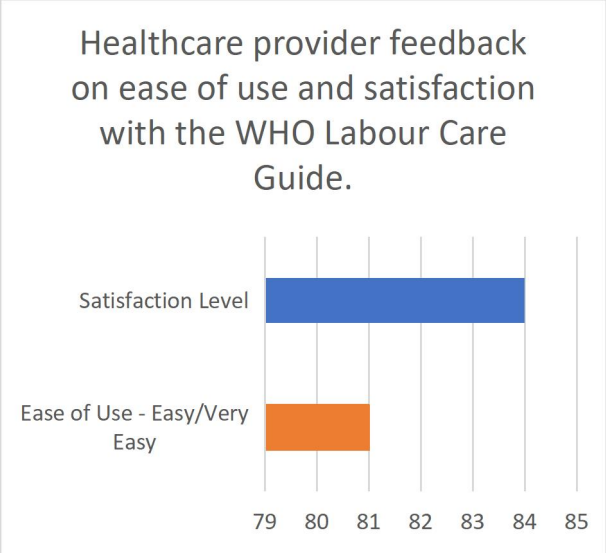


Figure 2: Healthcare provider feedback on ease of use and satisfaction with the WHO Labour Care Guide.



DISCUSSION

In this randomized controlled trial, we found that the use of the WHO Labour Care Guide (LCG) was associated with significant reductions in the rate of primary caesarean sections and the duration of active labour. Healthcare provider interviews revealed high acceptability of the tool. Our findings add to the growing global body of evidence supporting structured, physiology-based intrapartum monitoring to enhance clinical decision-making and reduce unnecessary interventions. The significant decrease in the rate of caesarean delivery seen in the LCG group provides further support for the notion that contemporary physiologic definitions of labour progress, rather than arbitrary and outdated time-based criteria, should be used in the interpretation of labour patterns.

In the past, many labour monitoring tools were designed around the expectation of highly uniform rates of cervical dilation, resulting in over-diagnosis of dystocia and subsequent surgical delivery. Growing evidence now shows that normal labour progress can vary widely and that overly stringent criteria for abnormal progress lead to substantial increases in caesarean section rates with no corresponding benefit to neonatal outcomes [8]. The LCG overcomes these problems by providing clearer action thresholds and by including elements of supportive care, which may explain the lower incidence of CS in the reasons of “failure to progress” observed in our trial. Reductions in this reason for caesarean have also been seen in other recent evaluations of contemporary labour-management frameworks [9]. The shorter duration of active labour observed among LCG users may also be explained by the value of timely and organized assessment and action. The use of continuous, structured documentation and real-time action prompts in the LCG promotes vigilance and the performance of early corrective measures when necessary. The greater proportion of on-time interventions in the LCG group is consistent with these ideas, as is our finding that LCG users reported fewer unmet needs during labour. These findings echo those of implementation studies conducted in both high- and low-resource settings, which have

reported better labour flow, timelier escalation, and an improved maternal experience with structured tools such as the LCG [10,11]. Notably, these differences did not result in any increase in maternal or neonatal morbidity, lending support to the safety of LCG implementation in a busy tertiary care obstetric setting.

No significant differences in Apgar scores or NICU admission were observed between the groups. This is consistent with recent evidence showing that a reduction in the rate of primary caesarean sections, when accompanied by physiology-based labour monitoring and early non-pharmacologic support measures, does not lead to worsening neonatal outcomes [12]. Retention of these neonatal indicators, despite a reduction in caesarean rate, supports the hypothesis that LCG use may improve rather than weaken intrapartum safety.

Our interviews with healthcare professionals found that the LCG had high acceptability among those using it in our study, with most participants reporting the tool helped them more clearly track labour progress and more easily reach decisions about care. Usability is an important consideration when implementing a clinical intervention, and our results are in line with international acceptability evaluations of the LCG showing that the vast majority of staff like using tools that are intuitive, visually easy to interpret, and align with the latest clinical evidence [13,14]. The rapid learning curve of LCG users in this study further supports the case for its scale-up in similar tertiary hospitals.

The rising trend of caesarean deliveries in LMICs, including Pakistan, has raised major concerns regarding the over-medicalization of childbirth. Various analyses have shown that inconsistent intrapartum monitoring, inadequate clinician communication, and the use of obsolete criteria are among the major drivers of this overuse [15,16]. By standardizing assessments and facilitating communication between clinicians, the LCG provides a practical way to address these issues. The structured documentation format may also help support respectful maternity care, an increasingly recognized domain of quality childbirth service delivery [17].

The strength of our study is its randomized controlled design and the setting of a real-world high-volume tertiary center, which may improve the generalizability of the results to other low-resource obstetric care settings. There are a few limitations of this study. It was open-label, and the differing monitoring tools made blinding impractical. Although the decision-making of individual providers was not dictated by group allocation, knowledge of the specific monitoring tool they were using could have affected their behaviour. Longer-term maternal and neonatal outcomes were also not collected. Longer-term studies should be undertaken to evaluate the sustainability of LCG implementation, its potential cost-effectiveness, and its integration into existing national maternal health systems.

CONCLUSION:

The results of this RCT showed that the WHO Labour Care Guide is a feasible, acceptable, safe and effective strategy to improve intrapartum care, lowering primary caesarean section rates, improving time efficiency of labour and progression and preserving satisfactory maternal and neonatal outcomes. The LCG proved acceptable among providers, indicating the potential feasibility of its use in routine clinical care even in busy tertiary settings. Its use could counteract trends of rising caesarean use, supporting evidence-based clinical decision-making and standardizing the monitoring of labour. Scaling up and further long-term evaluation may represent a worthwhile strategy for strengthening childbirth care in similar health systems.

REFERENCE

1. Betrán AP, Ye J, Moller AB, Zhang J, Gülmezoglu AM, Torloni MR. Trends and projections of caesarean section rates worldwide. BMJ Glob Health. 2021;6(6):e005671. doi:10.1136/bmjgh-2021-005671
2. Khan A, Zaman S, Qureshi RN, et al. Rising caesarean section trends in Pakistan. BMC Pregnancy Childbirth. 2020;20:1–8. doi:10.1186/s12884-020-03207-3
3. Lavender T, Cuthbert A, Smyth RMD. Partograph versus no partograph for monitoring labor. Cochrane Database Syst Rev. 2022;5:CD009744. doi:10.1002/14651858.CD009744.pub3
4. World Health Organization. WHO Labour Care Guide: User's Manual. Geneva: WHO; 2020.
5. American College of Obstetricians and Gynecologists. First and Second Stage Labor Management. Obstet Gynecol. 2024;143:e140–e165.
6. Pingray V, Bonet M, Berrueta M, et al. Usability and acceptability of the WHO Labour Care Guide. Reprod Health. 2021;18:66. doi:10.1186/s12978-021-01149-3
7. Pandey D, Bharti R, Dabral A, Khanam Z. Impact of WHO Labour Care Guide on reducing caesarean section. AJOG Glob Rep. 2022;2(3):100075. doi:10.1016/j.xagr.2022.100075
8. Zhang J, Troendle J, Sundaram R, et al. Contemporary labor patterns with normal outcomes. Obstet Gynecol. 2020;136(4):725–733. doi:10.1097/AOG.0000000000003981
9. Neal JL, Lowe NK, Patrick TE, et al. Physiologic labor progression: updated evidence. J Midwifery Womens Health. 2021;66(2):179–187. doi:10.1111/jmwh.13208
10. Bonet M, Brizuela V, Biswas A, et al. Implementing evidence-based intrapartum practices. BMJ Glob Health. 2022;7:e007891. doi:10.1136/bmjgh-2021-007891
11. Chebotiere C, Fouelifack FY, Fouedjio J, et al. Labour monitoring improvements in low-resource units. BMC Pregnancy Childbirth. 2021;21:542. doi:10.1186/s12884-021-04047-7
12. Duffy JMN, Walker KF, Chappell LC. Reducing unnecessary caesarean births while improving safety. Lancet. 2020;395:1694–1696. doi:10.1016/S0140-6736(20)30295-1
13. Bohren MA, Tunçalp Ö, Miller S, et al. Transforming intrapartum care. Lancet Glob Health. 2022;10(5):e715–e727. doi:10.1016/S2214-109X(22)00036-2
14. McCarthy EA, Bray EE, Eckert LO, et al. Clinician acceptability of modern labor monitoring tools. Birth. 2022;49(3):423–432. doi:10.1111/birt.12630
15. Betran AP, Ye J, Moller AB, et al. Strategies to reduce caesarean overuse. Lancet Child Adolesc Health. 2021;5(9):698–708. doi:10.1016/S2352-4642(21)00183-5
16. Oladapo OT, Vogel JP, Bonet M, et al. Updated WHO intrapartum care recommendations. BJOG. 2022;129(3):299–308. doi:10.1111/1471-0528.16808
17. Vogel JP, Bohren MA, Tunçalp Ö, et al. Monitoring childbirth quality at scale. BMJ. 2021;374:n2154. doi:10.1136/bmj.n2154