

## FREQUENCY AND INDICATIONS OF CESAREAN SECTION IN A TERTIARY CARE HOSPITAL OF PESHAWAR, KHYBER PAKHTUNKHWA, PAKISTAN

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### ABSTRACT

**Introduction:** There are no preset criteria for standardizing Cesarean Section (C-section) practices and rates on a global level, despite many attempts to reduce or rationalize the Cesarean Section Rate (CSR). The present study was conducted to determine the frequency and indications of Cesarean Section in a tertiary care hospital, the Rehman Medical Institute, located in Peshawar, Khyber Pakhtunkhwa, Pakistan.

**Materials & Methods:** This Descriptive study was conducted in Obstetrics and Gynecology Department of Rehman Medical Institute, Peshawar from June 01, 2015 to Dec 31, 2015. In this study, clinical records of all the pregnant women who underwent C-section during this period were analyzed including patients booked in antenatal clinic and unbooked patients in early labor on whom Cesarean Section was performed. Patients with previous classical Cesarean Section and uterine rupture were excluded from the study. The data were analyzed on SPSS version 15.0.

**Results:** During the 6 months study period, 859 patients were delivered, of whom 378 underwent Cesarean Section and 481 patients had vaginal delivery. Hence the Cesarean Section rate (CSR) was 44%. Ages of C-section patients ranged from 16-44 years, with mean age of  $28.2 \pm 4.96$  years. Of all 378 patients, 206(54.49%) were booked for Cesarean Section while 172(45.5%) were emergency referral cases. Considering Parity, 154(40.7%) were Primigravida, 186(49.2%) were Multigravida and 38(10.05%) were Grand multigravida.

The commonest indications for Cesarean Section were Repeat C-section in 174(46.03%) and fetal distress in 57(15.07%) patients. There were 92(23.5%) patients with previous 01 C-section, 60(15.3%) patients with previous 02 C-sections, 23(5.9%) with previous 03 C-sections and 01 patient with previous 04 C-sections. Patients with more than 02 C-sections directly underwent C-section either in emergency or planned.

**Conclusion:** There is still much room for reducing the frequency of Cesarean Sections. Rising first birth Cesarean rate drove the overall increase and caused further feeds into repeat Cesareans.

**Key words:** Cesarean Section; Cesarean Section, repeat; Perinatal Mortality; Fetal distress; Gravidity.

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### INTRODUCTION

Cesarean delivery is a common obstetric intervention. The global rise in Cesarean delivery rate has been a major source of public health concern and has prompted the emergence of a debate on the risks and benefits of Cesarean Section.<sup>1</sup> Cesarean Section Rate (CSR) is the number of Cesarean Section deliveries among the total number of deliveries.

A single cut off for defining a high or an ideal Cesarean Section rate is very difficult as it may vary in different maternity units according to clinical practice and set up. In 1985, WHO stated that countries with some of the lowest Perinatal Mortality Rate (PNMR) have low CSR- less than 10%<sup>2</sup> and that rate higher than this did not confer any additional maternal and fetal health benefit.<sup>3</sup>

While C-section rates range between 12-86% across studies done in developed countries, the rate in developing countries vary between 2 and 39%.<sup>4</sup> Recent reports showed that population-based CSR exceeding the WHO "threshold" of 15% are more common in private than public hospital.<sup>5</sup> Other reasons are fear of being sued, health insurance system, C-section by choice, lack of midwifery support, increased proportion of breech deliveries by C-section, poor implementation of active management of labor and differences in clinical practices.<sup>6</sup> Introduction of electronic fetal monitoring with a high false

positive rate of detection of fetal hypoxia has also contributed to the rise.<sup>7</sup> Indeed every obstetrician expects perfect results from the pregnancy i.e. neither the child nor the mother should suffer damage.

Cesarean Section as a rescue operation for the mother and fetus can be associated with many complications and cost. In developing countries like Pakistan it may be difficult if not impossible to achieve the goal of reducing CSR due to many factors including lower literacy rate, poor socio-economic status and poor primary health care facilities. This study was conducted to determine the frequency and indications of Cesarean Section in Rehman Medical Institute, a private tertiary care hospital, as increasing trend of C-section, particularly in Primigravida has adverse consequences in the following pregnancies.

**MATERIALS & METHODS**

This descriptive study was conducted in the Department of Obstetrics and Gynecology, Rehman Medical Institute, Peshawar from June 01, 2015 to Dec 31, 2015. All pregnant women

booked in antenatal clinic and unbooked patients in early labor on whom Cesarean Section was performed were included in the study. Patients with previous classical Cesarean Section and uterine rupture were excluded from study. Patient details like socio-demographic data including age, parity (primigravida, multigravida, grand multigravida), booking status, mode and indications for Cesarean Section were included as variables. Data were analyzed by SPSS version 15.0.

**RESULTS**

During the study period, 859 patients were delivered, of whom 378(44%) underwent Cesarean Section and 481(56%) patients had vaginal delivery giving a 44% CSR. Ages ranged from 16-44 years, with mean age of 28.2 ± 4.96 years. Of the 378 C-section cases, 206(54.49%) were booked for Cesarean Section while 172(45.5%) were emergency referral cases. Considering Parity, 154(40.7%) were Primigravida, 186(49.2%) were Multigravida and 38(10.05%) were Grand multigravida (Table 1).

**Table 1: Mode of Cesarean Section in relation to gravidity and booked or emergency cases (n=378)**

Mode of Cesarean Section			
Gravidity	Booked	Emergency	Total
Primigravida	65	89	154 (40.74%)
Multigravida	120	66	186 (49.21%)
Grand Multigravida	21	17	38 (10.05%)
<b>Total</b>	<b>206 (54.5%)</b>	<b>172 (45.5%)</b>	<b>378</b>

The commonest indication for Cesarean Section was Repeat C-section in 174(46.03%) followed by fetal distress in 57(15.07%) patients (Table 2). There were 92(23.5%) patients with previous 01 C-section, 60(15.3%) patients with previous 02 C-

sections, 23 (5.9%) with previous 03 C-sections and 01 patient with previous 4 C-sections. Patients with more than 2 Cesarean Sections directly underwent Cesarean Section either in emergency or planned.

**Table 2: Indications of Cesarean Sections in booked versus emergency cases (n=378)**

Indications for Cesarean Sections	Mode of C-section		Total N (%)
	Booked	Emergency	
Repeat C-section	123	51	174 (46.03)
Fetal Distress	13	44	57 (15.08)
Failure of progress of Labor	4	19	23 (06.08)
Breech Presentation	18	8	26 (06.88)
Obstructed Labor	2	8	10 (02.65)
Hypertensive Disorders of Pregnancy	13	14	27 (07.14)
APH	2	8	10 (02.65)
Multiple Pregnancy	11	8	19 (05.03)
Postdated Pregnancy	0	1	1 (0.26)
Contracted pelvis	16	7	23 (06.08)
Malpresentation	0	2	2 (0.53)
Miscellaneous	4	2	6 (01.59)
<b>Total</b>	<b>206 (54.5%)</b>	<b>172 (45.5%)</b>	<b>378</b>

## DISCUSSION

High caesarean birth rates are an issue of international public health concern. As a key component of comprehensive emergency obstetric care (EmOC), the adequate provision of Cesarean Sections during intrapartum care is a life-saving procedure. This is particularly vital for mothers living in low and middle income countries, where access to EmOC is low and resources to provide quality care are limited.<sup>8</sup> The WHO stated, in 2015, that every effort should be made to provide C-section to women in need, rather than striving to achieve a specific rate.<sup>9</sup> According to the WHO, the CSR in any population should lie within the range of 5-15% and there is no justification in any specific geographic region to have more than 10-15% C-section births.<sup>10</sup>

Recent global estimates consistently show that rates of Caesareans have been rising dramatically over the recommended threshold, particularly in Latin American and some Asian countries. Although Netherlands has a relatively low C-

section rate (16.7%) compared to the United Kingdom (24.6%) and United States (32%), C-section appeared to be overused in most-developed countries and emerging economies. Other large ecological studies do support this rate and arrived at similar conclusions.<sup>11</sup> The most impressive rise in CSR is found in 'low risk pregnancies' defined as healthy women with a singleton in cephalic position at term.<sup>12</sup>

In the present study, C-section was highest in booked Multigravida patients 120(31.74%) due to high rate of repeat C-section (46.03%). In emergency, 89(22%) Cesarean Sections were done in Primigravida patients and main indication was fetal distress in 44(77.1%) patients.

CSR was calculated to be 44% that is comparable with some earlier findings,<sup>13</sup> but much higher than some others.<sup>14</sup> CSR in Brazil and the Dominican Republic is 45.9% and 41.9%, respectively.<sup>15</sup> CSR is quite high in our study, mainly because it is a tertiary care hospital receiving patients in critical condition often necessitating abdominal delivery.

Other factors are health insurance system, increase in repeat C-section, increased use of electronic fetal monitoring, increased proportion of breech deliveries by C-section, maternal choice for C-section and perhaps fear of litigation. A local study done by Zahiruddin et al<sup>16</sup> in Hyderabad reported CSR of 45%. Increased rate of C-section increases obstetrical complications in pregnant woman.

In the present study, majority of woman who underwent C-section were in age group of 16-44 years. The chance of undergoing Cesarean Section would increase as age of the mother increases.<sup>17</sup> We found that women in age group of 16–20 years were less likely to undertake Cesarean Section as compared to age group of 20–35 years. The effect of age in this study could be explained by the possibility of pregnancy complication increment by age.<sup>18, 19</sup>

The primary cause of uterine scars is a previous Cesarean; 92(23.1%) pregnant woman had previous one Cesarean Section and associated factors like fetal distress, failure of progress of labor, malpresentation, twins, good sized baby, scar tenderness, refused trial of labor & obstructed labor. Previous 02 or more Cesarean Sections accounted for 60 (15.3%) patients. A study from Bangladesh reported frequency of repeat C-section of 24.1% which is comparable to ours.<sup>20</sup>

In this study, only 20 (21.7%) of women with previous 01 C-section had successful vaginal delivery. This finding is consistent with other researches.<sup>21</sup> Moreover mothers who had previous C-section were more likely to have C-section delivery than their counterparts. Unless there is a clear, compelling and well-supported justification for C-section, a carefully supervised and justified trial of labor is necessary. Trial of scar in singleton pregnancies can be given to reduce rate of repeated Cesarean Section as the risk of uterine rupture is low.<sup>22</sup>

In current study, 154 (40.7%) were Primary Cesarean Section, out of which 18(11.6%) patients were Primigravida with breech presentation, 23 (14.9%) patients with contracted pelvis, 48 (31.1%) patients with fetal distress and 17(11.03%) primigravida had failure of labor to progress; 186(49.2%) Multigravida patients had C-section and main indication was Repeat C-section in 152(81.7%).

Rising first-birth caesarean rates drove the overall increase and caused further feeds into increased repeat caesareans. Primary Cesarean Section usually determines the future obstetric outcome of any woman and should be avoided whenever possible. Study by Ragusa A et al<sup>23</sup> reported dystocia as the most commonly reported indication for Primary Cesarean Sections accounting directly for approximately 50% of all Cesarean Sections in nulliparous women and for the majority of repeat Cesarean Sections in labor.

To reverse the trend of the rising Cesarean delivery rate, obstetricians must reduce the primary rate and avoid the performance of a uterine incision unless absolutely necessary for fetal or maternal indications. Safe reduction in Cesarean delivery rates for primigravida will proportionately reduce the number of repeat Cesarean deliveries required. For women with one previous low transverse Cesarean delivery, obstetricians should promote a trial of labor after previous Cesarean delivery in those women who desire three or more children. Study by Sabol B et al<sup>24</sup> showed that a previous C-section due to a non-progress of labor is an independent risk factor for another non-progress of labor in the subsequent pregnancy and for recurrent Cesarean delivery.

Consistent with a study done in southern Ethiopia,<sup>25</sup> the second most frequent indication of C-section observed in this study was fetal distress. Fetal distress was diagnosed among 57(15.07%) fetuses; out of which 44(77.1%) patients came in emergency. Majority of them were Primigravida

(48, 84.2%). We found that failure to progress and non-reassuring fetal heart rate accounts for 23(6.08%) of Cesarean delivery. Major risk factors for failure of labor to progress during the first stage were Premature Rupture of Membranes (PROM), nulliparity, induction of labor and older maternal age. Martínez AH et al<sup>26</sup> reported labor induction as the most important predictor of primary Cesarean Section. Indications for labor induction should be carefully evaluated in order to decrease the rate of operative deliveries.

Electronic fetal heart monitoring is the standard of care for intrapartum surveillance of the fetus. When electronic fetal heart monitoring by Cardiotocography (CTG) was introduced 30 years ago, the aim was to identify fetuses affected by hypoxia during labor better. But no benefit in long term neonatal outcome has been shown.<sup>27</sup> Availability of CTG and heavy reliance on it had led to increased frequency of Cesarean Section due to fetal distress. Interpretation of a suspicious, non-reassuring or pathological fetal heart rate tracing does not provide any direct information about fetal oxygen saturation, blood gas status or the extent of changes in pH. Otherwise, inaccurate diagnosis of fetal distress would lead to unjustified use of C-section. Without fetal scalp blood sampling, such tracings often necessitate rapid intervention to deliver the baby by Caesarean Section or assisted vaginal delivery. Fetal blood analysis still is an effective tool to reduce unnecessary operative deliveries and should be regularly included in intrapartum monitoring.<sup>28</sup> In general, our findings confirm the need for accurate assessment and better understanding of the mechanism underlying non-reassuring fetal heart rate pattern. The risk of fetal complications is low compared with the reduction in the rate of Caesarean Sections and assisted vaginal deliveries. Obstetricians are evidently becoming more willing to carry out fetal scalp blood sampling with rising gestational age.

However, in order to reduce the high C-section rate in our obstetric population, it is suggested that CTG be used appropriately in high risk women and that intermittent auscultation be recognized as a valid form of management for most low risk cases.

A study by Abebe FE<sup>29</sup> showed obstructed labor and fetal distress were the main reasons leading to Cesarean Section rather than background characteristics assumed to be a risk. In current study, 10(2.6%) patients with obstructed labor ended up in Cesarean Section; 02 were booked and 08 were emergency handled cases. Out of 10 cases with obstructed labor, 07(70%) were Primigravida. These patients were given prolonged trial of labor in periphery by untrained Dais and Lady Health Visitors (LHVs). So there is need of proper and regular antenatal care; the decision to perform Cesarean Section should be based on clear, compelling and well-supported justifications.

Breech delivery is still a controversial situation in literature.<sup>30</sup> Fear of dystocia during breech delivery brings obstetrical teams to choose elective caesarean Sections.<sup>31</sup> Few women are given the option of a vaginal breech birth in Australia, unless the clinicians feel confident and have the skills to facilitate this mode of birth.<sup>32</sup> This trend has implications not for the index pregnancy but increases the chance of repeat C-section in subsequent pregnancy.

In our patients, an important indication for Cesarean Section was term breech presentation in 26(6.87%) patients, especially in Primigravida (18, 4.76%). A study conducted by Hutton et al<sup>33</sup> recommended External Cephalic Version (ECV) as common mode of delivery in 81.2% nulliparous woman older than 35 years with breech presentation. Management of breech presentation with a protocol that includes ECV, careful selection criteria and active management of vaginal delivery achieved a great decrease in the rate of C-section for breech presentation. In term breech deliveries, vaginal delivery can be safely

envisioned in some conditions (related to patient selection and obstetrician experience). ECV of the breech fetus at term (after 37 weeks) has been shown to be effective in reducing the number of breech presentations and Cesarean Sections, but the rates of success are relatively low.

The rising rate of Cesarean Sections, especially those on maternal request, is an important obstetric care issue. We did only 01 C-section on maternal request. In fact ACOG recently stated that Cesarean delivery on maternal request particularly is not recommended for women desiring several children, given that the risk of placenta previa, placenta accreta, and gravid hysterectomy increases with each Cesarean delivery.<sup>33</sup> So it is important to initiate discussions with woman about their reproductive plan like desiring further children, and about the risks associated with repeated Cesarean Sections. There is a need for specific counseling strategies for women requesting delivery by C-section.

Like the study reported by Abebe FE et al,<sup>27</sup> mothers having pregnancy risk factors like diabetes and hypertension were at higher odds (7.14%) of undergoing C-section delivery in this study. These patients had eclampsia with poor

Bishop Score, severe pregnancy induced hypertension and intrauterine growth restriction. Good antenatal care detects these problems and active management can prevent C-section. Presence of abnormal presentations, big babies which cause Cephalo-Pelvic disproportion or malposition, are also consistently reported in other studies.<sup>34</sup>

Antepartum Hemorrhage (APH) contributed to 2.6% of Cesareans in our study. These were cases of major degree placenta previa and severe placenta abruption which necessitate urgent delivery. Vaginal delivery is contraindicated when placenta is encroaching within 2 cm of internal os.<sup>35</sup>

## Conclusions

There is a need for timely and accurate screening of women during obstetric care; decision to perform Cesarean Section should be based on clear, compelling and well-supported justifications. In addition, training of hospital staff, health officers, midwives and health extension workers in emergency obstetric care as well as neonatal resuscitation skills, and use of partograph for appropriate decision to undertake C-section are critical.

## REFERENCES

1. Stjernholm YV, Petersson K, Eneroth E. Changed indications for Cesarean Sections. *Acta Obstet Gynecol Scand.* 2010; 89(1):49-53.
2. Chung SH, Seol HJ, Choi YS, Oh SY, Kim A, Bae CW. Changes in the Cesarean Section Rate in Korea (1982-2012) and a Review of the Associated Factors. *J Korean Med Sci.* 2014; 29(10):1341–52.
3. Adnan A, Abu O, Suleiman H, Abu A. Frequency Rate and Indications of Cesarean Sections at Prince Zaid Bin Al Hussein Hospital – Jordan. *J Med Sci Clin Res.* 2012; 19(1):82–6.
4. Lotfi R, Tehrani FR, Dovom MR, Torkestani F, Abedini M, Sajedinejad S. Development of strategies to reduce Cesarean delivery rates in Iran 2012–2014: A mixed methods study. *Int J Prev Med.* 2014; 5(12):1552–66.
5. Moges A, Ademe B, Akessa G. Prevalence and Outcome of Caesarean Section in Attat Hospital, Gurage Zone, SNNPR, Ethiopia. *Arch Med.* 2015; 7:4.
6. Gonzales GF, Tapia VL, Fort AL, Betran AP. Pregnancy outcomes associated with Cesarean deliveries in Peruvian public health facilities. *International Journal of Women's Health.* 2013; 5:637-45.
7. Spong CY, Berghella V, Wenstrom KD, Mercer BM, Saade GR. Preventing the First Cesarean Delivery: Summary of a Joint *Eunice Kennedy Shriver* National Institute of Child Health and Human

- Development, Society for Maternal-Fetal Medicine, and American College of Obstetricians and Gynecologists Workshop *Obstet Gynecol.* 2012;120(5):1181–93.
8. Cavallaro FL, Cresswell JA, França GV, Victora CG, Barros AJ, Ronsmans C. Trends in caesarean delivery by country and wealth quintile: cross-Sectional surveys in southern Asia and sub-Saharan Africa. *Bulletin of the World Health Organization.* 2013 Dec 1; 91(12):914–22D.
  9. Roberts CL, Algert CS, Todd AL, Morris JM. Reducing caesarean Section rates--no easy task. *Aust N Z J Obstet Gynaecol.* 2013; 53:310-3.
  10. Khanal V, Karkee R, Lee AH, Binns CW. Adverse obstetric symptoms and rural-urban difference in Cesarean delivery in Rupandehi district, Western Nepal: a cohort study. *Reprod Health* 2016 Mar; 13(1):17.
  11. Khawaja M, Jurdi R, Khasholian TK. Rising Trends in Cesarean Section Rates in Egypt. *Birth* 2004 Mar;31(1):12-6.
  12. Perinatal Care in the Netherlands 2012. Utrecht: Foundation Perinatal Registration the Netherlands (PRN), 2013.
  13. Ehtisham S, Hashmi HA. Determinants of caesarean Section in a tertiary hospital. *JPMA.* 2014 Oct;64(10):1175-78.
  14. Ali L, Tayyab S, Perveen F. Cesarean Section rate: current trends. *J Surg Pak.* 2007 Jun; 12(2):64-6.
  15. Brüggmann D, Löhlein LK, Louwen F, Quarcoo D, Jaque J, Klingelhöfer D, et al. Cesarean Section-- A Density-Equalizing Mapping Study to Depict Its Global Research Architecture. *Int J Environ Res Public Health.* 2015 Nov 17; 12(11):14690-708.
  16. Zahiruddin S, Qureshi SR, Farooq U. Vaginal birth after caesarean Section; factors predicting success. *Professional Med J.* 2013 Nov; 20(5):759-64.
  17. Gutema H, Shimye A. Cesarean Section and associated factors at Mizan Aman General Hospital, southwest Ethiopia. *J Gynecol Obstet.* 2014; 2(3):37–41.
  18. Kenny LC, Lavender T, McNamee R, O'Neill SM, Mills T, Khashan AS. Advanced maternal age and adverse pregnancy outcome: evidence from a large contemporary cohort. *PLoS One.* 2013; 8(2):e56583.
  19. Mary N, Judith U, Hibbard M. Contemporary Labor Patterns and Maternal Age. *Obstet Gynecol.* 2013; 122(5):1018–24.
  20. Islam MT, Yoshimura Y. Rate of Cesarean delivery at hospitals providing emergency obstetrics care in Bangladesh. *Int J Gynaecol Obstet.* 2015 Jan; 128(1):40-3.
  21. Stivanello E, Rucci P, Lenzi J, Fantini M. Determinants of Cesarean Section delivery: a classification tree analysis. *BMC Pregnancy Childbirth.* 2014; 14(215):1471–2393.
  22. Soni A, Sharma C, Verma S, Justa U, Soni PK, Verma A. A prospective observational study of trial of labor after Cesarean in rural India. *Int J Gynaecol Obstet.* 2015; 129(2):156-60.
  23. The American Congress of Obstetricians and gynecologists (ACOG) Committee opinion No. 559. Cesarean Delivery on Maternal Request. *Obstetrics and Gynecology.* 2013; 121(4):904-7.
  24. Sabol B, Denman MA, Guise JM. Vaginal birth after Cesarean: an effective method to reduce Cesarean. *Clin Obstet Gynecol.* 2015 Jun; 58(2):309-19.
  25. Moges A, Ademe B, Akessa G. Prevalence and Outcome of Caesarean Section in Attat Hospital, Gurage Zone, SNNPR, Ethiopia. *Arch Med.* 2015; 7:4.
  26. Martínez AH, Pedreño AIP, Baño-Garnés ABB, Jiménez MRM, Burillo JMT, Alarcón MM. Predictive model for risk of Cesarean Section in pregnant women after induction of labor. *Archives of Gynecology and Obstetrics.* 2016 Mar; 293(3):529-38.
  27. Roy KK, Baruah J, Kumar S, Deorari AK, Sharma JB, Karmakar D. Cesarean Section for suspected fetal distress, continuous fetal heart monitoring and decision to delivery time. *The Indian Journal of Pediatrics.* Dec 2008; 75(12):1249-52.
  28. Tempfer C, Hefler L, Husslein P. Modern intrapartum fetal monitoring: room for improvement? *Archives of Gynecology and Obstetrics.* 2007 Aug;276(2):99-100
  29. Abebe FE, Gebeyehu AW, Kidane AN, Eyassu GA. Factors leading to Cesarean Section delivery

- at Felegehiwot referral hospital, Northwest Ethiopia: a retrospective record review. *Reprod Health*. 2015; 13:6.
30. Cattin J, Roesch M, Bourtembourg A, Maillet R, Ramanah R, Riethmuller D. Obstetrical prognosis of breech presentations with premature rupture of membranes at term. *Gynecol Obstet Biol Reprod (Paris)*. 2016 Apr; 45(4):366-71.
31. Babović I, Arandjelović M, Plešinac S, Sparić R. Vaginal delivery or Cesarean Section at term breech delivery - chance or risk? *J Matern Fetal Neonatal Med*. 2015 Aug; 10:1-5.
32. Hutton EK, Hofmeyr GJ, Dowswell T. External cephalic version for breech presentation before term. *Cochrane Database Syst Rev*. 2015 Jul 29; 7:CD000084.
33. American College of Obstetricians and Gynecologists. Society for Maternal-Fetal Medicine. Obstetric care consensus no.1: safe prevention of the primary Cesarean delivery. *Obstet Gynecol* 2014;123:693-711.
34. Alrowaily M, Alsalem F, Abolfotouh M. Cesarean Section in a high-parity community in Saudi Arabia: clinical indications and obstetric outcomes. *BMC Pregnancy Childbirth*. 2014; 14(92):1471–2393.
35. Bashir A, Jadoon HZ, Abbasi AN. Frequency of placenta previa in women with history of previous caesarean and normal vaginal deliveries. *J Ayub Med Coll Abbottabad*. 2012; 24(3):151-3.
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