

Prevalence and outcomes of short birth spacing pregnancy: A cross-sectional study

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ABSTRACT

Introduction: Short birth spacing pregnancies are associated with adverse maternal and fetal outcomes and are highly prevalent in Nepal. The study aimed to establish the prevalence of short birth spacing and observe maternal and neonatal outcomes in those pregnancies in Western Nepal. **Methods:** A cross-sectional study was carried out among pregnant women aged 20 to 40 years, visiting Department of Obstetrics and Gynecology, Gandaki Medical College for a period of six months from April through October 2023. Data surrounding demographics, current and previous pregnancy and neonatal outcomes were collected in a structured questionnaire for women included into the short birth spacing group. Descriptive statistics were used to observe the outcomes. **Results:** The prevalence of short birth spacing was 18.38%. The participants ranged from 21 to 37 years, mean age being 26.72 years. About half (52.5%) had an inter-delivery interval between 18 and 24 months. About a third women (34%) had fewer than four antenatal visits and over three-fourths (76.25%) of them delivered at term. Vaginal delivery was slightly more common than LSCS (52% vs 48%). Preterm and low as well as very low birth weight of babies were more frequently found in shorter interpregnancy interval group. Though 112(80%) neonates required intensive care service as a part of transitional care or due to sepsis, there were no neonatal deaths. **Conclusions:** The prevalence of short birth spacing was comparatively less than the existing data from Nepal. The outcomes would have been better if the patients have frequent antenatal visits and are managed at tertiary care centers.

Keywords: Fetal outcomes, maternal outcomes, short birth spacing.

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INTRODUCTION

The World Health Organization (WHO) defines a short inter-pregnancy interval as being less than 24 months from delivery to the next pregnancy, or an inter-delivery interval of less than 33 months.¹ Short inter-pregnancy interval has adverse impacts on the health of both mother and newborn.² Due to this short interval, a woman does not get enough time to recover from a previous pregnancy and to address any preexisting comorbidities such as diabetes, hypertension, hypothyroidism, and cholelithiasis.³ This can increase the risk of infections for both the mother and baby. Similarly, it leads to numerous adverse effects on fetuses and mothers such as lactation, birth weight, fetal growth, and development. In addition to this, the literature suggests even more adverse effects like uterine rupture, placental abruption, placenta previa, complications during vaginal birth after cesarean delivery, maternal anemia, prolonged hospital stay, and neonatal Intensive care unit (NICU) admission for the baby and so on.⁴

Short birth spacing is a common practice in the Nepalese community, particularly among individuals with low education levels, poor socio-economic status, and unmet demand for contraception.⁵ However, there has been limited investigation on this topic. Hence, this study

aimed to characterize the maternal and pregnancy-related factors of pregnancies with short birth spacing and observe the neonatal outcomes in such pregnancies.

METHODS

This was a cross-sectional study conducted for six months from April through October 2023 at the Department of Obstetrics and Gynecology, Gandaki Medical College Teaching Hospital. The study included all multigravida with short birth spacing (birth-to-birth interval less than 33 months irrespective of the fetal outcomes if the period of gestation crossed 28 weeks) who underwent delivery at our center and consented to their participation in this study. The study excluded all the cases that had multi-fetal gestation, co-morbid conditions (pregnancy-induced hypertension, gestational diabetes, any other non-obstetric medical-surgical comorbidities and maternal age less than 20 or more than 40 years. Patients who didn't give consent to their participation in our study were also excluded. For the enrolled patients, data surrounding demographics, current and previous pregnancy and neonatal outcomes were collected in a structured questionnaire.

Ethical approval for the study was obtained from the Institutional Review Committee of GMCTH (Ref. No. 247/079/080). All the participants were informed about the study by the researchers themselves which comprised of the residents and faculties within the Department of Obstetrics, GMCTH, and informed consent was obtained. The anonymity of the study participants was maintained throughout. The findings obtained were entered into Microsoft Excel-13. After data cleaning, it was imported and analyzed using Statistical Package for Social Sciences (SPSS) 25.0 (IBM Inc.). Descriptive statistics were used for reporting proportions.

RESULTS

Out of 756 cases that underwent delivery at our center throughout the study duration, 182(24%) were short birth spacing pregnancies. 139(18.38%) pregnancies which met the inclusion criteria were included in the final analysis. The participants ranged from 21 to 37 years, mean age being 26.72 ± 4.3 years. The mean inter-delivery interval was 26.48 ± 5.2 months. About half of the study participants 73(52.53%) had an inter-delivery interval between 18 and 24 months, followed by those with an interval of 24 to 30 months. Women having a birth spacing of <18 months were 21(15.10%). Majority 92(66.18%) women had four to eight antenatal checkups, while about a third of them had fewer than four antenatal visits and two had none (Table 1).

Table 1: Frequency of inter-delivery interval and antenatal visit

	Frequency (n)	Percentage (%)
Inter-delivery interval		
<18 months	21	15.10%
18-24 months	73	52.52%
24-30 months	28	20.15%
≥30 months	17	12.23%
Antenatal contact		
None	2	1.44%
<4	45	32.38%
4-8	92	66.18%

In the study, over three-fourths 106(76.25%) of the women delivered at term. The information about mode of delivery is summarized in Table 2. Vaginal delivery was slightly more common than LSCS (52% vs 48%). The study site is a major referral center and thus, the slightly higher rate of emergency LSCS.

Table 2: Mode of delivery

Mode of delivery	Frequency	Percentage
Vaginal delivery	72	51.79%
Elective LSCS	16	11.51%
Emergency LSCS	51	36.70%
Total	139	100%

Fetal outcomes based on gestational age and birth weight in relation to inter-delivery interval is detailed in Table 3 and 4. Preterm and low as well as very low birth weight of babies were more frequently found in shorter interpregnancy interval groups. There were 4(2.8%) cases of fetal growth restriction.

Table 3: Fetal outcomes based on inter delivery interval and gestational age

Inter-delivery interval	Early pre-term (32 to 34 weeks)	Late pre-term (34 to 37 weeks)	Term (37 to 42 weeks)	Frequency
<18 months	13	7	1	21
18-24 months	-	4	69	73
24-30 months	-	9	19	28
≥30 months	-	-	17	17
Total	13	20	106	139

Table 4: Fetal outcomes based on inter-delivery interval and birth weight

Inter-delivery interval	Very low birth weight (<1500 gms)	Low birth weight (1500-2500 gms)	Normal weight (2500-4000 gms)	Total
<18 months	13	8	-	21
18-24 months	2	22	49	73
24-30 months	-	7	21	28
≥30 months	-	3	14	17
Total	15	40	84	139

Among 139 neonates, 112(80%) neonates required neonatal intensive care service as a part of transitional care or due to neonatal sepsis, very low birth weight: 15(10.79%), or early pre-term status:13(9.35%). (Table 5) However, there were no neonatal deaths and a cent percent rate of take-home babies.

Table 5: Neonatal ICU admission and transitional care

Subject	NICU-admission	Transition care(observation)	Duration of stay
34-36 weeks at birth if otherwise well	-	21 (15.10%)	<48 hours
Low birth weight babies	-	34 (24.46%)	<48 hours
Neonatal sepsis	29 (20.86%)		10 days
Early pre-term	13 (9.35%)		10 days
Very low birth weight	15 (10.79%)	-	10 days.
Total	57(41%)	55 (39.56%)	

DISCUSSION

In the present study, 18.38% of women had short birth spacing, the mean inter-delivery interval being 26.48±5.2 months. Most participants had an interval between 18 to 24 months and 76.25% had term delivery. There were no neonatal deaths and all babies were taken home.

A study done by Karki et al. in the Kaski district in 2016 found that the median birth spacing was 42 months while 23.2% of women had a birth spacing of less than 24 months.⁵ Another study done in the eastern part of Nepal in 2020 found that the 21.9% of women had a birth spacing less than 24 months and the median birth spacing was 41.5 months.⁶ According to the Nepal Demographic Health Survey 2022, the median birth interval (number of months since the preceding birth by which half of children are born) is 40.7 months. One in five women (20%) gave birth less than 24 months after the preceding birth, 13% between 18 and 23 months, and 7% between 7 and 17 months.⁷ Compared to these, in this study 12.43% of women had a birth spacing of less than 24 months and the mean interval was around 26 months. The reason behind this decline could be attributed to the provision of good antenatal care, improved awareness about the importance of birth spacing, and post-delivery and post-abortion family planning counselling and services in this region. A study done in three districts in Bangladesh found a 24.6% prevalence of short birth spacing.⁸ The prevalence of short birth intervals was 30.18% in Chad and 27.12% in Congo (Central Africa).⁹ One of the major reasons behind this short birth spacing is an unplanned pregnancy. A study done in the US found that 31% had short birth spacing and among them 17% percent of pregnancies occurred after intervals of less than 12 months, 62% occurred after intervals of 12 to 60 months and 21% occurred after intervals of greater 60 months.¹⁰ All these are found to be higher compared to our study. The potential reasons behind this could be improved access to family planning, greater awareness about contraception, and cultural differences in reproductive practices.

In this study, it was found that a significant proportion of the sample, 52.53% had an inter-delivery interval of 18 to

24 months, 20.15% had a 24 to 30 months interval, 15.10% had <18 months interval and 12.23% had >30 months interval. The period 12-18 months is the most common interval, indicating a significant lack of contraceptive usage in this time frame. Notably, our study did not find any instances of extremely short inter-delivery intervals (<12 months). This is attributed to our cultural practice of exclusive breastfeeding for six months, which naturally prolongs the time between pregnancies.

Our research found that 39.5% infants had very low birth weight or low birth weight. Additionally, 24% were born early preterm or pre-term. In a study conducted in similar settings by Thapaliya et al. 37% had low birth weight and 14.28% of babies born were preterm.¹¹

Preterm birth and low birth weight were the immediate adverse effects of SBS that we observed in our study. There were no neonatal deaths, probably due to good antenatal care contact and counseling, the availability of resources (T Level 4 NICU) early diagnosis and management of complications under expert hands (Teamwork and prompt referral to higher centers).

However, fetal growth restriction (FGR), blood transfusions, and high NICU admission rates resulted in longer hospital stays and higher costs for taking the newborn home.

In Nepal, short birth spacing remains a prevalent issue with multifaceted determinants contributing to its occurrence. Firstly, limited access to comprehensive family planning services and contraceptives restricts individuals' ability to effectively plan and space their pregnancies. Additionally, pervasive societal norms and cultural expectations often prioritize large family sizes, exerting pressure on women to have children in rapid succession. Early marriage and childbearing practices further exacerbate the situation, as young brides may face increased fertility expectations soon after marriage. Economic constraints, particularly in rural areas, also play a significant role, as families may lack the resources necessary to support effective family planning initiatives. Moreover, inadequate healthcare infrastructure and services, especially in remote regions, hinder individuals' ability to receive timely reproductive health information and services.¹² Traditional beliefs and preferences regarding family size and fertility may further influence decisions regarding birth spacing. Gender disparities in decision-making power regarding reproductive health choices can also contribute to shorter birth intervals, as women may have limited autonomy in determining the timing and spacing of pregnancies.^{13,14}

Having an adequate inter-pregnancy interval helps a woman

fully recover from her previous pregnancy. Additionally, it enables mothers to have a joyful motherhood experience by giving them ample time to spend with their newborns and enhancing their personal growth and development, which leads to an improved standard of living. An adequate interval between deliveries is essential to reduce maternal and fetal morbidity and mortality. It also helps improve the quality of life and overall well-being of the community. Therefore, it is important to pay close attention to ensure an appropriate time gap between pregnancies and deliveries.

CONCLUSIONS

The prevalence of SBS in our study was found to be less than in the studies done in a similar setting. This could be due to increased literacy, improved awareness of family planning measures and accessibility to reproductive health services in the region.

CONFLICTS OF INTEREST: None declared

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