Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v31i7.7022

ANALYSIS USING THE ROBSON TEN GROUP CLASSIFICATION SCHEME: A COMPREHENSIVE STUDY

Raishem[1*], Aneela Gul Shaikh[2], Kinzah Imtiaz[3], Saira Bano[4], Kausar Parveen[5], Kanta Bai Ahuja[6]

[1*]Associate Professor Gynae/Obs, Peoples University of Medical and Health Sciences Nawabshah Pakistan. email: alires ham987@gmail.com
[2]Associate Professor Gynae/Obs, Khairpur Medical College Khairpur Mirs Pakistan. email: dr.aneelajabbar2021@gmail.com
[3]MBBS Doctor Intern, Dow University Hospital, Karachi Pakistan. email: kinzahimtiaz@outlook.com
[4]Gynaecologist, Health Department Government of Sindh Pakistan. email: dr.sairabano82@gmail.com
[5]Senior Registrar Gynae/Obs, Bolan Medical College/Complex Hospital Quetta Pakistan. email: drkausarparveen@gmail.com
[6]Associate Professor Gynae/Obs, Pir Abdul Qadir Shah Jillani Institute of Medical Science Gambat Khairpur Mirs Pakistan. email: dr.kantaahuja70@gmail.com

***Corresponding Author:** Raishem
*Associate Professor Gynae/Obs, Peoples University of Medical and Health Sciences Nawabshah Pakistan. email: alires ham987@gmail.com

ABSTRACT

Background: The global rate of cesarean sections (C-sections) has nearly doubled in the last 15 years. Previously, experts estimated that 10 to 15% of births required a C-section due to difficulties that could endanger the mother's or baby's lives, but rates currently surpass 30% in several countries around the world. However, CSs are sometimes used even when indications like obstructed labor or intact membranes are uncertain or equivocal. While CSs are regarded as life-saving procedures, they pose dangers to present and future pregnancies, including increased maternal morbidity and mortality. Although several standards propose a 15% cesarean section rate, meeting this aim has been difficult.

Objective: To perform an analysis utilizing the Robson ten group classification scheme

Study design: cross sectional study

Place and Duration: This study was conducted in Peoples University of Medical and Health Sciences Nawabshah from March 2023 to March 2024

Methodology: All the patients who were a part of this study were women who were admitted for C-section deliveries during the time period of this research. Medical and non-medical information were treated with strict confidentiality. Demographic information was collected. Demographic information such as age, previous birth technique, parity, gestational age, fetal presentation, number of fetuses, past cesarean section, and associated symptoms were collected. A preset form was used to record information on fetal outcomes such as birth weight, APGAR score, and fetal abnormalities. All cesarean deliveries were divided into ten categories using Robson's Ten Group Classification System.

Results: There were a total of 300 women selected to be a part of this study. All the women were admitted for either emergency or elective C-section deliveries. The mean age was 30.5 years. The women's ages ranged from 18 years to 40 years. The mean gestational age was 38.5 weeks with gestational age ranging from 33 to 42 weeks.
Conclusion: Robson's Ten-Group Classification revealed that the most common categories among cesarean deliveries were Group-5, Group-2, and Group-1.

Keywords: Robson's Ten-Group Classification, C-section, pregnant women

INTRODUCTION

The global rate of cesarean sections (C-sections) has nearly doubled in the last 15 years [1]. Previously, experts estimated that 10 to 15% of births required a C-section due to difficulties that could endanger the mother's or baby's lives, but rates currently surpass 30% in several countries around the world [2, 3]. Avoiding cesarean sections (CS) may endanger the lives of both the mother and the fetus in cases where spontaneous vaginal delivery (SVD) is neither possible nor safe [4]. However, CSs are sometimes used even when indications like obstructed labor or intact membranes are uncertain or equivocal [5]. While CSs are regarded as life-saving procedures, they pose dangers to present and future pregnancies, including increased maternal morbidity and mortality [6]. The key problem is to ensure mother and newborn safety while minimizing the CS rate [7]. Regular audits of clinical procedures in healthcare settings are critical to accomplishing this goal.

Although several standards propose a 15% cesarean section rate, meeting this aim has been difficult [8]. Robson's classification was introduced in 2001 and provides more realistic rules [9]. Recent systematic research analyzing several categorization systems discovered that those with the highest ratings, including Robson's and Denk's classifications, are simple, distinct, mutually exclusive, fully inclusive, reproducible, and allow for prospective category identification [10].

The Robson ten group classification system, which is supported by the World Health Organization, provides a global standard for analyzing and comparing cesarean section rates across ten defined groups. It reveals considerable differences in cesarean section rates among different groups, with greater rates commonly seen in women with previous cesarean sections (groups 5, 2, and 1) and lower rates in multiparous women without past cesareans who have spontaneous labor (groups 3, 9, and 8). This technique is critical for identifying regions where efforts can be directed towards reducing needless cesarean procedures. The purpose of this study was to perform an analysis utilizing the Robson ten group classification scheme.

METHODOLOGY

All the patients who were a part of this study were women who were admitted for C-section deliveries during the time period of this research. Data collection for this study began receiving clearance from the hospital's ethical review committee. Patients who met the selection criteria were enrolled by a non-probability consecutive sampling procedure. The researcher got signed informed consent from each participant after providing them with thorough information about the study's methods. Medical and non-medical information were treated with strict confidentiality. The WHO sample size calculator was used to calculate the sample size with 95% confidence.

Exclusion criteria: This study excluded patients who delivered prematurely, had a vaginal delivery, or had a normal or assisted birth.

Demographic information such as age, previous birth technique, parity, gestational age, fetal presentation, number of fetuses, past cesarean section, and associated symptoms were collected. A preset form was used to record information on fetal outcomes such as birth weight, APGAR score, and fetal abnormalities. All cesarean deliveries were divided into ten categories using Robson's Ten Group Classification System.

The statistical software SPSS version 25 was used for data entry and analysis. Quantitative data were represented as mean and standard deviation, whilst qualitative variables were presented as frequencies and percentages. The findings were summarized using tables.

RESULTS

There were a total of 300 women selected to be a part of this study. All the women were admitted for either emergency or elective C-section deliveries. The mean age was 30.5 years. The women's ages ranged from 18 years to 40 years. The mean gestational age was 38.5 weeks with gestational age ranging from 33 to 42 weeks. The mean parity was 1.44. Table number 1 shows the distribution of the demographic features.

Table No. 1: distribution of the demographic features.

Demographics	**n**	**%**
Gestational age (weeks)		
Less than 37	18	6
37 to 40	279	93
More than 40	3	1
Fetal presentation		
Breech	24	8
Cephalic	273	91
Transverse/oblique/brow/others	3	1
Number of fetuses		
Single	294	98
Multiple	6	2
Parity categories		
Multipara	180	60
Nulliparous	108	36
Grand multiparas	12	4
History of previous C-section		
Yes	144	48
No	156	52

Table number 2 shows the distribution of Robson's Ten Group Classification.

Table No. 2: distribution of Robson's Ten Group Classification

Group Classification	**n**	**%**

G1	30	10
G2	66	22
G3	5	1.6
G4	27	9
G5	138	46
G6	4	1.3
G7	9	3
G8	1	0.3
G9	3	1
G10	17	5.8

Table number 3 shows the distribution of maternal and fetal characteristics.

Table No. 3: distribution of maternal and fetal characteristics

Characteristics	**n**	**%**
Mode of delivery		
C-section	297	99
NVD	3	1
NICU Admission		
Yes	30	10
No	270	90
Onset of labor		
Induced	36	12
Spontaneous	60	20
No labor	204	68

DISCUSSION

According to global surveys, cesarean sections (C-sections) account for about half of deliveries in countries such as Brazil, Mexico, Turkey, and Egypt, as well as roughly one-third in the United States and Australia [11, 12, 13, 14]. In Pakistan, C-section rates have consistently increased from 3.2% to 20% during the last three decades [15]. While C-sections can save lives, their inappropriate usage may increase maternal and neonatal morbidity and mortality. Robson's categorization method, which is supported by the WHO, divides women into ten groups based on criteria such as parity, presentation, labor onset, previous C-sections, and gestation duration [16]. This approach allows for objective comparisons and audits of C-section rates across different healthcare facilities

as well as within the same facility over time, with the goal of successfully addressing the increasing C-section rate.

The Robson criteria are useful for evaluating C-section rates and identifying possibilities to improve clinical procedures [17]. They allow healthcare providers to compare C-section rates across hospitals, regions, and countries, making it easier to identify high-risk groups and devise focused treatments to reduce the number of unnecessary C-sections.

In our study sample, the fifth group (G5) of Robson's ten group classification had the most cesarean deliveries, followed by the second group (G2) as second highest and the first group (G1) as third highest. In our analysis, groups 5, 2, and 1 accounted for the bulk of cesarean deliveries, which had a considerable impact on the overall cesarean section rate. Similar results have been observed in investigations from other poor countries. For example, a recent study from Ethiopia revealed a CSR of 25.7%, with groups 3, 5, and 1 accounting for the majority of the total CSR [18]. Another study from Nepal found groups 1, 5, and 3 as the key contributors to CSR using the Robson 10 categorization [19].

The Royal College of Obstetricians and Gynecologists suggests introducing VBAC checklists into standard antenatal care to encourage informed consent and active participation of women in decision-making. VBAC is related to lower total cesarean section rates, lower maternal morbidity, and less difficulties in subsequent pregnancies than elective repeat cesarean delivery (ERCD). It is critical that women receive accurate information regarding the benefits of VBAC, as ERCD is associated with a slightly greater risk of problems such as placenta previa or accreta in subsequent pregnancies, as well as pelvic adhesions complicating future abdominopelvic procedures [20].

Several factors contribute to the increasing prevalence of cesarean sections (C-sections), including maternal worry regarding labor pain, the convenience of timing births based on family or medical preferences, and the idea that C-sections are less traumatic for fetus. Cultural ideas about birth time, governmental expectations on doctors to achieve ideal results, and misconceptions about pelvic floor safety with C-sections all play a role in this alarming increase.

To address the alarming public health issue of growing C-section rates in Pakistan, an evidence-based approach must be used. Because of their considerable influence, the World Health Organization recommends using the Robson classification as a global standard for analyzing, monitoring, and comparing C-section rates across healthcare facilities. However, most healthcare facilities in Pakistan do not currently use the Robson classification. Addressing the misuse of C-sections in Pakistan necessitates policy evaluations and audits of healthcare institutions and the broader healthcare system.

CONCLUSION

Robson's Ten-Group Classification revealed that the most common categories among cesarean deliveries were Group-5, Group-2, and Group-1.

Funding source

This study was conducted without receiving financial support from any external source.

Conflict in the interest

The authors had no conflict related to the interest in the execution of this study.

Permission

Prior to initiating the study, approval from the ethical committee was obtained to ensure adherence to ethical standards and guidelines.

REFERENCES

1. Mushtaq N, Ehsan A, Zubair M, Shabir N, Adnan Z, Zubair H. Analysis of C-Section According to Robson Criteria of C-section. Journal of The Society of Obstetricians and Gynaecologists of Pakistan. 2023 Sep 20;13(3):207-11.
2. Malla RV, Hamal C, Neupane B, Khatri R. Analysis of cesarean section using Robson's 10-group classification at a tertiary level hospital in Nepal. Med J Shree Birendra Hosp. 2018 Jul 25;17(2):4-11.
3. Waheed K, Ahsan A, Tahseen H, Khokhar S, Khurshid HN. Analysis of Caesarean Sections Using Robson 10 Group Classification System. Journal of The Society of Obstetricians and Gynaecologists of Pakistan. 2023 Sep 20;13(3):356-60.
4. Jayaprakash M. TMC (Thrissur Medical College) modified Robson criteria for caesarean sections. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2017 Nov 1;6(11):5039.
5. Bhati I, Jha A, Agarwal N. A New Way of Evaluating Cesarean Section Birth: The Robson's Ten Group Classification System. Journal of South Asian Federation of Obstetrics and Gynaecology. 2016 Jul;8(3):212-6.
6. Jamwal D, Sharma P, Mehta A, Pannu JS. Analysis of caesarean sections using Robson's classification system in a tertiary care centre in Northern India: an emerging concept to audit the increasing caesarean section rate. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2021 Jun 1;10(6):2281-6.
7. Jain R, Joshi V. Analysis of the cesarean section using Robson's ten-group classification system-a way of monitoring obstetric practice. The New Indian Journal of OBGYN. 2022;9(1):71-.
8. Afridi SA, Ahmad K, Sultana R. Analysis Of Caesarean Sections Rates Using Robson's Ten Group Classification System, Unit B Mchc, Ath Abbottabad. Journal of Ayub Medical College Abbottabad-Pakistan. 2022 Jul 1;34(3).
9. Bhatt M, Kadikar G, Parmar DC, Kanani M. Retrospective study of cesarean section by using the Robson's ten group classification system. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2018 Mar 1;7(3):1054-8.
10. Janani L, Christina S, Akoijam BS, Nameirakpam D, Laiphrakpam RS. Analysis of cesarean section rates and its indications using robson's classification at a tertiary care hospital, Manipur. Indian Journal of Public Health. 2022 Oct 1;66(4):434-8.
11. Tura AK, Pijpers O, de Man M, Cleveringa M, Koopmans I, Gure T, et al. Analysis of caesarean sections using Robson 10-group classification system in a university hospital in eastern Ethiopia: a cross sectional study. BMJ Open. 2018;8:e020520.
12. Malla RV, Hamal C, Neupane B, Khatri R. Analysis of caesarean section using Robson's 10-group classification at a tertiary level hospital in Nepal. Med J Shree Birendra Hosp. 2018;17(2):4-11.
13. Pravina P, Ranjana R, Goel N. Cesarean Audit Using Robson Classification at a Tertiary Care Center in Bihar: A Retrospective Study. Cureus. 2022;14(3):e23133.
14. Janani L, Christina S, Akoijam BS, Nameirakpam D, Laiphrakpam RS. Analysis of cesarean section rates and its indications using robson's classification at a tertiary care hospital, Manipur. Indian J Public Health. 2022;66(4):434-8.
15. Khowaja B, Mughal FB, Valliani K. The Factors Influencing CesareanSection Rates-A Narrative Review from Pakistan. Pak J Med Res. 2021;60(3):143-7.
16. World Health O. Robson classification: implementation manual. (Accessed on 6th June 2021) Available from URL:https://www.who.int/reproductivehealth/publications/maternal_perinatal_health/robsonclassification/en/
17. Abubeker FA, Gashawbeza B, Gebre TM, Wondafrash M, Teklu AM, Degu D, et al. Analysis of cesarean section rates using Robson ten group classification system in a tertiary teaching hospital, Addis Ababa, Ethiopia: a cross-sectional study. BMC Pregnancy Childbirth. 2020;20:767.

18. Yadav RG, Maitra N. Examining Cesarean Delivery Rates Using the Robson's Ten-group Classification. J Obstet Gynaecol India. 2016;66(Suppl 1):1-6.
19. Afridi F, Akhtar Z, Afridi A, Qazi Q, Naib JM. Determining the indications of c- section based on who robson classification—an experience in a tertiary care hospital in Peshawar. J Med Sci 2022;30(2):143-6.
20. Betran AP, Ye J, Moller AB, Zhang J, Gulmezoglu AM, Torloni MR. The increasing trend in caesarean section rates: Global, regional and national estimates: 1990-2014. PLoS ONE. 2016;11(2):e0148343