

# FREQUENCY AND FACTORS OF CESAREAN SECTION IN LADY DOCTORS WORKING IN DIFFERENT HEALTH CARE FACILITY, PESHAWAR

ROEDA SHAMS<sup>1</sup>, FARHANA JABEEN SHAH<sup>2</sup>, SYEDA ZILE HARAM SABA SHAH<sup>3</sup>,  
SYEDA ANMOL SABA SHAH<sup>4</sup>, SAAD AHMAD KHAN<sup>5</sup>, MAHAM AYYAZ<sup>6</sup>

<sup>1</sup>Assistant Professor of Obstetrics & Gynaecology, Rehman Medical Institute Peshawar, <sup>2</sup>Assistant Professor, Department of Community Medicine, <sup>3</sup>Lecturer Pharmacology Department, <sup>4</sup>Lecturer Department Anatomy, <sup>5,6</sup>4<sup>th</sup> Year MBBS Students, Kabir Medical College Gandhara University Peshawar  
Correspondence: farhana.j25@yahoo.com

## ABSTRACT

**Objectives:** To determine the frequency and factors of cesarean section in lady doctors working in different health care facility, Peshawar

**Materials and Methods:** This was a cross sectional descriptive study over a period of one year from January 2016 to December 2016, in lady doctors working in different health care facility of Peshawar and comprised 2000. All the post operative cesarean section patients delivered singleton and alive baby admitted in gynecology wards in different health care facility of Peshawar were included in the study all the post operative cesarean section patients delivered singleton and alive baby, admitted in intensive care unit due to medical reasons and complication after surgery ,non cooperative and reluctant patients were excluded.

**Results:** The cesarean section was 60.05% in 30-39 years of age 72.25% in urban settings, 73% of the patients operated in public hospitals, 36.9% obese, 81.5% of respondents was of upper social class, 77% of patients had antenatal visits more than 2, maternal indications included CPD 10%, obstructed labor 17.5% where as fetal indications were fetal distress 23.5% and fetal mal presentation 11.5%.

**Conclusion:** The emergent cesarean section was more as compare to planned type.

**Keywords:** Cesarean section (CS), Multigravida, Emergent, Obstructed labor

## INTRODUCTION

Improvements in latest knowledge and procedures in obstetrics helped achieve better pregnancy outcome and these intervention are crucial for both mother and child. New trends show increased rates of cesarean section involving whole of the world.<sup>1</sup> Cesarean intervention can be life-saving the sudden increase in c-section rates (CSR) above the WHO recommended 15% raises and a main concern for health care system throughout the world.<sup>2</sup> In Nepal, a developing nation has limited health care facilities but this increasing trend absolutely has huge implication.<sup>3</sup> Rate of cesarean section became doubled in the last 10 years in high income nations including Australia, France, Germany, Italy, North America and United Kingdom.<sup>4</sup>

Rate of cesarean section in high income countries were more as compared to low income nations 30.3% in the United State of America, 22% in the UK, 26% in Canada, 19% in France, 28% in Germany and 30% in

Australia.<sup>5</sup> In 2014, Saudi Arabia showed increase rate of cesarean section with 67% of emergency CS, and 33% were elective CS. Difficult labor and breech presentation ,fetal distress, were the most frequent indications of emergency CS, while previous CS, breech presentation and maternal request ranked first for elective CS.<sup>6</sup> In Italy and south America, CSR increased up to 85% where as in Rome 44%. The huge frequencies was in private practice has contributed to the high frequency of CSR world wide.<sup>7</sup> CSR is increasing every year in developing countries in Bangladesh 2%(2000) 17%(2011),in India from 3% (1992) to 11% (2006).<sup>8</sup>

Data from 150 countries,18.6% of all births occur by cesarean section from 6-27.2% in the under developed countries. 40.5% highest frequency was observed in Latin America and the Caribbean region where as 32.3% in Northern America, 31.1% in Oceania, 25% in Europe, 19.2% in Asia and 7.3% in

Africa. Statistics showed global average increase 12.4% from 1990- 2014(6.7-19.1%), with an average annual rate of increase of 4.4%. In Latin America and Caribbean absolute rise was 19.4%, from 22.8% to 42.2%, then in Asia (15.1%, from 4.4% to 19.5%), followed by Oceania (14.1%, from 18.5% to 32.6%) then Europe (13.8%, from 11.2% to 25%), Northern America (10%, from 22.3% to 32.3%) and Africa (4.5%, from 2.9% to 7.4%). Asia and Northern America were the regions with the highest 6.4% and lowest 1.6% average annual rate of increase.<sup>9</sup> Pakistan reported increasing rate of caesarean births in different areas of country showed CSR of 16–20%.<sup>10</sup>

Cesarean section tends to be more common among women in urban settings, in upper class candidates, qualified and literate patients experienced high frequency CS than low social class and uneducated women. The most common age group was from 16 and 35 year of age group.<sup>11</sup> Ethnicity is another issues that affect the use of maternal health services<sup>12</sup>

Cesarean section rates were found to have increased from 2.7% in 1990–91 to 15.8% in 2012–13 with lower rate among the illiterate females as compare to educated females (40.3%). CSR was 5.5% in the low income class and 35.3% in the high income class where as 25.6% of the urban women experienced high CSR as compare to rural women.<sup>13</sup>

Many obstetric factors like history of previous C-section, parity, BMI of the mother, maternal age, maternal diseases, literacy and social class are important factors were associated with Caesarean section.<sup>14</sup> A study of one year, conducted in Hyderabad (2009) showed increase CSR of 64.7%. Emergency cesarean section was carried out in 59.2% of patients and elective cesarean section in 40.7%.<sup>15</sup>

Effort should be done to reduce the highest frequency of cesarean section in country. Maternal and fetal health care services should be promoted to reduce the indication associated with the increase cesarean rate .the aim of the study was to determine the frequency and factors of cesarean section in lady doctors working in different health care facility of Peshawar.

## MATERIALS AND METHODS

This was a cross sectional descriptive study over a period of one year from January 2016 to 31<sup>st</sup> December in lady doctors working in different health care facility of Peshawar. Non probability convenience sampling was used to achieve the required sample size of 2000. All the post operative cesarean section patients delivered singleton and alive baby admitted in gynecology wards in different health care facility of Peshawar were included in the study All the post

operative cesarean section patients delivered singleton and alive baby, admitted in intensive care unit due to medical reasons and complication after surgery ,non cooperative and reluctant patients were excluded from the study .A semi structured questionnaire was designed to inquired each and every patient, regarding the relevant information of the cesarean delivery e. g. type of cesarean section .maternal age (20-39 years) divided in different categories ,area of residence (urban, rural), type of hospital (public, private), profession of the respondents (MBBS,BDS), socioeconomic status (upper, middle), antenatal visit (less than 2, more than 2), Parity (primigravida, multigravida, grand multigravida), body mass index was taken according to the formula given by World health organization in to underweight, normal, overweight, obese. Maternal Indications included Cephalo pelvic disproportion, obstructed labor, previous history of CS, maternal infections, maternal diseases, placental anomalies, antepartum hemorrhages, failed induction, malpresentation, maternal infections, malposition, premature rupture of membrane (PROM), pelvic tumor. Questions were asked about fetal indications, fetal distress, macrosomia, intra uterine growth retardation (IUGR), prematurity, fetal mal presentation, post maturity, cord prolapse, cord around the neck.

## RESULTS

The frequency of different types of CS in health care facility among two thousand cesarean patients 62.5% were emergent and 37.5% were planned cases (Table 1). CS was 6.35% in 20-29years of age group, 60.05% in 30-39 years of age and 33.6% above 39 years. Frequency of CS was 72.25% in urban settings and 27.75% in rural areas. 73% of the patients operated in public hospitals and 27% in private hospitals. 55% of MBBS doctors and 45% of BDS doctors, 17 % under weight, 11.1% normal, 35% over weight and 36.9% obese had cesarean section (Table 2).

81.5% of respondents was of upper social class and 18.5% of middle class. 77% of patients had antenatal visits more than 2 and 23% less than 2. 20% of patients were primigravida, 49.9% were multi gravid and 30.1% were grand multigravida (Table 3). The cesarean section associated with CPD had 10%, obstructed labor 17.5%, previous history of cesarean section 6.5%, maternal diseases 8%. Placental anomalies 6%, antepartum hemorrhages 5%, failed induction 8.5%, uterine rupture 6.5%, post partum hemorrhages 5%, maternal infections 6.5%, PROM 6.5%, oligohydramnics 5%, malposition 7.5%, pelvic tumors 1.5% were maternal indications of cesarean section (Table 4). The CS related with fetal distress was

23.5%, fetal macrosomia 10%, IUGR was 9%, Prematurity 10%, fetal mal presentation 11.5%, fetal malposition 11% and cord around the neck was 5%, cord prolapse 5%, post-mature babies 5% and miscellaneous 10% (Table 5).

**Table 1:** Frequency of different types of cesarean section

Category	No.	%
Emergent	1250	62.5%
Planned	750	37.5%
Total	2000	100%

**Table 2:** Frequency of sociodemographic profile of CS patients

Variable	No.	%
<b>Age(years)</b>		
20-29	127	6.35
30-39	1201	60.05
> 39	672	33.6
<b>Area of residence</b>		
Urban	1445	72.25
Rural	555	27.75
<b>Type of hospital</b>		
Public	1460	73.0
Private	540	27.0
<b>Profession of the respondents</b>		
MBBS	1100	55.0
BDS	900	45.0
<b>Body mass index</b>		
Under weight	340	17.0
Normal	222	11.1
Over weight	700	35.0
Obese	738	36.9

**Table 3:** frequency of maternal characteristics with cesarean section

Category	No.	%
<b>Socioeconomic status</b>		
Upper	1630	81.5
Middle	370	18.5
<b>Antenatal visits</b>		
More than 2	1540	77.0
Less than 2	460	23.0
<b>Parity</b>		
Primigravida	400	20.0
Multigravida	998	49.9
Grand multi gravida	602	30.1

**Table 4:** Frequency of maternal indications of cesarean section

Category	No.	%
Cephalo pelvic disproportion(CPD)	200	10.0
Obstructed labor	350	17.5
Previous CS	130	6.5
Maternal diseases	160	8.0
Placental anomalies	120	6.0
Antepartum hemorrhages	100	5.0
Failed induction	170	8.5
Uterine rupture	130	6.5
Post partum hemorrhages	100	5.0
Maternal infection	130	6.5
Pre- mature rupture of membrane (PROM)	130	6.5
Oligohydramnios	100	5%
Malposition	150	7.5%
Pelvic tumors	30	1.5%

**Table 5:** Frequency of fetal indications related with CS

Category	No.	%
Fetal distress	470	23.5
Fetal macrosomia	200	10.0
Intra uterine growth retardation (IUGR)	180	9.0
Pre maturity	200	10.0
Fetal mal presentation	230	11.5
Fetal mal position	210	11.0%
Cord around neck	100	5.0
Cord prolapse	100	5.0
Post mature babies	100	5.0%
Miscellaneous	200	10.0

## DISCUSSION

Cesarean section is life saving procedure for the mother and fetus. However maternal mortality following cesarean section is 7-10 times higher than for vaginal delivery. Cesarean section operation is more expensive as compare to natural birth. Present study showed highest frequency was experienced of emergency cesarean section in females. A study conducted by Haider<sup>15</sup> reported the similar result of our study showed majority of cases operated were of emergent type (59.2%). Another study conducted in Nigeria 2009 showed more frequency of emergency cesarean section as compare to elective one.<sup>16</sup> The increase frequency of cesarean section depends on the socio-demographic

pattern, referral role of the hospital, policies of department regarding management of mal presentation and position, fetal distress and history of previous cesarean section, physician factors and medico legal aspects, and consideration of maternal wish.

Current study reported highest (73%) frequency of cesarean section reported in public health care facility. Study in Nigeria concluded that frequency of caesarean section in government hospital was more and the large number of patients under gone emergency surgical intervention.<sup>16</sup> Another study of Nigeria showed same resemblance with our study of highest frequency in tertiary maternity hospital serving population and reflects the same settings in sub-Saharan African countries.<sup>17</sup> Frequency of cesarean section was more in 19-35 age category.<sup>18</sup> A study conducted in south west Ethiopia, about 37.1% of the mothers found between age group of 25-35 years, But in Italy 57.7% were between age of 24 -35 years.<sup>19</sup> A study of Bangladesh concluded, higher segment of woman of age 35 years with larger percentage of cesarean section with  $p$  value<0.001 showed strong association between maternal age of 25-35 years.<sup>20</sup> Nassar & Sullivan suggested that high rate of primary cesarean section for women age 30 years or older.<sup>21</sup> A recent meta-analysis conducted in developed and developing countries also found similar result.<sup>22</sup> Maternal age of 25 -35 years are more prone to indulge in various maternal diseases and complications so chances of surgical intervention were more as compare to Natural birth.<sup>23</sup> Women in younger and advanced maternal age are more likely to suffer from obstetric and maternal complications than women in middle maternal age, and this may subsequently contribute to the increasing rate of CS use.<sup>24</sup> Increased frequency of CS was associated with various factors e.g. Maternal and fetal life and death situation. Women desire to be highly educated and career building issues, delayed parenthood due to easy and affordable ways of birth control methods. Shift of cultural, values and traditions have led towards more women not feeling to have a child in young age group. Lack of childcare, low benefit levels and workplace policies are other important issues of delayed conception. Financial stability is another problem which cannot be ignored. Long fertility treatment is another complex reason that females are getting pregnant later in life. So a combination of all above mentioned factors contribute to rise in the rate of cesarean section in women. Age itself is not an indication for cesarean section but actually emergence of particular risks happened in this age category that may link with cesarean birth delivery.

Current studies showed increase frequency of CS was experienced in upper socioeconomic status. Studies

have shown that 5-10% of cesarean section observed in upper social class in developed countries.<sup>24</sup> Women of wealthier background were more delivered by cesarean section ( $p$  value<0.001) and could afford easily rather than poor class.<sup>25</sup> The reason of increased frequency associated with cesarean section in upper social class was because woman with lower social status might not afford the expenses of the surgical procedure, admission, medication and other post operative charges in health care facility.

Current study showed 72.25% of patients belonged to urban settings and findings showed that women belong to the poorest families and from rural areas had lower rate of cesarean section than women of urban group and defined poverty as an key risk for the low frequency of CS.<sup>26</sup> Another study showed that women belong to the poor class revealed decrease frequency of cesarean section than other group. Data have shown that low income is an important protective factor for the low rate of cesarean section in women.<sup>27</sup> This study also highlighted education as a strong predictor of increased frequency of cesarean section, in low income nations.<sup>28</sup> As education is directly related with women's independence, highly educated women can make their own decision to choose the method of delivery. However, high qualification is not always connected to increase rate of cesarean section. Study revealed a negative approach of highly educated women towards cesarean section.<sup>29</sup> More accessibility to medical intervention in urban areas, presence of more health facilities and insurances in urban areas can be probable reasons.<sup>30</sup> Doctors are highly educated among whole of the population and education provides information on health promoting behaviour, more educated women have more knowledge about the pregnancy and related complication and know well about the risk of unnecessary C-section. Majority of our patients belong to urban areas and most of the cesarean births took place in urban woman as compared to the ones who resided in rural areas. Increased frequency of CS may be explained by numerous factors in urban women. Social class and financial status and cultural factors affect the choice of delivery. Increased statistics was due to availability and accessibility of sufficient quality medicines and equipment required in emergency situation, trained birth attendants and presence of health care facility near by, all these factors may be equally responsible where as in rural areas geographical barriers favors low rate of CS.

Findings showed greater number of antenatal care visits being associated with higher CS Birth rates. Women who had 4 or more than 4 antenatal visits were more expected to have a CS delivery.<sup>31</sup> Antenatal visit

can be a chance to organized births and advice females related with signs and symptoms of complicated delivery and its related complications.<sup>32</sup> Antenatal checkups is the care given to pregnant woman by health professional for safe and sound pregnancy and delivery. Antenatal visits is the time in which mother is prepared for all procedures during and after birth ,since this is the ideal time mother can discuss with her husband and plan safe delivery, Antenatal visits are considered as an important measure for a normal delivery free from complications. It is not unlikely that these visits are used by the health care providers to motivate women to undergo cesarean section. Some health care providers influence on maternal behavior, such as fear of pain in normal delivery and so promote cesarean section.

Current study showed more frequency of cesarean section was related with obese patients The obesity is frequently associated with higher rates of cesarean sections as concluded by study.<sup>6</sup> It was found that the obesity was related with higher number of cesarean section and is directly connected to the increased risk of induction of labor.<sup>33</sup> The high rate of cesarean section in obese patients increases by pregnancy related complications such as diabetes and hypertension.<sup>13</sup> Findings revealed that obesity not only increases the hazard of complications during pregnancy that lead to increase risk of cesarean delivery.<sup>34</sup> The reason for increased rate of cesarean section with obese patients is due to the fact that in obese mother uterine contractility reduced and seems to be due to increased fat deposits in the inner layer of uterus(myometrium). Secondly excess intra abdominal adipose tissue mechanically obstruct the progression of labor, leading to failure to progress and circulation between fetus and placenta compromise and causes fetal distress.

This study showed high frequency 23.5% of fetal distress and seems to be one of the main and important fetal indications. A study concluded showed increase (18.1%) frequency related with fetal distress was associated with CS in females was higher than 6%.<sup>35</sup> A study conducted in Saudi Arabia in 2014 concluded that 21.9% of cesarean deliveries were due to fetal indications and main reason was fetal distress.<sup>6</sup> Fetal distress was the leading fetal indication and it account for 12.6% of all cesarean sections.<sup>15</sup> Fetal distress was the leading fetal indication among all cesarean births<sup>36</sup> and lower than 26.6% given by study conducted in Tikur Anbessa Hospital, Ethiopia.<sup>37</sup> This variation might be attributed to less priority given for traditional treatment of fetal distress in government health facility. Fetal distress can be very serious. It can cause neurological injuries, cerebral palsy, or even death; it's not something to take lightly. Every new mother should

educate herself on the signs of fetal distress and how to monitor and what are the cause of so that appropriate action can be taken by her if required.

Current study showed 11.5% of fetal malpresentation was a second most cause of the CS. Whereas fetal malposition ranked at third among other fetal indications .Fetal mal presentation constitutes 14.6% of rate of cesarean procedures<sup>38</sup> mal-position and mal-presentation was the cause of cesarean section in 29.7% and 16.2% of the cases.<sup>39</sup> Malpresentation leads to increase rate of cesarean procedures because malpresentation causes obstructed labor ,in turn mother and fetal health may compromised ,death may ensure in such cases if negligence persist. Fetal malposition is also a cause of cephalopelvic disproportion which in turn a main reason of CPD and obstructed labor.

Current study showed 17.5% of cases reported with obstructed labor ,a cause of cesarean section in our population .another study showed that cause of obstructed labor was more and constitute 54.1% among other maternal indications. Majority of the cases were due to cephalic pelvic disproportion in females.<sup>39</sup> This study showed that increase frequency of obstructed labor was 9.6% in low income countries, studies done in Ethiopia stated 12.2% cases of obstructed labor. Similar results of 10% of obstructed cases given by study of Nigeria.<sup>39</sup> But, results were more than study conducted in Adigrat hospital (3.3%).<sup>40</sup> The reason of increased frequency of obstructed labor and cephalopelvic disproportion was due to the two main important factors i.e. malnutrition and early marriages. These factors are responsible for small female pelvises and facing problems during delivery and ends up in cesarean. Secondly, weight of the most fetuses were in the range of 2500-3999 grams indicates as contracted pelvis .fetal malposition was the common cause of CPD than fetal size. pathological enlargement of fetal head e.g. hydrocephalus, may also a reason for obstructed labor .Cases of malpresentation like shoulder ,breech ,brow and shoulder also contributed to increase rate of cesarean births.

## CONCLUSION

Frequency of emergent CS was more as compare to planned CS .sociodemographic factors e.g maternal age, urban areas of public hospitals, upper social class, obesity ,antenatal visits more than 2 maternal indications were obstructed labor and CPD where as fetal indications were fetal distress ,fetal mal presentation

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