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Factors Associated For Caesarean Section among Mothers Attending In Teaching Hospital, Chitwan

Adhikari I (Poudel)[1], Bhattarai B[2], Dhakal, P[3]
Manmohan Memorial Institute of health Sciences, Kathmandu, Nepal
†Corresponding author: Indira Adhikari (Poudel), Lecturer, Department of Nursing MMIHS Nepal;

Abstract

Background

Cesarean section (CS) rate has increased rapidly over the past two decades in world. It is serious concern for public health experts globally. Various medical and non-medical factors, such as maternal socio-demographics, are found to be responsible for this upsurge. Like in other countries, the rate of caesarean sections has increased in Nepal as well. Therefore, there is a need to investigate the factors behind this increase.

Objectives

To identify the factors associate for caesarean section among mothers attending at teaching hospital, Chitwan

Methods

A cross sectional analytical study was conducted using total enumerative sampling technique in the maternity ward of Chitwan Medical College Teaching Hospital. Interview was done with closed ended Questionnaire for data collection, a total number of 139 mothers after 24 hours cesarean section (CS).

Results

The study shows that, nearly three- quarters (71.2%) of CS were performed as an emergency.There are mainly fetal, maternal and placental indication for cesarean section.The most frequent indications were: previous cesarean section (22.3%),thick Meconium stained liquor (12.2%), fetal distress(10.6%) and oligohydramnios (7.2%).

Keywords: *Caesarean section, Factor associated, Indication*

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I. Introduction

Caesarean section (CS) is a life-saving obstetric surgery, which may be necessitated (sometimes the only feasible option) in high riskpregnancies such as those with multiple or large fetuses, breech presentations, obstructed labour, women with transmissibleinfections such as HIV/AIDS.[1]

CS is a surgical procedure which involves incisions made through a mother's abdomen (laparotomy) and uterus (hysterectomy) to deliver one or more than one babies as well asto remove a dead foetus.[2]

According to World Health Organization caesarean section (CS) rate was reported as 15% in 1985.[3]

It is estimated that up to one-third of the 18.5 million annually performed caesarean sections worldwide are conducted for non-medical indications and have been described as "unnecessary". Sixty percent of the world's births occur in low income countries; whereas, middle and high income countries account for only 37.5% of all births (WHO, 2010). In 2012, about 23 million CS were done globally.[4]

Cesarean rates have reached "epidemic proportions. CS rates have been reported at 36% in Korea and over 50% in China and Brazil.[5]

China has witnessed a rapid increase of CS rates in recent years. CS in China to inform the development of future interventionsto mitigate unnecessary, which are those performed in the absence of medical indications.[6]

Preferences for cesarean are often associated with some factors such as having a history of previous CD, fear of birth, maternal age, maternal education, socioeconomic factors and so on. Women's requests for CS have, to a great extent, attributed to the escalating rate. CS on maternal request is planned surgery performed without medical indication, where the wish of the woman compensates for the lack of medical reasons. The concept of "patient's choice" is well accepted among obstetricians 7

The commonest recorded indications for CS were: previous CS (29.4%), fetal distress (15.7%), cephalo-pelvic disproportion (10.2%), prolonged obstructed labor (8.3%) and post-term dates (7.0%). Previous CS and "post-term dates" were common indications for elective CS with "post dates" – the commonest indication for CS in primiparous women. [8]

The CS rate is substantially higher in private hospital than in government hospital. One hospital based studied in Nepal shows that 28.6% BP Koirala Health Science Teaching Hspital, 25.4% Tribuvan University Teaching Hospital, 50.9% was Kritipur Hospital, 41.9% was Patan Hospital, 9.5 % was Okhaldunga Community Hospital. 48.81% was Kathmandu Medical College hospital and 18.9% was Mid-Western Reginal Hospital. [9]

II. Material And Methods

Study Period

The present study was done in 2016 year (August – October)two months period.

Study design, participants and data collection

Descriptive cross-sectional research design was used. The present research work was carried out in the maternity ward of CMCTH. This hospital is a tertiary care hospital where several CS was done, and referred from other hospitals for expertise consultation and management. A total number of 139 CS mothers after 24 hours were considered for this research.

Questionnaire design

Structured questionnaire was created which was revised by subject experts from OBG department. The questionnaire was scrutinized further for minor revision; language editing was done by experts for simplicity. Factors associated with CS directly or indirectly were considered during framing of the questionnaire e.g. age, education status, parity occupation, religion and obstetrical information (number of ANC visit, history of abortion, pre-term, post term, week of gestation). Some other factors like indication of CS (maternal, fetal placental), fetal outcomes were also included. Detail reviewed CS mother's hospital record files for complete information related to questionnaire.Unique study identification number was used for this study for confidentiality and avoiding biasness.

Inclusion criteria

After 24 hours cesarean section mothers who werewilling to participate voluntarily were considered for this study.

Outcome variable

Factors like obstetrical information, maternal, fetal and placental indication of CS were considered as outcome variable.

Explanatory variables

Explanatory variables were age, parity, education, occupation,ethnicity and religion etc.

Ethical committee approval

Ethical clearance was obtained from Chitwan Medical College-IRC Bharatpur, Chitwan. Permission was also obtained from OBG department of CMC-TH. The purpose of the study was explained to the participants. Informed consent was obtained from each respondent prior to data collection. Privacy was maintained by using code number for each respondent. Confidentiality was maintained by not disclosing the information given by respondents to other.Respondent was allowed to terminate their participation at any time during the period of data collection.

Data management and statistical analysis

The data collected was analyzed using Statistical Package for the Social Sciences for Windows Version16.0. Association between different variables were tested by Chi square. Logistic regression analysis was done to identify the strength between the variables. An adjusted odds ratio with 95% confidence interval was calculated.

III. Results

A total 139 respondent's, majority 49.6% were 25-34 years and least of respondents 3.6% were below 20 years. More than half of respondents 59.0 % from upper caste group and least 11.5% from Dalit. Most of them 90.6% followed Hinduism where only 1.4% followed Muslim.

TABLE 1: Socio-demographic Characteristics
n=139

Variables	Frequency(n)	Percentage (%)
Age groups (in completed years)		
<20	5	3.6
20-24	59	42.4
25-34	69	49.6

≥35	6	4.3
Mean ± SD (age) =25.17±4.24, Min=17 yrs; Max=39yrs		
Ethnicity		
Upper caste group	82	59.0
Disadvantaged janajati	21	15.1
Relatively advantaged janajati	20	14.4
Dalit	16	11.5
Religion		
Hindu	126	90.6
Buddhist	11	7.9
Muslim	2	1.4
Level of Education		
Primary	36	25.9
Secondary	68	48.9
Higher secondary	14	10.1
Bachelor and above	21	15.1
Occupation		
House wife	114	82.0
Service	21	15.1
Others	4	2.9
Residence		
Chitwan	72	51.8
Nawalparasi	28	20.1
Others	39	28.0

Others= Occupation-Students and business

Table 1 shows that cent percent respondents were literate. Out of 100% literate, nearly half 48.9% had completed secondary level and least 10.9% had completed higher secondary level. In relation to occupation most of the respondents 82.0% involved in house maker and only 2.9% were from others (students and business). More than half of the respondent's residence were from Chitwan.

TABLE 2: Obstructive Information
n=139

Variables	Frequency(n)	Percentage(%)
Number of ANC visit		
Less than 4	2	1.4
≥4	137	98.6
Gravida and Para		
G1P0	58	41.7
G2P1	49	35.3
Others	32	23.0
Abortion status		
Yes	26	18.7
No	113	81.3
Number of abortion(n=26)		
One	24	92.0
Two	2	7.9
Type of cesarean section		
Emergency	99	71.2
Elective	40	28.8
Number of CS		
One time	107	77.0
Two time	31	22.3
Three time	1	.7

Table 2 shows that nearly cent percent 98.6% did four or more than four times antenatal visit. Majority of respondent, 41.7% had first gravida and 23.0% had more than two gravida and para. Regarding abortion, 18.7% had history of abortion. Among those 26 respondents 92.0% had once and 7.9% had history of two abortion. Similarly, types of cesarean section, 71.2% were emergency and 28.8% were elective CS. Majority of respondents, 77.0% did one time CS and least 0.7% did three time CS.

TABLE 3: Hemoglobin Status and Blood Grouping
n=139

Variables	Frequency(n)	Percentage(%)
Preoperative hemoglobin%		
≤10.9g/dl	46	33.1
≥11 g/dl	93	66.9
Postoperative hemoglobin%		
≤10.9 g/dl	96	69.1

≥11 g/dl	43	30.9
Blood group		
A+	55	39.6
AB+	15	10.8
B+	35	25.2
O+	34	24.5

Table 3 shows nearly three fourth 66.9% of the respondents hemoglobin level were ≥11 g/dl remaining were <10.9g/dl. Regarding postoperative HB level, 69.1% of the respondents HB level were ≤10.9 g/dl. Concerning blood group, 39.6 % of the respondents were "A" positive and 24.5% were "O" positive.

TABLE 4: Status of Weeks of Gestation and Amniotic Fluid Volume Index
n=139

Variables	Frequency(n)	Percentage (%)
Weeks of gestation		
<37 WOG	13	9.4
37-40 WOG	106	76.3
≥41 WOG	20	14.4
Amniotic fluid volume		
<6 AFI	12	8.6
6-8	49	35.3
9-24	78	56.1

Table 4 explains status of WOG and AFI, more than three fourth 76.3% of the respondents were from 37- 40 weeks of gestation. Least 9.4% of the respondents were from less than 37 weeks of gestation. More than half 56.1% of the respondents had 9-24 AFI level. Least 8.6% of the respondents had less than 6 AFI level.

TABLE 5: Fetal Characteristics and Outcomes
n=141

Variables	Frequency(n)	Percentage(%)
Baby weight		
<2.5kg	27	18.0
≥2.5kg	114	82.0
Sex of baby		
Male	77	54.7
Female	64	45.3
Outcome		
Good outcome	97	68.0
Bad outcome	44	32.0
Types of complication(n-44)		
Tachypnea	23	52.2
Meconium aspiration syndrome	5	11.36
Poor sucking, excessive crying	4	9.0
Others	12	27.27

Table 5 displays majority 82% of the respondents baby weight were ≥2.5 kg and remaining were less than 2.5kg. Regarding sex of the baby, more than half 54.7% of the respondents baby were male, remaining were female. Concerning outcome of the baby, 32% of the baby had bad health outcome. Among them, majority 52.2% of baby were suffered from tachypnea and Least 9% were poor sucking and crying problems.

TABLE 6: Indication for Cesarean Section
n=141

Variables	Frequency(n)	Percentage (%)
Fetal indication(n-55)		**(39%)**
Big baby	6	4.3
Breech	12	8.3
Less fetal movement and fetal distress	15	10.6
Thick meconium stained liquor	17	12.2
Others	5	3.5
Maternal indication(n-63)		**(44.1%)**
Previous LSCS	31	22.3
Pregnancy induced hypertension eclampsia	10	7.2
Failed induction	8	5.8
Non progress of labor	9	6.5
Antepartum hemorrhage, cephalopelvic disproportion, elderly primi, septic shock	5	3.6
Placental indication (n-23)		**(16.5%)**

Abruptio,placenta and placenta previa	6	4.3
Premature rupture of member	7	5.0
Oligohydramnios	10	7.2

(Others:fetal: intra uterine fetal death, intra uterine growth retardation, transverse lie, twins)

Table 6 explains about indication for cesarean section. Among fetal indication 39% for CS, major indication were thick meconium stained liquor 12.2% and least of the indication were intra uterine fetal death, intra uterine growth retardation transverse lie and twin 3.5%. Regarding maternal indication 44.1% for CS, out of 63, 22.3% of the respondent's main indication for CS was previous LSCS. Only, 3.6% of the respondent's indication for CS was antepartum hemorrhage, elderly primi, and septic shock.

TABLE 7: Association between Respondents Indications for Cesarean Section with Others Variables n=139

Variables	Indication for CS			X^2	P value
	Fetal n(%)	Maternal n(%)	Placental n(%)		
Gravida and para status					
G_1P_0	32(55.2)	17(29.3)	9(15.5)		
G_2P_1 and more	20(24.7)	47(58.0)	14(17.3)	14.510	**.001 ***
Religion					
Hindu	43(34.1)	60(47.6)	23(18.3)		
Buddhist, Muslim	9(69.2)	4(30.8)	0(0)	.224	**.030 ****
Level of education					
Primary, secondary,	44(41.1)	49(45.8)	14(13.1)		
Highersecondary, bachelor	8(25.0)	15(46.9)	9(28.1)	5.085	.079
Types of CS					
Emergency	44(44.4)	36(36.4)	19(19.2)		
Elective	8(20)	28(70)	4(10)	.306	**.001 ****
Number of CS					
One CS	51(47.7%)	34(31.8%)	22(20.6%)		
Two and more CS	1(3.1%)	30(93.8%)	1(3.1%)	.524	**<0.001 ****

Significantly associated in 95% confidence interval. P-value obtained from Pearson chi-square, Cramer's V ***

Table 7 shows that the indication of cesarean section is statistically significant with the respondents gravida and para status (p=<0.001), number of cesarean section (<0.001), types of cesarean section (<0.001) and religion (p=0.030).The indication of cesarean section was not significance with level of education (p=0.079).

TABLE 8: Association of Level of Education, Age, Weeks of Gestation and Fetal Outcome with Baby Weight

n=139

Variables	Baby weight		X^2	OR(95%CI)	P value
Level of education	**<2.5kg n(%))**	**≥2.5kg n(%)**			
Primary and secondary	16(15.0)	91(85.0)			
Higher secondary, bachelor	10(31.2)	22(68.8)	4.302	2.585(1.03-6.46) 1	**.038***
Age					
<30 Year	22(18.5)	97(81.5)			
≥30year	4 (20.0)	16(80.0)	-		.540 ï
Weeks of gestation					
<37 WOG	9(69.2)	4(30.8)			
≥37WOG	17(13.5)	109(86.5)	-		**.000** ï
Fetal outcome					
Good	15(15.5)	82(84.5)			
Bad	11(26.0)	31(73.8)	-		.107 ï

1= reference OR=Odds ratio

*Significantly associated in 95% confidence interval. P-value obtained from Pearson chi-square *, Fisher's Exact Test* ï

Table 8 presents bivariate analysis of baby weight with level of education of respondents. The bivariate analysis applied in this study that suggested variable such as level of education were significantly associated with the baby weight .Those respondents who were primary and secondary level of education to have normal baby weight as compare to those higher secondary and bachelor level of education (OR= 2.58, p=0.038). Similarly, the baby weight is associated with weeks of gestation (p=<0.001). Concerning, baby weight was not significance with age (p=0.540) and baby outcome (p=0.107).

TABLE 9: Association between Respondents Indications for Cesarean Section with Gravida and Para

Variables	G_1P_0 n(%)	≥G2P1 n(%)	X^2	P value
Fetal				
Big baby	5(83.3)	1(167)		
Breech	7(58.3)	5(41.7)	0.318C	0.003 **
Less fetal movement, TMSL and others	21(56.8)	16(43.2)		
Maternal				
Previous LSCS	0(0)	39(100)		
Eclampsia and pregnancy hypertension	6(60.0)	4(40.0)	0.374	<0.001**
NPOL and others	6(42.9)	8(57.1)		
Placental				
Abruptio placenta and placenta previa	0(0)	6(100)	0.193	0.075 **
PROM and oligohydraminous	9(52.9)	8(47.1)		

Significantly associated in 95% confidence interval. P-value obtained from Pearson chi-square, Cramer's V ***

Table 9 shows the respondents gravida and para status is statistically significant with the fetal (p=0.003) and maternal (<0.001) indication of cesarean section . The gravida and para status was not significance with placental (p=0.075) indication for cesarean section.

IV. Discussion

In this study commonest fetal indication for CS were meuconium stained liquor which was 12.2%. This findings of the present study is supported by the study done in Nepal on patterns of delivery and perinatal outcomes among women delivered at district hospital of rural Nepal, where 18.5% fetal indication for CS were meconium- stained liquor (Amatya, Y. R., 2014).[10]

The present study reveals that common maternal indication for CS wererepeat CS, which was 22.3 %. Likewise, 7.2%. were pregnancy induced hypertension ,preeclampsia and eclampsia. Main fetal indication were 4.3% macrosomia baby, 8.3% were malpresentation. Major, 7.2% placental indication for CS were oligohydramnious.This result is supported by the similar type of study conducted on cross-sectional hospital-based study in China,where mention that common maternal indication for CS 4.3%were preeclampsia/eclampsia, 5.6% fetal indication for CS were macrosomia and 5.7% were malpresentation. Likewise, 3.9% placental indication for CS were oligohydramnios.[11]

In this study, 10.6% were CS from fetal distress. Whereas the study finding was contrast to the finding of Inal, Z.O., Inal,H. A., Kucukkendirci, H. & Oruc, A. S.(2017)[12]which revealed that, 49.52% CS done indication for fetal distress. [11]this study is somehow similar to the study conducted by Maskey, S., Bajracharya, M., & Bhandari, S.(2019). Where, 28% CS were done the main reason was fetal distress.[13]

In this study, the statistical analysis showed that 22.3% of respondents were previous CS.This finding is similar to the finding of Agrawal, A., Chhetri, S., Agrawal, S. & Basnet, 2014 which revealed that, the repeat CS was 19.66%. [14]This might be because of similar setting of the study.

V. Conclusion

A descriptive cross sectional study was conducted regarding factors associated for CS among mothers attending in teaching hospital with the objective to identify the factors associate of CS among 139 respondents. Base on the findings of this study, nearly half of the participant'sindication for CS were maternal factors. Out of which previous CS and non-progress of labor were major factors. Similarly,common fetal indication for CS was less fetal movement, fetal distress and thick meconium stained liquor. Placental indication for premature rupture of membrane and oligohydramnios. The study shows statistically significant association between fetal and maternal indication for CS with gravida and para. It is essential to conduct formal and informal awareness programregarding pregnancy complications, regular checkup and investigation. This steps help to reduce the chances of increase caesareans section rate. Similarly, in this study the main indication for CS was previous cesarean section. Hence,some previous cesarean section can also go on normal vaginal delivery and hospital also should take part in this intervention.

Limitations & future scope of the study

Limited number of subjects is one of the major drawbacks for this research. A multi centric study comprising data from all the medical colleges of and the Universities in Nepal is strongly recommended for future researchers.

Conflict of Interest: The authors do not have any conflict of interest arising from the study.

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