

# GLOBAL JOURNAL

OF MEDICAL RESEARCH: E

## Gynecology & Obstetrics

Review of Ectopic Pregnancy

Satisfaction and Associated Factors

Highlights

Pregnancy and Perinatal Outcomes

Management of Exogenous Cesarean

Discovering Thoughts, Inventing Future

VOLUME 18    ISSUE 3    VERSION 1.0



GLOBAL JOURNAL OF MEDICAL RESEARCH: E  
GYNECOLOGY AND OBSTETRICS

---



GLOBAL JOURNAL OF MEDICAL RESEARCH: E  
GYNECOLOGY AND OBSTETRICS

---

VOLUME 18 ISSUE 3 (VER. 1.0)

OPEN ASSOCIATION OF RESEARCH SOCIETY

© Global Journal of Medical Research. 2018.

All rights reserved.

This is a special issue published in version 1.0 of "Global Journal of Medical Research." By Global Journals Inc.

All articles are open access articles distributed under "Global Journal of Medical Research"

Reading License, which permits restricted use. Entire contents are copyright by of "Global Journal of Medical Research" unless otherwise noted on specific articles.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without written permission.

The opinions and statements made in this book are those of the authors concerned. Ultraculture has not verified and neither confirms nor denies any of the foregoing and no warranty or fitness is implied.

Engage with the contents herein at your own risk.

The use of this journal, and the terms and conditions for our providing information, is governed by our Disclaimer, Terms and Conditions and Privacy Policy given on our website <http://globaljournals.us/terms-and-condition/menu-id-1463/>

By referring / using / reading / any type of association / referencing this journal, this signifies and you acknowledge that you have read them and that you accept and will be bound by the terms thereof.

All information, journals, this journal, activities undertaken, materials, services and our website, terms and conditions, privacy policy, and this journal is subject to change anytime without any prior notice.

Incorporation No.: 0423089  
License No.: 42125/022010/1186  
Registration No.: 430374  
Import-Export Code: 1109007027  
Employer Identification Number (EIN):  
USA Tax ID: 98-0673427

## Global Journals Inc.

(A Delaware USA Incorporation with "Good Standing"; Reg. Number: 0423089)

Sponsors: Open Association of Research Society

Open Scientific Standards

### *Publisher's Headquarters office*

Global Journals® Headquarters  
945th Concord Streets,  
Framingham Massachusetts Pin: 01701,  
United States of America

USA Toll Free: +001-888-839-7392

USA Toll Free Fax: +001-888-839-7392

### *Offset Typesetting*

Global Journals Incorporated  
2nd, Lansdowne, Lansdowne Rd., Croydon-Surrey,  
Pin: CR9 2ER, United Kingdom

### *Packaging & Continental Dispatching*

Global Journals Pvt Ltd  
E-3130 Sudama Nagar, Near Gopur Square,  
Indore, M.P., Pin:452009, India

### *Find a correspondence nodal officer near you*

To find nodal officer of your country, please  
email us at [local@globaljournals.org](mailto:local@globaljournals.org)

### *eContacts*

Press Inquiries: [press@globaljournals.org](mailto:press@globaljournals.org)  
Investor Inquiries: [investors@globaljournals.org](mailto:investors@globaljournals.org)  
Technical Support: [technology@globaljournals.org](mailto:technology@globaljournals.org)  
Media & Releases: [media@globaljournals.org](mailto:media@globaljournals.org)

### *Pricing (Excluding Air Parcel Charges):*

Yearly Subscription (Personal & Institutional)  
250 USD (B/W) & 350 USD (Color)

# EDITORIAL BOARD

GLOBAL JOURNAL OF MEDICAL RESEARCH

## *Dr. Apostolos Ch. Zarros*

DM, Degree (Ptychio) holder in Medicine,  
National and Kapodistrian University of Athens  
MRes, Master of Research in Molecular Functions in  
Disease, University of Glasgow FRNS, Fellow, Royal  
Numismatic Society Member, European Society for  
Neurochemistry Member, Royal Institute of Philosophy  
Scotland, United Kingdom

## *Dr. Alfio Ferlito*

Professor Department of Surgical Sciences  
University of Udine School of Medicine, Italy

## *Dr. Jixin Zhong*

Department of Medicine, Affiliated Hospital of  
Guangdong Medical College, Zhanjiang, China, Davis  
Heart and Lung Research Institute, The Ohio State  
University, Columbus, OH 43210, US

## *Rama Rao Ganga*

MBBS  
MS (University of Health Sciences, Vijayawada, India)  
MRCS (Royal College of Surgeons of Edinburgh, UK)  
United States

## *Dr. Izzet Yavuz*

MSc, Ph.D., D Ped Dent.  
Associate Professor, Pediatric Dentistry Faculty of  
Dentistry, University of Dicle Diyarbakir, Turkey

## *Sanguansak Rerksuppaphol*

Department of Pediatrics Faculty of Medicine  
Srinakharinwirot University  
NakornNayok, Thailand

## *Dr. William Chi-shing Cho*

Ph.D.,  
Department of Clinical Oncology  
Queen Elizabeth Hospital  
Hong Kong

## *Dr. Michael Wink*

Ph.D., Technical University Braunschweig, Germany  
Head of Department Institute of Pharmacy and Molecular  
Biotechnology, Heidelberg University, Germany

## *Dr. Pejic Ana*

Assistant Medical Faculty Department of Periodontology  
and Oral Medicine University of Nis, Serbia

## *Dr. Ivandro Soares Monteiro*

M.Sc., Ph.D. in Psychology Clinic, Professor University of  
Minho, Portugal

## *Dr. Sanjay Dixit, M.D.*

Director, EP Laboratories, Philadelphia VA Medical Center  
Cardiovascular Medicine - Cardiac Arrhythmia  
Univ of Penn School of Medicine  
Web: [pennmedicine.org/wagform/MainPage.aspx?](http://pennmedicine.org/wagform/MainPage.aspx?)

## *Antonio Simone Laganà*

M.D. Unit of Gynecology and Obstetrics  
Department of Human Pathology in Adulthood and  
Childhood "G. Barresi" University of Messina, Italy

*Dr. Han-Xiang Deng*

MD., Ph.D  
Associate Professor and Research Department  
Division of Neuromuscular Medicine  
Davee Department of Neurology and Clinical  
Neurosciences  
Northwestern University Feinberg School of Medicine  
Web: [neurology.northwestern.edu/faculty/deng.html](http://neurology.northwestern.edu/faculty/deng.html)

*Dr. Roberto Sanchez*

Associate Professor  
Department of Structural and Chemical Biology  
Mount Sinai School of Medicine  
Ph.D., The Rockefeller University  
Web: [mountsinai.org/](http://mountsinai.org/)

*Dr. Feng Feng*

Boston University  
Microbiology  
72 East Concord Street R702  
Duke University  
United States of America

*Dr. Hrushikesh Aphale*

MDS- Orthodontics and Dentofacial Orthopedics.  
Fellow- World Federation of Orthodontist, USA.

*Gaurav Singhal*

Master of Tropical Veterinary Sciences, currently  
pursuing Ph.D in Medicine

*Dr. Pina C. Sanelli*

Associate Professor of Radiology  
Associate Professor of Public Health  
Weill Cornell Medical College  
Associate Attending Radiologist  
NewYork-Presbyterian Hospital  
MRI, MRA, CT, and CTA  
Neuroradiology and Diagnostic Radiology  
M.D., State University of New York at Buffalo,  
School of Medicine and Biomedical Sciences  
Web: [weillcornell.org/pinasanelli/](http://weillcornell.org/pinasanelli/)

*Dr. Michael R. Rudnick*

M.D., FACP  
Associate Professor of Medicine  
Chief, Renal Electrolyte and Hypertension Division (PMC)  
Penn Medicine, University of Pennsylvania  
Presbyterian Medical Center, Philadelphia  
Nephrology and Internal Medicine  
Certified by the American Board of Internal Medicine  
Web: [uphs.upenn.edu/](http://uphs.upenn.edu/)

*Dr. Seung-Yup Ku*

M.D., Ph.D., Seoul National University Medical College,  
Seoul, Korea Department of Obstetrics and Gynecology  
Seoul National University Hospital, Seoul, Korea

*Santhosh Kumar*

Reader, Department of Periodontology,  
Manipal University, Manipal

*Dr. Aarti Garg*

Bachelor of Dental Surgery (B.D.S.) M.D.S. in Pedodontics  
and Preventive Dentistr Pursuing Phd in Dentistry

*Sabreena Safuan*

Ph.D (Pathology) MSc (Molecular Pathology and Toxicology) BSc (Biomedicine)

*Getahun Asebe*

Veterinary medicine, Infectious diseases, Veterinary Public health, Animal Science

*Dr. Suraj Agarwal*

Bachelor of dental Surgery Master of dental Surgery in Oromaxillofacial Radiology.  
Diploma in Forensic Science & Oodontology

*Osama Alali*

PhD in Orthodontics, Department of Orthodontics, School of Dentistry, University of Damascus. Damascus, Syria. 2013 Masters Degree in Orthodontics.

*Prabudh Goel*

MCh (Pediatric Surgery, Gold Medalist), FISPU, FICS-IS

*Raouf Hajji*

MD, Specialty Assistant Professor in Internal Medicine

*Surekha Damineni*

Ph.D with Post Doctoral in Cancer Genetics

*Arundhati Biswas*

MBBS, MS (General Surgery), FCPS, MCh, DNB (Neurosurgery)

*Rui Pedro Pereira de Almeida*

Ph.D Student in Health Sciences program, MSc in Quality Management in Healthcare Facilities

*Dr. Sunanda Sharma*

B.V.Sc.& AH, M.V.Sc (Animal Reproduction, Obstetrics & gynaecology),  
Ph.D.(Animal Reproduction, Obstetrics & gynaecology)

*Shahanawaz SD*

Master of Physiotherapy in Neurology PhD- Pursuing in Neuro Physiotherapy Master of Physiotherapy in Hospital Management

*Dr. Shabana Naz Shah*

PhD. in Pharmaceutical Chemistry

*Vaishnavi V.K Vedam*

Master of dental surgery oral pathology

*Tariq Aziz*

PhD Biotechnology in Progress

## CONTENTS OF THE ISSUE

---

- i. Copyright Notice
- ii. Editorial Board Members
- iii. Chief Author and Dean
- iv. Contents of the Issue
  
1. Pregnant Women with Morbid Obesity: Pregnancy and Perinatal Outcomes. *1-5*
2. A 10 Year Review of Ectopic Pregnancy in University College Hospital, Ibadan, Nigeria. *7-11*
3. Laparoscopic Resection Verses Transvaginal Resection in the Management of Exogenous Cesarean Scar Pregnancy. *13-19*
4. Satisfaction and Associated Factors among Mothers Delivered at Abrade Swede Memorial Primary Hospital, Bore, and West Gojjam, Amharic, Ethiopia: A Cross Sectional Study. *21-29*
5. Laparoscopic Evaluation of Bilateral Tubal Occlusion for Management of Infertility in Dhaka. *31-37*
  
- v. Fellows
- vi. Auxiliary Memberships
- vii. Preferred Author Guidelines
- viii. Index





GLOBAL JOURNAL OF MEDICAL RESEARCH: E  
GYNECOLOGY AND OBSTETRICS  
Volume 18 Issue 3 Version 1.0 Year 2018  
Type: Double Blind Peer Reviewed International Research Journal  
Publisher: Global Journals  
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

# Pregnant Women with Morbid Obesity: Pregnancy and Perinatal Outcomes

By Amparo Carrasco Catena, Nerea Ruiz Sacedón, Ester Ortiz Murillo  
& Reyes Balanzá Chancosa

**Abstract-** The aim of this study is to evaluate obstetric complications and perinatal outcomes in pregnant women with morbid obesity ( $BMI \geq 40.0 \text{ kg/m}^2$ ) compared to pregnant women with normal weight ( $BMI$  18.5-24.9  $\text{kg/m}^2$ ). It is a retrospective case-control study undertaken by the Department of Obstetrics at Hospital Universitario Doctor Peset, Valencia (Spain) between May 2008 and July 2016. A total of 50 patients were included in each study group. Morbidly obese pregnant patients had a higher rate of nulliparity ( $P = 0.03$ ), chronic hypertension ( $P = 0.008$ ), preeclampsia ( $P = 0.03$ ), gestational diabetes ( $P = 0.013$ ) and delivery by caesarean section ( $P = 0.04$ ) compared to control patients with normal weight. A closer monitoring of morbidly obese pregnant women is recommended to prevent, reduce and properly handle the complications that may arise during pregnancy, both for the mother and the fetus.

**Keywords:** obesity, morbid obesity, pregnancy complications, maternal outcomes, perinatal outcomes.

**GJMR-E Classification:** NLMC Code: WQ 400



Strictly as per the compliance and regulations of:



© 2018. Amparo Carrasco Catena, Nerea Ruiz Sacedón, Ester Ortiz Murillo & Reyes Balanzá Chancosa. This is a research/review paper, distributed under the terms of the Creative Commons Attribution-Noncommercial 3.0 Unported License (<http://creativecommons.org/licenses/by-nc/3.0/>), permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

# Pregnant Women with Morbid Obesity: Pregnancy and Perinatal Outcomes

Amparo Carrasco Catena<sup>α</sup>, Nerea Ruiz Sacedón<sup>σ</sup>, Ester Ortiz Murillo<sup>ρ</sup> & Reyes Balanzá Chancosa<sup>ω</sup>

**Abstract-** The aim of this study is to evaluate obstetric complications and perinatal outcomes in pregnant women with morbid obesity (BMI  $\geq 40.0$  kg/m<sup>2</sup>) compared to pregnant women with normal weight (BMI 18.5-24.9 kg/m<sup>2</sup>). It is a retrospective case-control study undertaken by the Department of Obstetrics at Hospital Universitario Doctor Peset, Valencia (Spain) between May 2008 and July 2016. A total of 50 patients were included in each study group. Morbidly obese pregnant patients had a higher rate of nulliparity ( $P = 0.03$ ), chronic hypertension ( $P = 0.008$ ), preeclampsia ( $P = 0.03$ ), gestational diabetes ( $P = 0.013$ ) and delivery by caesarean section ( $P = 0.04$ ) compared to control patients with normal weight. A closer monitoring of morbidly obese pregnant women is recommended to prevent, reduce and properly handle the complications that may arise during pregnancy, both for the mother and the fetus.

**Keywords:** obesity, morbid obesity, pregnancy complications, maternal outcomes, perinatal outcomes.

## 1. INTRODUCTION

There is an increase in obesity in developed countries, multifactorial in origin, which combines the lack of physical exercise, changes in diet composition and increased caloric intake. Although overweight is an increasingly important global health problem, the lack of motivation to face it more decisively in daily clinical practice is worrying.

The World Health Organization defines normal weight, overweight, obesity and morbid obesity as body mass index (BMI) of 18.5 to 24.9; 25 to 29.9; 30 to 39.9 and 40 or higher, respectively.

Spain is not an exception in this trend, but rather the opposite. Obesity in our country is reaching more worrying figures and comparative studies with other countries around place us at the forefront, with overall prevalence figures, both in children and adults, of around 25% (Finucane et al. 1980). According to the latest National Health Survey of Spain published in 2012, the main results highlight the continuous rise in obesity, affecting 17% of the adult population (INE 2013).

The prevalence of obesity in women of reproductive age and pregnant women varies widely depending on the definition, the year and the characteristics of the study population, but it has

increased in line with an increased prevalence of obesity in the general population. This alarming increase has made that more than a fifth of the European women who become pregnant in developed countries enter the clinical category of obesity (WHO 2014; Basterra-Gortari et al. 2011).

Obesity in women can negatively affect the course of pregnancy, with complications for both the mother and the fetus. The associated risks for obese pregnant women include: gestational diabetes (Sebie et al. 2001), gestational hypertension or preeclampsia (Bhattacharya et al. 2007), thromboembolism (Larsena et al. 2006), back pain, sciatic pain, increased fatigue (Agha et al. 2014), slower labour progression (Vahratian et al 2004), higher rate of instrumental or caesarean deliveries, surgical wound infection, postpartum hemorrhage (Sebie et al. 2001) and maternal death (Drife et al. 2005). Fetal risks associated with obese pregnant women include: spontaneous abortions, congenital anomalies (Stothard et al. 2009), macrosomia (Bianco et al. 1998), shoulder dystocia, stillbirth (Chu et al. 2007) and neonatal death (Kristensen et al. 2005).

A 2010 publication of the Royal College of Obstetricians and Gynaecologists (RCOG) gathers the rate of complications associated with obesity during pregnancy and includes: hypertensive disorders (OR 3.3, 95% CI 2.7-3.9), venous thromboembolism (OR 9.7, 95% CI 3.1-30.8), gestational diabetes (OR 2.4, 95% CI 2.2-2.7), elective caesarean section (OR 2.1, 95% CI 1.9-2.3), emergency caesarean section (OR 2.0, 95% CI 1.2-3.5), postpartum hemorrhage (OR 2.3, 95% CI 2.1-2.6), surgical wound infection (OR 2.2, 95% CI 1.0-2.6), congenital malformations (OR 1.6, 95% CI 1.0-2.5), prematurity (OR 1.2, 95% CI 1.1-1.4), macrosomia (OR 2.4, 95% CI 2.2-2.5), shoulder dystocia (OR 2.9, 95% CI 1.4-5.8), neonatal admission (OR 1.5, 95% CI 1.1-2.3), stillbirth (OR 2.1, 95% CI 1.5-2.7) and neonatal death (OR 2.6, 95% CI 1.2-5.8) (RCOG 2010).

The main aim of our study is to evaluate obstetric complications and perinatal outcomes in patients with morbid obesity (BMI  $\geq 40.0$  kg/m<sup>2</sup>) controlled in the Obstetric Unit of Hospital Universitario Dr. Peset in Valencia, Spain.

Its secondary objective is to compare the results obtained in morbidly obese patients with a control group of pregnant women with normal weight

**Author  $\alpha$   $\sigma$   $\rho$ :** Consultant (UK) in Obstetrics and Gynaecology at Hospital Doctor Peset, Valencia. e-mail: esterortizmurillo@gmail.com

**Author  $\omega$ :** Head of the Department of Obstetrics and Gynaecology at Hospital Doctor Peset, Valencia.

(BMI 18.5-24.9 kg/m<sup>2</sup>) controlled in the same Hospital Unit.

## II. MATERIALS AND METHODS

This is an observational and retrospective case-control study in which obstetrical complications and perinatal outcomes in patients with morbid obesity (BMI  $\geq$  40.0 kg/m<sup>2</sup>) were evaluated and compared with those in patients with normal weight (BMI 18.5 to 24.9 kg/m<sup>2</sup>) in the time period between May 2008 and July 2016.

In the case group, patients with singleton pregnancies, controlled in our High Risk Obstetric Unit and who met the criteria for morbid obesity - defined as BMI  $\geq$  40 kg/m<sup>2</sup> according to the World Health Organization (WHO) - were included.

The control group was made of patients with singleton pregnancies and normal weight (BMI 18.5-24.9 kg/m<sup>2</sup>) controlled in the same Hospital Unit during the same period.

The maternal characteristics included and compared between the two groups were: age, parity, BMI, pregestational diabetes and chronic hypertension. The analyzed maternal outcomes included preeclampsia, gestational diabetes, spontaneous onset of labour versus induced labour, mode of delivery, postpartum hemorrhage and venous thromboembolism. As neonatal outcomes, gestational age at birth, prematurity (defined as gestational age less than 37 weeks), weight at birth, Apgar score at one minute and

five minutes after birth and umbilical cord blood pH were included.

The analysis of the data and the results were obtained by using the statistical software SPSS version 20 and Microsoft Excel 2007. For both groups descriptive statistics were used. The variables are expressed in percentages and means  $\pm$  standard error. The statistical significance tests used were the Chi-square and Fisher's exact test for dichotomous qualitative variables and the Student t for continuous variables. For quantitative variables, multiple regression models were used. In all cases, statistically significant differences were considered when  $p < 0.05$ .

The study was approved by the Ethics Committee for Ethics in Clinical Research of the hospital. Informed consent was obtained from all the participants and the confidentiality of all of them was maintained.

## III. RESULTS

A total of 50 patients were included in both study groups.

The demographic characteristics of both groups are shown in Table 1. Within the group of morbidly obese patients, the mean age was 30.95 years (22-45) and the mean BMI 43.36 kg/m<sup>2</sup> (40-58). In the group of patients with normal weight, the average age was 29.76 years (22-41) and the average BMI 22.27 kg/m<sup>2</sup> (20-24.9).

Table 1: Demographic characteristics of the patients.<sup>a</sup>

| Characteristics          | Pregnant women with normal weight (n=50) <sup>b</sup>                                    | Pregnant women with morbid obesity (n=50) <sup>c</sup>                                   | Pvalue           |
|--------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------|
| Age (years)              | 29.76                                                                                    | 30.95                                                                                    | -                |
| BMI (kg/m <sup>2</sup> ) | 22.27                                                                                    | 43.36                                                                                    | -                |
| Parity                   | Nulliparous 23 (46)<br>Prev. caesarean section 16 (32)<br>Prev. vaginal delivery 10 (20) | Nulliparous 20 (40)<br>Prev. caesarean section 19 (38)<br>Prev. vaginal delivery 11 (22) | 0.03<br>NS<br>NS |
| Pregestational diabetes  | 1 (2)                                                                                    | 5 (10)                                                                                   | NS               |
| Chronic hypertension     | 1 (2)                                                                                    | 10 (20)                                                                                  | 0.008            |

Abbreviations: BMI, Body Mass Index; NS, Not Significant.

<sup>a</sup> Mean values  $\pm$  standard deviations or percentage (%).

<sup>b</sup> BMI 20.0-24.9 kg/m<sup>2</sup>.

<sup>c</sup> BMI  $\geq$  40 kg/m<sup>2</sup>.

The morbidly obese patients had a higher rate of nulliparity ( $P = 0.03$ ) and chronic hypertension ( $P = 0.008$ ) than patients with normal weight. Neither statistically significant differences in the previous mode of delivery (caesarean section or vaginal) nor a history of pregestational diabetes were found.

Maternal outcomes were obtained by univariate analysis and are shown in Table 2. In the group of morbidly obese patients, higher rates of preeclampsia ( $P = 0.03$ ), gestational diabetes ( $P = 0.013$ ) and delivery by caesarean section ( $P = 0.04$ ) were recorded

compared to control patients with normal weight. There were no differences in the onset of labour and in the occurrence of postpartum venous thromboembolism between the two study groups. However, there were more cases of postpartum hemorrhage in obese patients than in the group of patients with normal weight (14% vs 4%), but this difference did not reach statistical significance.

Table 2: Maternal outcomes.<sup>a</sup>

| Results                | Pregnant women with normal weight (n=50) <sup>b</sup> | Pregnant women with morbid obesity (n=50) <sup>c</sup> | Pvalue     |
|------------------------|-------------------------------------------------------|--------------------------------------------------------|------------|
| Preeclampsia           | 2 (4)                                                 | 10 (20)                                                | 0.03       |
| Gestational diabetes   | 3 (6)                                                 | 12 (24)                                                | 0.013      |
| Onset of labour        | Spontaneous 27 (54)<br>Induced 23 (46)                | Spontaneous 14 (28)<br>Induced 36 (72)                 | NS<br>NS   |
| Delivery               | Vaginal 36 (72)<br>Caesarean section 14 (28)          | Vaginal 28 (56)<br>Caesarean section 22 (44)           | NS<br>0.04 |
| Postpartum hemorrhage  | 2 (4)                                                 | 7 (14)                                                 | NS         |
| Venous thromboembolism | 0                                                     | 0                                                      | NS         |

Abbreviations: BMI, Body Mass Index; NS, Not Significant.

<sup>a</sup> Mean values ± standard deviations or percentage (%).

<sup>b</sup> BMI 20.0-24.9 kg/m<sup>2</sup>.

<sup>c</sup> BMI ≥40 kg/m<sup>2</sup>.

Perinatal outcomes of the study are shown in Table 3. In our study, no statistically significant differences in terms of perinatal outcomes were found compared to those obtained in the group of patients with normal weight.

Table 3: Perinatal results.<sup>a</sup>

| Results                        | Pregnant women with normal weight (n=50) <sup>b</sup> | Pregnant women with normal obesity (n=50) <sup>c</sup> | Pvalue |
|--------------------------------|-------------------------------------------------------|--------------------------------------------------------|--------|
| Gestational age > 37 weeks     | 49 (98)                                               | 48 (96)                                                | NS     |
| Gestational age < 37 weeks     | 1 (2)                                                 | 2 (4)                                                  | NS     |
| Weight after birth (g)         | 3668±158                                              | 3880±191                                               | NS     |
| Weight after birth > 4000g     | 4 (8)                                                 | 8 (16)                                                 | NS     |
| Weight after birth < 2500g     | 2 (4)                                                 | 4 (8)                                                  | NS     |
| Apgar < 7 (1 minut)            | 1 (2)                                                 | 7 (14)                                                 | NS     |
| Apgar < 7 (5 minuts)           | 1 (2)                                                 | 0                                                      | NS     |
| Umbilical cord blood pH < 7,20 | 5 (10)                                                | 9 (18)                                                 | NS     |

Abbreviations: NS, Not Significant.

<sup>a</sup> Mean values ± standard deviations or percentage (%).

<sup>b</sup> BMI 20.0-24.9 kg/m<sup>2</sup>.

<sup>c</sup> BMI ≥40 kg/m<sup>2</sup>.

#### IV. DISCUSSION

Overweight and obesity among pregnant women have recently become a worldwide problem.

Obesity during pregnancy is associated with many maternal and perinatal risks. The appearance of these risks is proportional to the degree of obesity presented by the patient (Torloni et al. 2009; Scott-Pillai et al. 2013; Blomberg et al. 2013). Managing these problems and potentially reduce their risks is currently a challenge for specialists in Obstetrics (Gunatilake et al. 2011).

In our review, morbidly obese patients (BMI ≥ 40.0 kg/m<sup>2</sup>) had higher nulliparity (40%) and chronic hypertension (20%) rates than control patients with normal weight. However no significant data regarding pregestational diabetes were found. These data are consistent with the study published by Crane et al (Crane et al. 2013), where pregnant women with extreme obesity (BMI ≥ 50 kg /m<sup>2</sup>) presented higher nulliparity (59.2%), chronic hypertension (7%) and pregestational diabetes (5.6%) rates than the control patients with normal weight.

According to our figures, from the total of our obese pregnant patients, 10 (20%) had preeclampsia, 12 (24%) gestational diabetes and 22 (44%) delivered by caesarean section. 4 (8%) out of the obese pregnant women who developed preeclampsia during pregnancy, suffered already from chronic hypertension at the beginning of the study. These data are similar to those obtained in other studies (Crane et al. 2013; Weisset et al. 2004). According to the literature reviewed, pregnant women with obesity (BMI ≥ 30.0 kg/m<sup>2</sup> have a higher prevalence of gestational diabetes (Ehrenberg et al. 2002, Gross et al.1980), higher rates of hypertensive disorders of pregnancy (Robinson et al. 2005; O'Brien et al. 2003; Gaillard et al. 2011) and a higher rate of induction and failure of labour induction (Denison et al.2008; Wolfe et al. 2011) than the general obstetric population.

In our study, a total of 7 patients (14%) had postpartum hemorrhage, all managed by conservative measures. With regard to venous thromboembolism, no cases were found in any of our both study groups. This result can be explained because all the morbidly obese

pregnant patients in our Obstetrics Unit are treated with low molecular weight heparins in prophylactic doses administered daily during pregnancy. According to the latest Uptodate 2016 on obesity and pregnancy, there is a clear association between maternal obesity and the risk of postpartum hemorrhage (Sebie et al. 2001) and venous thromboembolism (Nuthalapaty et al. 2016).

In our review, the average weight of the babies of morbidly obese mothers was 3880 g. 4% of fetuses were premature compared to 8.5% in other studies (). The percentage of macrosomes was 16% in contrast to 38% in Crane et al (Crane et al. 2013) or 12.3% in Wahhabi et al (Wahabi et al. 2014). Total newborns weighing <2500 g. was 4 (8%), a figure that contrasts with other studies where the percentage is around 4% (Crane et al. 2013; Wahabi et al. 2014). This data is justified by the percentage of chronic hypertensive patients among the obese patients included in the study. According to similar studies published, pregnant women with morbid obesity present higher risk of congenital malformations (Wahabi et al. 2014), prematurity, macrosomic fetuses, shoulder dystocia (RCOG 2010) as well as neonatal admissions, stilldeath and neonatal death (Aune et al. 2014).

We are aware of the limitations of our study. On the one hand, because of the retrospective nature of our research; on the other hand, because of the small sample size of the study group (N=50). This could explain the lack of statistical significance in most of the variables studied.

## V. CONCLUSION

Pregnant women with morbid obesity (BMI  $\geq$  40.0 kg/m<sup>2</sup>) present a higher risk of maternal and perinatal complications. Therefore, further development and the elaboration of programs from the preconception period are recommended. This should be done in specialized units that value individual needs and the risk factors of each patient in order to prevent, reduce and properly handle the complications that may arise for both mother and fetus.

### *Declaration of Interest*

The authors declare no conflict of interest. The authors are the only responsible for the content and the writing of the paper.

### *Acknowledgement*

The authors extend their appreciation to JJT for the statistical analysis.

### *Funding*

This study was undertaken without specific financial support.

## REFERENCES RÉFÉRENCES REFERENCIAS

1. Agha M, Agha RA, Sandell J. 2014. Interventions to reduce and prevent obesity in pre-conceptual and pregnant women: a systematic review and meta-analysis. Plos One 9(5):e95132.
2. Aune D, Saugstad OD, Henriksen T, Tonstad S. 2014. Maternal body mass index and the risk of fetal death, stillbirth, and infant death: a systematic review and meta-analysis. JAMA 311:1536.
3. Basterra-Gortari FJ, Beunza JJ, Bes-Rastrollo M, Toledo E, García-López M, Martínez-Gonzalez MA. 2011. Increasing Trend in the Prevalence of Morbid Obesity in Spain: From 1.8 to 6.1 per Thousand in 14 Years. Revista Española Cardiología 64:424–26.
4. Bhattacharya S, Campbell DM, Liston WA, Bhattacharya S. 2007. Effect of Body Mass Index on pregnancy outcomes in nulliparous women delivering singleton babies. BMC Public Health 7(1): 168.
5. Bianco AT, Smilen SW, Davis Y, Lopez S, Lapinski R, et al. 1998. Pregnancy outcome and weight gain recommendations for the morbidly obese woman. Obstetrics and Gynecology 91(1): 97–102.
6. Blomberg M. 2013. Maternal obesity, mode of delivery, and neonatal outcome. Obstetrics and Gynecology 122:50.
7. Chu SY, Kim SY, Lau J, Schmid CH, Dietz PM, et al. 2007. Maternal obesity and risk of stillbirth: a metaanalysis. American Journal of Obstetrics and Gynecology 197(3): 223–228.
8. Crane JMG, Murphy P, Burrage L, Hutchens D. 2013. Maternal and perinatal outcomes of extreme obesity in pregnancy. Journal of Obstetrics and Gynaecology Canada 35(7):606-11.
9. Data from the National Institute of Statistics. 2013. [http://www.ine.es/buscar/searchResults.do?searchString=obesidad&Menu\\_botonBuscador=Buscar&searchType=DEF\\_SEARCH&startat=0&L=0](http://www.ine.es/buscar/searchResults.do?searchString=obesidad&Menu_botonBuscador=Buscar&searchType=DEF_SEARCH&startat=0&L=0).
10. Denison FC, Price J, Graham C, et al. 2008. Maternal obesity, length of gestation, risk of postdates pregnancy and spontaneous onset of labour at term. BJOG 115:720.
11. Drife J. 2005. Confidential Enquiry into Maternal and Child Health, Why Mothers Die 2000–2002. Journal of Royal College of Physicians Edinburgh 35: 332–336.
12. Ehrenberg HM, Dierker L, Milluzzi C, Mercer BM. 2002. Prevalence of maternal obesity in an urban center. American Journal of Obstetrics and Gynecology 187:1189.
13. Finucane MM, Stevens GA, Cowan MJ, Danaei G, Lin JK, Paciorek CJ, et al. 2011. National, regional, and global trends in body-mass index since 1980: systematic analysis of health examination surveys and epidemiological studies with 960 country-years and 9.1 million participants. Lancet 377:557-67.
14. Gaillard R, Steegers EA, Hofman A, Jaddoe VW. 2011. Associations of maternal obesity with blood pressure and the risks of gestational hypertensive

- disorders. The Generation R Study. *Journal of Hypertension* 29:937.
15. Gross T, Sokol RJ, King KC. 1980. Obesity in pregnancy: risks and outcome. *Obstetrics and Gynecology* 56:446.
  16. Gunatilake RP, Perlow JH. 2011. Obesity and pregnancy: clinical management of the obese gravida. *American Journal of Obstetrics and Gynecology* 204:106.
  17. Kristensen J, Vestergaard M, Wisborg K, Kesmodel U, Secher NJ. 2005. Prepregnancy weight and the risk of stillbirth and neonatal death. *BJOG* 112(4):403–8.
  18. Larsena TB, Sørensenb HT, Gislumb M, Johnsen SP. 2007. Maternal smoking, obesity, and risk of venous thromboembolism during pregnancy and the puerperium: A population-based nested case-control study. *Thrombosis Research* 120(4): 505–09.
  19. Nuthalapaty FS, Rouse DJ. 2016. The impact of obesity on female fertility and pregnancy. UpToDate.
  20. O'Brien TE, Ray JG, Chan WS. 2003. Maternal body mass index and the risk of preeclampsia: a systematic overview. *Epidemiology* 2005. 14:368.
  21. Robinson HE, O'Connell CM, Joseph KS, McLeod NL. Maternal outcomes in pregnancies complicated by obesity. *Obstetrics and Gynecology* 106:1357.
  22. RCOG. 2010. Management of Women with Obesity in Pregnancy Guideline. London: Royal College of Obstetricians and Gynaecologists.
  23. Scott-Pillai R, Spence D, Cardwell CR, et al. 2013. The impact of body mass index on maternal and neonatal outcomes: a retrospective study in a UK obstetric population, 2004-2011. *BJOG* 120:932.
  24. Sebire NJ, Jolly M, Harris JP, Wadsworth J, Joffe M, et al. 2001. Maternal obesity and pregnancy outcome: a study of 287, 213 pregnancies in London. *International Journal of Obesity* 25(8): 1175–1182.
  25. Stothard SA, Tennant PW, Bell R, Rankin J. 2009. Maternal overweight and obesity and the risk of congenital anomalies: a systematic review and meta-analysis. *JAMA* 301: 636.
  26. Torloni MR, Betrán AP, Horta BL, et al. 2009. Prepregnancy BMI and the risk of gestational diabetes: a systematic review of the literature with meta-analysis. *Obesity Reviews* 10:194.
  27. Vahratian A, Zhang J, Troendle JF, Savitz DA, Siega-Riz AM. 2004. Maternal prepregnancy overweight and obesity and the pattern of labor progression in term nulliparous women. *Obstetrics and Gynecology* 104(5 Pt 1): 943–51.
  28. Wahabi HA, Fayed AA, Alzeidan RA, Mandil AA. 2014. The independent effects of maternal obesity and gestational diabetes on the pregnancy outcomes. *BMC Endocrine Disorders* 13; 14:47.
  29. Weiss JL, Malone FD, Emig D et al. 2004. Obesity, obstetric complications and cesarean delivery rate: A population-based screening study. *American Journal of Obstetrics and Gynecology* 190: 1091-1097.
  30. WHO. 2014. WHO Global Database on Body Mass Index. World Health Organization.
  31. Wolfe KB, Rossi RA, Warshak CR. 2011. The effect of maternal obesity on the rate of failed induction of labor. *American Journal of Obstetrics and Gynecology* 205:128.e1.



This page is intentionally left blank



GLOBAL JOURNAL OF MEDICAL RESEARCH: E  
GYNECOLOGY AND OBSTETRICS  
Volume 18 Issue 3 Version 1.0 Year 2018  
Type: Double Blind Peer Reviewed International Research Journal  
Publisher: Global Journals  
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

# A 10 Year Review of Ectopic Pregnancy in University College Hospital, Ibadan, Nigeria

By Oluwasomidoyin Olukemi Bello & Opeyemi Rebecca Akinajo  
*University College Hospital*

**Abstract-** Ectopic pregnancy (EP) is a public health issue all over the world and remains a major gynaecological problem in contemporary gynaecological practice. We assessed the risk factors for EP among women presenting at a tertiary health facility, University College Hospital (UCH), Ibadan, Nigeria.

A 10 year's retrospective study of EP cases managed in UCH. Information was collected using a proforma and data analysed using SPSS 20. A total of 337 women had ectopic pregnancy. Mean age was 29.8 +/-5.6 years and majority (82.2%) were married. Identified risk factors were previous abdominal/pelvic surgery (ies), ectopic pregnancy and abortions while common clinical features include abdominal pain, vaginal bleeding and amenorrhoea. Majority (76.6%) were ruptured while ampulla of the fallopian tube was the commonest site. EP is still a dare emergency in our environment with most women presenting after it has ruptured. However, the risk factors and presentation has not changed.

**Keywords:** ectopic pregnancy, risk factors, presentation, trend.

**GJMR-E Classification:** NLMC Code: WQ 300



*Strictly as per the compliance and regulations of:*



© 2018. Oluwasomidoyin Olukemi Bello & Opeyemi Rebecca Akinajo. This is a research/review paper, distributed under the terms of the Creative Commons Attribution-Noncommercial 3.0 Unported License (<http://creativecommons.org/licenses/by-nc/3.0/>), permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.



# A 10 Year Review of Ectopic Pregnancy in University College Hospital, Ibadan, Nigeria

Oluwasomidoyin Olukemi Bello<sup>α</sup> & Opeyemi Rebecca Akinajo<sup>σ</sup>

**Abstract-** Ectopic pregnancy (EP) is a public health issue all over the world and remains a major gynaecological problem in contemporary gynaecological practice. We assessed the risk factors for EP among women presenting at a tertiary health facility, University College Hospital (UCH), Ibadan, Nigeria.

A 10 year's retrospective study of EP cases managed in UCH. Information was collected using a proforma and data analysed using SPSS 20. A total of 337 women had ectopic pregnancy. Mean age was 29.8 +/-5.6 years and majority (82.2%) were married. Identified risk factors were previous abdominal/pelvic surgery (ies), ectopic pregnancy and abortions while common clinical features include abdominal pain, vaginal bleeding and amenorrhoea. Majority (76.6%) were ruptured while ampulla of the fallopian tube was the commonest site. EP is still a dare emergency in our environment with most women presenting after it has ruptured. However, the risk factors and presentation has not changed.

**Keywords:** ectopic pregnancy, risk factors, presentation, trend.

## I. INTRODUCTION

Ectopic pregnancy (EP) is defined as a pregnancy in which the implantation of the embryo occurs outside the uterine cavity, most frequently in one of the two fallopian tubes or, more rarely, in the abdominal cavity. EP is the leading cause of maternal mortality in industrialized countries in the first three months of pregnancy, and possibly the second most frequent cause in developing countries after abortion complications<sup>1, 2, 3</sup>. It is a major health problem for women of childbearing age not only because it causes maternal mortality but of greater clinical importance is the indirect morbidity of poor fertility prognosis and adverse outcome in subsequent pregnancies with a 7-15% chance of recurrence and only 40-60% chance of conceiving after surgery<sup>4,5</sup>.

It is a common life-threatening emergency in the developing world with high burden and its frequency is still high<sup>6</sup>. The risk of death among those in the developed world is between 0.1 and 0.3 per cent while in the developing world it is between 1 and 3%<sup>7</sup>. Between 93 and 97% of ectopic pregnancies are located in a fallopian tube and 75% are located in the ampulla, 13% in the isthmus and 12% in the fimbriae<sup>8</sup>.

The incidence of ectopic pregnancy varies from country to country and within the same country, it varies from one community to another. There is currently an increased incidence of ectopic pregnancy globally due to higher incidence of salpingitis, inadequate treatment for pelvic inflammatory disease, use of intrauterine contraceptive device, increase in surgical procedures for tubal disease and improved diagnostic technique<sup>9</sup>. Several factors have been shown to increase the risk of ectopic pregnancy. These risk factors have the same mechanism of action with affectation of the ciliary functions of fallopian tube with pelvic inflammatory disease as the most common<sup>10,11</sup>. Other reported aetiological factors include previous ectopic pregnancy, endometriosis, previous tubal surgery, infertility and infertility treatments, previous caesarean sections, tubal spasm, and congenital defects of the fallopian tube<sup>12, 13</sup>. However, multiple factors have been shown to contribute to the relative risk of ectopic pregnancy although some patients may not have any risk factor. Behavioural and clinical risk factors include early sexual debut, multiple lifetime sexual partners, lack of condom use, miscarriage and induced abortion<sup>14</sup>.

Up to 10% of women with ectopic pregnancy have no symptoms, and one-third have no medical signs<sup>15</sup>. Signs and symptoms of ectopic pregnancy include increased human chorionic gonadotrophin, vaginal bleeding (in varying amounts), sudden lower abdominal pain, pelvic pain, a tender cervix, an adnexal mass or adnexal tenderness. In the absence of ultrasound or human chorionic gonadotrophin assessment, heavy vaginal bleeding may lead to a misdiagnosis of miscarriage. Nausea, vomiting and diarrhea are more rare symptoms of ectopic pregnancy. Also abdominal distension, tenderness, peritonism and hypovolemic shock are not uncommon symptoms when the ectopic pregnancy ruptures<sup>7</sup>.

This study is a ten year review conducted to determine the risk factors for ectopic pregnancy among patients presenting at a tertiary hospital in South Western Nigeria.

## II. METHODOLOGY

This was a retrospective study carried out in the department of Obstetrics and Gynaecology, University College Hospital (UCH). This hospital provides care at tertiary level. UCH is one of the largest teaching hospitals in Nigeria. The case records of all the patients

*Author α: Department of Obstetrics and Gynaecology, University College Hospital, Ibadan, Oyo state, Nigeria.*

*e-mail: bellodoyin@yahoo.com*

*Author σ: Department of Obstetrics and Gynaecology, Lagos University Teaching Hospital, Lagos state, Nigeria.*

with ectopic pregnancy who were managed at the University College Hospital (UCH) Ibadan during the study period were reviewed. All cases that were diagnosed and managed for ectopic pregnancy were included in the study. Information on socio-demographic characteristics, obstetric history, history of risk factors, clinical presentation on admission, and type of treatment offered was collected using a proforma. Data was entered and analysed using SPSS version 20. The results are presented in proportions and percentages.

### III. RESULTS

A total of 337 women were diagnosed and managed for ectopic pregnancy during the study period. Mean age was 29.8 +/- 5.6 years but ranged between 16 and 45 years with majority (34.1%) in the 26 to 30 years category. Higher proportions (82.2%) of them were married, a third (33.8%) were nulliparous women and about half (51.9%) of them had secondary level of education. Majority (57.3%) were self-employed (Table 1).

The presenting complaints varied extremely. Abdominal pain (80.1%), vaginal bleeding (49.9%) and amenorrhoea (28.2%) were the most frequent symptoms (Table 2).

Over the 10-year study period, the number of cases did not follow a regular pattern. The sixth year (2011) recorded the highest number of cases (58 patients) after which there was a consistent decrease in the number of cases with the lowest (13) in 2015 (Figure 1).

A large proportion of the patients (42.4%) in this study presented with past history of abortion. Previous contraceptive use and previous pelvic surgery were the other associated risk factors patients presented with in this study with 16.0% and 12.2% respectively. Among them 5.9% were intrauterine contraceptive device (IUCD) users and 4.5% were injectable users. The most commonly used method of contraception 5.9% was IUCD which is also an associated risk factor in this study. Only one patient was found to be a smoker (Table 3).

More than half (63.8%) of the patients had no documented site. The most documented site 11.3% of ectopic gestation was the ampullary region of the fallopian tube followed by the cornual (9.2%) while cervical region had the lowest occurrence (0.3%). More than half (57.9%) of the study population presented with the EP located in the right fallopian tube (Table 4). Majority (94.4%) of the cases were diagnosed through ultrasonography while 4.7% were through clinical physical examination only and 0.9% by laparoscopy. Among the 337 cases of ectopic pregnancies, the ruptured ectopic pregnancies accounted for 76.6%. This was followed by slow leaking 14.5% and only 8.9% were unruptured.

### IV. DISCUSSION

During the period of review, it was observed that there was a decrease in the incidence of ectopic pregnancy in UCH considering the last five years of the review. History of previous abortions, ectopic pregnancy, infertility, pelvic surgery, pelvic inflammatory disease, contraceptive use and tobacco use were the risk factors of EP identified in this study.

The peak age incidence was amongst women in the age group of 26-30 years which corroborates with findings of Panti et al.<sup>16</sup>, Udigwe et al.<sup>17</sup> and Etuknwaet al.<sup>18</sup>. This was not surprising, considering that this is the reproductive age group and high risky sexual behaviour is common in this age group.

The highest incidence of ectopic pregnancy was noted amongst nulliparous women, which was in conformity with findings from some other Nigerian studies<sup>19,20</sup>. This may be because most young unmarried people with unintended pregnancies often procure unsafe abortions, which subsequently predisposes them to having an ectopic gestation in future pregnancies or the relatively high incidence of EP among nulliparous may be explained by the increased use of fertility drugs (ovulation induction drugs) which are becoming a recognizable risk factor<sup>21</sup>.

This study identified previous histories of infertility, abortions, abdominal/pelvic surgery, ectopic pregnancy, pelvic inflammatory disease, contraceptive use, tobacco use as risk factors of ectopic pregnancy. It was observed that most of the cases of ectopic pregnancy had more than one risk factor. A previous history of abortion and contraceptive use were major risk factors. The study also revealed that majority of the patients were not using any form of contraception at the time of the ectopic pregnancy and this substantiates Panti et al. findings on women with ectopic pregnancy<sup>16</sup>. However, if a woman who is using intrauterine contraceptive device (IUCD) becomes pregnant, the chances of that pregnancy being ectopic are increased. This is because it is thought that IUD reduces intrauterine gestations by 99.5% and increases tubal implantation by 95%, thus accounting for the relative increase in tubal pregnancies in IUCD users. Also, the use of intrauterine contraceptive device increases the risk of developing an ectopic pregnancy almost four fold<sup>14</sup>.

One of the risk factors of EP in this study was previous history of an ectopic pregnancy. This finding corresponds with that of Jurkovic who reported that every woman with a previous ectopic pregnancy would be at a high risk of recurrence of another ectopic pregnancy<sup>22</sup>. The presenting symptoms, such as abdominal pain, vaginal bleeding and amenorrhoea, observed in this study agree with those reported by other researchers<sup>23</sup>. This is because most of ectopic pregnancy had ruptured at the time of presentation,

hence majority of these patient were haemodynamically compromised. This makes the condition a dare emergency with resuscitation and treatment effected immediately in other to save the woman's life.

In conclusion, this study revealed a decrease in the frequency of ectopic pregnancy in the more recent

years in the South Western Nigeria as opposed to a rising incidence of ectopic pregnancy worldwide. However, the risk factors and presentation has not changed.

*Table 1:* Socio-demographic characteristics

| Variable            | Frequency (N=337) | Percentage (%) |
|---------------------|-------------------|----------------|
| Age                 |                   |                |
| 16-20               | 16                | 4.7            |
| 21-25               | 62                | 18.4           |
| 26-30               | 115               | 34.1           |
| 31-35               | 90                | 26.7           |
| 36-40               | 44                | 13.1           |
| ≥41                 | 10                | 3.0            |
| Marital status      |                   |                |
| Married.            | 277               | 82.2           |
| Single              | 59                | 17.5           |
| Divorced.           | 1                 | 0.3            |
| Level of education  |                   |                |
| Primary or lower.   | 31                | 9.2            |
| Secondary.          | 175               | 51.9           |
| Tertiary or higher. | 131               | 38.9           |
| Occupation          |                   |                |
| Civil servant.      | 68                | 20.2           |
| Self employed       | 193               | 57.3           |
| Unemployed          | 20                | 5.9            |
| Students.           | 56                | 16.6           |
| Parity.             |                   |                |
| 0                   | 114               | 33.8           |
| 1                   | 67                | 19.9           |
| 2                   | 64                | 19.0           |
| 3                   | 53                | 15.7           |
| 4                   | 21                | 6.2            |
| ≥5                  | 18                | 5.3            |
| Total               |                   |                |

*Table 2:* Clinical presentation

| Symptoms             | Number of patients | Percentage (%) |
|----------------------|--------------------|----------------|
| Bleeding per vagina  | 168                | 49.9           |
| Abdominal pain       | 270                | 80.1           |
| Amenorrhoea          | 95                 | 28.2           |
| Abdominal tenderness | 3                  | 0.9            |
| Shock                | 6                  | 1.8            |
| Fainting/collapse    | 20                 | 5.9            |
| Dizziness/weakness   | 23                 | 6.8            |
| Nausea/vomiting      | 7                  | 2.1            |

Table 3: Identifiable risks factors among the study population

| Risk factors                      | Frequency | Percentage |
|-----------------------------------|-----------|------------|
| Previous infertility              | 8         | 2.4        |
| Previous abortions                | 143       | 42.4       |
| Previous abdominal/pelvic surgery | 41        | 12.2       |
| Previous ectopic pregnancy        | 8         | 2.4        |
| Previous PID infection            | 5         | 0.3        |
| Previous contraceptive use        | 54        | 16.0       |
| Tobacco use                       | 1         | 0.3        |

Table 4: Site of ectopic pregnancy

| Site              | Frequency | Percentage (%) |
|-------------------|-----------|----------------|
| Undocumented site | 215       | 63.8           |
| Fallopian tube    |           |                |
| -Left.            | 142       | 42.1           |
| -Right            | 195       | 57.9           |
| Cornua            | 31        | 9.2            |
| Isthmus           | 15        | 4.5            |
| Ampullary         | 38        | 11.3           |
| Fimbriae          | 13        | 3.9            |
| Cervical          | 1         | 0.3            |
| Ovarian           | 21        | 6.2            |
| Interstitial      | 3         | 0.9            |

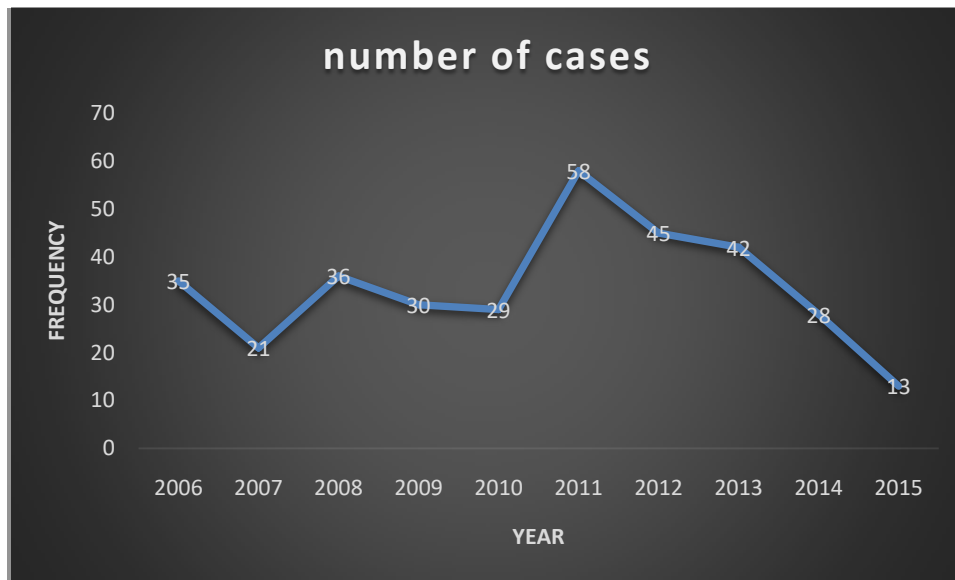


Figure 1: Ten-year trend of ectopic pregnancy in UCH

REFERENCES RÉFÉRENCES REFERENCIAS

1. Tay JI, Moore J, Walker J. Ectopic pregnancy. *BMJ*, 2000; 320:916-9.
2. Patrick T, Yolande H, Nathalie G, Thierry C, Namory K. Ectopic pregnancy in Conakry, Guinea. *Bull World Health Organ*, 2002; 80(5):365-370.
3. Boyd DW, McIntyre JC, Kaunitz MA. Ectopic pregnancy. In: Gy L, Benrubi MD, editors. *Hand book of Obstetric and Gynaecologic Emergencies*. 3rd Ed. USA: Lippincott Williams and Wilkins, 2005; 67-79.
4. Aboyeji AP, Fawole AA, Ijaiya MA. Trends in Ectopic Pregnancy in Ilorin, Nigeria. *Nig. J. of Surgical Research*. 2002; 4(1-2): 6-11.
5. Musa J, Daru PH, Mutahir JT, Ujah IAO. Ectopic Pregnancy in Jos Northern Nigeria: Prevalence and Impact on Subsequent Fertility. *Nigerian Journal of Medicine*, January-March 2009; 18(1): 35-38.
6. Airede LR, Ekele BA. Ectopic Pregnancy in Sokoto, Northern Nigeria. *Malawi Medical Journal*, 2005; 17(1): 14-16.
7. Kirk E, Bottomley C, Bourne T. "Diagnosing ectopic pregnancy and current concepts in the

- management of pregnancy of unknown location". *Hum. Reprod. Update*, 2014; 20 (2): 250-261.
8. Rana P, Kazmi I, Singh R, Afzal M, Al-Abbasi FA, Aseeri A, Singh R, Khan R, Anwar F. "Ectopic pregnancy: a review". *Archives of gynaecology and obstetrics*, 2013; 288 (4): 747-757.
  9. Arup KM, Niloptal R, Kakali SK, Pradip KB. Ectopic Pregnancy: An Analysis of 180 Cases. *Journal of the Indian Medical Association*. 2007; 105: 308-314.
  10. Walker JJ. Ectopic pregnancy. *ClinObstet Gynecol*.2007; 50(1):89–99.
  11. Tenore JL. Ectopic Pregnancy. *Am Fam Physician*. 2000; 61: 1073–1079.
  12. Rose IA, Ayodeji, Olalekan OB, Sylvia A. Risk factors for ectopic pregnancy in Lagos, Niger. *Acta Obstet Gynecol Scand*. 2005; 84:184-188.
  13. Murray H, Baakdah H, Bardell T, Tulandi T. Diagnosis and treatment of ectopic pregnancy. *CMAJ: Canadian Medical Association Journal*. 2005; 173(8): 905-912.
  14. Anorlu RI, Oluwole A, Abudu OO, Adebajo S: Risk factors for ectopic pregnancy in Lagos, Nigeria. *Acta Obstet Gynecol Scand*. 2005, 84 (2): 184-188.
  15. Crochet JR, Bastian LA, Chireau MV. Does this woman have an ectopic pregnancy? The rational clinical examination systematic review, *JAMA* 2013; 309(16):1722-1729.
  16. Panti A, Ikechukwu NE, Lukman OO, Shehu AY, Egondu C, Tanko BA. Ectopic pregnancy at UsmanuDanfodiyo University Teaching Hospital Sokoto: A ten year review. *Annals of Nigerian Medicine*. 2012. 6(2): 87-91.
  17. Udigwe GO, Umeonihu OS, Mbuchi II. Ectopic pregnancy: A 5 year review of cases at Nnamdi Azikiwe University Teaching Hospital (NAUTH) Nnewi. *Niger Med J* 2010; 51: 160-163.
  18. Etuknwa BT, Azu OO, Peter AI, Ekandem GH, Olaiifa K, Aquaisua AN, Ectopic pregnancy: A Nigerian urban experience *Korean J Obstet Gynecol*. 2012; 55: 309-314.
  19. Ekele BA. Medical treatment of ectopic pregnancy using parenteral methotrexate. *West Afr J Med*. 2001; 20 (3):181–183.
  20. Lawani OL, Anozie OB, Ezeonu PO. Ectopic pregnancy: a life-threatening gynaecological emergency. *International Journal of Women's Health*. 2013; (5) 515–521.
  21. Bouyer J. Epidemiology of ectopic pregnancy: incidence, risk factors and consequences. *J Gynecol Obstet Biol Reprod*, 2003; 32 (7 Suppl): S8-17.
  22. Jurkovic D. Ectopic Pregnancy. In Edmonds DE (Ed) *Dewhurst's Textbook of Obstetrics and Gynaecology for Postgraduates*. (Seventh Edition), Blackwell Science Limited. 2007; 106-116. ISBN 978-1-405-3355-5.
  23. Isabu PA, Eifediyi RA, Umelo CC, Ikhelo AJ and Affusim C. Trends in Ectopic pregnancy in a Nigerian sub-rural teaching Hospital. *Standard Global Journal of Medicine and Medical Sciences*. 2014; 1(4): 082- 090.



This page is intentionally left blank



GLOBAL JOURNAL OF MEDICAL RESEARCH: E  
GYNECOLOGY AND OBSTETRICS  
Volume 18 Issue 3 Version 1.0 Year 2018  
Type: Double Blind Peer Reviewed International Research Journal  
Publisher: Global Journals  
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

# Laparoscopic Resection Verses Transvaginal Resection in the Management of Exogenous Cesarean Scar Pregnancy

By Lilian Onwonga  
*Nanjing Medical University*

**Abstract- Background:** Cesarean scar pregnancy (CSP) is a rare but potentially life-threatening complication for women of reproductive age with a previous caesarean birth the incidence of CSP has exponentially risen over the past two decades, due to an increasing rate of caesarean delivery. Because of the rarity of the condition, the majority of CSPs are case reports or small case series reported in the literature, and no universal treatment guidelines has been established yet.

**Objective:** To compare the safety and efficacy of laparoscopic resection and transvaginal resection as treatment options for cesarean scar pregnancy (CSP).

**Methods:** The clinical data of 19 patients diagnosed with exogenous CSP from January 2013 to June 2017 was reviewed.

**Keywords:** exogenous caesarean scar pregnancy, laparoscopic resection, transvaginal resection.

**GJMR-E Classification:** NLMC Code: WJ 190



*Strictly as per the compliance and regulations of:*



# Laparoscopic Resection Verses Transvaginal Resection in the Management of Exogenous Cesarean Scar Pregnancy

Lilian Onwonga

**Abstract- Background:** Cesarean scar pregnancy (CSP) is a rare but potentially life-threatening complication for women of reproductive age with a previous caesarean birth the incidence of CSP has exponentially risen over the past two decades, due to an increasing rate of caesarean delivery. Because of the rarity of the condition, the majority of CSPs are case reports or small case series reported in the literature, and no universal treatment guidelines has been established yet.

**Objective:** To compare the safety and efficacy of laparoscopic resection and transvaginal resection as treatment options for cesarean scar pregnancy (CSP).

**Methods:** The clinical data of 19 patients diagnosed with exogenous CSP from January 2013 to June 2017 was reviewed.

**Setting:** Tertiary hospital.

**Results:** Among these patients, 16 patients were treated with laparoscopic resection, 3 patients with transvaginal resection. All patients recovered fully without complications. Patients with excessive vaginal bleeding underwent emergency UAE treatment before laparoscopy. These two treatments had similar success rates (100% vs.100%), with no statistically significant difference in the intraoperative blood loss, duration of hospital stay, time for resolution of CSP mass, time for the return of menstruation, and time for normalization of serum beta HCG levels.

**Conclusions:** The accurate and timely diagnosis of CSP is vital. Laparoscopic resection and transvaginal resection of CSP are a safe and effective method of treatment, and both have comparable outcomes, high success rate, and fewer complications.

**Keywords:** exogenous caesarean scar pregnancy, laparoscopic resection, transvaginal resection.

Estimated incidence of CSP is 1:1800-1:2,226 in all Pregnancies, 0.45% in pregnancy after caesarean performed worldwide, improved diagnostic techniques and increased physician awareness. The frequency of CS worldwide is about 15%, but in China the rate is as delivery, and 6.1% in ectopic pregnancy after caesarean delivery.[3] Early and timely diagnosis is mandatory to prevent life-threatening complications like uterine rupture, massive haemorrhage or other serious consequences.

Vial et al. [4] classified CSP into two subtypes based on findings on transvaginal sonographic imaging. Endogenous CSP (CSP type I) is characterized by the implantation of the gestational sac at the cesarean-scar site followed by inward growth towards either the cervical isthmus space or the uterine cavity. Exogenous CSP (CSP type II) results from the deep implantation of the gestational sac into a cesarean scar defect with an outward growth that infiltrates the uterine myometrium creating a bulge from the uterine serosal layer.

Our study retrospectively analyzed the clinical data of 19 patients with exogenous CSP (type II CSP) treated in our hospital in the past five years. We analyzed and compared the outcomes, safety and efficacy of laparoscopic resection and transvaginal resection of exogenous CSP by evaluating the intraoperative blood loss, the time for serum beta-human chorionic gonadotropin (beta-HCG) to return to normal, duration of hospital stay, and resolution of the mass and return of menstruation.

## I. INTRODUCTION

Cesarean scar pregnancy (CSP) or caesarean scar ectopic pregnancy is a rare but potentially life-threatening type of ectopic pregnancy where the gestational sac implants in a previous caesarean scar. The first case of CSP was described by Larsen and Solomon in 1978.[1] The incidence of CSP being reported over the past two decade has increased exponentially and is expected to rise due to the increasing rates of caesarean section (CS) being high as 40-50% and some hospitals up to 70%. [2] The

**Author:** Department of Obstetrics and Gynaecology, First Affiliated Hospital with Nanjing Medical University, Nanjing, China.  
e-mail: elilionwonx@yahoo.com

## II. MATERIALS AND METHODS

### a) Patients

A retrospective comparative study was adopted. Between January 2013 and June 2017, 19 patients with exogenous CSP admitted at First Affiliated Hospital of Nanjing Medical University were enrolled in this study. The inclusion criteria were; (1) a history of caesarean delivery; (2) a history of amenorrhea and a positive urine pregnancy test; (3) a color Doppler transvaginal ultrasound indicating a Cesarean scar pregnancy based on the diagnostic criteria stipulated by Godwin et al.[5];(i). Empty uterus and cervical canal; (ii). Development of the gestational sac or fetal pole with or without cardiac activity or identification of a mixed-echo



mass in the anterior part of the caesarean scar; (iii). Very thin myometrium (1-3mm) or an absence of healthy myometrium between the bladder wall and the sac/mass; and (iv). The gestational sac or mixed-echo mass being located toward either the cervicoisthmic space or the uterine cavity in CSP-I, or the infiltration of the gestational sac or mixed-echo mass into the myometrium and/or forming a bulge from the uterine serial layer in CSP-II; (v). High velocity with low impedance peritrophoblastic vascular flow clearly surrounding the sac in Doppler examination; (4) postoperative pathology report indicating implantation or the presence of chorionic villi in the myometrium; (5) Patient not a referral from a peripheral facility due to failed treatment for CSP.

This study was approved by the ethics committee of First Affiliated Hospital of Nanjing Medical University. All patients in this study were thoroughly informed of the potential risks and complication, benefits and curative effects of the surgeries and other alternatives and signed a written consent. The 16 patients were managed by laparoscopic resection of the CSP while 3 patients who declined laparoscopic surgery were managed by the transvaginal approach.

#### b) Preoperative Evaluation

Data collected from all patients included maternal age, presenting symptoms, gravidity, parity, gestational age based on last menstrual period (LMP) or Ultrasound dating, number of previous Caesarean deliveries, the time interval between the last caesarean delivery and current CSP, initial preoperative serum  $\beta$ -HCG, and transvaginal ultrasound findings (size of gestational sac/mass, relationship with anterior uterine myometrium, presence or absence of cardiac activity). Routine preoperative preparations were done, complete blood cell count, liver and renal function test, urinalysis, coagulation panel, and electrocardiography (ECG) were performed to rule out any contraindication for surgery. Vaginal cleaning was done a day before surgery.

#### c) Surgical Methods

##### i. Laparoscopic resection

The patients assumed a lithotomic position, under general anesthesia. The operation field was sterilized, CO<sub>2</sub> pneumoperitoneum was created conventionally, a laparoscope was inserted to visualize the anterior wall of the uterus, the bladder, and for the presence of adhesion. Adhesiolysis was performed, the peritoneum between the bladder and the uterus was dissected, and the bladder pushed downwards appropriately, bilateral occlusion of ascending branches of uterine arteries was performed. Under laparoscopic monitoring the pregnancy mass was suctioned till it significantly reduced in volume, then the lesion and the scar tissue which is distinguishable from normal myometrium of the uterus was excised. The uterine

defect was closed up in two layers using continuous sutures, and hemostasis was achieved. The uterine artery occlusion was relieved to restore uterine blood flow. An abdominal drainage tube was left in situ. Hysteroscopy was then done to visualize the uterine cavity, the scar site and the patency of fallopian tube osmium. The operation was completed and patients reversed from anaesthesia.

##### ii. Transvaginal resection

Patients were placed in a lithotomic position then put under general anesthesia. The operation field was cleaned and draped. The bladder was emptied using a metal catheter. The vagina and cervix were exposed using a vaginal retractor. The anterior vaginal fornix was exposed by tenaculum attached to the upper lip of the cervix and pulled downwards. Normal saline was injected into the cervicovaginal space. The pressure from the injected solution separated the bladder and cervix. A transverse incision was made 2 cm above to the clamped site; the bladder was dissected and pushed away through the cervicovaginal gap till vesicoperitoneal fold, where the peritoneum was punctured and a vaginal retractor placed. A boggy area was detected by a probe and considered as a scar pregnancy lesion. A transverse incision was made at the cesarean section scar, where a bulge and purple bluish discoloration associated with pregnancy tissue could be visualized; sometime villi could be visualized as well. The scar tissue and the pregnancy tissues were removed using an ovum forceps through the incision, followed by suction to evacuate the uterine cavity. The incision was then closed in two layers by a continuous lock stitch under the guidance of the detecting probe. After examining the bladder to rule out any trauma during surgery, the peritoneum was sutured to ensure there was no active bleeding. Finally, the vaginal wall was closed by a continuous locking suture, 3 pieces of iodine gauzes were left in situ to be removed 24 hours later after the surgery. In both the laparoscopic or transvaginal groups, an indwelling urine catheter was put to monitor urine output and was removed 48 hours postoperatively.

Successful treatment was regarded as a patient fully recovered, a steady decline in vaginal bleeding, serum beta HCG levels returning down to normal, the disappearance of the CSP mass, no severe complications, uterus preserved, and no need for additional treatment. Intraoperative blood loss, length of hospital stay, serum beta-HCG levels, and postoperative complication were recorded.

##### iii. Follow up

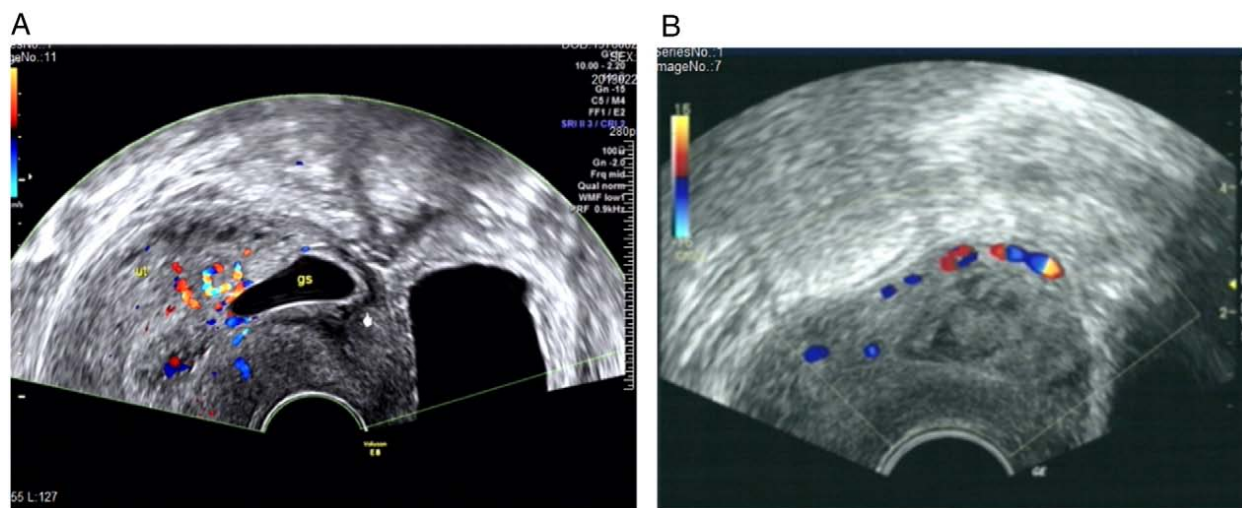
Patients were discharged based on the following criteria: no chief complaint, no fever, the vaginal bleeding stopped or decreased to less than normal menstrual bleeding, normal or steadily decline of beta HCG level, no CSP mass on transvaginal

ultrasound or the size of mass decreased. After discharge from the hospital, all patients were followed up every week for 3 to 6 months. Serial measurements of serum beta HCG was done every week till normal. The first return of the menstrual cycle was recorded. Transvaginal ultrasound screening was carried out to determine if there were residual pregnant tissues within the uterine scar tissues every two weeks.

The patients were advised to take on a suitable method of contraception for at least one year.

#### iv. Statistical Methods

We used SPSS 24.0 software for statistical analysis of the data. All data are represented as mean  $\pm$  standard deviation (SD). The independent sample t-test was used for intergroup comparison. A p value ( $P < 0.05$ ) was considered statistically significant.



**Fig. 1:** Transvaginal ultrasonography images. (a) A 34-year-old woman with endogenous cesarean scar pregnancy; a gestational sac is implanted at the site of a previous cesarean scar. (b) A 28-year-old woman with exogenous cesarean scar pregnancy type; the gestational sac implanted into a previous cesarean scar defect with outward growth that has infiltrated into the myometrium and bulges from the uterine serial surface.

### III. RESULTS

From January 2013 to June 2017, 19 patients diagnosed with exogenous CSP were managed in our gynecology ward. During the same period, 212 cases of Endogenous CSP were admitted in our hospital. The clinical characteristics of the patients according to the type of surgery are provided in Table 1. All the patients had a history of low-segment cesarean deliveries, and their ages ranged from 22-44 years ( $33.05 \pm 6.20$  years). 3 patients had a history of 2 Cesarean deliveries while the rest of the 16 had one prior cesarean delivery. The preoperative serum beta HCG level was 710–156,452 IU/L. The interval between the last caesarean delivery and current CSP was  $5.94 \pm 4.03$  years (0.7-22 years), 6 cases had a fetal cardiac activity present on ultrasound. The thickness of the myometrium from the serosa to the gestational sac, as measured on ultrasound was 1.0mm-5.0mm, and the largest diameter ranged from 10mm-40mm

Of the 19 patients with an exogenous CSP, 3 received Transvaginal resection of the CSP with the operation completed successfully. For the other 16 patients, we conducted laparoscopic resection, 4 patients received bilateral uterine artery remobilization before surgery due to a large amount of vaginal

bleeding on admission. All were successful, and none of them required secondary treatment.

The postoperative Transvaginal color Doppler ultrasound reexaminations did not reveal any significant mass at the uterine isthmus. For both groups the intraoperative blood loss, the duration of hospital stay, the time for the serum beta HCG to return to normal, time for complete resolution of CSP mass and resumption of menstruation between the two groups showed no statistically significant difference ( $P > 0.05$ ). (Table 2). The pathological report of the lesion tissues taken from the 19 patients revealed chorionic villi in the myometrium, consistent with the preoperative diagnosis of CSP. The success rate in both groups was 100% with no postoperative complication.

Table 1: Clinical characteristics of patients with cesarean scar pregnancy at baseline <sup>α</sup>

| Characteristics                                           | laparoscopic group | Transvaginal group | P value <sup>γ</sup> |
|-----------------------------------------------------------|--------------------|--------------------|----------------------|
| Maternal age (years)                                      | 33.23±5.07         | 33.03±5.00         | 0.993                |
| Gravidity                                                 | 4.01±1.5           | 4.10±1.48          | 0.509                |
| Abortion                                                  | 1.74±1.38          | 1.90± 1.40         | 0.387                |
| Gestational age (days)                                    | 49.25±5.59         | 44.67±6.11         | 0.2149               |
| Number of previous cesarean deliveries                    |                    |                    |                      |
| 1                                                         | 13                 | 3                  |                      |
| 2                                                         | 3                  | 0                  |                      |
| Time interval between previous CS and present CSP (years) | 5.92±3.71          | 6.33±4.23          | 0.467                |
| Initial level of serum β-HCG (IU/L)                       | 44995±41966        | 43211±42751        | 0.389                |
| Largest diameter of CSP mass (mm)                         | 27.87±13.76        | 29.01±14.09        | 0.285                |

Abbreviations: CSP, cesarean scar pregnancy; CS, cesarean sections; β-HCG, beta human chorionic gonadotropin..

<sup>α</sup> Data presented as mean ± SD (range) or number (percentage) unless indicated otherwise

<sup>γ</sup> Student t test

Table 2: Patients outcome after treatment<sup>α</sup>

| Variable                                              | LAP group (n=16) | TV group (n=3) | P value <sup>γ</sup> |
|-------------------------------------------------------|------------------|----------------|----------------------|
| Intraoperative blood loss (ml)                        | 159.38±155.54    | 76.67±40.41    | 0.3829               |
| Percentage decline of β-HCG in 24 hrs after treatment | 85.04±11.21      | 82.47±21.27 %  | 0.3379               |
| Duration of hospital stay (days)                      | 9.56±2.83        | 7.67±1.15      | 0.2274               |
| Time for resolution of CSP mass (days)                | 24.50±1.32       | 24.00± 1.00    | 0.5440               |
| Time for normalization of serum β-HCG (days)          | 19.25 ±1.34      | 17.33.±3.06    | 0.085                |
| Time for resumption of menstruation (days)            | 24.76±1.87       | 25.56±1.52     | 0.4971               |
| Success rate of treatment (%)                         | 100%             | 100%           |                      |

Abbreviations: CSP, cesarean scar pregnancy; β-HCG, beta human chorionic gonadotropin.

<sup>α</sup> Data is given as mean ± SD (range) or percentage unless indicated otherwise

<sup>γ</sup> Student t test

#### IV. DISCUSSION

In 1978, Larsen and Solomon first reported one case of scar pregnancy and proposed the concept of scar pregnancy after caesarean section. [1] Until 2001, there were 19 cases of scar pregnancy reported in 2 case reports and by 2011 the number of cases described in the literature was 751, showing a rapid increase in the incidence of this type of pregnancy which can be attributed to the increasing number of caesarean deliveries being done, improved diagnostic tools and increased physician knowledge and awareness of the condition. [6]. Due to the relatively lower incidence, there has been no universal standard method of treatment of CSP. Classification using ultrasonography provided the basis for the management of patients.

The exact etiology of CSP is unknown but it has been suggested that a shortage of blood supply at a low uterine segment after cesarean delivery may result in insufficient fibrosis and repair hence forming uterine scar dehiscence or small-scar defects and later CSPs.[7] Such defects can also develop from the trauma of other uterine surgery for such as curettage, myomectomy, metroplasty, hysteroscopy and even manual removal of placenta. [8,9] Better suturing

techniques of the cesarean incision may help prevent CSP.

CSP can occur in any woman of child bearing age with a previous caesarean delivery. The age reported in literature ranges between 20-45 years old, and the gestational age at presentation is 5-16 weeks. [3,9] In this study the age of the 19 patients was 22-44 years old, and the gestational age was 4-14 weeks, which is consistent with literature. No positive correlation between the number of Caesarean sections and the risk of CSP has been shown. Rotas et al reviewed 112 cases of which 52% had a history of one CS, 36% had a history of 2 CS, 12% had 3 or more previous CS, suggesting that the number of previous is not related to the risk of CSP. [10] Our study found 16 patients (84.2%) had a history of 1 CS and 3 patients (15.8%) had 2 previous CS.

CSP often presents with symptoms of irregular vaginal bleeding and /or abdominal pain or discomfort, but a few are asymptomatic and CSP is found incidentally on routine first trimester Ultrasound. A number of cases are misdiagnosed as a spontaneous abortion of an intrauterine pregnancy, or after medical abortion or curettage done for abnormal vaginal bleeding. In this study all patients had a history of amenorrhea, no cases were misdiagnosed, 52.6% of

patients presented with irregular vaginal bleeding, 15.7% with both vaginal bleeding and abdominal pain, and 31.5% were asymptomatic. Routine transvaginal ultrasonography is therefore recommended in early pregnancy for patients who have previously undergone a cesarean delivery to rule out CSP.

The Transvaginal ultrasonography is the standard first line diagnostic tool with a diagnostic accuracy as high as 86.4% reported combined with detailed patient history. [10] The Ultrasound diagnosis criteria for endogenous CSP proposed includes an empty uterine cavity, empty cervical canal, gestational sac seen at either the uterine isthmus or the anterior uterine wall, and myometrial tissue depression detected between the gestational sac and bladder wall. [4,5] Magnetic resonance imaging(MRI), hysteroscopy, or laparoscopy can be considered when ultrasound imaging is inconclusive or equivocal in order to reduce the misdiagnosis rate. It is notable that MRI is a costly diagnostic technique and that this must often be taken into account in clinical environment. Ultrasonography has the advantages of being non-invasive, simple, and cheap. [11,12,13] The pathological examination done in this study confirmed the accuracy of using ultrasonography for diagnosis.

Expectant management is not recommended as it is associated with poor outcome including hysterectomy.[14]The currently available therapeutic options reported in the literature include medical therapy such as injecting embryocides(such as kalium chloratum) into the gestational sac, and systematic or local administration of methotrexate (MTX), uterine artery embolization (UAE), hysteroscopic resection, laparotomic resection, laparoscopic resection or more recently transvaginal resection.[6] Treatment should be individualized for every case of CSP after adequate preoperative assessment based on the gestational age, viability of fetus, myometrial defects, and presenting symptoms and physicians experience.

Surgical excision of CSP has the highest cure rate, and is not only effective in termination of pregnancy but also allows repair of scar defects while avoiding risk of hysterectomy caused by complications such as massive bleeding and uterine perforation during curettage and preserve fertility of the patient so as to avoid occurrence of repeat CSP. [15,16,} The gestational sac that grows toward the urinary bladder (exogenous CSP) has a higher risk for massive hemorrhage than the gestational sac that grows toward the uterine cavity (endogenous CSP). So for most patients in which the gestational sac grew toward the urinary bladder in most literature reports underwent surgical excision. Since the first report in 1978, laparotomy, laparoscopy, hysteroscopy or transvaginal excision of CSP and repair of the uterine defect have been reported successfully. After resection of CSP and repair of the scar through laparotomy, the serum beta

HCG can be return to normal in 1-3 weeks after operation and it can reduce risk of uterus rupture and recurrence of CSP. However, laparotomy is associated with larger surgical wounds, long hospital stay and more postoperative pain and adhesion formation. It is usually used in emergencies in patients with unstable hemodynamic and actively bleeding.[3]

In recent years, with the development and improvement of minimally invasive technology, more physicians in China and abroad are using laparoscopic and transvaginal techniques in the treatment of CSP. Minimally invasive surgery has well established advantages of a smaller surgical wound, less postoperative pain, a shorter hospital stay, quicker recovery, and better aesthetic results.[16,17]

Since 2012, our hospital has taken the lead in exploring laparoscopy and transvaginal surgery in the province, 16 cases successfully treated with laparoscopy and 3 cases with transvaginal approach, the operations were smooth and intraoperative blood loss was minimal ( $159.38 \pm 155.54$  and  $76.67 \pm 40.41$  respectively) and there were no postoperative complications. After the operation, the serum beta HCG decrease was satisfactory, minimal or no pregnancy tissue remained, and the results were satisfactory. However, laparoscopic surgery is expensive and is highly demanding for surgeons .Our experience is that:1.We should know the indications for operation: CSP patients with transvaginal colour Doppler ultrasound findings sgowing no gestational sac in the uterine cavity but the CSP mass bulging externally at the anterior wall of the lower uterine segment <5mm from serous layer and the echo of the gestational sac in the anterior wall of the lower segment of uterus is rich in blood flow signals ; 2. Avoid instrumental manipulation of the uterine cavity before operation, so as to reduce massive bleeding caused by instrumentation; 3. Temporarily occluding the blood flow of both uterine arteries, so as to reduce blood supply to the lesion and hence reducing massive bleeding during the operation.

Some studies have used mifepristone administered preoperatively in order to reduce intraoperative blood loss and enhance apoptosis and necrosis of the trophocytes or intraoperative local injection of oxytocin or injection of vasopressin with satisfactory results.[15,16] ; 4. Open the vesico-uterine peritoneal fold, push the bladder downwards to avoid both bladder injury during the surgical procedure and subsequent difficulties when suturing the uterine incision. Under laparoscopic monitoring, suction the pregnancy mass till it has significantly reduced in volume, then the lesion and the scar tissue which is clearly distinguishable from normal myometrium of uterus is excised; 5. The uterus should be sutured in two layers so as to prevent recurrence of CSP and preserve reproductive function; 6. After resection and repair of scar lesions, the uterine artery occlusion is relieved,

uterine blood flow is restored, and uterine function preserved.

Transvaginal approach is relatively simple in experienced hands. However, there are limitations in gestation age, amount of bleeding, gestational sac location, difficulty in cervical exposure and a small operation field. [17]. Our experience is; 1. The gestational age <90 days, the gestational sac diameter <5 cm, <5 mm from the serosal layer, the position of the gestational sac is low and the cervix is easily exposed; 2. Intraoperative injection of oxytocin into the cervix helps reduce bleeding during the operation; 3. Normal saline is injected into the cervico-vaginal gap, the pressure from the injected normal saline fully separates the bladder and cervix; 5. The incision is closed by a continuous locking stitch under the guidance of the detecting probe, carefully repairing the anterior wall of the uterus, to avoid scar incision diverticulum and small sinus formation.

Our study was limited by the sample size and the lack of multicenter data, and lack of follow up on future reproductive outcomes. In the future, we will conduct a prospective, randomized, controlled study with more patients to make up for these deficiencies.

## V. CONCLUSION

For patients with CSP, early, timely, and clear diagnosis is key, and individualized treatment that should be implemented in accordance with the gestational age, hemodynamic stability of the patient, serum beta HCG levels, and ultrasound and MRI findings. Laparoscopic resection and transvaginal resection are the most reasonable approach for managing exogenous CSP because of the deep implantation of the mass into the myometrium and very thin myometrium between the gestational sac and the bladder, hence high risk of rupture with other treatment modalities. They both have a comparable high success rate, thorough lesion clearance, fewer complications, and a shorter time to beta HCG levels returning to normal. However, both require accumulated patient experiences and surgical techniques are necessary before broad application.

### Acknowledgements

The author accepted no funding for the study.

### Conflict of interest

None.

## REFERENCES RÉFÉRENCES REFERENCIAS

- Larsen JV, Solomon MH. (1978). Pregnancy in a uterine scar sacculus-an unusual cause of postabortal haemorrhage. A case report. *S Afr Med J*, 53: 142-3.
- Litwicka K, Greco E. (2013) Caesarean scar pregnancy: a review of management options. *Curr Opin Obstet Gynecol*, 25: 456-461.
- Timor-Tritsch IE, Monteagudo A, Santos R, Tsymbal T, Pineda G, Arslan AA. (2012). The diagnosis, treatment, and follow-up of cesarean scar pregnancy. *AJOG* 207:44.e1e44.e13
- Vial Y, Petignat P, Hohlfield P. (2000). Pregnancy in a cesarean scar. *Ultrasound Obstet Gynecol*, 16: 592-3.
- Godin PA, Bassil S, Donnez J. (1997). An ectopic pregnancy developing in a previous caesarian section scar. *Fertil Steril*, 67: 398-400.
- Timor-Tritsch IE, Monteagudo A. (2012) Unforeseen consequences of the increasing rate of cesarean deliveries: early placenta accreta and cesarean scar pregnancy. A review. *Am J Obstet Gynecol*. 207(1):14-29.
- Jurkovic, D., Hillaby, K., Woelfer, B., Lawrence, A., Salim, R., and Elson, C.J. First-trimester diagnosis and management of pregnancies implanted into the lower uterine segment Cesarean section scar. *Ultrasound Obstet Gynecol*. 2003; 21: 220-7
- Fait G, Goyert G, Sundareson A, Pickens A Jr. Intramural pregnancy with fetal survival: case history and discussion of etiologic factors. *Obstet Gynecol* 1987; 70: 472-4.
- Seow K-M, Huang L-W, Lin YH, Yan-Sheng Lin M, Tsai Y-L, Hwang J-L. Caesarean scar pregnancy: issues in management. *Ultrasound Obstet Gynecol* 2004; 23: 247-53.
- Rotas MA, Haberman S, Levгур M. Cesarean scar ectopic pregnancies: etiology, diagnosis, and management. *Obstet Gynecol* 2006; 107: 1373e81.
- Smith A, Maxwell D, Ash A. Sonographic diagnosis of caesarean scar pregnancy at 16 weeks. *J Clin Ultrasound* (in press).
- Hwu Y-M, Hsu C-Y, Yang H-Y. Conservative treatment of caesarean scar pregnancy with transvaginal needle aspiration of the embryo. *BJOG* 2005; 112: 841-2.
- Wang C-J, Chao A-S, Yuen L-T, Wang C-W, Soong Y-K, Lee C-L. Endoscopic management of cesarean scar pregnancy. *Fertil Steril* 2006; 85: 494-7.
- Herman A, Weinraub Z, Avrech O, Maymon R, Ron-El R, Bukovsky Y. Follow up and outcome of isthmic pregnancy located in a previous caesarean section scar. *Br J Obstet Gynaecol* 1995; 102: 839-41
- Wang G, Liu X, Bi F, Yin L, Sa R, Wang D, Yang Q. Evaluation of the efficacy of laparoscopic resection for the management of exogenous cesarean scar pregnancy. *Fertil Steril*. 2014 May; 101(5): 1501-7.
- Fuchs N, Manoucheri E, Verbaan M, Einarsson JI. Laparoscopic management of extrauterine pregnancy in caesarean section scar: description of a surgical technique and review of the literature. *BJOG* 2015; 122: 137-142.

17. Zhang, H., Shi, J., Yang, Y. et al, Transvaginal surgical management of cesarean scar pregnancy II (CSP-II): an analysis of 25 cases. *Med Sci Monit.* 2015; 21: 3320–3326.





This page is intentionally left blank



GLOBAL JOURNAL OF MEDICAL RESEARCH: E  
GYNECOLOGY AND OBSTETRICS  
Volume 18 Issue 3 Version 1.0 Year 2018  
Type: Double Blind Peer Reviewed International Research Journal  
Publisher: Global Journals  
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

# Satisfaction and Associated Factors among Mothers Delivered at Abrade Swede Memorial Primary Hospital, Bore, and West Gojjam, Amharic, Ethiopia: A Cross Sectional Study

By Gizew Dessie Asres  
*University of Gondar*

**Abstract- Introduction:** Maternal satisfaction is a means of evaluating quality of maternal health care given in health facilities. The objective was to assess the level of maternal Satisfaction and associated factors at Abrade Swede Memorial Primary Hospital.

**Method:** Cross-sectional study was conducted on 420 clients by systematic sampling method from February 8, 2017 to September 25, 2017. Structured questionnaire that was prepared by Ethiopian Federal Ministry of Health was used. Pre-testing was done prior to the actual data collection process on a sample of 20 respondents and modified accordingly. The study was approved by Abrade Swede Memorial Primary Hospital Senior Management Committee. The collected data were checked for completeness and consistency before being coded, entered and analyzed using SPSS version 16. Logistic regression was used to assess the presence of association between dependent and independent variables using SPSS at 95% CI and 5% margin of error.

**Keywords:** maternal satisfaction, associated factors, delivery, west gojjam zone, ethiopia.

**GJMR-E Classification:** NLMC Code: WQ 400



*Strictly as per the compliance and regulations of:*





# Satisfaction and Associated Factors among Mothers Delivered at Abrade Swede Memorial Primary Hospital, Bore, and West Gojjam, Amharic, Ethiopia: A Cross Sectional Study

Gizew Dessie Asres

**Abstract- Introduction:** Maternal satisfaction is a means of evaluating quality of maternal health care given in health facilities. The objective was to assess the level of maternal Satisfaction and associated factors at Abrade Swede Memorial Primary Hospital.

**Method:** Cross-sectional study was conducted on 420 clients by systematic sampling method from February 8, 2017 to September 25, 2017. Structured questionnaire that was prepared by Ethiopian Federal Ministry of Health was used. Pre-testing was done prior to the actual data collection process on a sample of 20 respondents and modified accordingly. The study was approved by Abrade Swede Memorial Primary Hospital Senior Management Committee. The collected data were checked for completeness and consistency before being coded, entered and analyzed using SPSS version 16. Logistic regression was used to assess the presence of association between dependent and independent variables using SPSS at 95% CI and 5% margin of error.

**Result:** The study revealed that level of satisfaction among delivering mothers was 88%. Educational level (AOR = 2.15, 95% CI = [1.02-3.71], access to ambulance service (AOR=3.15, 95% CI=[1.02-3.78], respect full delivery service (AOR=6.85, 95%CI=[4.35-6.95], welcoming hospital environment (AOR=3.09, 95% CI = [2.30-2.69], proper labor pain management (AOR=4.51, (95% CI=(3.12-5.01) and listening to their questions [AOR=3.95, 95%CI [2.35-4.36] were independent predictors for maternal satisfaction.

**Conclusion and Recommendation:** Even though most of the participants were satisfied, they still had unmet needs and expectations in the delivery service provider. The identified main determinants were level of education, access to ambulance service, welcoming Hospital environment, proper pain management and listening to their questions. Therefore, there is a need to improve the care given to maternity and appropriate strategy should be designed to address the unmet needs of mothers delivered in the hospital.

**Keywords:** maternal satisfaction, associated factors, delivery, west gojjam zone, ethiopia.

**Author:** Department of Human Resource for Health management, institute of Public Health, University of Gondar, Gondar, Ethiopia. Monitoring and Evaluation Unit, Abrade Swede Memorial Hospital, Bore, West Gojjam, Amharic, Ethiopia. e-mail: gizew.dessie@gmail.com

## I. INTRODUCTION

Globally, about 800 women die from pregnancy or labor related complications around the world every day. Two hundred eighty-seven thousand women died during pregnancy and childbirth in 2010; more than half of these deaths occur in Africa. The ratio of maternal mortality in the Sub-Saharan Africa region is one of the highest, reaching 686 per 100,000 live births [1]. In Ethiopia, according to 2016EDHS, the estimated maternal mortality ratio was found to be 412 per 100,000 live births [2].

The existence of maternal health service alone does not guarantee their use by women [3]. The World Health Organization promotes skilled attendance at every birth to reduce maternal mortality and recommends that women's satisfaction be assessed to improve the quality and effectiveness of health care [4]. Client satisfaction is a subjective and dynamic perception of the extent to which the expected health care is received [5]. It is not important whether the patient is right or wrong, but what is important is how the patient feels [6].

Studies done in Dhaka, Bangladesh, and South Australia showed that the level of maternal satisfaction with delivery care was 92.3% and 86.1%, respectively [7,8]. However, the level of satisfaction among laboring mothers in African countries is not enough; only 51.9% and 56% of mothers were satisfied with delivery services in South Africa and Kenya, respectively [9,10]. Ethiopian studies done in Amharic Referral Hospitals and Azuela Hospital revealed 61.9% and 80.7% satisfaction of mothers on delivery services, respectively [11,12].

Satisfaction with delivery service is a multidimensional construct embracing satisfaction with self (personal control), and with the physical environment of delivery ward and quality of care [13]. The mother's satisfaction during the birthing process is the most frequently reported indicators in the evaluation of the quality of maternity services [14]. Dimensions of care that may influence client satisfaction include: Health care Provider client interaction, Service provision,

physical environment, access, bureaucracy and attention to psychosocial problems.

Many factors influence women's satisfaction during delivery; certain demographic characteristics have been predominantly studied in relation to satisfaction during delivery services. For example, a study done in Sweden (n=2762) reported that younger women had more negative expectations related to childbirth and they experienced more pain and lack of control during labor compared with older women [15], while another study done in Brazil (n = 15,688) showed no age related difference in women's satisfaction with childbirth services [16]. Studies from developing countries show that satisfaction with services had a negative association with the amount of time women spent at the health facility before childbirth [17]. The educational level of women in different studies and settings has demonstrated positive, negative or nil association with satisfaction during delivery services [18, 19]. Other identified factors that influenced satisfaction with childbirth services are: having clean and orderly labor rooms and women-friendly delivery processes, such as having been prepared in advance for what to expect during the labor/postpartum/breast feeding period; involvement in the decision-making process; having a birth plan and being able to follow it; having pain relief during labor; having a birth companion and respectful care providers; receiving help from care providers in performing self and neonate 'scare'; and experiencing less symptoms in the postpartum period [20–25]. A woman's obstetric history, mode of delivery, and her feelings towards recent childbirth can also affect maternal satisfaction. For example: being multifarious, preferring a spontaneous vaginal delivery and being able to have a spontaneous vaginal birth [26, 27] enhances the women's satisfaction with giving birth.

Qualitative studies on Indian women's experiences and opinions on giving birth at a health facility reveal that they are not fully satisfied during delivery service, primarily due to the long waiting time before they meet a healthcare provider, having few opportunities to communicate with providers, not being involved in decision-making, and having stern care providers [28-32]; however, they settle for childbirth services perceived as 'essential' for safe childbirth rather than 'desirable' for a pleasant experience [33-36]. While the community's access to institutional delivery has improved, the assumption that accessibility is synonymous with quality of care, especially among policymakers, gives concern. This study aimed to assess women's satisfaction with an institutional delivery service using a standardized scale with intent to potentially use the findings in advocacy for service improvement.

Studying the quality of institutional delivery service from client perspective will provide systematic information for service providers, decision makers, local

planners and other stakeholders help understand to what extent the service is functioning according to clients' perception, and what changes might be required to meet clients' need as well as to increase utilization of the service by the target population. This study serves both knowledge generation and delivery service quality improvement purpose. The findings of this study can be used by local planners and decision makers to improve the quality of institutional delivery service.

## II. METHODS

### a) Study Design and Period

Cross-sectional study was conducted at Abrade Swede Memorial Primary hospital, from February 8, 2017 to September 25, 2017.

### b) Study Area

Abrade Swede Memorial primary Hospital is found in Brevity administration 410 kilometers away from Addis Ababa and 155kilometers away from Bahia Dar the capital city of Amharic regional state. The hospital primarily serves for four worked as: Bore, Bore city, Shindig and Shekel.

### c) Population

#### i. Source Population

All mothers delivered at Abrade Swede Memorial Primary Hospital from February 8,2017 to September 25,2017.

#### ii. Study Population

Those systematically selected mothers who delivered at Abrade Swede Memorial Primary Hospital from February 8, 2017 to September 25, 2017.

### d) Inclusion & Exclusion Criteria

#### i. Inclusion Criteria

Mothers who delivered at Abrade Swede Memorial Primary Hospital from February 8, 2017 to September 25, 2017 before discharge.

#### ii. Exclusion Criteria

Mothers who delivered at Abrade Swede Memorial Primary Hospital and came for postnatal care were excluded to avoid recall bias.

### e) Variables

#### i. Dependent Variable

Satisfaction

#### ii. Independent Variables

Socio Demographic Characteristics of the Respondents  
Interaction with Healthcare Provider  
Physical facilities  
Service provision

#### iii. Sample Size Determination and Sampling Procedure

Targeted groups of clients in this study were delivery attendants. The sample size was determined by

using a single population proportion formula, which took the proportion of overall satisfaction at 65.2% [6], with a margin of error of 0.05 at the 95% confidence interval (CI). Adding 10% non-response rate, the final sample size was calculated to be 420 patients. From the hospital previous report about delivery, average number of clients who delivered in the hospital was 110 per month. Therefore the number of participants who visited the hospital was estimated for the study period; then sampling fraction for selecting the study participants was determined by dividing with the total estimated number of patients during the data collection period to the total sample size which was calculated to be two. The first study participant was selected by lottery method among the list from one to five; the next study participant was identified systematically in every two intervals until the required sample size was achieved.

f) *Data Collection Procedure and Quality Assurance*

A validated structured questionnaire prepared by the Ethiopian Ministry of Health to assess maternal satisfaction was used according to the objectives of the study and the local situation of the study area in Amharic language. Then the questionnaire was translated to English to assure consistency of the tool. Pre-testing was conducted on 20 respondents at Bore Health center delivery attendants.

g) *Data Management and Data Analysis*

The collected data were checked for completeness and consistency before being coded,

entered and analyzed using SPSS version 16. Summary statistics of socio demographic variables were presented using frequency tables. Bi-variable analysis was done and variables with p-value less than 0.2 were included in the multiple variable analysis of logistic regression. The odds ratio and 95% confidence intervals were also computed at p-value of 0.05.

h) *Ethical Consideration*

The research was approved by AsradeZewude Memorial Primary Hospital Senior Management Committee. Permission to conduct the study was also obtained from AsradeZewude Memorial hospital maternity case team. During data collection, the purpose of the study was clearly explained to the participants, and informed oral consent was obtained. To ensure confidentiality and privacy no identity was linked to the questionnaire.

III. RESULT

a) *Socio Demographic Characteristics of the Respondents*

A total of 420 clients after delivery were involved in this study. As shown in **Table 1**, 60% of the respondents were between 15-24 years of age, 90% were married, 70% of the delivery was spontaneous, and 70% of clients came to hospital by ambulance.

**Table 1:** Socio demographic characteristics of respondents at AsradeZewude Memorial Primary Hospital, Bore, West Go jam, Amharic, Ethiopia, from February 8,2017 to September 25,2017 (N=420)

| Variables                       | Categories                   | N   | %  |
|---------------------------------|------------------------------|-----|----|
| Age                             | 15 - 24                      | 252 | 60 |
|                                 | 25 - 34                      | 84  | 20 |
|                                 | 35 - 44                      | 63  | 15 |
|                                 | 45-50                        | 21  | 5  |
| Marital status                  | Single                       | 8   | 2  |
|                                 | Married                      | 378 | 90 |
|                                 | Widowed                      | 4   | 1  |
|                                 | Divorced/Separated           | 29  | 7  |
| Education                       | Never attended school        | 168 | 40 |
|                                 | Primary and junior education | 168 | 40 |
|                                 | High school education        | 42  | 10 |
|                                 | Diploma and above            | 42  | 10 |
| Gravid(pregnancies)             | 1-3                          | 374 | 89 |
|                                 | 4-6                          | 42  | 10 |
|                                 | 7-9                          | 4   | 1  |
|                                 | 10-12                        | 0   | 0  |
| Previous Institutional delivery | Yes                          | 126 | 30 |
|                                 | No                           | 294 | 70 |
| Means of delivery               | Spontaneous vaginal delivery | 294 | 70 |
|                                 | Caesarian section            | 84  | 20 |
|                                 | Instrumental                 | 42  | 10 |

|                    |                               |        |       |
|--------------------|-------------------------------|--------|-------|
| Referral condition | Self referral                 | 168    | 40    |
|                    | Referred from health facility | 252    | 60    |
| b) Transport type  | c) Ambulance                  | d) 294 | e) 70 |
|                    | Public transport              | 84     | 20    |
|                    | Private                       | 4      | 1     |
|                    | On foot                       | 38     | 9     |

b) *Health care Provider-client interaction*

The majority of participants (Table 2) agrees and strongly agrees to provider client interaction questionnaires.

Table 2: Maternal Satisfaction with interaction of health care provider at AsradeZewude Memorial Primary Hospital, Bore, West Go jam, Amharic, Ethiopia, from February 8,2017 to September 25,2017 (N=420)

| Variables                                                                   | Level of agreement |        |         |         |          |
|-----------------------------------------------------------------------------|--------------------|--------|---------|---------|----------|
|                                                                             | 5 = SAG            | 4 = AG | 3 = NAG | 2 = DAG | 1 = SDAG |
| The hospital is welcoming, starting from the gate                           | 90%                | 10%    | 0       | 0       | 0        |
| The care providers listen and answer all my questions during delivery       | 50%                | 20%    | 0       | 10%     | 20%      |
| All the care given to me was with my consent during labor                   | 90%                | 10%    | 0       | 0       | 0        |
| The care I received was respect full                                        | 90%                | 10%    | 0       | 0       | 0        |
| I was counseled about breast feeding, vaccination and others after delivery | 60%                | 20%    | 10%     | 10%     | 0        |
| The health care providers introduced themselves to me                       | 70%                | 0      | 20%     | 10%     | 0        |
| During labor and delivery my pain was properly managed                      | 80%                | 14%    | 0%      | 0       | 6%       |

SAG =strongly agree, AG=agree, NAG =Not agree, DAG= disagree and SDAG=strongly disagree

c) *Maternal satisfaction with physical facilities*

Only 50% strongly agreed and 20% agreed that there was a functional Maternity ward toilet, hand

washing and shower during their labor and delivery time (Table 3).

Table 3: Maternal Satisfaction with physical facilities at AsradeZewude Memorial Primary Hospital, Bore, West Go jam, Amharic, Ethiopia, from February 8,2017 to September 25,2017(N=420)

| Variables                                                                                    | Level of agreement |        |         |         |          |
|----------------------------------------------------------------------------------------------|--------------------|--------|---------|---------|----------|
|                                                                                              | 5 = SAG            | 4 = AG | 3 = NAG | 2 = DAG | 1 = SDAG |
| Getting the maternity unit is easy starting from the gate                                    | 90%                | 10%    | 0       | 0       | 0        |
| Maternity ward toilets, hand washing and shower were functional during my labor and delivery | 50%                | 20%    | 0       | 10%     | 20%      |
| Cleanness of the ward was good during my labor and delivery                                  | 90%                | 10%    | 0       | 0       | 0        |
| My privacy was secured during my labor and delivery                                          | 90%                | 10%    | 0       | 0       | 0        |
| I used my preferred position during my labor and delivery                                    | 60%                | 20%    | 10%     | 10%     | 0        |
| I was allowed to have my families on my side during my labor and delivery                    | 70%                | 0      | 20%     | 10%     | 0        |

d) *Maternal satisfaction with Service provision*

The majority of participants (60% strongly agreed and 40% agreed) responds positively to the questionnaire 'I have got a bed immediately' (Table 4).

**Table 4:** Maternal Satisfaction with Service provision at AsradZewude Memorial Primary Hospital, Bore, West Go jam, Amphora, Ethiopia, from February 8,2017 to September 25,2017 (N=420)

| Variables                                                                               | Level of agreement |        |         |         |          |
|-----------------------------------------------------------------------------------------|--------------------|--------|---------|---------|----------|
|                                                                                         | 5 = SAG            | 4 = AG | 3 = NAG | 2 = DAG | 1 = SDAG |
| I was directed to the maternity ward immediately without recording and other procedures | 90%                | 0      | 10%     | 0       | 0        |
| I was seen by the care provider immediately I have got the maternity ward               | 90%                | 10%    | 0       | 0       | 0        |
| I have got a bed immediately                                                            | 60%                | 40%    | 0       | 0       | 0        |
| All those diagnostic tests prescribed for me were available in the hospital             | 90%                | 10%    | 0       | 0       | 0        |
| All those drugs and supplies needed were available in the hospital                      | 90%                | 10%    | 0       | 0       | 0        |

e) Overall satisfaction

Overall satisfaction was measured on 10 scales, 1 worst and 10 the best. Those who scored 6 and above

was considered 'yes' for satisfaction. Their intention to recommend others to the hospital was measured using yes (87%) and No (13%) options (Table 5).

**Table 5:** Overall Maternal Satisfaction at AsradeZewude Memorial Primary Hospital, Bore, West Go jam, Amharic, Ethiopia, from February 8,2017 to September 25,2017 (N=420)

|                                                   | Yes | No  |
|---------------------------------------------------|-----|-----|
| Those satisfied with the overall hospital service | 88% | 12% |
| Those who recommend others to this hospital       | 87% | 13% |

The regression output of factors for maternal satisfaction showed that mothers who think of the welcoming hospital environment was 3.09(2.30-2.69)

times more likely to satisfy than those who perceive the hospital environment was not welcoming (Table 6).

**Table 6:** Maternal Satisfaction and associated factors at AsradeZewude Memorial Primary Hospital, Bore, West Go jam, Amphora, Ethiopia, from February 8,2017 to September 25,2017 (N=420)

| Variables                                                                                  |                     | Maternal satisfaction |               | COR(95%CI)       | AOR(95%CI)        |
|--------------------------------------------------------------------------------------------|---------------------|-----------------------|---------------|------------------|-------------------|
|                                                                                            |                     | Satisfied             | Not satisfied |                  |                   |
| level of Education                                                                         | never educated      | 148(35%)              | 20(5%)        | 3.09 (1.34-7.14) | 2.15(1.02-3.71)   |
|                                                                                            | first level         | 148(35%)              | 20(5%)        | 2.01(1.00-3.02)  | 2.01(0.99-3.10)   |
|                                                                                            | high school         | 37(9%)                | 5(1%)         | 1.99(1.00-2.03)  | 1.56(0.85-2.96)   |
|                                                                                            | diploma and above   | 37(9%)                | 5(1%)         | 1                | 1                 |
| means of delivery                                                                          | Natural             | 259(62%)              | 36(9%)        | 2.60 (1.15–5.89) |                   |
|                                                                                            | C/S                 | 73(17%)               | 10(2%)        | 1.29 (0.53–3.10) |                   |
|                                                                                            | Instrumental        | 37(9%)                | 5(1%)         | 1                |                   |
| Means of transportation                                                                    | Ambulance           | 259(62%)              | 36(9%)        | 2.99(2.50-3.66)  | 3.15(1.02-3.78)   |
|                                                                                            | Public transport    | 74(18%)               | 10(2%)        | 1.40(1.01-1.95)  | 2.01(0.99-3.19)   |
|                                                                                            | Private or Contract | 4(1%)                 | 0             | 0.21 (0.05–0.90) | 1.53(0.81-2.91)   |
|                                                                                            | On foot             | 32(7%)                | 5(1%)         | 1                | 1                 |
| Previous institutional delivery                                                            | Yes                 | 111(26%)              | 15(4%)        | 2.05(1.02-2.03)  |                   |
|                                                                                            | No                  | 259(62%)              | 35(8%)        | 1                |                   |
| The hospital is welcoming starting from the gate                                           | Yes                 | 328(78%)              | 45(11%)       | 3.31(2.32-2.66)  | 3.09(2.30-2.69)** |
|                                                                                            | No                  | 41(10%)               | 6(1%)         | 1                | 1                 |
| I was directed to the maternity ward immediately without recording and other procedures    | Yes                 | 331(80%)              | 45(11%)       | 1.99(0.99-1.05)  |                   |
|                                                                                            | No                  | 39(8%)                | 5(1%)         | 1                |                   |
| The care I received was respect full                                                       | Yes                 | 328(78%)              | 45(11%)       | 6.02(4.01-6.65)  | 6.85(4.35-6.95)** |
|                                                                                            | No                  | 41(10%)               | 6(1%)         | 1                | 1                 |
| I was allowed to have my families on my side during my labor and delivery                  | Yes                 | 328(78%)              | 45(11%)       | 0.95(0.52-0.99)  |                   |
|                                                                                            | No                  | 41(10%)               | 6(1%)         | 1                |                   |
| I used my preferred position during my labor and delivery                                  | Yes                 | 328(78%)              | 45(11%)       | 0.58(0.15-0.60)  |                   |
|                                                                                            | No                  | 41(10%)               | 6(1%)         | 1                |                   |
| Cleanness of the ward was good during my labor and delivery                                | Yes                 | 328(78%)              | 46(11%)       | 4.01(3.02-4.99)  |                   |
|                                                                                            | No                  | 41(10%)               | 6(1%)         | 1                |                   |
| Maternity ward toilet, hand washing and shower was functional during my labor and delivery | Yes                 | 207(49%)              | 28(7%)        | 3.21(2.20-3.52)  | 3.21(2.20-3.52)   |
|                                                                                            | No                  | 163(39%)              | 22(5%)        | 1                | 1                 |
| During labor and delivery my pain was properly managed                                     | Yes                 | 328(78%)              | 45(11%)       | 5.51(3.56-5.91)  | 4.51(3.12-5.01)** |
|                                                                                            | No                  | 41(10%)               | 6(1%)         | 1                | 1                 |

|                                                                           |     |          |         |                 |                 |
|---------------------------------------------------------------------------|-----|----------|---------|-----------------|-----------------|
| I was advised about breast feeding, vaccination and others after delivery | Yes | 287(68%) | 39(9%)  | 0.30(0.12-0.25) |                 |
|                                                                           | No  | 83(20%)  | 11(3%)  | 1               |                 |
| The health care providers introduced themselves to me                     | Yes | 127(30%) | 17(4%)  | 0.31(0.25-0.39) |                 |
|                                                                           | No  | 242(58%) | 34(8%)  | 1               |                 |
| The care providers listen and answer all my questions during delivery     | Yes | 328(78%) | 45(11%) | 3.61(2.95-4.62) | 3.95(2.35-4.36) |
|                                                                           | No  | 41(10%)  | 6(1%)   | 1               | 1               |

**\*\*p-value less than 0.001.**

#### IV. DISCUSSION

In this study, the overall satisfaction of mothers on delivery service was found to be 88%, which was comparable to the study conducted in Wolayita Zone (82.9%), Debremarkos town (81.7%) and Azuela Hospital (80.7%) [9, 11, 17]. However, it was higher than the study, which was conducted in Jimmy (77%) [19] and Amphora Referral Hospitals (61.9%) [12] In Ethiopia and South Africa (51.9%) and Kenya (56%) in Africa [9,10]. The difference with the above finding may be because of a real difference in the quality of services provided, expectation of mothers or the type of health facilities.

Maternal educational status was significantly and inversely associated with their level of satisfaction with delivery services. Those respondents who were never educated were 2.15 more likely to satisfy with delivery service than whose educational level is diploma and above. This finding supports the study conducted in Azuela Hospital and other foreign literatures. The literatures showed that clients had various expectations about hospital delivery that influenced their perception of care [11, 18].

This study revealed that those who came to the hospital by ambulance were 3.15 times more likely to satisfy than those who came on foot. This finding was related to accessibility as explained by other similar studies [12, 24].

Maternal level of satisfaction was also related to creating welcoming environment hospital to laboring mothers. Those clients who consider the hospital as welcoming environment were 3.09 times more likely to satisfy with maternal service.

There was a strong association between maternal levels of satisfaction and respectful delivery care providers. Those participants who thought that care providers were respectful were 6.85 times more likely to satisfy with the delivery service. Perception of respondents of labor pain management was associated with level of maternal satisfaction. Those who answered yes were 4.51 times more likely to satisfy than who answered no to proper labor pain management, according to their perception. Attention to laboring mother's concern was also related to the maternal level of satisfaction. Those who thought their questions and

concerns were answered during labor were 3.61 times more likely to satisfy than who thought not.

#### V. CONCLUSION

The aim of this study was to assess levels of maternal satisfaction and associated factors with delivery service at the AsradeZewude Memorial primary hospital. The overall maternal satisfaction with the delivery service was found to be 88%. Even though the result was slightly higher than the previous studies conducted in Ethiopia, there are still unmet needs and expectations of mothers during labor and delivery that the hospital should focus as delivery service quality improvement area. The identified associated factors were access to ambulance service, welcoming hospital environment, proper labor pain management, respectful care and listening to their questions.

#### VI. RECOMMENDATIONS

##### a) Recommendation to AsradeZewude Memorial primary Hospital

The hospital shall better consider physical barriers to create a welcoming hospital environment for maternal service.

The hospital should facilitate ambulance access for delivering mothers.

##### b) Recommendation to health care providers

The care providers should manage labor pain properly when providing service; it should be with compassionate and respectful.

The care provider should meet the social and psychological concerns of the delivering mothers.

##### c) Limitation

The feelings associated with childbirth itself, due to limited opportunities of exploration in quantitative studies, pose some confounders like the 'halo effect' a positive attitude towards successfully give birth makes it difficult to separate childbirth satisfaction from satisfaction with childbirth services. Participants' tendencies to rate services more positive in general are another known confounder. Participants' subjectivity being pleased with services that are not necessarily evidence based poses another confounder for quantitative studies measuring satisfaction.

d) *Funding*

This study was not funded by any agency, but the motivation came from AsradeZewude Primary Hospital quality improvement unit as part of maternal service quality improvement.

The quality improvement unit had no involvement in the design, data collection and analysis, write-up, and decision for the results to be published, but it needed only the report or result to design delivery service quality improvement plan accordingly.

ACKNOWLEDGEMENTS

The author is extremely grateful to the women who gave their time in completing the questionnaires and AsradeZewude Memorial Primary Hospital Senior Management for ethical approval of the study.

*Contributors:* GDA generates the idea of the study, design the study, wrote the proposal, collected the data, organized and analyzed, finally wrote the result of the study.

*Competing interests:* None declared.

*Patient consent:* Verbal consent obtained.

*Data sharing Statement:* The data collected for this study can be obtained from the author upon a reasonable request.

REFERENCES RÉFÉRENCES REFERENCIAS

1. Bong arts, J. (2016). WHO, UNICEF, UNFPA, World Bank Group, and United Nations Population Division Trends in Maternal Mortality: 1990 to 2015 Geneva: World Health Organization, 2015. Population and Development Review, 42(4), 726–726. doi:10.1111/padr.12033. Available from: <http://dx.doi.org/10.1111/padr.12033>
2. World Health Organization, (2013). World Health Statistics 2013; a Wealth of Information on Global Health, World Health Organization, Geneva, Switzerland.
3. Ethiopian DHS (2016). Available at <https://dhsprogram.com/pubs/pdf/FR328/FR328.pdf>
4. World Health Organization (WHO), (2004). Making Pregnancy Safer: The Critical Role of the Skilled Attendant: A Joint Statement by WHOM, ICM, FIGO, World Health Organization (WHO), Geneva, Switzerland.
5. Latrobe JH, Bolden LV.(2001). Defining Patient-Perceived Quality of Nursing Care. Journal of Nursing Care Quality [Internet]. Ovid Technologies (Walters Lower Health); 16(1):34–60. Available from: <http://dx.doi.org/10.1097/00001786-200110000005>
6. Aulis DE, Bunked NI, Logorrhea AP. (1997). Identifying Predictors of Satisfaction with Access to Medical Care and Quality of Care. American Journal of Medical Quality [Internet]. SAGE Publications; 12(1):11–7. Available from: <http://dx.doi.org/10.1177/0885713x9701200103>
7. A.Hasan, J.Chompikul, andS.U. Bunyan, (2007). Patient Satisfaction with Maternal and Child Health Service among Mothers Attending the Maternal and Child Health Training in DahakaBangladesh, Marisol University.
8. Australian Government,(2007). Maternity Service in South Australia Public Hospital: Patient Satisfaction Survey Research, Australian Government, South Australia, Australia.
9. T. G. LumadiandE. Bunch, (2011). “Patients’ satisfaction with midwifery services in a regional hospital and its referring clinics in the Limpopo Province of South Africa, “Africa Journal of Nursing and Midwifery, vol.13, no.2, pp. 14–28.
10. Eva S. Bezant, Michael A. Koenig; (2009). Women's satisfaction with delivery care in Nairobi's informal settlements, *International Journal for Quality in Health Care*, Volume 21, Issue 2, 1, Pages 79–86, <https://doi.org/10.1093/intqhc/mzn058>
11. RMesfinTafa RA. (2014). Maternal Satisfaction with the Delivery Services in Azuela Hospital, Arsis Zone, Roomier Region, Ethiopia,2013. Gynecology & Obstetrics [Internet]. OMICS Publishing Group; 4(12). Available from: <http://dx.doi.org/10.4172/2161-0932.1000257>
12. A.Tayelgn,D.T.Zegeye,andY.Kebede,(2011)“Mother s ‘satisfaction with referral hospital delivery service in Amphora Region, Ethiopia,”BMC Pregnancy and Childbirth,vol.11, article78, 2011.available at <http://www.biomedcentral.com/1471-2393/11/78>
13. Mehta S, Paddle YR, Daring M, Arial KK, Paddle S, Mehta R, et al. (2017). Factors determining satisfaction among facility-based maternity clients in Nepal. BMC Pregnancy and Childbirth [Internet]. Springer Nature; 25; 17(1). Available from: <http://dx.doi.org/10.1186/s12884-017-1532-0>
14. Goodman P, Mackey MC, Tawakoni AS. (2004). Factors related to childbirth satisfaction. Journal of Advanced Nursing [Internet]. Wiley-Blackwell; 46(2):212–9. Available from: <http://dx.doi.org/10.1111/j.1365-2648.2003.02981.x>
15. Sawyer A, Ayers S, Abbott J, Gate G, Raba H, Duly L. (2013). Measures of satisfaction with care during labor and birth: a comparative review. BMC Pregnancy and Childbirth [Internet]. Springer Nature; 8; 13(1). Available from: <http://dx.doi.org/10.1186/1471-2393-13-108>
16. Bite K, Ayichiluhm M, Imam K.(2015). Maternal Satisfaction on Delivery Service and Its Associated Factors among Mothers Who Gave Birth in Public Health Facilities of DebreMarkos Town, Northwest Ethiopia. Biomed Research International [Internet]. Hinduri Limited: 1–6. Available from: <http://dx.doi.org/10.1155/2015/460767>

17. Greets CC, van Dillon J, Clomp T, Largo-Janssen ALM, de Jorge A. (2017). Satisfaction with caregivers during labor among low risk women in the Netherlands: the association with planned place of birth and transfer of care during labor. *BMC Pregnancy and Childbirth* [Internet]. Springer Nature; 17(1). Available from: <http://dx.doi.org/10.1186/s12884-017-1410-9>
18. Srivastava A, Avon BI, Rajbangsi P, Bhattacharyya S. (2015). Determinants of women's satisfaction with maternal health care: a review of literature from developing countries. *BMC Pregnancy and Childbirth* [Internet]. Springer Nature; 15(1). Available from: <http://dx.doi.org/10.1186/s12884-015-0525-0>
19. Hailer Tads' B. (2017). Mothers' Satisfaction with Institutional Delivery Service in Public Health Facilities of Omro Nada District, Jimmy Zone. *Clinical Medicine Research* [Internet]. Science Publishing Group; 6(1):23. Available from: <http://dx.doi.org/10.11648/j.cmr.20170601.13>
20. Castoff E, Schist E, Waldenström U. (2008). First Time Mothers' Pregnancy and Birth Experiences Varying by Age. *Obstetric Anesthesia Digest* [Internet]. Ovid Technologies (Walters Lower Health); 28(2):76-7. Available from: <http://dx.doi.org/10.1097/01.aoa.0000319784.93395.58>
21. D' Orsk E, Bridgeman OM, Denis CSG, Augier JM de, Guzman CR, Torres JA, et al. (2014). Desigualdad e insatisfação das mulheres com o atendimento ao parto no Brasil: estudo nacional de base hospitalar. *Caveros de Saúde Pública* [Internet]. FapUNIFESP (Silo); 30(supple1):S154-S168. Available from: <http://dx.doi.org/10.1590/0102-311x00087813>
22. McKinnon LC, Prosser SJ, Miller YD. (2014). What women want: qualitative analysis of consumer evaluations of maternity care in Queensland, Australia. *BMC Pregnancy and Childbirth* [Internet]. Springer Nature; 14(1). Available from: <http://dx.doi.org/10.1186/s12884-014-0366-2>
23. Javari E, Mohebbi P, Mazloomzadeh S. (2017). Factors Related to Women's Childbirth Satisfaction in Physiologic and Routine Childbirth Groups. *Iran J Nurs Midwifery Res.* 22:219-224.
24. Bohlen MA, Vogel JP, Hunter EC, Lusty O, Mach SK, Souza JP, et al. (2015). The Mistreatment of Women during Childbirth in Health Facilities Globally: A Mixed-Methods Systematic Review. Jukes R, editor. *PLOS Medicine* [Internet]. Public Library of Science (Plus); 12(6):e1001847. Available from: <http://dx.doi.org/10.1371/journal.pmed.1001847>
25. Change F, Irajpour A, Somber M, et al. (2015). Client satisfaction of maternity care in Loreta province Iran. *Iran Knurs Midwifery Res.* 20:398-404.
26. Karee R, Lee AH, Pokharel PK. (2014). Women's perception of quality of maternity services: a longitudinal survey in Nepal. *BMC Pregnancy and Childbirth* [Internet]. Springer Nature; 14(1). Available from: <http://dx.doi.org/10.1186/1471-2393-14-45>
27. McMahon SA, George AS, Chabot JJ, Moshe IH, Pembina RN, Winch PJ. (2014). Experiences of and responses to disrespectful maternity care and abuse during childbirth; a qualitative study with women and men in Morogoro Region, Tanzania. *BMC Pregnancy and Childbirth* [Internet]. Springer Nature; 14(1). Available from: <http://dx.doi.org/10.1186/1471-2393-14-268>
28. Melees T, Gebrehiwot Y, Bastogne D, Habit D. (2014). Assessment of client satisfaction in labor and delivery services at a maternity referral hospital in Ethiopia. *Pan African Medical Journal* [Internet]. Pan African Medical Journal; 17. Available from: <http://dx.doi.org/10.11604/pamj.2014.17.76.3189>
29. Christians W, Bracken P. (2007). Assessment of social psychological determinants of satisfaction with childbirth in a cross-national perspective. *BMC Pregnancy and Childbirth* [Internet]. Springer Nature; 7(1). Available from: <http://dx.doi.org/10.1186/1471-2393-7-26>
30. Camacho FT, Weisman CS, Anderson RT, Hillemeier MM, Schaefer EW, Paul IM. (2012). Satisfaction with Maternal and Newborn Health Care Following Childbirth Measure. *PsycTESTS Dataset* [Internet]. American Psychological Association (APA); Available from: <http://dx.doi.org/10.1037/t31978-000>
31. Ferrier BC, Jordan MC, Messenger CB, et al. (2016). Comparative study analyzing women's childbirth satisfaction and obstetric outcomes across two different models of maternity care setting: 2 university hospitals in south eastern Spain. *Br Med J* 6: 1-10.
32. Bhattacharyya S, Srivastava A, Roy R, Avon BI. (2016). Factors influencing women's preference for health facility deliveries in Jharkhand state, India: a cross sectional analysis. *BMC Pregnancy and Childbirth* [Internet]. Springer Nature; 16(1). Available from: <http://dx.doi.org/10.1186/s12884-016-0839-6>
33. Mukhopadhyay S, Mukhopadhyay D, Mali S, Kayak S, Biwa's A, Biwa's A. (2016). A study on utilization of Janani Suraksha Yojana and its association with institutional delivery in the state of West Bengal, India. *Indian Journal of Public Health* [Internet]. Medknow; 60(2):118. Available from: <http://dx.doi.org/10.4103/0019-557x.184543>
34. Sade Y, De Costa A, Divan V. (2014). A spatial analysis to study access to emergency obstetric transport services under the public private "Janine Express Yolanda" program in two districts of



- Madhya Pradesh, India. Reproductive Health [Internet]. Springer Nature; 11(1). Available from: <http://dx.doi.org/10.1186/1742-4755-11-57>
35. Pal R, Das P, Base M, Tirade T, Biwa's G, Merida P. (2010). Client satisfaction on maternal and child health services in rural Bengal. Indian Journal of Community Medicine [Internet]. Medknow; 35(4):478. Available from: <http://dx.doi.org/10.4103/0970-0218.74344>
36. Handfed J, Powell-Jackson T, Balabanova D. (2017). Understanding and measuring quality of care: dealing with complexity. Bulletin of the World Health Organization [Internet]. WHO Press; 95(5):368–74. Available from: <http://dx.doi.org/10.2471/blt.16.179309>





This page is intentionally left blank

Early View



GLOBAL JOURNAL OF MEDICAL RESEARCH: E  
GYNECOLOGY AND OBSTETRICS  
Volume 18 Issue 3 Version 1.0 Year 2018  
Type: Double Blind Peer Reviewed International Research Journal  
Publisher: Global Journals  
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

## Laparoscopic Evaluation of Bilateral Tubal Occlusion for Management of Infertility in Dhaka

By Saika Shaheed & Munima Haque  
*Southeast University*

**Abstract-** All patients undergoing diagnostic laparoscopy for primary and secondary infertility due to tubal factor at Dhaka Central International Medical College and Hospital from June 2017 to July 2018 are included. Reasons for tubal factor infertility, rates, and therapeutic procedures are investigated.

**Results:** Seventeen (35.4%) patients with primary and 29 (60.4%) with secondary infertility undertook diagnostic laparoscopy. Bilateral tubal opening for both left and the right tube is visualized for 26 (76.5%), partially blocked for 6 (17.6%) and blocked/occlusion for 2 (5.9%) cases. Tubal openings are highly statistically significant. Also, age and ovary size, age and ovary appearance, indication and therapeutic procedure, indication and sign of ovulation, Indication and uterus position, Indication and uterus position are also found to be significant. Tubal disease is a common aspect liable for infertility. Diagnostic laparoscopy is a important method for total evaluation of female infertility and making remedy choices according to the cause.

**Keywords:** laparoscopy, tubal occlusion, infertility, therapeutic procedure, management.

**GJMR-E Classification:** NLMC Code: WP 570



*Strictly as per the compliance and regulations of:*



# Laparoscopic Evaluation of Bilateral Tubal Occlusion for Management of Infertility in Dhaka

Saika Shaheed <sup>α</sup> & Munima Haque <sup>σ</sup>

**Abstract-** All patients undergoing diagnostic laparoscopy for primary and secondary infertility due to tubal factor at Dhaka Central International Medical College and Hospital from June 2017 to July 2018 are included. Reasons for tubal factor infertility, rates, and therapeutic procedures are investigated.

**Results:** Seventeen (35.4%) patients with primary and 29 (60.4%) with secondary infertility undertook diagnostic laparoscopy. Bilateral tubal opening for both left and the right tube is visualized for 26 (76.5%), partially blocked for 6 (17.6%) and blocked/occlusion for 2 (5.9%) cases. Tubal openings are highly statistically significant. Also, age and ovary size, age and ovary appearance, indication and therapeutic procedure, indication and sign of ovulation, Indication and uterus position, Indication and uterus position are also found to be significant. Tubal disease is a common aspect liable for infertility. Diagnostic laparoscopy is an important method for total evaluation of female infertility and making remedy choices according to the cause.

**Keywords:** laparoscopy, tubal occlusion, infertility, therapeutic procedure, management.

## I. INTRODUCTION

Infertility is not being able to attain pregnancy for one year of recurrent, unshielded intercourse [1]. The basic reasons for infertility comprise ovulatory disorders (%), tubal disease (%), uterine or cervical issue and endometriosis and male infertility [1, 2]. Assessment usually starts after 12 months, however, can be initiated earlier if infertility is assumed founded on history or the age of the female spouse is over 35 years [1]. Occurrence of infertility seems to be rising in developed countries for causes dissimilar from those in developing countries. Main bases according to WHO (World Health Organization) on a global basis are pelvic tuberculosis, postabortal and postpartum infections leading to tubal obstruction and undernourishment [3]. A vigilant record and physical inspection can recommend a solo or multiple etiology directing the additional study. Pelvic ultrasonography, hormonal assay, and hysterosalpingography are the initial examinations for the uterine, ovarian and tubal disease. Diagnostic laparoscopy is typically the standard procedure

performed as one of the valuable tools in the infertility treatment before progressing to infertility cures [4, 5].

Generally, the occurrence of infertility is predicted to be 10%-15% amongst young couples [6-7]. Ovulatory difficulties are the vital widespread reason for female infertility. In 80% of the cases, infertility usually occurs due to some conditions such as endometriosis or polycystic ovary syndrome (PCOS), while in 20% of the cases the etiology of this condition is unexplained [8]. A report published in 1997 shows that about 3%-7% of all couples have an unresolved problem of infertility. However, experiencing infertility for at least one year is reported in 12-28% of cases [9]. Due to the infertility problems and long duration of response to treatment, its correct diagnosis to provide appropriate treatment strategies is highly crucial. There are multiple techniques for the treatment of female infertility. Furthermore, identifying the etiology of infertility and its subsequent treatment does not always lead to viable pregnancy and live birth [8].

Although around 85% to 90% of healthy young couples conceive by one year of attempting and largely conceive by six months, still 10% to 15% - couples have problems conceiving and suffer infertility or subfertility [10-11]. Reproductive endocrinologist reflect a couple to be infertile when: (a) The couple has not conceived subsequently 12 months of contraceptive free -intercourse (the female is less than 34 years old); (b) The couple has not conceived subsequently 6 months contraceptive free -intercourse (the female is more than 34 years old) [12, 13]. The major causes of infertility include; 1. Male factors (20%-30%), 2. Female factors (40%-55%), 3. Male and female factors together (10%-40%), 4. Unexplained infertility (10%-20%) [14]. Infertility is classified into two types: 1. Primary infertility where no prior pregnancies have occurred. 2. Secondary infertility where a previous pregnancy has occurred (might not need to be a live birth). While generally, infertility rates have stayed steady in the previous 30 years in the USA, generally birth and fertility rates are decreasing owing to several social and cultural drifts: women pursuing higher education and careers, postponing marriage for men and women, delaying childbearing, more frequent divorce, and reliable contraception and family formation.

Amongst infertile couples, male infertility counts for around 35%. The reasons for male infertility evolve

**Author α:** Dr. Saika Shaheed, Dhaka Central International Medical College and Hospital, Dhaka, Bangladesh.

**Author σ:** Dr. Munima Haque, Southeast University, Dhaka, Bangladesh. email: munima.haque@gmail.com

from four key causes: (1) hypothalamic-pituitary disorders (1%–2%); (2) primary gonadal disorders (30%–40%); (3) disorders of sperm transport (10%–20%); and (4) idiopathic (40%–50%). Mostly male infertility is currently idiopathic giving unclear reasoning of the process that controls testicular and sperm operation. Female infertility symbolizes nearly 65% of the causes for the infertile couple. For female infertility, disruption can happen at any cases to instigate infertility: (1) it is necessary for the ovaries to ovulate a matured oocyte on a regularly (ovarian factor); (2) the cervix has to seize and carry sperm into the uterus and fallopian tubes (cervical factor); (3) the fallopian tubes have to seize the ovulated ova and carry sperm and embryo (tubal factor); and (4) the uterus has to permit the embryo to imbed and assist regular evolution and progress (uterine factor) [15]. Tubal factor infertility owing to occlusion and peritoneal pathology initiating adhesions is the key general reason for female infertility and identified in around 30% to 35% of younger and older infertile women [15]. The most predominant reason for tubal factor infertility is pelvic inflammatory disease and severe salpingitis [16]. The important causes of female infertility are 1. Tubal factors (20%-40%), 2. Ovulatory dysfunction (20%-40%), 3. Miscellaneous causes (10%-15%) [17]. The process accountable for tubal factor infertility consists of anatomic anomalies which prevent the coalition of sperm and ovum. Proximal tubal obstructions prevent sperm from getting into the far fallopian tube where fertilization usually happens. Distal tubal occlusions inhibit ovum seize from the neighboring ovary [18].

For most infertile women with no known risk for tubal or pelvic lesions, assessment of the fallopian tubes will usually start with hysterosalpingography (HSG) followed by a diagnostic laparoscopy after six months or more [19, 20]. In other cases, it allows time for treatment-independent conception or a possible fertility-enhancing effect of HSG [21]. The HSG is a valuable inspecting tool for the significant major obstruction to fertility, bilateral tubal occlusion. It is not suitable concerning adhesions or endometriosis. Laparoscopy confirms the HSG findings in approximately 80 percent of cases concerning the determination of tubal patency, but in only 45 percent of cases concerning the diagnosis of other tubal lesions [22, 23]. Thus, multiple clinical supervisions sidestep HSG and progress straight to laparoscopy for accessing instantaneously the fallopian tubes and the pelvic peritoneal cavity [24]. Hysteroscopy is a technique that permits the physician to view inside the uterus for diagnosing and treating reasons of unusual bleeding.

Furthermore, hysteroscopy is implemented to reveal the basis for unsolved spotting or bleeding in postmenopausal women. It varies if it is diagnostic or operative and if an additional method (e.g., laparoscopy) executes at a similar time. In general,

diagnostic hysteroscopy takes a reduced amount of time than operative [25]. The indications for laparoscopic surgery have increased widely over the last couple of years owing to its multiple benefits over laparotomy [26]. Growing numbers of gynecological surgeons have adopted a laparoscopic approach to the treatment of ectopic pregnancies (EPs), adhesions, endometriosis, hydrosalpinges, and ovarian cysts [27, 28]. Laparoscopy may be utilized for Myomectomies [29].

Amongst the United States board-certified reproductive endocrinologists 89% routinely instruct diagnostic laparoscopy for couples presenting with a primary complaint of infertility [30]. In Canada, 63% of infertile couples underwent diagnostic laparoscopy in the year in 1995 [31, 32]. Results from another Canadian study of 794 participating couples from 11 clinics selected from 1 April 1984 to 31 March 1987 showed that laparoscopy functioned more suitable than HSG as a forecaster of future fertility [33]. A Belgian review analyzed the accessible proof with respect to concerning alternative diagnostic methods for detecting tuboperitoneal infertility and about the status of diagnostic laparoscopy in women infertility. In some particular clinical venues, the solid proof was found to endorse the utilization of diagnostic laparoscopy in the existing fertility procedure [34].

A review of 206 infertile women undertaking laparoscopy was conducted in Israel [32]. A study performed on 115 infertile women at Fatemiyeh Teaching Hospital, Hamedan, Iran from March 2011-September 2012 showed that the comparison between HSG and LS techniques provides a significant difference in diagnosis of distal fallopian tube occlusion and unilateral fallopian tube occlusion among infertile women [35]. A study conducted on 208 medical records of infertile women at the Yaoundé General Hospital in Benin, Cameroon during December 2007 to December 2012 showed that HSG is of inadequate diagnostic significance in tubal factor infertility and little diagnostic importance in pelvic adhesions [36]. Another cross-sectional study from Hayatabad Medical Complex, Peshawar, Pakistan from January to December 2005 with 136 (70.46%) patients with primary and 57 (29.54%) with secondary infertility undertaking diagnostic laparoscopy showed that tubal disease is a common factor responsible for infertility, and diagnostic laparoscopy is a valuable technique for complete assessment of female infertility and making treatment decisions [37]. A study on 114 primary and secondary infertility patients from a tertiary health care center at Maharashtra, India showed that HSG and Laparoscopy are not alternative but approving techniques for the investigation of tubal patency in infertility [38].

A cross-sectional study with 190 couples in Bangladesh at selected fertility centers of Dhaka city (from September 2011 to March 2012) showed that

there are 52% cases of female factors, 13% male factors, unexplained 27% and both male and female factors lie behind 8% of cases. This study concluded that proper evaluation with details personal, medical and gynecological history of both female and male need to evaluate the cause and formulate a management plan to treat the secondary subfertile couple [39]. Another epidemiological study of 61 sub-fertile women suffering from primary and secondary subfertility, who had undergone laparoscopy at Bangladesh Medical College hospital during July 2003 to June 2004 was examined. The number of subfertility visits has increased in the last few years due to awareness for available services and option for resolving subfertility [40]. A prospective study on 100 cases of infertile patients (ages 20 to 40 years) undertaken at BIRDEM (Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders) during January 2001 to December 2001 showed that for treating infertility, appropriate importance is needed for laparoscopic valuation of pelvic organs [41]. Another study undertaken at BIRDEM (Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders) from January 2001 to December 2001 of 100 cases of infertile patients (ages 20 to 40 years) indicate that laparoscopy examination is an essential technique for assessment of tubal pathology impacting infertility and may perform a vital part in infertility supervision [42]. Results with 900 infertile women aged from 18 to 42 years undergoing infertility evaluation by laparoscopy at a private infertility clinic at Dhaka (from January 2002 and October 2004) show that 607 (67.44%) patients had primary infertility, and 293 (32.56%) had secondary infertility, 610 (67.78%) patients had normal while 390 (31.22%) had abnormalities of uterus. [43]. A study carried out amongst 50 infertile women with both primary and secondary infertility (having menstrual cycles with a duration of 25-45 days) from July 2014 to December 2014 in Shaheed Suhrawardi Medical College Hospital, Dhaka showed that the surgical remedy of minimal or mild endometriosis enhances the natural pregnancy frequency in infertility women [44].

Infertility is a main problem influencing the health of women and life quality directing to social and psychological disruptions as well as causing distress and uncertainty to numerous women. This investigation was implemented to review the various reasons of tubal factor infertility using hysteroscopy followed by diagnostic laparoscopy, and their frequency in patients with primary and secondary infertility.

## II. MATERIALS AND METHODS

In this investigation, the infertility patients suffering from infertility are enrolled and under treatment at the Gynecology and Obstetrics department, Dhaka Central International Medical College and Hospital (DCIMCH), Dhaka from June 2017 to July 2018. Patients affected by primary and secondary tubal factor infertility

are incorporated into this investigation. The participating patients' ages spanned from 20 to 40 years. Detailed medical history is documented, and clinical examination is done before admission. Fundamental examinations are performed for fitness of anesthesia before laparoscopy.

The hysteroscopy scheduling was done with the additional procedure of Laparoscopy. These combined procedures were performed under general anesthesia by an infertility specialist surgeon (the first researcher). Patients chosen for laparoscopy were entered into the program on 18 to 21 days of their menstrual cycle. The hysteroscopy procedure takes place in the following order: The doctor dilates the cervix to allow the hysteroscope to be inserted; The hysteroscope is then inserted through the vagina and cervix to the uterus; Normal saline is injected into the uterus via the hysteroscope, to enlarge it and to clean up any blood or mucus; Afterward, a light glowed via the hysteroscope provides the doctor to see the uterus and the openings of the fallopian tubes through the uterine cavity; At the end if surgery has to be implemented, then miniature equipments are passed in the uterus through the hysteroscope. Hysteroscopy procedure can take time ranging from < 5 minutes to > hour. For laparoscopy, a 10 mm incision was made inside or just underneath the lower edge of the umbilicus. By this incision, the abdominal cavity is expanded with CO<sub>2</sub> gas, and which creates pneumoperitoneum. A trocar was placed in the same area. The cannula of the trocar was kept there while the trocar was taken out. Afterward, a laparoscope was inserted via the cannula. The abdominal cavity and pelvic were assessed in the Trendelenburg posture. A traumatic grasper forceps were utilized with the help of another trocar for superior viewing. If needed, an additional trocar was introduced.

To evaluate tubal patency, methylene blue was injected through another uterine exploiter and outcome of laparoscopy were documented by the infertility expert. For the patients, the diagnostic procedure was followed by therapeutic procedures. After diagnostic procedures Hysteroscopy, laparoscopy, and dye test the following therapeutics were implemented conferring to the patients' situation: (a) patients having PCOS went through Bilateral ovarian drilling, (b) Patients having adhesion had Adhesiolysis, and (c) those who had cysts, went through Cystectomy.

Diagnostic laparoscopy is usually a well-known method to uncover pelvic organ pathologies influencing fertility. The current research was commenced to explore the tubal pathology causing primary and secondary infertility by the laparoscopic test. This research was performed at the Gynecology and Obstetrics department, DCIMCH through June 2017 to July 2018. The information collected from the patients and the findings of laparoscopy were put together in the data sheet which was analyzed using SPSS (version

17.0). The local research Ethical Committee of DCIMCH approved the study protocol. The participants gave their consent before enrollment. Guarantee was given to the participants that their data material would be retained privately.

Demographic features were gathered from the interview utilizing a systematized questionnaire form. Results of hysteroscopy and laparoscopy were documented. The characteristics taken for the demographics are age (20-24, 25-29, 30-34, and 35-39) years. For general examination are the indication (primary, secondary infertility, others), anesthesia (G/A or others). For Hysteroscopy findings the characteristics are uterine cavity (well visualized, Septum, Synechia), right tubal opening (visualized, partially blocked, blocked), left tubal opening (visualized, partially blocked, blocked). In laparoscopy findings the characteristics are Uterus size (N/S normal size), bulky, smaller than normal), Uterus position (A/V (anteverted), R/V (retroverted)), Mobility (mobile, restricted), POD (Pouch of Douglas)(free, obliterated), Tubes appearance (apparently healthy, not visualized, others), Dye test (Lt side -ve, Rt side -ve, Lt side +ve, Rt side +ve, Lt side + ve, Rt side + ve, Rt side - ve), Ovary appearance (healthy, polycystic/pearly white appearance, Cyst (chocolate/parovarian)). Also Ovary size (normal, enlarged), Sign of ovulation (present, absent), Therapeutic procedure (bilateral ovarian drilling, adhesiolysis, cystectomy).

### III. RESULTS

The project consisted of 48 infertile patients aged from 20-40 years. The patient age was highest for 25-29 years total 19 (39.6%). As from the result, 17 (35.4%) patients had primary infertility, and 29 (60.4%) patients had secondary infertility. for only 34 of the patients, uterine cavity can be observed. Amongst them, 30 (88.2%) had well visualized uterine cavity while rest of the patients had septum 2 (5.9%) and Synechia 2 (5.9%). Size of the uterus was normal in 35 (72.9%), bulky in 8 (16.7%) and smaller than normal size found in 5 (10.4%) cases. Uterus position was A/V (anteverted) 43 (89.6%) and R/V (retroverted) for 5 (10.4%) cases. For mobility, it was mobile in 46 (95.8%) and restricted in only 2 (4.2%) cases. POD (Pouch of Douglas) was free for 47 (97.9%) while obliterated for only 1 (2.1%) case. Tubes appearance looked healthy in 37 (77.1%), not visualized in 7 (14.6%) while other types were 4 (8.3%) cases. Dye test gave the highest for Left side positive, Right side positive totaling 22 (45.8%) out of 48 patients. Bilateral tubal opening for both the left and the right tube was visualized for 26 (76.5%), partially blocked for 6 (17.6%) and blocked/occlusion for 2 (5.9%) cases. Ovary appeared healthy for 17 (35.4%), polycystic/pearly white appearance for 18 (37.5%), and cyst (chocolate / parovarian) for 13 (27.1%) of cases. The ovary size was

normal for 25 (52.1%), enlarged 21 (43.8%), and smaller than normal for 2 (4.2%) of cases. Sign of ovulation present in 32 (66.7%) and absent in 16 (33.3%) of cases. Therapeutic procedures followed were: Bilateral ovarian drilling 28 (58.3%), Adhesiolysis 11 (22.9%), Cystectomy 5 (10.4%), Drilling and Adhesiolysis combined 2 (4.2%), and Cystectomy and Adhesiolysis combined was performed for 2 (4.2%) cases. General anesthesia was given to all patients.

*Table 1:* Demographics and General Examination

| Characteristic | Category               | Frequency (%) |
|----------------|------------------------|---------------|
| Age (Years)    | 20-24                  | 13 (27.1%)    |
|                | 25-29                  | 19 (39.6%)    |
|                | 30-34                  | 11 (22.9%)    |
|                | 35-39                  | 5 (10.4%)     |
| Indication     | Primary Subfertility   | 17 (35.4%)    |
|                | Secondary Subfertility | 29 (60.4%)    |
|                | Others                 | 2 (4.2%)      |

*Table 2:* Hysteroscopy Findings

| Characteristics            | Category          | Frequency (%) |
|----------------------------|-------------------|---------------|
| Uterine Cavity (34)        | Well Visualized   | 30 (88.2%)    |
|                            | Septum            | 2 (5.9%)      |
|                            | Synaechia         | 2 (5.9%)      |
| Tubal Opening (Right) (34) | Visualized        | 26 (76.5%)    |
|                            | Partially Blocked | 6 (17.6%)     |
|                            | Blocked           | 2 (5.9%)      |
| Tubal Opening (Left) (34)  | Visualized        | 26 (76.5%)    |
|                            | Partially Blocked | 6 (17.6%)     |
|                            | Blocked           | 2 (5.9%)      |

*Table 3:* Laparoscopy Findings

| Characteristic         | Category                             | Frequency (%) |
|------------------------|--------------------------------------|---------------|
| Uterus Size            | N/S (Normal Size)                    | 35 (72.9%)    |
|                        | Bulky                                | 8 (16.7%)     |
|                        | Smaller than Normal                  | 5 (10.4%)     |
| Uterus Position        | A/V (Anteverted)                     | 43 (89.6%)    |
|                        | R/V (Retroverted)                    | 5 (10.4%)     |
| Mobility               | Mobile                               | 46 (95.8%)    |
|                        | Restricted                           | 2 (4.2%)      |
| POD (Pouch of Douglas) | Free                                 | 47 (97.9%)    |
|                        | Obliterated                          | 1 (2.1%)      |
| Tubes Appearance       | Apparently Healthy                   | 37 (77.1%)    |
|                        | Not Visualized                       | 7 (14.6%)     |
|                        | Others                               | 4 (8.3%)      |
| Dye Test               | Lt Side -Ve, Rt Side -Ve             | 6 (12.5%)     |
|                        | Lt Side -Ve, Rt Side +Ve             | 8 (16.7%)     |
|                        | Lt Side + Ve, Rt Side +Ve            | 22 (45.8%)    |
|                        | Lt Side + Ve, Rt Side -Ve            | 12 (25.0%)    |
| Ovary Appearance       | Healthy                              | 17 (35.4%)    |
|                        | Polycystic / Pearly White Appearance | 18 (37.5%)    |
|                        | Cyst (Chocolate / Parovarian)        | 13 (27.1%)    |
| Ovary Size             | Normal                               | 25 (52.1%)    |
|                        | Enlarged                             | 21 (43.8%)    |
|                        | Smaller Than Normal                  | 2 (4.2%)      |
| Sign of Ovulation      | Present                              | 32 (66.7%)    |
|                        | Absent                               | 16 (33.3%)    |

**Table 4:** Therapeutic Procedure

| Characteristic        | Category                   | Frequency (%) |
|-----------------------|----------------------------|---------------|
| Therapeutic Procedure | Bilateral Ovarian Drilling | 28 (58.3%)    |
|                       | Adhesiolysis               | 11 (22.9%)    |
|                       | Cystectomy                 | 5 (10.4%)     |
|                       | Drilling + Adhesiolysis    | 2 (4.2%)      |
|                       | Cystectomy + Adhesiolysis  | 2 (4.2%)      |

**Table 5:** Interrelationship among Various Factors

| Variables                                                              | P-Value |
|------------------------------------------------------------------------|---------|
| Correlation of Age and Indication (Primary and Secondary Subfertility) | 0.193   |
| Tubal Opening Left and Tubal Opening Right                             | 0.000   |
| Age and Uterus Size                                                    | 0.091   |
| Age and Ovary Size                                                     | 0.034   |
| Age and Ovary Appearance                                               | 0.040   |
| Indication and Therapeutic Procedure                                   | 0.009   |
| Age and Sign of Ovulation                                              | 0.840   |
| Indication and Sign of Ovulation                                       | 0.046   |
| Indication and Tubes Appearance                                        | 0.888   |
| Indication and Uterus Position                                         | 0.006   |
| Indication and Mobility                                                | 0.505   |
| Age and Mobility                                                       | 0.132   |
| Age and Dye Test                                                       | 0.950   |
| Indication and Dye Test                                                | 0.465   |
| Indication and POD                                                     | 0.394   |
| Age and POD                                                            | 0.669   |
| Age and Uterine Cavity                                                 | 0.281   |
| Indication and Uterine Cavity                                          | 0.154   |
| Indication and Uterus Position                                         | 0.006   |

The interrelationship between various variables is given in table 5. The tubal opening left, and tubal opening right are highly statistically significant. Also, age and ovary size, age and ovary appearance, indication and therapeutic procedure, indication and sign of ovulation, Indication and Uterus position, Indication and Uterus position are also found to be significant. On the other hand, no significance was found for indication and mobility, age and mobility, age and dye test, Indication and dye test, indication and POD, age and POD, age and uterine cavity, indication and uterine cavity, indication and tubes appearance, age and sign of ovulation, age and uterus size, correlation of age and indication (primary and secondary subfertility).

#### IV. CONCLUSION

Benefits of hysteroscopy and laparoscopy: Hysteroscopy and laparoscopy may have the following advantages in comparison to other methods: briefer hospital stay, shorter recovery time, less pain

medication needed after surgery, and possible avoidance of open abdominal surgery. It is a pretty safe procedure. However, similar to any other surgical procedure, complications are possible. With hysteroscopy, complications can happen (< 1% cases): dangers related to anesthesia, infection, heavy bleeding, injury (to the cervix bladder, uterus or bowel), intrauterine scarring, reaction to the substance used to expand the uterus [45-46]. The laparoscopic method gives significant advantages to the patient, e.g., reduced incision size and ordeal with lesser postoperative distress, reduced recovery frequency, and a reduced rate of postoperative wound infections. The laparoscopic method decreases operation of the bowel and peritoneum, causing reduced incidence of postoperative illness. Therefore, intake can be resumed more rapidly than with open surgical techniques, limiting requirements for IV fluid regimes which are associated with tissue edema, modest wound restoration, and lengthier postoperative revival. Secondly, since minor access points are needed for the insertion of laparoscopic trocars, enormous incisions similarly found in open methods are shunned, thus reducing difficulties related to postoperative pain and wound healing. As laparoscopic techniques have evolved, the quantity of port sites needed has been decreased, with single-port surgery currently a feasible possibility. These factors contribute to the lesser occurrence of the wound and systemic infections revealed following laparoscopic surgical procedure. Laparoscopy is beneficial in overweight patients where open methods could be technologically very problematic and for those that are especially invulnerable to wound infections after an operation. Other types of patients to gain assistance from a laparoscopic technique are those having an acute respiratory illness as the postoperative deterioration in respiratory procedure that can happen following large incisions. All these features provided briefer in-patient stay and decreased perioperative illness. Also, many chief procedures that once required prolonged postoperative recovery (e.g., anterior resection of the rectum or radical cystectomy) are currently achieved more by laparoscopic methods to progress patient outcomes. Benefits involve the probability to implement diagnosis and therapy together, and the scope to merge the laparoscopy with the hysteroscopic evaluation of the uterine cavity with an endometrial biopsy, together as a day-care surgical procedure.

Risk factors and disadvantages: Laparoscopic surgery can have hazards related to unique laparoscopic methods or owing to the physiological variations linked to the creation of a pneumoperitoneum. Risk factors include surgery four hour duration, beefy lower limbs, obesity, peripheral vascular disease, hypotension, and steep Trendelenburg positioning [47]. Disadvantages of diagnostic laparoscopy include the need for general



anesthesia, patient's anxiety, port infection and the possibility of adhesion formation. In a large Finnish follow-up study, the complication rate of diagnostic laparoscopy was 0.6 per 1000 procedures [34].

Laparoscopic surgery involves blowing of gas (mostly CO<sub>2</sub>) into the peritoneal cavity producing a pneumoperitoneum, usually at 4-6 liter/min to a pressure of 10-20 mm Hg. This cause an upsurge in intra-abdominal pressure. Carbon dioxide is insufflated into the peritoneal cavity. The pneumoperitoneum is sustained through a continuous gas movement of 200-400 ml/min. The elevated intra-abdominal pressure of the pneumoperitoneum, adjustment to the patients' position and consequences of CO<sub>2</sub> absorption trigger alterations in physiology, especially within the respiratory and cardiovascular structure [48]. General anesthesia with endotracheal intubation and regulated ventilation is believed to be the securest method for laparoscopy as it shields the airway, permit control of PaCO<sub>2</sub>, and aids surgical exposure; it is highly recommended for lengthy procedures, or patients with a history of gastro-oesophageal reflux [49].

The present study showed that laparoscopy is a helpful method for proper evaluation of pelvic organs. It is a vital technique for diagnosing anatomical, and pathological abnormality of inner genital organs in female patients that produces a major part in infertility supervision. Infertile female patient with assumed pelvic organ abnormality should laparoscopy procedure [42]. At present in Bangladesh, laparoscopy is available in many tertiary care centers, and the amount of expense for performing laparoscopy is comparably cheaper compared to developed countries. Laparoscopy ought to be made accessible and inexpensive at various steps of health care services so that infertile couples can benefit from it. Laparoscopy checkup is a vital means for assessment of tubal pathology providing to infertility and could perform an important function in infertility supervision.

### ACKNOWLEDGEMENTS

The author accepted no funding for the study.

*Conflict of Interest*  
None.

### REFERENCES RÉFÉRENCES REFERENCIAS

1. Jose-Miller, A. B., Boyden, J. W., Frey, K. A. Infertility. (2007). *Am Fam Physician*, 75(6), 849-856.
2. Howkins & Bourne. (2004). The pathology of conception. In Shaw's textbook of gynecology. 13<sup>th</sup> Ed. Elsevier.
3. Mehmood, S. (2003). An audit of diagnostic laparoscopies for infertility. *J Surg Pak*, 8, 8-10.
4. Tanahatoo, S. J., Hompes, P. G., Lambalk, C. B. (2003). Investigation of the infertile couple: should diagnostic laparoscopy be performed in the infertility work up programme in patients undergoing intrauterine insemination? *Hum Reprod*, 18 (1), 8-11.
5. Komori, S., Fukuda, Y., Horiuchi, I., Tanaka, H., Kasumi, H., & Shigeta, M. (2003). Diagnostic laparoscopy in infertility: a retrospective study. *J Laparoendosc Adv Surg Tech A*, 13(3), 147-151.
6. Reviews C. (2016). *Anatomy and Physiology for Midwives: Medicine, Internal medicine: Jane Coad Melvyn Dunstall. Churchill Livingstone.*
7. Baumann, L. (2009). *Cosmetic Dermatology: Principles and Practice, Second Edition: Principles & Practice: McGraw-Hill Education.*
8. Ried, K. & Stuart, K. (2011). Efficacy of traditional chinese herbal medicine in the management of female infertility: a systematic review. *Complementary therapies in medicine*, 19 (6), 319-331.
9. Himmel, W., Ittner, E., Kochen, M. M., Michelmann, H. W., Hinney, B., & Reuter, M. (1997). Management of involuntary childlessness. *Br J Gen Pract*, 47 (415), 111-118.
10. Gnoth, C., Godehardt, D., Godehardt, E. (2003). Time to pregnancy: results of the German prospective study and impact on the management of infertility. *Hum Reprod*, 18 (9), 1959-1966.
11. Gnoth, C., Godehardt, E., Frank-Herrmann, P. (2005). Definition and prevalence of subfertility and infertility. *Hum Reprod*, 20 (5), 1144-1147.
12. Padubidri, V. G. & Daftary, S. N. *Shaw's Text Book of Gynecology*, 14<sup>th</sup> Edition, Reed Elsevier India Pvt. Ltd, 198.
13. Fritz, M. A. & Speroff, L. (2011). *Clinical Gynecology Endocrinology and Infertility*, 8<sup>th</sup> Edition, Chapter 27, 1137.
14. Berek, J. S., Rinehart, R. D., Hillard P. A., Adashi E. Y. (2012). *Novak's Gynecology*, 15<sup>th</sup> Edition, Walters Kluwer India Pvt. Ltd, Chapter 32, 1139.
15. Miller, J. H., Weinberg, R. K., Canino, N. L. (1999). The pattern of infertility diagnoses in women of advanced reproductive age. *Am J Obstet Gynecol*, 181 (4), 952-957.
16. Tubal Factor Infertility. Diagnosis and management in the era of assisted reproductive technology. (2012). Dun, E. C. & Nezhat, C. H. *Obstet Gynecol Clin N Am*, 39, 551-566.
17. Dutta, D. C. (2014). *Text Book of Gynecology*, 6th edition, New Central Book Agency Pvt. Ltd. Kalkata, India. Chapter 10, 136-137.
18. Khetmalas, S. M. & Kathaley, M. H. (2016). A study evaluation of tubal factors of infertility by hysterosal pingography and diagnostic laparoscopy. *MVP Journal of Medical Sciences*, 3 (1), 11-17.
19. World Health Organization. (1986). Comparative trial of insufflation, hysterosal pingography and laparoscopy for tubal patency. *Fertil Steril*, 46, 1101-1117.

20. American Fertility Society. (1991). Investigation of the infertile couple. *The AFS Guidelines*, 21-4.
21. Alper, M. M., Garner, P. R., Spence, J. E. H., & Guarrington, A. M. (1986). Pregnancy rates after hysterosal pingography with oil and water-soluble contrast media. *Obstet Gynecol*, 68 (1), 6-9.
22. Maguiness, S. D., Djahanbakhch, O., & Grudzinskas, J. G. (1992). Assessment of the fallopian tube. *Obstet Gynecol Surv*, 47 (9), 587-603.
23. Collins, J. A. (1988). Diagnostic assessment of the infertile female partner. *Curr Probl Obstet Gynecol Infert*, 11 (1), 1-42.
24. Templeton, A. A. & Kerr, M. C. (1977). An assessment of laparoscopy as the primary investigation in the subfertile female. *Br J Obstet Gynaecol*, 84 (10), 760-762.
25. Hysteroscopy. (2018, July 18). Retrieved from <https://my.clevelandclinic.org/health/treatments/10142-hysteroscopy>, Accessed on 5/8/2018.
26. Murphy, A. A. (1987). Operative laparoscopy. *Fertil Steril*, 47 (1), 1-18.
27. Bruhat, M. A., Manhes, H., Choukroun, J., & Suzanne, F. (1977). Essai de traitement per coelioscopique de la grossesse extra-uterine. A propos de 26 observations. *Rev Fr Gynecol Obstet*, 72, 667-669.
28. Semm, K. & Mettler, L. (1980). Technical progress in pelvic surgery via operative laparoscopy. *Am J Obstet Gynecol*, 138 (2), 121-127.
29. Dubuisson, J. B., Lecuru, F., Foulot, H., Mandelbrot, L., Aubriot, F. X., & Mouly, M. (1991). Myomectomy by laparoscopy: a preliminary report of 43 cases. *Fertility and Sterility*, 56 (5), 827-830.
30. Glatstein, I. Z., Harlow, B. L., & Hornstein, M. D. (1997). Practice patterns among reproductive endocrinologists: the infertility evaluation. *Fertil Steril*, 67 (3), 443-451.
31. Collins, J. A., Feeny, D., & Gunby, J. (1997). The cost of infertility diagnosis and treatment in Canada in 1995. *Hum Reprod*, 12 (5), 951-958.
32. Hovav, Y., Hornstein, E., Almagor, M., & Yaffe, C. (1998). Diagnostic laparoscopy in primary and secondary infertility. *Journal of Assisted Reproduction and Genetics*, 15 (9), 535-537.
33. Mol, B. W. J., Collins, J. A., Burrows, E. A., van der Veen, F., & and Bossuyt, P. M. M. (1999). Comparison of hysterosal pingography and laparoscopy in predicting fertility outcome. *Human Reproduction*, 14 (5), 1237-1242.
34. Bosteels, J., Van Herendael, B., Weyers, S. & D'Hooghe, T. (2007). The position of diagnostic laparoscopy in current fertility practice. *Human Reproduction Update*, 13 (5), 477-485.
35. Gharekhanloo, F. & Rastegar, F. (2017). Comparison of hysterosal pingography and laparoscopy in evaluation of female infertility. *Medical Research Archives*, 5 (6), 1-12.
36. Ngowa, J. D. K. N., Kasia, J. M., Georges, N. T., Nkongo, V., Charles Sone, C., & Fongang, E. (2015). Comparison of hysterosal pingograms with laparoscopy in the diagnostic of tubal factor of female infertility at the Yaoundé General Hospital, Cameroon. *Pan African Medical Journal*, 22, 264.
37. Naz, T., Hassan, L., Gulmeen, Nighat, F., & Sultan, S. (2009). Laparoscopic evaluation in infertility. *Journal of the College of Physicians and Surgeons Pakistan*, 19 (11), 704-707.
38. Khetmalas, S. M. & Kathaley, M. H. (2016). A study evaluation of tubal factors of infertility by hysterosal pingography and diagnostic laparoscopy. *MVP Journal of Medical Sciences*, 3 (1), 11-17.
39. Bari, S., Begum, M. S., & Nessa, K. (2018). Secondary subfertility among the couple attending selected fertility centre of Dhaka, Bangladesh. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 7 (3), 817-823.
40. Deeba, F., Alam, A. B. M. M., Ava, N. N., Islam, M. R., Matin, A., & Khan, R. (2010). Some epidemiological aspects of subfertile women who underwent laparoscopy. *Journal of Shaheed Suhrawardy Medical College*, 2 (1), 6-9.
41. Maherunnesa, Chowdhury, T. A., Jahan, S., Begum, N., Sultana, S., Rumman, U., Rahman, S. (2013). Laparoscopic evaluation of pelvic organs in case of infertility. *Birdem Med J.*, 3 (2), 90-93.
42. Maherunnesa & Chowdhury, T. A. (2013). Laparoscopic evaluation of tubal pathology in cases of infertility. *Ibrahim Med. Coll. J.*, 7 (2), 38-40.
43. Akhtarunnesa, Chowdhury, T. A., Ara, I., Gazi, M. L. K., & Biswas, B. (2013). Role of diagnostic laparoscopy in evaluation of infertile women. *Bangladesh J Obstet Gynaecol*, 28 (2), 88-91.
44. Zakaria, R., Dewan, F., Sultana, Z., & Ghani, A. (2013). Diagnostic and therapeutic role of laparoscopy in the Current Fertility Practice. *J Shaheed Suhrawardy Med Coll*, 5 (2), 73-75.
45. American College of Obstetricians and Gynaecologists. FAQ: Hysteroscopy. [www.acog.org](http://www.acog.org). Accessed 5/8/2018.
46. American society for Reproductive Medicine. (2016). Laparoscopy and Hysteroscopy: A Guide for Patients. [www.asrm.org](http://www.asrm.org). Accessed 5/8/2018.
47. Cain, J., El Masri, W. M., Gregory, T., Kohn, E. C. (2010). Chapter 41. Gynecology. In: Brunicaardi, F. C., Anderson, D. K., Billiar, T. R, Dunn, D. L., Hunter, J. G., Matthews, J. B., Pollock, R. E. eds. *Schwartzs Principles of Surgery*. 9<sup>th</sup> Ed. New York, McGraw-Hill, USA. [www.accesssurgery.com](http://www.accesssurgery.com). Accessed 5/8/ 2018.
48. Hayden, P. & Cowman, S. (2011). Anaesthesia for laparoscopic surgery. *Continuing Education in Anaesthesia, Critical Care & Pain*, 11 (5), 177-180.
49. Perrin, M., & Fletcher, A. (2004). Laparoscopic abdominal surgery. *Continuing education in Anaesthesia, Critical Care & Pain*, 4 (4), 107-110.

# GLOBAL JOURNALS GUIDELINES HANDBOOK 2018

---

[WWW.GLOBALJOURNALS.ORG](http://WWW.GLOBALJOURNALS.ORG)

# FELLOWS

## FELLOW OF ASSOCIATION OF RESEARCH SOCIETY IN MEDICAL (FARSM)

Global Journals Incorporate (USA) is accredited by Open Association of Research Society (OARS), U.S.A and in turn, awards “FARSM” title to individuals. The 'FARSM' title is accorded to a selected professional after the approval of the Editor-in-Chief/Editorial Board Members/Dean.



- The “FARSM” is a dignified title which is accorded to a person’s name viz. Dr. John E. Hall, Ph.D., FARSS or William Walldroff, M.S., FARSM.

FARSM accrediting is an honor. It authenticates your research activities. After recognition as FARSM, you can add 'FARSM' title with your name as you use this recognition as additional suffix to your status. This will definitely enhance and add more value and reputation to your name. You may use it on your professional Counseling Materials such as CV, Resume, and Visiting Card etc.

*The following benefits can be availed by you only for next three years from the date of certification:*



FARSM designated members are entitled to avail a 40% discount while publishing their research papers (of a single author) with Global Journals Incorporation (USA), if the same is accepted by Editorial Board/Peer Reviewers. If you are a main author or co-author in case of multiple authors, you will be entitled to avail discount of 10%.

Once FARSM title is accorded, the Fellow is authorized to organize a symposium/seminar/conference on behalf of Global Journal Incorporation (USA). The Fellow can also participate in conference/seminar/symposium organized by another institution as representative of Global Journal. In both the cases, it is mandatory for him to discuss with us and obtain our consent.



You may join as member of the Editorial Board of Global Journals Incorporation (USA) after successful completion of three years as Fellow and as Peer Reviewer. In addition, it is also desirable that you should organize seminar/symposium/conference at least once.

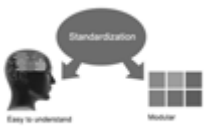
We shall provide you intimation regarding launching of e-version of journal of your stream time to time. This may be utilized in your library for the enrichment of knowledge of your students as well as it can also be helpful for the concerned faculty members.





The FARSM can go through standards of OARS. You can also play vital role if you have any suggestions so that proper amendment can take place to improve the same for the benefit of entire research community.

As FARSM, you will be given a renowned, secure and free professional email address with 100 GB of space e.g. [johnhall@globaljournals.org](mailto:johnhall@globaljournals.org). This will include Webmail, Spam Assassin, Email Forwarders, Auto-Responders, Email Delivery Route tracing, etc.



The FARSM will be eligible for a free application of standardization of their researches. Standardization of research will be subject to acceptability within stipulated norms as the next step after publishing in a journal. We shall depute a team of specialized research professionals who will render their services for elevating your researches to next higher level, which is worldwide open standardization.

The FARSM member can apply for grading and certification of standards of their educational and Institutional Degrees to Open Association of Research, Society U.S.A. Once you are designated as FARSM, you may send us a scanned copy of all of your credentials. OARS will verify, grade and certify them. This will be based on your academic records, quality of research papers published by you, and some more criteria. After certification of all your credentials by OARS, they will be published on your Fellow Profile link on website <https://associationofresearch.org> which will be helpful to upgrade the dignity.



The FARSM members can avail the benefits of free research podcasting in Global Research Radio with their research documents. After publishing the work, (including published elsewhere worldwide with proper authorization) you can upload your research paper with your recorded voice or you can utilize chargeable services of our professional RJs to record your paper in their voice on request.



The FARSM member also entitled to get the benefits of free research podcasting of their research documents through video clips. We can also streamline your conference videos and display your slides/ online slides and online research video clips at reasonable charges, on request.





The FARSM is eligible to earn from sales proceeds of his/her researches/reference/review Books or literature, while publishing with Global Journals. The FARSS can decide whether he/she would like to publish his/her research in a closed manner. In this case, whenever readers purchase that individual research paper for reading, maximum 60% of its profit earned as royalty by Global Journals, will be credited to his/her bank account. The entire entitled amount will be credited to his/her bank account exceeding limit of minimum fixed balance. There is no minimum time limit for collection. The FARSM member can decide its price and we can help in making the right decision.

The FARSM member is eligible to join as a paid peer reviewer at Global Journals Incorporation (USA) and can get remuneration of 15% of author fees, taken from the author of a respective paper. After reviewing 5 or more papers you can request to transfer the amount to your bank account.



## MEMBER OF ASSOCIATION OF RESEARCH SOCIETY IN MEDICAL (MARSM)

The ' MARSM ' title is accorded to a selected professional after the approval of the Editor-in-Chief / Editorial Board Members/Dean.

The “MARSM” is a dignified ornament which is accorded to a person’s name viz. Dr. John E. Hall, Ph.D., MARSM or William Walldroff, M.S., MARSM.



MARSM accrediting is an honor. It authenticates your research activities. After becoming MARSM, you can add 'MARSM' title with your name as you use this recognition as additional suffix to your status. This will definitely enhance and add more value and repute to your name. You may use it on your professional Counseling Materials such as CV, Resume, Visiting Card and Name Plate etc.

*The following benefits can be availed by you only for next three years from the date of certification.*



MARSM designated members are entitled to avail a 25% discount while publishing their research papers (of a single author) in Global Journals Inc., if the same is accepted by our Editorial Board and Peer Reviewers. If you are a main author or co-author of a group of authors, you will get discount of 10%.

As MARSM, you will be given a renowned, secure and free professional email address with 30 GB of space e.g. [johnhall@globaljournals.org](mailto:johnhall@globaljournals.org). This will include Webmail, Spam Assassin, Email Forwarders, Auto-Responders, Email Delivery Route tracing, etc.





We shall provide you intimation regarding launching of e-version of journal of your stream time to time. This may be utilized in your library for the enrichment of knowledge of your students as well as it can also be helpful for the concerned faculty members.



The MARSM member can apply for approval, grading and certification of standards of their educational and Institutional Degrees to Open Association of Research, Society U.S.A.



Once you are designated as MARSM, you may send us a scanned copy of all of your credentials. OARS will verify, grade and certify them. This will be based on your academic records, quality of research papers published by you, and some more criteria.

It is mandatory to read all terms and conditions carefully.



## AUXILIARY MEMBERSHIPS

### Institutional Fellow of Open Association of Research Society (USA) - OARS (USA)

Global Journals Incorporation (USA) is accredited by Open Association of Research Society, U.S.A (OARS) and in turn, affiliates research institutions as “Institutional Fellow of Open Association of Research Society” (IFOARS).



The “FARSC” is a dignified title which is accorded to a person’s name viz. Dr. John E. Hall, Ph.D., FARSC or William Walldroff, M.S., FARSC.

The IFOARS institution is entitled to form a Board comprised of one Chairperson and three to five board members preferably from different streams. The Board will be recognized as “Institutional Board of Open Association of Research Society”-(IBOARS).

*The Institute will be entitled to following benefits:*



The IBOARS can initially review research papers of their institute and recommend them to publish with respective journal of Global Journals. It can also review the papers of other institutions after obtaining our consent. The second review will be done by peer reviewer of Global Journals Incorporation (USA) The Board is at liberty to appoint a peer reviewer with the approval of chairperson after consulting us.

The author fees of such paper may be waived off up to 40%.

The Global Journals Incorporation (USA) at its discretion can also refer double blind peer reviewed paper at their end to the board for the verification and to get recommendation for final stage of acceptance of publication.



The IBOARS can organize symposium/seminar/conference in their country on behalf of Global Journals Incorporation (USA)-OARS (USA). The terms and conditions can be discussed separately.

The Board can also play vital role by exploring and giving valuable suggestions regarding the Standards of “Open Association of Research Society, U.S.A (OARS)” so that proper amendment can take place for the benefit of entire research community. We shall provide details of particular standard only on receipt of request from the Board.

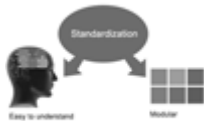


The board members can also join us as Individual Fellow with 40% discount on total fees applicable to Individual Fellow. They will be entitled to avail all the benefits as declared. Please visit Individual Fellow-sub menu of GlobalJournals.org to have more relevant details.





We shall provide you intimation regarding launching of e-version of journal of your stream time to time. This may be utilized in your library for the enrichment of knowledge of your students as well as it can also be helpful for the concerned faculty members.



After nomination of your institution as “Institutional Fellow” and constantly functioning successfully for one year, we can consider giving recognition to your institute to function as Regional/Zonal office on our behalf. The board can also take up the additional allied activities for betterment after our consultation.

**The following entitlements are applicable to individual Fellows:**

Open Association of Research Society, U.S.A (OARS) By-laws states that an individual Fellow may use the designations as applicable, or the corresponding initials. The Credentials of individual Fellow and Associate designations signify that the individual has gained knowledge of the fundamental concepts. One is magnanimous and proficient in an expertise course covering the professional code of conduct, and follows recognized standards of practice.



Open Association of Research Society (US)/ Global Journals Incorporation (USA), as described in Corporate Statements, are educational, research publishing and professional membership organizations. Achieving our individual Fellow or Associate status is based mainly on meeting stated educational research requirements.

Disbursement of 40% Royalty earned through Global Journals : Researcher = 50%, Peer Reviewer = 37.50%, Institution = 12.50% E.g. Out of 40%, the 20% benefit should be passed on to researcher, 15 % benefit towards remuneration should be given to a reviewer and remaining 5% is to be retained by the institution.



We shall provide print version of 12 issues of any three journals [as per your requirement] out of our 38 journals worth \$ 2376 USD.

**Other:**

**The individual Fellow and Associate designations accredited by Open Association of Research Society (US) credentials signify guarantees following achievements:**

- The professional accredited with Fellow honor, is entitled to various benefits viz. name, fame, honor, regular flow of income, secured bright future, social status etc.



- In addition to above, if one is single author, then entitled to 40% discount on publishing research paper and can get 10% discount if one is co-author or main author among group of authors.
- The Fellow can organize symposium/seminar/conference on behalf of Global Journals Incorporation (USA) and he/she can also attend the same organized by other institutes on behalf of Global Journals.
- The Fellow can become member of Editorial Board Member after completing 3yrs.
- The Fellow can earn 60% of sales proceeds from the sale of reference/review books/literature/publishing of research paper.
- Fellow can also join as paid peer reviewer and earn 15% remuneration of author charges and can also get an opportunity to join as member of the Editorial Board of Global Journals Incorporation (USA)
- • This individual has learned the basic methods of applying those concepts and techniques to common challenging situations. This individual has further demonstrated an in-depth understanding of the application of suitable techniques to a particular area of research practice.

### Note :

//

- In future, if the board feels the necessity to change any board member, the same can be done with the consent of the chairperson along with anyone board member without our approval.
- In case, the chairperson needs to be replaced then consent of 2/3rd board members are required and they are also required to jointly pass the resolution copy of which should be sent to us. In such case, it will be compulsory to obtain our approval before replacement.
- In case of “Difference of Opinion [if any]” among the Board members, our decision will be final and binding to everyone.

//



# PREFERRED AUTHOR GUIDELINES

## **We accept the manuscript submissions in any standard (generic) format.**

We typeset manuscripts using advanced typesetting tools like Adobe In Design, CorelDraw, TeXnicCenter, and TeXStudio. We usually recommend authors submit their research using any standard format they are comfortable with, and let Global Journals do the rest.

Alternatively, you can download our basic template from <https://globaljournals.org/Template>

Authors should submit their complete paper/article, including text illustrations, graphics, conclusions, artwork, and tables. Authors who are not able to submit manuscript using the form above can email the manuscript department at [submit@globaljournals.org](mailto:submit@globaljournals.org) or get in touch with [chiefeditor@globaljournals.org](mailto:chiefeditor@globaljournals.org) if they wish to send the abstract before submission.

## BEFORE AND DURING SUBMISSION

Authors must ensure the information provided during the submission of a paper is authentic. Please go through the following checklist before submitting:

1. Authors must go through the complete author guideline and understand and *agree to Global Journals' ethics and code of conduct*, along with author responsibilities.
2. Authors must accept the privacy policy, terms, and conditions of Global Journals.
3. Ensure corresponding author's email address and postal address are accurate and reachable.
4. Manuscript to be submitted must include keywords, an abstract, a paper title, co-author(s') names and details (email address, name, phone number, and institution), figures and illustrations in vector format including appropriate captions, tables, including titles and footnotes, a conclusion, results, acknowledgments and references.
5. Authors should submit paper in a ZIP archive if any supplementary files are required along with the paper.
6. Proper permissions must be acquired for the use of any copyrighted material.
7. Manuscript submitted *must not have been submitted or published elsewhere* and all authors must be aware of the submission.

## **Declaration of Conflicts of Interest**

It is required for authors to declare all financial, institutional, and personal relationships with other individuals and organizations that could influence (bias) their research.

## POLICY ON PLAGIARISM

Plagiarism is not acceptable in Global Journals submissions at all.

Plagiarized content will not be considered for publication. We reserve the right to inform authors' institutions about plagiarism detected either before or after publication. If plagiarism is identified, we will follow COPE guidelines:

Authors are solely responsible for all the plagiarism that is found. The author must not fabricate, falsify or plagiarize existing research data. The following, if copied, will be considered plagiarism:

- Words (language)
- Ideas
- Findings
- Writings
- Diagrams
- Graphs
- Illustrations
- Lectures



- Printed material
- Graphic representations
- Computer programs
- Electronic material
- Any other original work

## AUTHORSHIP POLICIES

Global Journals follows the definition of authorship set up by the Open Association of Research Society, USA. According to its guidelines, authorship criteria must be based on:

1. Substantial contributions to the conception and acquisition of data, analysis, and interpretation of findings.
2. Drafting the paper and revising it critically regarding important academic content.
3. Final approval of the version of the paper to be published.

### Changes in Authorship

The corresponding author should mention the name and complete details of all co-authors during submission and in manuscript. We support addition, rearrangement, manipulation, and deletions in authors list till the early view publication of the journal. We expect that corresponding author will notify all co-authors of submission. We follow COPE guidelines for changes in authorship.

### Copyright

During submission of the manuscript, the author is confirming an exclusive license agreement with Global Journals which gives Global Journals the authority to reproduce, reuse, and republish authors' research. We also believe in flexible copyright terms where copyright may remain with authors/employers/institutions as well. Contact your editor after acceptance to choose your copyright policy. You may follow this form for copyright transfers.

### Appealing Decisions

Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

### Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

### Declaration of funding sources

Global Journals is in partnership with various universities, laboratories, and other institutions worldwide in the research domain. Authors are requested to disclose their source of funding during every stage of their research, such as making analysis, performing laboratory operations, computing data, and using institutional resources, from writing an article to its submission. This will also help authors to get reimbursements by requesting an open access publication letter from Global Journals and submitting to the respective funding source.

## PREPARING YOUR MANUSCRIPT

Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.



### ***Manuscript Style Instruction (Optional)***

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

### ***Structure and Format of Manuscript***

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

- a) A title which should be relevant to the theme of the paper.
- b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
- c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
- d) An introduction, giving fundamental background objectives.
- e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
- f) Results which should be presented concisely by well-designed tables and figures.
- g) Suitable statistical data should also be given.
- h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

- i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
- j) There should be brief acknowledgments.
- k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.

## FORMAT STRUCTURE

***It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.***

All manuscripts submitted to Global Journals should include:

### **Title**

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

### **Author details**

The full postal address of any related author(s) must be specified.

### **Abstract**

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

### **Keywords**

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in a research paper?" Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

### **Numerical Methods**

Numerical methods used should be transparent and, where appropriate, supported by references.

### **Abbreviations**

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

### **Formulas and equations**

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

### **Tables, Figures, and Figure Legends**

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.



## Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

### PREPARATION OF ELETRONIC FIGURES FOR PUBLICATION

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

### TIPS FOR WRITING A GOOD QUALITY MEDICAL RESEARCH PAPER

**1. Choosing the topic:** In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

**2. Think like evaluators:** If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

**3. Ask your guides:** If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

**4. Use of computer is recommended:** As you are doing research in the field of medical research then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

**5. Use the internet for help:** An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.



**6. Bookmarks are useful:** When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

**7. Revise what you wrote:** When you write anything, always read it, summarize it, and then finalize it.

**8. Make every effort:** Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

**9. Produce good diagrams of your own:** Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

**10. Use proper verb tense:** Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

**11. Pick a good study spot:** Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

**12. Know what you know:** Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

**13. Use good grammar:** Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

**14. Arrangement of information:** Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

**15. Never start at the last minute:** Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

**16. Multitasking in research is not good:** Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

**17. Never copy others' work:** Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

**18. Go to seminars:** Attend seminars if the topic is relevant to your research area. Utilize all your resources.

**19. Refresh your mind after intervals:** Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.





**20. Think technically:** Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

**21. Adding unnecessary information:** Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

**22. Report concluded results:** Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

**23. Upon conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

## INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

### **Key points to remember:**

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

### **Final points:**

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

*The introduction:* This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

### **The discussion section:**

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

### **General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

**To make a paper clear:** Adhere to recommended page limits.



### *Mistakes to avoid:*

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

### **Title page:**

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

**Abstract:** This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

*Reason for writing the article—theory, overall issue, purpose.*

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

### **Approach:**

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

### **Introduction:**

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.



*The following approach can create a valuable beginning:*

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

#### **Approach:**

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

#### **Procedures (methods and materials):**

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

#### **Materials:**

*Materials may be reported in part of a section or else they may be recognized along with your measures.*

#### **Methods:**

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

#### **Approach:**

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

#### **What to keep away from:**

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.



**Results:**

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

**Content:**

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

**What to stay away from:**

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

**Approach:**

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

**Figures and tables:**

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

**Discussion:**

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."



Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

**Approach:**

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

## THE ADMINISTRATION RULES

Administration Rules to Be Strictly Followed before Submitting Your Research Paper to Global Journals Inc.

*Please read the following rules and regulations carefully before submitting your research paper to Global Journals Inc. to avoid rejection.*

*Segment draft and final research paper:* You have to strictly follow the template of a research paper, failing which your paper may get rejected. You are expected to write each part of the paper wholly on your own. The peer reviewers need to identify your own perspective of the concepts in your own terms. Please do not extract straight from any other source, and do not rephrase someone else's analysis. Do not allow anyone else to proofread your manuscript.

*Written material:* You may discuss this with your guides and key sources. Do not copy anyone else's paper, even if this is only imitation, otherwise it will be rejected on the grounds of plagiarism, which is illegal. Various methods to avoid plagiarism are strictly applied by us to every paper, and, if found guilty, you may be blacklisted, which could affect your career adversely. To guard yourself and others from possible illegal use, please do not permit anyone to use or even read your paper and file.



CRITERION FOR GRADING A RESEARCH PAPER (COMPILATION)  
BY GLOBAL JOURNALS

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals.

| Topics                        | Grades                                                                                                                                                                                 |                                                                                                     |                                                               |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
|                               | A-B                                                                                                                                                                                    | C-D                                                                                                 | E-F                                                           |
| <i>Abstract</i>               | Clear and concise with appropriate content, Correct format. 200 words or below                                                                                                         | Unclear summary and no specific data, Incorrect form Above 200 words                                | No specific data with ambiguous information Above 250 words   |
| <i>Introduction</i>           | Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited | Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter | Out of place depth and content, hazy format                   |
| <i>Methods and Procedures</i> | Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads                                                              | Difficult to comprehend with embarrassed text, too much explanation but completed                   | Incorrect and unorganized structure with hazy meaning         |
| <i>Result</i>                 | Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake                                         | Complete and embarrassed text, difficult to comprehend                                              | Irregular format with wrong facts and figures                 |
| <i>Discussion</i>             | Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited                                               | Wordy, unclear conclusion, spurious                                                                 | Conclusion is not cited, unorganized, difficult to comprehend |
| <i>References</i>             | Complete and correct format, well organized                                                                                                                                            | Beside the point, Incomplete                                                                        | Wrong format and structuring                                  |



# INDEX

---

---

## **A**

Amenorrhoea · 7, 8  
Amharic · 21, 22, 23, 24, 25  
Ampullary · 8

---

## **C**

Cervicovaginal · 14  
Cesarean · 13, 15, 18

---

## **E**

Ectopic · 7, 10, 11  
Etiology · 16, 18  
Exogenous · 13  
Exponentially · 13

---

## **H**

Hemodynamic · 17, 18

---

## **L**

Laparoscopic · 13, 14, 18

---

## **M**

Menstruation · 13, 15, 16  
Myometrium · 13, 14, 15, 17, 18

---

## **N**

Neonatal · 1, 2, 4, 5

---

## **O**

Obesity · 1, 2, 3, 4, 5

---

## **P**

Perinatal · 1, 3  
Preeclampsia · 1, 2, 3, 5  
Puerperium · 5

---

## **T**

Trophocytes · 17



save our planet



# Global Journal of Medical Research

Visit us on the Web at [www.GlobalJournals.org](http://www.GlobalJournals.org) | [www.MedicalResearchJournal.org](http://www.MedicalResearchJournal.org)  
or email us at [helpdesk@globaljournals.org](mailto:helpdesk@globaljournals.org)

ISSN 9755896



© Global Journals