Online ISSN : 2249-4618
Print ISSN : 0975-5888
DOI : 10.17406/GJMRA

Global Journal

of Medical Research: E

Gynecology & Obstetrics



Healed Endometriotic Lesions

Case of Giant Endometrial Polyp

Highlights

Pregnancy Gave Higher Number

Emergency Peripartum Hysterectomy

Discovering Thoughts, Inventing Future

VOLUME 19 ISSUE 4 VERSION 1.0

© 2001-2019 by Global Journal of Medical Research, USA

Volume 19 Issue 31 was originally issued as E4

Global Journal of Medical Research: E
Gynecology and Obstetrics

Volume 19 Issue 31
Originally issued as E4

Global Journal of Medical Research: E
Gynecology and Obstetrics
Volume 19 Issue 4 (Ver. 1.0)

Open Association of Research Society

© Global Journal of Medical Research. 2019.

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*

eContacts

Press Inquiries: *press@globaljournals.org*
Investor Inquiries: *investors@globaljournals.org*
Technical Support: *technology@globaljournals.org*
Media & Releases: *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. 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, United States

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, United States

Rama Rao Ganga

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

Dr. Roberto Sanchez

Associate Professor Department of Structural and Chemical Biology Mount Sinai School of Medicine Ph.D., The Rockefeller University, United States

Dr. Feng Feng

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

Dr. William Chi-shing Cho

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

Dr. Lisa Koodie

Ph.D. in Pharmacology, University of Minnesota Medical School, Minnesota, United States

Dr. Yash Kapadia

Doctor of Dental Surgery, University of Louisville School of Dentistry, United States

Dr. Krishna M Vukoti

Ph.D in Biochemistry, M.Tech in Biotechnology, B.S in Pharmacy, Case Western Reserve University, United States

Dr. Guodong Niu

Ph.D. in Entomology, M.S. in Microbiology, B.S. in Environmental Science, The Pennsylvania State University, University Park, PA, United States

Dr. Xingnan Li

Ph.D in Cell Biology, B.S in Molecular Biology, Stanford University, United States

Dr. Arpita Myles

Ph.D, M.Sc. in Biotechnology, B.Sc in Microbiology, Botany and Chemistry, United States

Dr. Michael Wink

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

Dr. Wael Ibrahim Abdo Aikhiary

Ph.d, M.Sc in Clinical Pathology, MBBCH, M.D in Medicine, Mansoura University, Faculty of Medicine, Egypt

Dr. Izzet Yavuz

Ph.D, M.Sc, D Ped Dent. Associate Professor, Pediatric Dentistry Faculty of Dentistry, University of Dicle, Turkey

Dr. Rabiatul Basria SMN Mydin

Ph.D in Cancer Genetics, BSC (HONS) in Biotechnology, University of Science Malaysia, Malaysia

Dr. (Mrs.) Sunanda Sharma

Ph.D, M.V.Sc., AH, M.V.Sc in Animal Reproduction, Veterinary Obstetrics and Gynaecology, College of Veterinary & Animal Science, Rajasthan Agricultural University, Bikaner, India

Dr. Subhadra Nandakumar

Ph.D., M.Sc in Applied Microbiology, B.Sc in Microbiology, University of Madras, India

Sanguansak Rerksuppaphol

Department of Pediatrics Faculty of Medicine Srinakharinwirot University NakornNayok, Thailand

Antonio Simone Lagan

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

Dr. Pejcic Ana

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

Dr. Sunil Sirohi

B.Pharm in Pharmaceutical Sciences, MS in Pharmacology, Ph.D in Pharmacology, Washington State University, Pullman, WA, United States

Dr. Tsvetelina Velikova

Ph.D, MD in Clinical Immunology, Medical University of Sofia Sofia University, Bulgaria

Dr. M. Alagar Raja

Ph.D in Pharmaceutical Sciences, M.Pharmacy in Pharmaceutical Analysis, B.Pharmacy S. Chattanatha Karayalar College of Pharmacy, Nalanda Collge of Pharmacy Tenkasi, Tamil Nadu, India

Dr. Osama Hasan Alali

Ph.D, Master's Degree, Postgraduate Diploma in Orthodontics, Dentistry, Department of Orthodontics, University of Aleppo Dental School Aleppo, Syria

Dr. Sultan Sheriff Dhastagir

Ph.D, M.Sc in Medical Biochemistry, Faculty of Medicine, Garyounis/Benghazi University, Libya

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

Dr. Ivandro Soares Monteiro

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

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

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 Int, United States

Dr. Alfio Ferlito

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

Dr. Rajeev Vats

Ph.D., M.Sc., B.Sc in Zoology, M.Phil in Bioinformatics, PGDCA, The University of Dodoma, Tanzania

Contents of the Issue

i. Copyright Notice
ii. Editorial Board Members
iii. Chief Author and Dean
iv. Contents of the Issue

1. Mozart Compilation during Pregnancy Gave Higher Number of Neurons of *Rattus Norvegicus* Offsprings' Cerebrum Compared with Jazz, Blues, and Rock Compilations. *1-8*
2. Rupture Uterus in a Tertiary Care Centre: A Retrospective Study. *9-13*
3. A Rare Case of Giant Endometrial Polyp with Hematometra with Old Healed Endometriotic Lesions: A Case Report. *15-17*
4. Emergency Peripartum Hysterectomy in a Tertiary Care Centre and Medical College of Jharkhand, India: A Retrospective Study. *19-23*
5. Domestic Violence against Married Female Nurses. *25-34*
6. Adherence Status and Associated Factors of Iron and Folic Acid Supplementation among Pregnant Women Attending Ante Natal Care at Jimma Town Public Health Facility, South West Ethiopia, 2017. *35-43*

v. Fellows
vi. Auxiliary Memberships
vii. Preferred Author Guidelines
viii. Index

Global Journal of Medical Research: E
Gynecology and Obstetrics
Volume 19 Issue 4 Version 1.0 Year 2019
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Mozart Compilation during Pregnancy Gave Higher Number of Neurons of *Rattus Norvegicus* Offsprings' Cerebrum Compared with Jazz, Blues, and Rock Compilations

By Syania M O, Hermanto T J & Mudjiani B

Abstract- *Aim:* To analyze the difference of the number of neurons in the cerebrum of *Rattus norvegicus* offsprings exposed to Mozart, Jazz, Blues, and Rock compilations during pregnancy.

Method: Experimental study with single-blind randomized post-test only control group design using *Rattus norvegicus* as animal subjects that were divided into four groups: Mozart, Jazz, Blues, and Rock groups. The exposures started from the 10 day of gestation for 1 hour in a dark atmosphere with an intensity of 60 dB, in a distance of 25 cm from the exposure box, during March-May 2019. After cesarean delivery at day 19, the offsprings brain were prepared and stained by Hematoxylin-Eosin, then analyzed in 5 fields in each hemisphere with 1000x magnifying microscope. The study was conducted after ethical clearance and used a comparison statistical test chosen accordingly.

Result: There were significant differences of the number of neurons between Mozart (71,96 ± 14,44) with Jazz (41,06 ± 7,65), Blues (40,92 ± 6,36), and Rock group (31,31 ± 8,19) with p=0,000.

Conclusion: The number of neurons in the cerebrum of *Rattus norvegicus* offsprings exposed to Mozart compilation during pregnancy proved to be higher than Jazz, Blues, and Rock compilations.

Keywords: *rattus norvegicus, pregnant, mozart, jazz, blues, rock, offsprings, cerebrum, neuron.*

GJMR-E Classification: *NLMC Code: WQ 240*

MOZARTCOMPILATIONDURINGPREGNANCYGAVEHIGHERNUMBEROFNEURONSOFRATTUSNORVEGICUSOFFSPRINGSCEREBRUMCOMPAREDWITHJAZZBLUESANDROCKCOMPILATIONS

Strictly as per the compliance and regulations of:

Open Association of Research Society, USA
Research | Diversity | Ethics

© 2019. Syania M O, Hermanto T J & Mudjiani B. 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.

Mozart Compilation during Pregnancy Gave Higher Number of Neurons of *Rattus Norvegicus* Offsprings' Cerebrum Compared with Jazz, Blues, and Rock Compilations

Syania M O [α], Hermanto T J [σ] & Mudjiani B [ρ]

Abstract- ***Aim:*** To analyze the difference of the number of neurons in the cerebrum of *Rattus norvegicus* offsprings exposed to Mozart, Jazz, Blues, and Rock compilations during pregnancy.

Method: Experimental study with single-blind randomized post-test only control group design using *Rattus norvegicus* as animal subjects that were divided into four groups: Mozart, Jazz, Blues, and Rock groups. The exposures started from the 10 day of gestation for 1 hour in a dark atmosphere with an intensity of 60 dB, in a distance of 25 cm from the exposure box, during March-May 2019. After cesarean delivery at day 19, the offsprings brain were prepared and stained by Hematoxylin-Eosin, then analyzed in 5 fields in each hemisphere with 1000x magnifying microscope. The study was conducted after ethical clearance and used a comparison statistical test chosen accordingly.

Result: There were significant differences of the number of neurons between Mozart (71,96 ± 14,44) with Jazz (41,06 ± 7,65), Blues (40,92 ± 6,36), and Rock group (31,31 ± 8,19) with p=0,000.

Conclusion: The number of neurons in the cerebrum of *Rattus norvegicus* offsprings exposed to Mozart compilation during pregnancy proved to be higher than Jazz, Blues, and Rock compilations.

Keywords: rattus norvegicus, pregnant, mozart, jazz, blues, rock, offsprings, cerebrum, neuron.

I. Introduction

At least there are seven phenomenon/awareness that lead to this effort, i.e. modify the structure and function of the fetal brain to have more neurons, more glia cells and more dendritic density as follow 1. The need for the next better generation, especially with the better brain and its breakthrough[1-14] 2. The findings from Gardner on multiple intelligences[15] 3. The revelation that brain growth and development start in the womb[16-20] 4. The environment enrichment by M. Diamond, including analysis of the Einstein brain[21-23] 5. *The findings of Tomatis:* brain growth and development needs sound and music[24-26] 6. Rauscher and Shaw, findings[27-31] 7. The FOAD and DOHAD hypothesis[32-33]. There were already series of studies in Surabaya that analyzed this effort in what kind of (musical) stimulation, the orders, duration, gestational age, what kind of nutrition – with the dependent variables: BDNF, numbers of neurons, glia cells, dendritic density and neuronal apoptotic index. This team also had analyzed the influence of frequency, color, intensity, beat of various compilations including traditional, jazz, rock, blues and pop music compilations and its influence on some plants [34-48].

In this study, Mozart compilation during pregnancy were compared to Jazz, Blues and Rock compilations to more deeply understand the neurophysiology impact of musical exposure to the structure and the function of the fetal brain.

II. Materials and Methods

This research was an experimental laboratory study with a single-blind randomized post-test only control group design. The sample size was calculated using the Federer formula: for each group was seven. The subjects were pregnant healthy *Rattus norvegicus*, weighing 130-180 grams and never giving birth. The subjects were divided into 4 groups randomly, which are the treatment groups that were exposed Mozart, Jazz, Blues, and Rock compilations. All exposure carried out in day 10 of pregnancy until delivery at day 19, for 1 hour in a dark atmosphere (represent the night atmosphere) with an intensity of 60 dB and at of 25 cm distance from the exposure box. At cesarean delivery, two offsprings with the heaviest weight were taken in each group, sacrificed by chloroform, weighed, and the brain were prepared and then stained by Hematoxylin-Eosin methode. The number of neuron cells calculated by 1000x magnifying microscope: 5 right and 5 left hemispheres. Statistical analysis was chosen accordingly. The study was conducted in the Animal Cages and Pathology Laboratory of the Faculty of Veterinary Medicine, Universitas Airlangga, Surabaya, during March-May 2019 after ethical clearance.

Author α: e-mail: syaniamegaoctariyandra@yahoo.com)
Author σ: Dr., Sp. OG (K). e-mails: hos_hermanto@yahoo.com, hermanto.tri@fk.unair.ac.id
Author ρ: Dr. Sp. S. e-mail: mudjiani.basuki@fk.unair.ac.id

© 2019 Global Journals



Fig.1: The Exposure Box

III. Results

a) *Offsprings Birthweight*

Table 1: *Rattus norvegicus* offsprings birthweight

Groups	N		Mean ± SD
	Mother	Offspring	
X1	5	10	4,42 ± 1,15
X2	7	14	4,78 ± 0,42
X3	6	12	4,11 ± 0,81
X4	7	14	4,62 ± 051

Note: X1 (Mozart) X3 (Blues)
X2 (Jazz) X4 (Rock)

b) *The Number of Neurons in Cerebrum Cortex*

The number of cerebrum neuron cells was known by a dark blue cell nucleus, then the preparation was counted by 1000x magnifying microscope 10 visual fields consisting of 5 right and 5 left hemispheres. There were 6 preparations that could not be counted because 4 cortex of Mozart group had meningitis and 2 cortex of Blues group were not found.

Table 2: The Number of Neurons in Cerebrum Cortex

Groups	N Preparation	Mean ± SD
X1	10	71,96 ± 14,44
X2	14	41,06 ± 7,65
X3	12	40,92 ± 6,36
X4	14	31,31 ± 8,19

Note: X1 (Mozart) X3 (Blues)
X2 (Jazz) X4 (Rock)

This table shows the average number of neurons of the *Rattus norvegicus* offsprings in cerebrum cortex. The highest mean value was in the Mozart group (X1) followed by Jazz, Blues, and Rock (X2, X3, X4) groups.

Visualization of the distribution of the number of neurons will give better impression that shows the highest number of Mozart group.

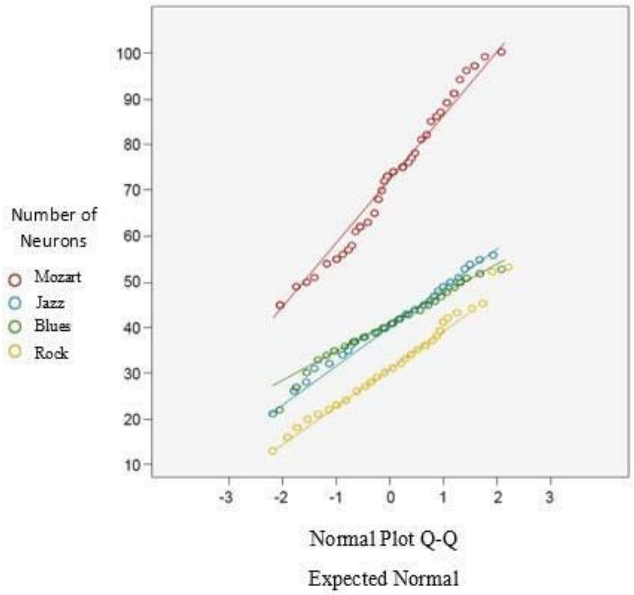


Fig. 2: Scatter Diagram of the Number of Neurons in the Cerebrum Cortex

Table 3: Post-Hoc Test of the Number of Neurons in the Cerebrum Cortex

Groups		P Value	
	X2	X3	X4
X1	0,000*	0,000*	0,000*
X2	-	0,938	0,000*
X3	-	-	0,000*

Note: X1 (Mozart) X3 (Blues)
X2 (Jazz) X4 (Rock)

This table shows the results of the analysis with post-hoc LSD test: Mozart group with Jazz, Blues, and Rock groups shows the value of p = 0,000 (p <0.05), which means that there were significant differences. Analysis of Jazz group with Blues group showed the value of p = 0.938 (p <0.05) which means there was no significant difference. Analysis of Jazz group with Rock group shows the value of p = 0,000 (p <0.05) which means that there was a significant difference. Furthermore, the analysis of the Blues group with the Rock group shows the value of p = 0,000 (p< 0.05) which means that there was also significant difference.

© 2019 Global Journals

Table 4: Analysis of the Number of Neurons in the Right and Left Hemispheres

Mean ± SD			P	
Groups	Right	Left	Right	Left
X1	70,80 ± 15,75	73,12 ± 13,46	0,177	0,200
X2	39,34 ± 7,37	42,77 ± 7,64	0,200	0,200
X3	39,92 ± 6,01	41,92 ± 6,66	0,200	0,200
X4	31,46 ± 6,78	31,17 ± 9,49	0,200	0,101

Note: X1 (Mozart) X3 (Blues)
X2 (Jazz) X4 (Rock)

This table shows that the average number of neurons were not much differences between right and left hemispheres even the number a little bit higher in the left one.

IV. Discussion

Developing countries with more than 100 orders in Human Development Index (HDI) should have a program to increase their levels, and education is one of the single solution of choice.[49] Education needs – best education program and brain capacity: multiple biopsychosocial potencies. These countries can only catch up higher HDI rank not by better education program which is very expensive but through a breakthrough program related to the brain structure and function.[50] We believe in "From Neurons to Nations" premise and the idea of environment enrichment which have been mentioned in the introduction.

Environment enrichment by combination of certain musical stimulation and nutrition during pregnancy have been studied here in the last twenty years. This program in line with the Harvard program which address the influence of early sensory exposure to the brain growth and development; but not with Brain Decade premise which address mostly the brain disease.[17] We understand that medicine especially Obstetrics and Maternal Fetal Medicine deal with pregnancy, birth and puerperium period, also their diseases, not with fetal brain growth and development. Only in pediatrics there is subspecialties in Growth and Development.

Our standard operating procedure is default Mozart compilation which is exposed one hour in duration, at night 8-11 PM, start 20 weeks of pregnancy or day 10, 65 dB, 25 cm distance. This procedure has been used for almost twenty years with the same results in variables studied (BDNF, synaps, number of neurons, glia, dendritic density).

There have been many studies regarding the effect of music on brain development. For example, Kuhlmann, Mariana, Tomatis, Campbell, Kendrick and other research groups. They assume that different types and genres of music have different influences. Music with classical genres has a positive effect on listeners, while rock music has a negative effect on listeners.[24,26,51-53] The statement is proven in studies with plant and animal subjects. On the subject of plants, researcher Dorothy Retallack started the determination by using the control variables of light, temperature, and air it turns out some types of plants with rock music exposure for four weeks stopped growing and damaged.[54] While research with animal subjects was conducted by researchers Harvey Bird and Farleigh Dickinson. The two experts conducted their research on mice as experimental animals given exposure to Strauss music from Strauss, voodoo drum rhythms, and then noiselessly measured their ability to complete the game 'maze'. The results showed that the rats given drum exposure had difficulty completing the game. Other evidence was carried out by Hermanto et al., with the title "The Influence of 11 Mozart Compositions during Pregnancy to The Perinatal Outcome and BDNF Umbilical Cord Blood". The purpose of this study was to compare BDNF levels in infants exposed to Mozart music while in the womb and without exposure. It turned out that there were significant differences at the BDNF level in the two groups.[9]

Based on several studies conducted by experts, shows that the pre-natal period is the most amazing period in the fetal development phase. This phase does not only depend on genetics, but environmental factors also play an important role in the development of the functional capacity of the body's organs. So it can be said that during pregnancy is the right time in preparing the potential for fetal intelligence early on. The studies of Brent Logan, Rene van de Carr and Beatriz Manrique show the existence of environmental interference on fetal intelligence. They discovered the premise of "stimulation induced morphological changes" which means that the structure of the brain is formed by external stimuli.[56-58]

Music exposure given during prenatal has an influence on the process of proliferation, migration, differentiation, myelination, synaptogenesis, and apoptosis of brain cells. The human brain is one of the most complex organ systems. Cellularly, the nervous system consists of two types of cells, namely neuron and glia cells. These two cells work in harmony so that the brain's commutation ability goes well. Fetal neuron cells stop proliferating until 32 months of gestation, while glia cells can proliferate until post-natal. The formation of these two cells can be stimulated through exposure to music during pregnancy. The more the number of neuron cells formed, it is hoped that intelligence will increase.[4,12]

This research is a continuation of a series studies with the same aim in preparing a smarter generation from the womb. This research was conducted to find out the differences in the number of neurons in the brain of new born *Rattus norvegicus* in the cerebrum between those who were exposed to Mozart, Jazz, Blues, and Rock compilations during pregnancy.

© 2019 Global Journals

In this study we compared musical exposure of 4 kinds of western music compilations, we also compared with traditional Indonesian music and religious music compilations in other studies.

The mechanism/s how the music affect/s the brain are not completely understood. It is correlated with BDNF, different in frequency, color, beat, timing, and duration have detected probably explain in parts the mechanism.

We can find that differences in analyzing the frequency and major minor proportion.

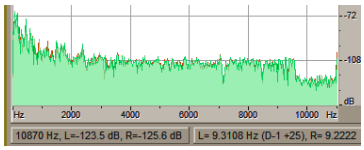
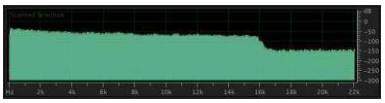
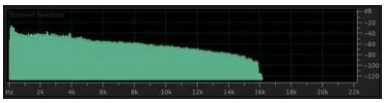
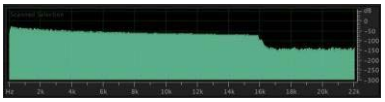
Mozart	
Jazz	
Blues	
Rock	

Fig. 3: The Different Frequency of Mozart, Jazz, Blues and Rock Compiltions. Mozart Shows the Lowest Frequencies

This research was carried out since the 10th day pregnancy of *Rattus norvegicus* due to ear formation in *Rattus norvegicus* was complete at 9-10 days of gestation. Ernawati in her study said that there was no significant difference in the apoptotic index of Mozart's music exposure at the beginning of pregnancy compared to 10 days of gestation. This is possible because the stimulus in the form of sound is received through the ear, then these mechanical waves are converted into electrical pulses and transmitted to the auditory cortex through the auditory nerve when the ear is fully formed. So that the provision of music stimuli will begin to affect after the ear is formed and functioning and begin to form synapses in the 20-24th weeks of pregnancy or equivalent to the 10th day of pregnancy in mice.[59]

Music stimulation during pregnancy is reported to improve fetal brain development, increase spatial-temporal abilities in newborn mice, and trigger rapid progress in motor abilities such as sitting and walking in infants. Research conducted by Kim et al., found that prenatal noise exposure resulted in stunted growth, decreased neurogenesis in the hippocampus, and disruption of spatial abilities in newborn rats. In contrast, prenatal music exposure can improve neurogenesis in the hippocampus and spatial ability in newborn mice. [60-61]

Brains that grow in a stimulus-rich environment have thicker cortex, larger nucleus neuron cells and more glia cells. Brain neurons that grow in there have more dendritic sites, allowing more synapses to form. Rees also stated that the number of cells undergoing apoptosis depends on synapses, the more synapses the less apoptosis occurs. The richer the neuron cells with more dendritic sites, the more synapses are formed so that the number of cells undergoing apoptosis will also be reduced. Brains that grow in a stimulus-rich environment will experience less apoptosis, thereby increasing brain capacity.[20] Ismudi in his study compared 3 Mozart music compilations consisting of several random song sequences and analyzed using computer software "Cool Edit Pro 2.0". As a result of the three compilations, compilation 1 has a high frequency tone, a wider amount of energy area, and regular intensity. Ismudi believes that these characteristics are an effective composition for stimulating neurons. While Mozart 2 and 3 compilation tends to have irregular fluctuations in intensity, so that it will produce an amount of energy that changes in every seconds. In that study showed that exposure to Mozart 1 music compilation during rat pregnancy produced the lowest apoptotic index in neuronal cells of newborn mice compared to Mozart 2 compilation, compilation 3, and control. For this reason, compilation of Mozart 1 according to Ismudi is a standard Mozart compilation which forms the basis of research and application of Mozart's music exposure during pregnancy as a prenatal stimulation.[37]

The results of our study in the four groups showed the average number of neurons in the cerebrum in the Mozart group compared to the Jazz, Blues, and Rock groups. The average number of neurons of Mozart group is higher among others. Meanwhile, the average number of neurons in the Jazz group is higher than Blues, and Rock. And the average number of neurons in the Blues group is higher than Rock. In the cerebrum, the mean number of neurons in Mozart was 71.96 ± 14.44, in Jazz 41.06 ± 7.65, in Blues 40.92 ± 6.36, and in Rock 31.31 ± 8.19.

We also counted the average number of neurons in right and left hemisphere. It was done by looking at 10 fields of view (consisting 5 fields each hemisphere). The highest average number of neurons was found in the left hemisphere compared to the right hemisphere in the Mozart, Jazz, and Blues Group. Otherwise, in the Rock group the average number of neurons in the right hemisphere was higher compared to the left hemisphere. Based on the theory, right and left brain have different functions and communicate each other through a band of nerves. Left-brain has specialization in language and logic, meanwhile right-

© 2019 Global Journals

brain has specialization in creativity and intuition. Commonly in adults, we believed that music is processed in the right-brain. One of the right-brain function is for controlling the ability to play instrument with ease, recognize a song from melody, and play it back upon "hearing it". In this study, we know that it is different if we look from the number of neurons in each hemisphere of *Rattus norvegicus* offsprings.[62,63] The probable cause is still unknown.

In the analysis of variance using the ANOVA test, there was a significant difference in the data of the number of neurons in the cerebrum between all groups ($p < 0.05$). That means there are significant differences in the number of neuron cells in the cerebrum of *Rattus norvegicus* offsprings.

Furthermore, Post-Hoc LSD (Least Significant Difference) analysis was performed to determine all possible differences in the comparison of each group. If $p < 0.05$, there was a significant difference. Table 3 shows the results of the Post-Hoc LSD test. The comparison of each group shows that there were significant differences with the p value <0.05, between the Mozart group with the Jazz, Blues, and Rock groups with a value of $p = 0.000$, $p = 0.000$, and $p = 0.000$ ($p<0.05$).Analysis was also carried out between groups, the results obtained from the analysis of the Jazz with the Blues groups showed a value of $p = 0.938$ ($p < 0.05$) which means no significant difference between the number of neurons in the Jazz and Blues groups. Analysis of the Jazz with the Rock groups showed the value of p = 0,000 which means that there was a significant difference between the number of neurons in the Jazz and Rock groups. Furthermore, the analysis of the Blues group with the Rock groups showed the value of p = 0,000 ($p<0.05$) which means that there was a significant difference between the number of neurons in the Blues and Rock groups.

From this study it can be concluded that Mozart exposure gives the highest number of neurons compared to other western music exposure which are Jazz, Blues, and Rock with significant differences. In addition, Jazz exposure gave a higher number of neurons compared to Blues and Rock with a significant difference from Rock, but didn't make a significant difference from Blues. Exposure to Blues compilation gave a higher number of neurons than Rock with significant differences. This might be caused by every compilation (music) has multidimensional properties and attributes of perception that affect the apoptosis index of brain cells. Other studies conducted by Kauser et al., and Sanyal found that giving a prenatal stimulus with music that has regular rhythm can improve postnatal spatial ability and also memory function, but giving music with complex rhythms and arithmetic noises has the opposite effect. [64-67]

Study conducted by Sanyal et al., about the effect of music and noise on changes in the number of neuron and glia cells in several brain areas of newborn chicks. The results showed an increase in the number of neuron cells in the brain area studied due to music stimulation. Music stimulation will have an effect on increasing neurogenesis or decreasing brain cell death. [68]

If traced from several literature reviews, Mozart has a frequency of around 8000 Hz, different from Jazz, Blues, and Rock which has a frequency of 15 000Hz. Campbell suspected that Mozart's stimulation in general can affect neurochemical changes in which the clarity, majesty, rhythm, melody and high frequency which are able to stimulate the creative and motivational areas of the brain so as to calm its listeners, improve concentration, memory and spatial perception. The results of the Borner et al., 2000 study revealed that Mozart K488 increased the activity of the dorsolateral prefrontal cortex, occipital cortex and cerebellum compared to piano music of the 1990s and Beethoven. The same thing is supported by Ningsih in her research which shows Mozart is better than the music of Beethoven and Chopin. This opinion was proven from the calculation of the number of neurons in the cerebrum and cerebellum of *Rattus norvegicus* offsprings exposed by Mozart's music during pregnancy proved to be higher than those exposed to the music of Beethoven, Chopin, and not exposed to music and there were significant differences. [26,46]

Research conducted by Kirchberger and Russo comparing the dynamic range of various music stated that Classical and Jazz music has a wider dynamic range than Rock, Rap, Schlager, and Pop music. Dynamic range is the ratio between the lowest and highest volume of an instrument. Narrow dynamic range can make hearing fatigue for the listener.[69]

We recognize that the slow tempo can make an individual feel calmer and lighter. Classical music with a tempo of 60x / minute has been proven to reduce anxiety levels and also improve memory. While Jazz music is estimated to have a tempo of about 240x / minute.[65] Based on How Music Affects Us and Promotes Health, Mozart's Classical Music has the ability to activate brain areas in processing information.[70]

Research conducted by Poikonen et al., comparing Event Related Brain Potential measured through EEG produced by stimulation of Jazz and Rock music, it was found that Jazz music activates the brain more strongly than Rock music. Whereas Jazz music with Blues music has almost the same characteristics in terms of frequency. The differences also come from the characteristic of music, Jazz music has a distinctive character that is blue notes, improvisation, polyrhythms, syncopation, and shuffle notes, while Blues music tends to represent feelings of sadness, somber, and depressed.[71]

This shows that Mozart proved to be better than western music such as Jazz, Blues, and Rock music

© 2019 Global Journals

according to the results of our research supported by the theory of Hermanto that the brain needs energy and the best energy is sound. The type of season that can help increase the number of brain cells is classical music from Mozart with a frequency of 5000-8000 Hz where the frequency is not too high so it is considered suitable for the fetal environment during pregnancy.[8-9]

V. Conclusion

The number of neurons in the cerebrum of *Rattus norvegicus* offsprings in the Mozart exposure was higher than the Jazz, Blues, and Rock with significant differences.

VI. Research Excellence

This research is the first study conducted by comparing the differences in the number of neurons to four types of Western music, namely Mozart, Jazz, Blues, and Rock compilation.

VII. Research Novelty

This research was conducted by looking at 10 fields of view of *Rattus norvegicus* offsprings neuron cell preparations, including in 5 fields of the right and 5 fields of the left hemispheres of the *Rattus norvegicus* cerebrum. So it can be known which part of the brain is thought to have a higher influence in thought processes and intelligence.

References Références Referencias

1. Hermanto T J. (2002). New Role of Obstetricians: Developing Smarter Fetus in the Womb. Malang: POGI Annual Meeting.
2. Hermanto T J. (2002). Prenatal University. Indonesiatrek: Toward a New Brighter Generations. Surabaya: Symposium on Medical Education Innovation.
3. Hermanto T J, Esteopangesti ATS., and Widjiati, (2002). The influence of various musical exposure to pregnant (Rattus norvegicus) Rat to the number of offsprings rat brain cells. Surabaya: 3rd Scientifict meeting on Maternal-Fetal Medicine and AOFOG Accredited Ultrasound Workshop.
4. Hermanto, T J. (2004). Smart babies through Prenatal University. Mission: Impossible?', M O G I, 28(1), 1-14.
5. Hermanto T J. (2010). Antenatal Care in the Third Milenium. Jakarta: POGI Annual Meeting (replaces Padang).
6. Hermanto T J. (2011). Neurostimulation for Fetus in the Womb to Prepare the Next Smarter Generation. Surabaya: Seminar on IINS- From Neuron to Character Builidings.
7. Hermanto T J. (2011). Nutrition and Stimulation in the Womb for the Next Better Generation. Jakarta Ibis Tamarin: Seminar by Centre for Intelligences MOH.
8. Hermanto T J. (2012). Prostration in the Womb. Smarter Baby through Combination of Mozart compilations and Nutrition in the Womb. Surabaya: Global Persada Press.
9. Yulia P P, Widjiati, Hermanto T J. (2018). Effect of prenatal Mozart composition on Brain Derived Neurotrophic Factor expression in cerebrum and cerebellum of Rattus norvegicus offspring from Food Restriction 50 model. M O G I 26(1): 6.
10. Verny T. (1988). The Secret Life of the Unborn Child. New York: Dell Publishing.
11. Verny T. (2002). Pre-Parenting. Nurturing Your Child from Conception. New York: Simon & Schuster.
12. Story, L. (2003). A Head Start in Life? Prenatal Parenting and Discourse of Fetal Stimulation. Atlantis vol 27(2), 27-72.
13. Logan B. Learning Before Birth: Every Child Deserves Giftedness. Author house.
14. Hopson J L. (1998). Fetal Psychology. Psychology Today, October.
15. Gardner H. (1999). Intelligence Reframed: Multiple Intelligences for the 21st Century. Cambridge: Basic Book.
16. Shonkof J P. (2000). The Developing Brain – From Neurons to Neighborhoods. http://www.ncbi.nlm.nih.gov/books/NBK225562
17. Centre on the Developing Child. (2007). The Science of Early Childhood Development. Closing The Gap Between What We Know and What We Do. Harvard University.
18. Johnson M H, de Haan M. (2015). Developmental Cognitive Neuroscience. 4th ed. Malden: Wiley Blackwell – p 36.
19. Stiles J, Jernigan T L. (2010). The Basics of Brain Development. Neuropsychol Rev Dec; 20(4): 327–348. Nov 3. doi: 10.1007/s11065-010-9148-4
20. Rees S., & Walker D. (2001). Nervous and Neuromuscular Systems. In Harding R & Docking A D. (eds.), Fetal growth and Development (Vol. 1, pp. 154-185). Cambridge: Cambridge University Press.
21. Diamond M. & Hopson J L. (1999). Magic Trees of the Mind: How to Nurture Your Child's Intelligence, Creativity, and Healthy Emotions from Birth through Adolescence. New York: Plume.
22. Diamond M C. 2001. Response of the Brain to Enrichment. An. Acad. Bras. Cienc., 73 (2).
23. Bures J, Buresova O, Krivanek J. (1988). Brain and Behaviour. Paradigms for Research in Neural Mechanisms. Chisester: John Wiley & Sons.
24. Leeds J. (1997). Therapeutic Music and Sound in Health care: Tomatis@ Method, Frequency Medicine for 21st Century. American J of Acupunture 25(4): 299-305.

© 2019 Global Journals

25. Levitin D. (2006). This Is Your Brain on Music. London: Atlantic Books.
26. Campbell D. The Mozart Effect. (1997). The Mozart Effect. Tapping the Power of Music to Heal the Body, Strengthen the Mind, and Unlock the Creative Spirit. New York: Avon Books.
27. Rauscher F H, Shaw G L, Ky K N. (1995). Listening To Mozart Enhances Spatial-Temporal Reasoning: Towards A Neurophysiological Basis. Neurosci Lett. Feb 6; 185(1): 44-7.
28. Rauscher F H, Shaw G L, Levine L J, Ky K N, Wright E L. (1994). Music and Spatial Task Performance: A causal relationship. Paper presented at American Psychology Association Annual Meeting Los Angeles.
29. Rauscher F H. (2006). The Mozart Effect in Rats: Response to Steele. Music Perception, 23, 447-453.
30. Bodner M L, Muftuler L T, Nalcioglu O and Shaw G L. (2001). FMRI Study Relevant to the Mozart Effect: Brain Areas Involved in Spatial–Temporal Reasoning. Neurol Res; 23: 683–690.
31. Thomson B M, Andrews S R. (2000). An Historical Commentary on the Physiological Effects of Music: Tomatis, Mozart and Neuropsychology. Integrative Physiological and Behavioral Science, July-September, Vol. 35, No. 3, 174-188.
32. Barker DJP, Bergmann R., Ogra P L. (2007). The Window of Opportunity: Pre-Pregnancy to 24 Months of Age. Bali, Indonesia, April 1–5.
33. Gluckman P, & Hanson M. (2003). Mismatch. efile accesed 2011.
34. Jamil, Hermanto T J, Komang, Dyah. (2003). Sound Attenuation in Pregnant Sheep Measured By Intrauterine Microphone. Unpublished.
35. Didi D, Agus S, Hermanto T J. (2005). The Influence of Mozart's Twinkle-Twinkle Little Star (K 265) to the Fetal Biophysical Profile. Unpublished.
36. Indra P K, Agus S, Hermanto T J. (2005). Comparison of the Influence of Mozart's Twinkle-Twinkle Little Star (K 265) to the Fetal Biophysical Profile in the Day and the Night. Unpublished.
37. Ismudi H P, Widjiati, Hermanto T J. (2007). Comparison of the Brain Neuronal Apoptotic Index of *Rattus norvegicus* Offsprings exposed to 3 Sequences of Mozarts compositions During Pregnancy. Unpublished.
38. Rizarina S, Hermanto T J, Widjiati. (2005). Comparison of the Brain Neuronal Apoptotic Index of *Rattus norvegicus* Offsprings Exposed and Non Exposed to Sequence of Mozarts Composition During Pregnancy. Unpublished.
39. Niken W S, Margarita M., M. Dikman A, Hermanto T. J. (2009). Comparison of the Brain Derived Neurotrphic of Rattus norvegicus Offsprings Exposed and Non Exposed to Sequence of Mozart's Composition during Pregnancy. Unpublished.
40. Toni W, Hermanto T J. (2012). Comparison of the Newborn Umbilical Brain Derived Neurotrophic Factor Exposed and Nonexposed to Sequence of Mozarts Compositions during Pregnancy. Unpublished.
41. Rino A, Widjiati, Hermanto T J. (2014). Comparison of the Brain Neuronal Apoptotic Index of *Rattus norvegicus* Offsprings exposed at 30, 60 and 120 minutes to Sequence of Mozarts Compositions during Pregnancy. Unpublished.
42. Harya N, Widjiati, Hermanto T J. (2015). The Influence of Sequence of Mozarts Compositions during Pregnancy to Expression of Brain Derived Neurotrophic Factor and Protein kinase at Cerebrum and Cerebellum *Rattus norvegicus* Offsprings. Unpublished.
43. Nareswari ICM, Widjiati, Hermanto T J. (2015). The Influence of Sequence of Mozarts Compositions during Pregnancy to Expression of Brain Derived Neurotrophic Factor and Dendritic Density at Cerebrum and Cerebellum *Rattus norvegicus* Offsprings. Unpublished.
44. Rozi A A, Widjiati, Hermanto T J. (2015). The Influence of Sequence of Mozarts Compositions during Pregnancy to Expression of Brain Derived Neurotrophic Factor, Number of Neuron and Glia cells at Cerebrum and Cerebellum *Rattus norvegicus* Offsprings. Unpublished.
45. Eka N M., Widjiati, Windhu P, Hermanto T J. (2017). Comparison of the Brain Neuronal Apoptotic Index of *Rattus norvegicus* Offsprings Exposed to Sequence of Mozarts Compositions during Pregnancy in the Light and Dark Conditions. MOGI vol 25 no 3.
46. Ningsi H A. (2018). Differences in the Effects of Music Exposure on Mozart, Beethoven, and Chopin during Pregnancy to the Number of Neuron Cells in Cereberum and Cerebellum. Thesis. Unpublished.
47. Habibie PH., Widjiati, Hermanto TJ. (2018). Neuronal apoptotic index of Rattus norvegicus cerebrum and cerebellum exposed to reversed sequence of default Mozart compositions during pregnancy. Unpublished.
48. Angelucci F, Ricci E, Padua L, Sabino A, Tonali P A. (2007). Music exposure differentially alters the levels of brain-derived neurotrophic factor and nerve growth factor in the mouse hypothalamus. Neuroscience Letters 429: 152–155.
49. UNDP. (2018). Human Development Index Report. UNDP.
50. Gardner H. (2004). "How Education Changes." In M. Suárez- Orozco & D. B. Qin-Hilliard, eds. Globalization, Culture, and Education in the New Millennium. Berkley, CA: University of California Press.
51. Xing Y, Xia Y, Kendrick K, Liu X, Wang M, Wu D, Yang H, Jing W, Guo D, Yao D. (2016). Mozart,

© 2019 Global Journals

Mozart Rhythm and Retrograde Mozart Effects: Evidences from Behaviours and Neurobiology Bases. Scientific Reports | 6:18744 | doi: 10.1038/srep18744.
52. Kühlmann, AYR., Rooij, A D, Hunink, MGM., Zeeuw, CID, Jeekel, J. (2018). Music Affects Rodents: A Systematic Review of Experimental Research. Frontiers in Behavioral Neuroscience, 12. doi: 10.3389/fnbeh.2018.00301.
53. Mariana P, Veronika D A., Camila C, Nadia J. (2017). Rock influences spatial memory in adult rats, while classical music do not. Psicológica 38, 177-193.
54. Retallack, D. L. (1973). The sound of music and plants. Santa Monica, CA: De Vorss.
55. Chaudhury S, Nag T C, Jain S, Wadhwa S. (2013). Role of sound stimulation in reprogramming brain connectivity. J. Biosci. 38 605–614.
56. Logan B. (2003). Learning before birth: every child deserves giftedness. U.S.: 1st Books Library.
57. Van De Carr FR & Lehrer M. (1997). While Youre Expecting… Your Own Prenatal Classroom. Atlanta: Humanics Limited.
58. Manrique B. Make Way for Baby! Babies Can Actually Learn Before Birth. Make Way for Baby website.
59. Ernawati, Hermanto T J, Widjiati. (2008), Comparison of Rattus norvegicus offsprings neuronal apoptosis index exposed to Mozart compositions since day 0, day ten of pregnancy and no exposure. Unpublished.
60. Kim C, Lee S, Shin J W, Chung K, Lee S, Shin M, Baek S, Sung Y, Kim C, Kim K. (2013). Music and Noise Influence Neurogenesis and Thickness in Motor. And Somatosensory Cortex of Rat Pups. Int Neurourol J; 17: 107-113.
61. Kim H., Lee M H., Chang H K, Lee T H, Lee H H., Shin M C., Shin M S, Won R., Shin H S & Kim C J. (2006). Influence of prenatal noise and music on the spatial memory and neurogenesis in the hippocampus of developing rats. Brain & Development, 28, 109-114. doi: 10.1016/j.braindev..05.008.
62. Corballis M C. (2014). Left Brain, Right Brain: Facts and Fantasies. PLoS Biology, 12(1). doi: 10.1371/journal.pbio.1001767.
63. Right Brain vs. Left Brain – What's the Difference? (n.d.). Retrieved from https://www.superduperinc.com/handouts/pdf/202_RightBrainLeftBrain.pdf.
64. Kauser H, Roy S, Pal A, Sreenivas V, Mathu R, Wadhw S, Jain S. (2011). Prenatal Complex Rhythmic Music Sound Stimulation Facilitates Postnatal Spatial Learning but Transiently Impairs Memory in the Domestic Chick. Dev Neurosci, 33(1), 48-56. doi: 10.1159/000322449.
65. Pope K. (2017). The Effects of Jazz and Classical Music on Recall. Journal of Health Education Research & Development, 05(02). Indonesia.
66. Purwanto A H. (2010). Becoming a Jazz Musician: Pola Sosialisasi Musik Jazz pada Beberapa Musik Balejazz. 22-42. in Indonesia.
67. Sanyal T, Kumar V, Nag T C, Jain S, Sreenivas, Wadhwa, S. (2013). Prenatal Loud Music and Noise: Differential Impact on Physiological Arousal, Hippocampal Synaptogenesis and Spatial Behavior in One Day-Old Chicks. PLoS ONE, 8(7), 1-16. doi: 10.1371/journal.pone.0067347.
68. Sanyal T, Palanisamy P, Nag T C, Roy T S, Wadhwa, S. (2013). Effect of prenatal loud music and noise on total number of neurons and glia, neuronal nuclear area and volume of chick brainstem auditory nuclei, field L and hippocampus: a stereological investigation. International Journal of Developmental Neuroscience, 31(4), 234-244. doi: 10.1016/j.ijdevneu.2013.02.004.
69. Kirchberger M, Russo F. (2016). Dynamic Range across Music Genres and the Perception of Dynamic Compression in Hearing-Impaired Listeners. Trends in Hearing, 20, p.23312165166 3054.
70. How Music Promotes Health. (n.d.). Retrieved from https://www.emedexpert.com/tips/music.shtml.
71. Poikonen H, Alluri V, Brattico E, Lartillot O, Tervaniemi M, Huotilainen M. (2016). Event-related brain responses while listening to entire pieces of music. Neuroscience, 312, pp.58-73.

© 2019 Global Journals

Global Journal of Medical Research: E
Gynecology and Obstetrics
Volume 19 Issue 4 Version 1.0 Year 2019
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Rupture Uterus in a Tertiary Care Centre: A Retrospective Study

By Meetali Parashar, Meena Mehta & Anupama Kumari

Abstract- *Introduction:* Uterine rupture is a major obstetric hazard. It leads to high maternal and perinatal mortality-morbidity and loss of future fertility.

Aims & Objectives: The aim of this study was to calculate the incidence of rupture uterus and study its various aspects in the department of obs & gynae at RIMS, Ranchi, Jharkhand, India.

Material & Methods: This was a retrospective study done in the department of obstetrics & gynaecology during September 2017 to August 2018. Data was collected from the registers of labour room, labour OT and medical records department of RIMS, Ranchi. Total cases of rupture uterus cases during the study period were included in the study. There was no exclusion criteria. Incidence of rupture uterus per 1000 deliveries was calculated.

Observation & Result: In our study, the incidence of rupture uterus was 10 per 1000 deliveries. All 70 cases were unbooked, had rupture outside RIMS; 60 (85.7%) were referred case ,whereas 10 (14.37%) had no referral paper. 47 (67.1%) had rupture of previous cs scar, others were non scarred uterus. 57 (81.4%) had rupture of lower uterine segment, whereas 13 (18.6%) had upper segment rupture. 11 (15.7%) had undergone repair of the uterus without tubectomy, 20 (28.6%) had repair with tubectomy.

Keywords: *rupture uterus, maternal mortality, maternal morbidity, hysterectomy, previous cesarean, unbooked case, tertiary care hospital.*

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



Strictly as per the compliance and regulations of:

© 2019. Meetali Parashar, Meena Mehta & Anupama Kumari. 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.

Rupture Uterus in a Tertiary Care Centre: A Retrospective Study

Meetali Parashar [α], Meena Mehta [σ] & Anupama Kumari [ρ]

Abstract- ***Introduction:*** Uterine rupture is a major obstetric hazard. It leads to high maternal and perinatal mortality-morbidity and loss of future fertility.

Aims & Objectives: The aim of this study was to calculate the incidence of rupture uterus and study its various aspects in the department of obs & gynae at RIMS, Ranchi, Jharkhand, India.

Material & Methods: This was a retrospective study done in the department of obstetrics & gynaecology during September 2017 to August 2018. Data was collected from the registers of labour room, labour OT and medical records department of RIMS, Ranchi. Total cases of rupture uterus cases during the study period were included in the study. There was no exclusion criteria. Incidence of rupture uterus per 1000 deliveries was calculated.

Observation & Result: In our study, the incidence of rupture uterus was 10 per 1000 deliveries. All 70 cases were unbooked, had rupture outside RIMS; 60 (85.7%) were referred case ,whereas 10 (14.37%) had no referral paper. 47 (67.1%) had rupture of previous cs scar, others were non scarred uterus. 57 (81.4%) had rupture of lower uterine segment, whereas 13 (18.6%) had upper segment rupture. 11 (15.7%) had undergone repair of the uterus without tubectomy, 20 (28.6%) had repair with tubectomy. 29 (41.4%) underwent subtotal hysterectomy and total hysterectomy was done in 10 (14.3%) patients .There were 4 maternal mortality cases out of 70 cases of rupture uterus. Fetal mortality was 97%. Only two babies were delivered alive.

Conclusion: Rupture uterus is an important cause of maternal and fetal morbidity - mortality. Incidence of rupture uterus can be reduced through effective and quality antenatal checkup, institutional VBAC, delivery by skilled healthcare providers and timely referral of cases like cephalopelvic disproportion, obstructed labour prolonged labour and malpresentation.

Keywords: rupture uterus, maternal mortality, maternal morbidity, hysterectomy, previous cesarean, unbooked case, tertiary care hospital.

I. Introduction

Disruption in the continuity of all the uterine layers (endometrium, myometrium and serosa) any time beyond 28 weeks of pregnancy is called rupture of the uterus. The prevalence widely varies from 1 in 2,000 to 1 in 200 deliveries. During the past few decades, the prevalence has been found to be almost static. Whereas improved obstetric care reduces the rupture from obstructed labor but there has been increased prevalence of scar rupture following increased incidence of cesarean section over the years.[1] Uterine rupture is a major obstetric hazard. It leads to high maternal and perinatal mortality-morbidity and loss of future fertility. Despite advances in modern obstetric practice, rupture of gravid uterus still remains as a fetal and maternal life threatening complication especially in developing countries; the incidence is high due to a greater number of unbooked obstetric emergencies, often originating from rural areas with poor antenatal care. In India it still accounts for 5-10% of all maternal deaths.[2] The perinatal mortality ranges from 80 to 95%.

Uterine rupture typically is classified as either: 1) Complete uterine rupture - when all layers of the uterine wall are separated, with or without expulsion of the fetus or 2) Incomplete uterine rupture-when the uterine muscle is separated but the visceral peritoneum is intact. Uterine rupture is also classified on the basis of previous surgery into 1) Rupture of scarred uterus 2) Rupture of unscarred uterus.

With the liberal use of primary cesarean section, scar rupture constitutes significantly to the overall incidence of uterine rupture. The incidence of LSCS scar rupture is about 1- 2%, while that following classical one is 5-10 times higher. Uterine scar, following hysterotomy behaves like that of a classical scar and is of growing concern.[3] Rupture of an unscarred uterus may be either traumatic or spontaneous. Traumatic factors include instrumental deliveries, internal podalic version, assisted breech delivery, abdominal trauma, labor induction, and in particular the unmonitored usage of oxytocin or prostaglandins. Fundal pressure during third stage of labor also has been linked to traumatic rupture. Spontaneous rupture is usually observed with cephalopelvic disproportion, delivery of a macrosomic or a grossly anomalous fetus, malpresentation. Rupture may also develop spontaneously in grand multiparas, congenitally abnormal uteri (e.g. Unicornuate or bicornuate), abnormal placental implantation, previous history of uterine perforation and in women with a history of invasive mole in previous pregnancy.[4, 5]

Maternal consequences are related to whether there is rupture of an intact uterus or a prior uterine scar. Scar separation following a trial of scar is associated with a lower risk of maternal death compared to

Author α: Senior resident, Deptt of obs & gynae, RIMS, Ranchi, Jharkhand, India. e-mail: mparashar04@gmail.com
Author σ: Associate Professor, Deptt of obs & gynae, RIMS, Ranchi, Jharkhand, India.
Author ρ: Junior resident, Deptt of obs & gynae, RIMS, Ranchi, Jharkhand, India.

© 2019 Global Journals

spontaneous rupture of an unscarred uterus.[6] Fetal morbidity invariably occurs because of catastrophic hemorrhage leading to fetal anoxia. With rupture and expulsion of the fetus into the peritoneal cavity the chances of fetal survival are minimal. If the fetus is alive at the time of rupture, the only chance of continued survival is afforded by immediate diagnosis and delivery by laparatomy. Case fatality rate in rupture uterus may be reduced by early diagnosis, urgent resuscitation and laparatomy. Any form of delay increases the chances of dying from severe hemorrhage.[7]

Once a diagnosis of uterine rupture is established, immediate stabilization of the mother and the delivery of the fetus are imperative. After the fetus is delivered, the type of surgical treatment for the mother will depend on the type of uterine rupture, extent of uterine rupture, degree of haemorrhage, general condition of the mother and mother's desire for future childbearing.[8]

Other factors that may determine the type of surgical intervention includes urgency, patient's general condition as well as surgeons experience. Conservative surgical management involving uterine repair should be reserved for women who have low transverse uterine rupture, no extension of the tear to the broad ligament, cervix, or paracolpos, previous LSCS scar dehiscence, easily controllable uterine haemorrhage, good general condition, desire for future childbearing and no clinical or laboratory evidence of an evolving coagulopathy. Hysterectomy should be considered the treatment of choice when intractable uterine bleeding occurs or when the uterine rupture sites are multiple, longitudinal or low lying, bruised and contaminated.[9]

This obstetrics complication is also associated with short term maternal morbidities such as vesicovaginal fistula, rectovaginal fistula, bladder rupture, foot drop, psychological trauma, anemia and in the long term because of the surgical intervention, the woman may be sterilized which can lead to divorce and loss of economic support.[10]

II. Aims and Objectives

An early diagnosis, their timely referral from gross route level and prompt treatment of the condition is the most important factor in improving the maternal and perinatal outcome. This retrospective study was undertaken to evaluate the incidence of rupture uterus and analyse its various aspects.

III. Material and Methods

This was a retrospective observational study done in the department of obstetrics & gynaecology during September 2017 to August 2018. Data was collected from the registers of labour room, labour OT and medical records department of RIMS, Ranchi and entered in Microsoft excel 2007. Total cases of rupture uterus cases during the study period were included in the study. Cases of rupture /perforation of uterus due to MTP, Hydatiform mole, cornual pregnancy were excluded from the study. Incidence of rupture uterus per 1000 deliveries was calculated. Result of other parameters was obtained using percentage in each category.

IV. Observation and Result

Table 1 shows that the total number of deliveries during the study period was 6895 and the total number of rupture during the period was 70 giving an incidence of 10 per 1000 deliveries. This incidence is quite high because RIMS, Ranchi is a tertiary care and referral institute where maximum cases of rupture uterus are being referred from periphery.

Table 1: Showing Incidence of Rupture Uterus

Total no. of deliveries	No. of cases of rupture uterus	Incidence /1000	Incidence/ 100
6895	70	10 .1	1.01

Table 2 shows distribution of cases on the basis of age, area of residence and socioeconomic status. Majority of the patients (60%) were in the age group 20-30 years of age, followed by 30 -40 years age group (35.7%). Very few (1.4%) were less than 20 years of age and 2 (2.9%) more than 40 years keeping in view uterine exhaustion in primigravida patients and decreased fertility in patients 40 years of age. As a large population of Jharkhand still reside in villages, 65 patients (92.9%) were from rural areas and same number were from low socioeconomic status.

Table 2: Showing Distribution of Cases on the Basis of Sociodemographic Profile

Parameter	No. of Cases	Percentage
➢ Age Group		
<20	01	1.4%
20-30	42	60%
30-40	25	35.7%
>40	02	2.9%
➢ Area Of Residence		
Urban	05	7.1%
Rural	65	92.9%
➢ Socioeconomic Status		
Low	65	92.9%
Middle	05	7.1%

Table 3 shows distribution of cases on the basis of obstetric history, booking and referring status. 27 (38.57%) patients were para 2, 23 (32.85%) patients were ≥ para 4 , 19 (27.1%) were para3 and 1 was primipara. All 70 cases were unbooked, had rupture outside RIMS; 60 (85.7%) were referred case, whereas 10 (14.37%) had no referral paper .11 patients (15.7%) had gestational age < 36 weeks whereas 59 (84.3%) had rupture at ≥ 36 weeks gestational age.

© 2019 Global Journals

Table 3: Showing Distributon of Cases on the Basis of Obstetric History and Referring Status

Parameter	No. of Cases	Percentage
➢ Gravida		
P1	1	1.42%
P2	27	38.57%
P3	19	27.1%
≥P4	23	32.85%
➢ Booking Status		
Booked	00	0%
Unbooked	70	100%
➢ Referring Status		
Referred	60	85.7%
Non referred	10	14.3%
➢ Gestational Age		
< 36 weeks	11	15.7%
≥36 weeks	59	84.3%

Table 4 shows surgical history and findings. 47 (67.1%) had rupture of previous cs scar, others were non scarred uterus. Among the scarred uterus, only 4 (8.5%) had history of VBAC whereas 53 out of 70 had history of previous D & E (surgical method of MTP). 57 (81.4%) had rupture of lower uterine segment, whereas 13 (18.6%) had upper segment rupture. In none of the previous cesarian cases, we could get history of previous classical incision as majority were illiterate with no previous papers. 11 (15.7%) had undergone repair of the uterus without tubectomy, 20 (28.6%) had repair with tubectomy. 29 (41.4%) underwent subtotal hysterectomy and total hysterectomy was done in 10 (14.3%) patients .Decision of surgical management was guided by the number of living children, general condition of the patient, repairability of the uterus, adhesions, skill of the surgeon on duty, dissection of bladder from the lower uterine segment, availability of blood components and other comorbidities of the patient .

Table 4: Distribution of Cases on the Basis of Previous Surgical History, Intraoperative Finding and Type of Surgery Performed

Parameter	No. of cases	Percentage
➢ Previous Uterine Scar		
No	23	32.9%
Yes	47	67.1%
➢ H/O VBAC		
Yes	04	8.5%
No	43	91.5%
➢ H/O D& E		
Yes	17	24.3%
No	53	75.7%
➢ Site of Rupture		
Upper segment	13	18.6%
Lower segment	57	81.4%
➢ Type of Surgery Performed		
Repair without tubectomy	11	15.7%
Repair with tubectomy	20	28.6%
Subtotal hysterectomy	29	41.4%
Total hysterectomy	10	14.3%

Table 5 shows maternal and fetal mortality. There were 4 maternal mortality cases (5.7%) out of 70 cases of rupture uterus; the causes were acute renal failure, acute respiratory distress syndrome, sepsis and severe anemia leading to congestive cardiac failure. Fetal mortality was 68 (97%). Only two babies were delivered alive; in one case there was complete rupture of the LSCS scar but baby was lying still inside the uterine cavity, in the another one the baby was preterm, lying inside the peritoneal cavity outside the uterus, but was attached with the placenta which was still inside the uterus and the placenta was morbidly adherent placenta. The high maternal and fetal mortality was due to the fact that all cases were received at RIMS in a very bad condition, that too very late.

Table 5: Distribution of Cases on the Basis of Feto - Maternal Mortality

Parameter	No. of Cases	Percentage
➢ Maternal Mortality	04	5.7%
➢ Causes of Maternal Mortality		
Acute renal failure (ARF)	01	25%
Acute respiratory distress syndrome (ARDS)	01	25%
Sepsis	01	25%
Severe anemia leading to congestive cardiac failure	01	25%
➢ Fetal Mortality	68	97%

V. Discussion

Rupture uterus is a devastating complication with high maternal and perinatal morbidity-mortality rates. The incidence of rupture uterus varies widely from country to country and between different centres of the same country. In our study, the incidence of rupture uterus was 10 per 1000 deliveries (1.01%) whereas it was 0.64 % in the study by Kalewad P S[11], it was 0.763 % in the study by Beck R et al [12]. In developing countries like Nigeria it is higher i.e. 1.69% according to study conducted by Ibrahim S M, Umar N I et al. [13] The incidence in developed countries is at least ten times lower i.e. 0.086% in Australia study conducted by Lynch J C, Pardy J P et al.[14]

In our study, majority of the patients (60%) were in the age group 20-30 years of age, followed by 30 -40 years age group (35.7%). In the study by Kalewad P S, 60% of the cases were in the 26-30 year age group whereas 27% were in the 21-25 years age group[11]. Similarly, Beck et al observed majority of the patients

© 2019 Global Journals

(42.5%) in the age group 21 to 25 years followed by 26-30 years age group.[12] Shastrakar reported maximum incidence of rupture uterus in age group 16-20 years followed by age group 21-35 year.[15] Khattak Z et al found majority of the patient were of age group 31-40 year followed by 21-30 years.[16] Latika S et al found maximum number of rupture uterus between age group 21-30 years.[17] Omole-Ohonsi A et al also found most of the rupture occurred between 21-30 years.[18] Study conducted in Nigeria by Ibrahim S M, Umar N I et al uterine rupture was seen most commonly in 25-35 years of age group.[13]

At our centre, majority cases of rupture uterus were from rural areas (92.9%) with low socioeconomic status (92.9%). In the similar study at the same centre by Beck R et al [12], majority of the patients (92.5%) were from rural background .In the study by Kalewad P S, 90 % of the patients belonged to the low socioeconomic status.[11] Illiteracy, poor transport, no antenatal check up, social customs and prior successful home deliveries prevent these pregnant women from seeking medical advice. They come to hospital only when some unavoidable complications has taken place and that too very late.

In the present study, 27 (38.57%) patients were para 2, 23 (32.85%) patients were ≥ 4th para, 1 was primipara and none were primigravida .In the study by Beck R et al, majority of the patients were para 2 and 3 (63.75%) and 3 cases (3.75%) of rupture was seen in primigravida.[12] In the study by Kalewad P, 51% cases were para 2, 14.5% were ≥ para 3, 33% were para 1 and 1 was primigravida.[11]

All 70 cases were unbooked, had rupture outside RIMS; 60 (85.7%) were referred case, whereas 10 (14.37%) had no referral paper. Beck et al observed 97.5 % of the cases to be unbooked whereas in the study by Kalewad PS et al, 45 (65.3%) cases were unbooked and 24 (34.7%) were booked cases.[12,11]

In the present study, 11 patients (15.7%) had gestational age < 36 weeks whereas 59 (84.3%) had rupture at ≥36 weeks gestational age. Beck et al observed 93.75% cases at gestational age 35 weeks and above. [12]

47 (67.1%) had rupture of previous of previous cs scar ,the incidence being 0.97% which was very high as compared to the study by Preety Aggarwal (0.057%)[19]. 66% cases were previous cesarean in the study by Kalewad P S, 45.33% cases had scar rupture in the study by Beck et al and study conducted in Rawalpindi medical college by Ara J et al, 86.7% were scarred uterus[11,12,,20]

57 (81.4%) had rupture of lower uterine segment. In the study by Sinha M, rupture of prior low transverse cesarean section was 84.8%.[21] in the study by Beck et al, it was 94.12%, in the study by Aggarwal P, it was 30.8%, in the study by Kalewad P and in the study by Ibha K, Poonam G, Sehgal A , it was 49.1%.[12,19,11,22]

The decision to perform uterine repair or hysterectomy in cases of rupture uterus is influenced by factors like parity, number of living children, extent of uterine repair, condition of the tissues and the general condition of the patient. In the present study 11 (15.7%) had undergone repair of the uterus without tubectomy, 20 (28.6%) had repair with tubectomy. 29 (41.4%) underwent subtotal hysterectomy and total hysterectomy was done in 10 (14.3%) patients. In the study by Beck et al, repair of the uterus without tubectomy was done in 15% cases, repair with bilateral tubectomy in 25 (31.25%) cases, hysterectomy in 53.75% cases.[12] Habiba U et al reported that hysterectomy either total or subtotal was performed in 70% of their cases of rupture uterus.[23] Total hysterectomy was performed in 5.85 cases, subtotal hysterectomy in 15.2% cases and primary repair with sterilization in 67% of cases.[11]

There were 4 (5.71 %) maternal mortality cases out of 70 cases of rupture uterus; the causes were acute renal failure, acute respiratory distress syndrome, sepsis and severe anemia leading to congestive cardiac failure. Maternal death was 2.9% in the study by Kalewad P, 3.75% In Beck et al, 30.8% in Aggarwal P et al, 0% in Sinha M et al, 2.5% in the study by Singh A et al, 1.1% in the study by Ibrahim S M.[11,12,19,21,24,13]

Fetal mortality was 97%. Only two babies were delivered alive; in one case there was complete rupture of the LSCS scar but baby was lying still inside the uterine cavity, in the another one the baby was lying inside the peritoneal cavity outside the uterus, but was attached with the placenta which was still inside the uterus and the placenta was morbidly adherent placenta. In the study by Sinha M, there were 32 cases of intrauterine fetal demise, 5 cases of stillbirths, 8 babies with low apgar scores and 3 of them died in neonatal ICU.[21] Perinatal mortality was 97.5% in the study by Beck et al, 53.8% in Aggarwal P et al and 87.4% in a study in Nigeria.[12,19,13] In the study by Kalewad P, the perinatal mortality was only 10.1%.

VI. Conclusion

As a large population of Jharkhand reside in remote rural areas with low socioeconomic status and illiteracy, still a large population misses good antenatal checkup and proper delivery facility resulting in rupture uterus. The incidence of rupture uterus in a teaching and referral hospitals is high due to a large proportion of them being referred cases and increasing incidence of VBAC .Rupture uterus is an important cause of maternal and fetal morbidity - mortality. Incidence of rupture uterus can be reduced through effective and quality antenatal checkup, institutional VBAC, delivery by skilled healthcare providers and timely referral of cases like cephalopelvic disproportion, obstructed labour prolonged labour and malpresentation.

© 2019 Global Journals

Acknowledgement

We would like to thank all those people who helped us in completing this research work.

Conflict of Interest: None.

Funding: None.

References Références Referencias

1. D C Dutta, Textbook of obstetrics. 6th edition. New Delhi. Jaypee Brothers Medical Publishers (P) Ltd. Page no 493-499.
2. Bhaskar Rao K, Obstructed Labor. In Ratnam SS, Bhasker Rao K, Arulkumaran S (eds). Obstetrics and Gynecology for Postgraduates Vol 1. 1st edn. Madras, Orient Longman. 1992: 130-2.
3. Anklesaria B S, Savaliya M V. Rupture Uterus. In: Krishna U, Tank DK, Daftary S (eds). Pregnancy at Risk, Current concepts. 4th edn. New Delhi, Jaypee Brothers (P) Ltd. 2001: 46871.
4. Ofir K, Sheiner E, Levy A. Uterine rupture: Risk factors and pregnancy outcome, Am J Obstet Gynecol. 2003; 189: 1042-6.
5. Flamm B L, Anton D, Goings J R, Newman J. Prostaglandin E2 for cervical ripening: a multicentre study of patients with prior caesarean delivery. Am J Perinatol. 1997; 14: 157-60.
6. Leung A S, Leung E K, Paul R H. Uterine rupture after previous caesarean delivery: maternal and fetal consequences. AM J Obstet Gynecol. 1993; 169: 945-50.
7. Yap O W, Kim E S, Laros R K Jr. Maternal and neonatal outcomes after uterine rupture in labour. AM J Obstet Gynecol. 2001; 184: 1576-81
8. Soltan M H, Khashoggi T, Adelusi B. Pregnancy following rupture of the pregnant uterus. Int J Gynecol Obstet. 1996; 52: 37-42.
9. Philpott R H. Obstructed labour. Clinics in obstetrics and gynecology. 1982; 9(3): 625-40.
10. Kalewad P S et al. Int J Reprod Contracept Obstet Gynecol. 2016 Sept; 5(9): 3098-3102 www.ijrcog.org
11. Beck R et al. Int J Reprod Contracept Obstet Gynecol. 2018 Mar;7(3):938-946 www.ijrcog.org
12. Ibrahim S M, Umar N I, Garba N A, Bukar M, Ibrahim H A. Department of Obstetrics and Gynaecology, University of Maiduguri Teaching Hospital, Maiduguri, Nigeria. International journal of medical and applied sciences. ISSN: 2320-3137.
13. Lynch J C, Pardy J P. Uterine rupture and scar dehiscence. A five year survey. Anaesth Intensive care. 1996; 24: 699-704.
14. Shastrakar V D. Trends in uterine rupture. J Obstet Gynaecol India. 1962; 12: 391
15. Ummi H, Zaibunnisa K, Manzoor A. A review of 66 cases of rupture uterus in a district general hospital. JPMI. 2002; 16(1): 49-54.
16. Latika S A. A 10-year analysis of uterine rupture at a teaching institution. J Obstet Gynecol India. 2006; 56: 502-6.
17. Omole-Ohonsi A, Attah R. Risk factors for ruptured uterus in a developing country. Gynecol Obstetric. 2011; 21: 102.
18. Aggarwal P, Terhase N.Unscarred uterine rupture: a retrospective study. Int J Reprod Contracept Obstet Gynecol 2015 Dec; 4(6): 1997-1999.
19. Ara J, Naheed K, Kazmi F, Sial S S. Uterine rupture: A catastrophic complication. Journal of Rawalpindi medical college. 2010; 14(1): 36-9.
20. Sinha M, Gupta R, Gupta P, Rani R, Kaur R. Uterine rupture: A seven year review at a tertiary care hospital in New Delhi, India. Indian J Community Med 2016; 41: 45-9.
21. Ibha K, Poonam G, Sehgal A. Rupture of the gravid uterus: Experience at an urban medical centre in Northern India. J Obstet Gynaecol India, 2003; 53: 558-62.
22. Habiba U, Khattak Z, Ali M. A review of 66 cases of rupture uterus in a district general hospital.J Postgraduate Med Inst. 2002; 16: 49-54.
23. Singh A, Shrivastava C. Uterine Rupture: Still a Harsh Reality. J Obstet Gynaecol India. 2015; 65(3): 158-161.

© 2019 Global Journals

This page is intentionally left blank

© 2019 Global Journals

Global Journal of Medical Research: E
Gynecology and Obstetrics
Volume 19 Issue 4 Version 1.0 Year 2019
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

A Rare Case of Giant Endometrial Polyp with Hematometra with Old Healed Endometriotic Lesions: A Case Report

By Dr. Tanu Bhati, Dr. Sunil Takiar, Dr. Kalpana Kulshreshtha & Dr. Anjali Kumari

Abstract- Giant endometrial polyp with hematometra with old healed endometriotic lesion is a rare case. We present a case of old patient presented with complaint of pain in lower abdomen, but after clinical evaluation , USG and MRI report, the case diagnosed early as endometrial polyp, incidentally find hematometra and old healed endometriotic lesion at the time of hysterectomy.

Keywords: *endometrial polyp, hematometra, endometriosis.*

GJMR-E Classification: *NLMC Code: WP 390*

ARARECASEOFGIANTENDOMETRIALPOLYPWITHHEMATOMETRAWITHOLDHEALEDENDOMETRIOTICLESIONSACASEREPORT

Strictly as per the compliance and regulations of:

© 2019. Dr. Tanu Bhati, Dr. Sunil Takiar, Dr. Kalpana Kulshreshtha & Dr. Anjali Kumari. 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 Rare Case of Giant Endometrial Polyp with Hematometra with Old Healed Endometriotic Lesions: A Case Report

Dr. Tanu Bhati [α], Dr. Sunil Takiar [σ], Dr. Kalpana Kulshreshtha [ρ] & Dr. Anjali Kumari [ω]

Abstract- **Giant endometrial polyp with hematometra with old healed endometriotic lesion is a rare case. We present a case of old patient presented with complaint of pain in lower abdomen, but after clinical evaluation , USG and MRI report, the case diagnosed early as endometrial polyp, incidentally find hematometra and old healed endometriotic lesion at the time of hysterectomy.**

Keywords: endometrial polyp, hematometra, endometriosis.

I. Introduction

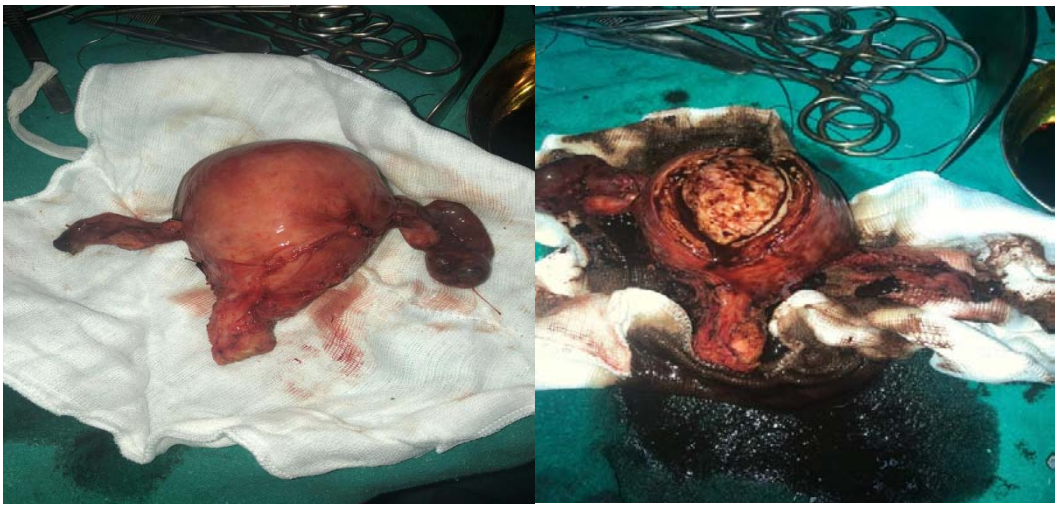
Endometrial polyps are benign masses that protrude into uterine lumen. They can be single or multiple, sessile or pedunculated[1]. Their size vary from millimeters to centimeters, size more than 4cm are considered to be giant one[2]. Here, we report a case of 70year old patient with endometrial polyp with hematometra with old healed endometriotic lesion. Endometriosis occurs in 6-10 % during reproductive period and 2-5% of postmenopausal women[3-4]. Hematometra in a postmenopausal woman is generally associated with cervical stenosis from senile atrophy, radiotherapy or a neoplastic lesion involving the lower uterine cavity or cevix[5].

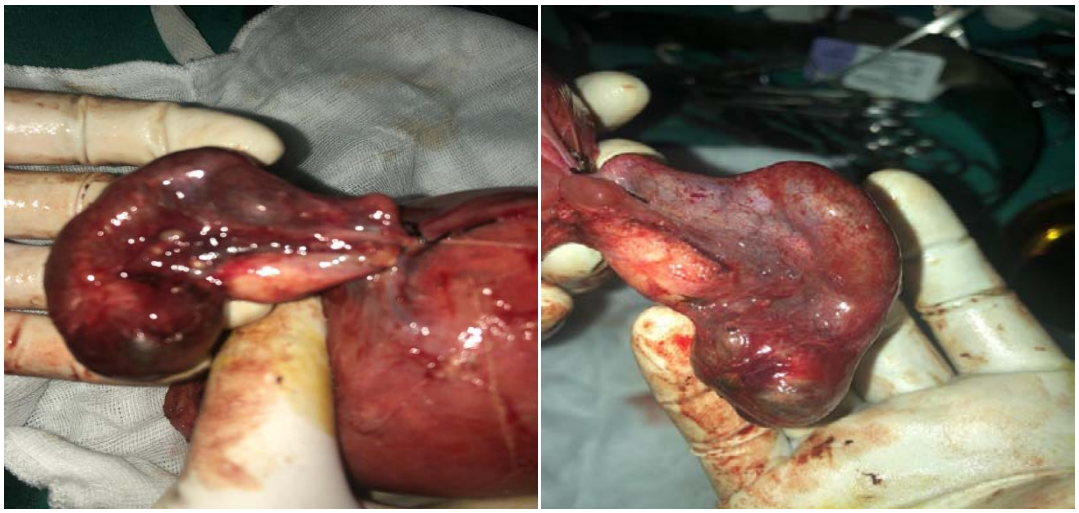
II. Case Report

A 70-year- old woman $P_7L_4A_1$, presented to our department with complaints of pain in lower abdomen. She had menopause since last 10 years. She had intermittent pain in lower abdomen since one month. General clinical examination was essentially within normal limits. Pelvic examination revealed cervix unhealthy with multiple nabothian cyst on per speculum examination and bulky uterus approx size 6 weeks, non tender on per vainum examination. There were no history of prior surgery. Abdominal ultrasound showed submucosal fibroid. Pap smear taken from cervix which revealed atypical squamous cells. All routine blood investigations were within normal limits. MRI Pelvis revealed submucosal fibroid/ endometrial polyp with degenerative changes. Transabdominal hysterectomy with bilateral salpingo-oopherectomy done in which per op findings suggested endometrial polyp approx size 6 * 6cm inside uterus present on cut section, hematometra was present inside uterus and healed endometriotic lesion present around fallopian tubes. Histopathology report revealed atrophic endometrial glands with endometrial polyp in endometrium with no evidence of granuloma or malignancy.

Author α ω: Post Graduate (OBG), SIMS, Hapur, U.P.
e-mail: mili.bhati72@gmail.com
Author σ: Head of Department (OBG), SIMS, Hapur, U.P.
Author ρ: Professor (OBG), SIMS , Hapur, U.P.

© 2019 Global Journals





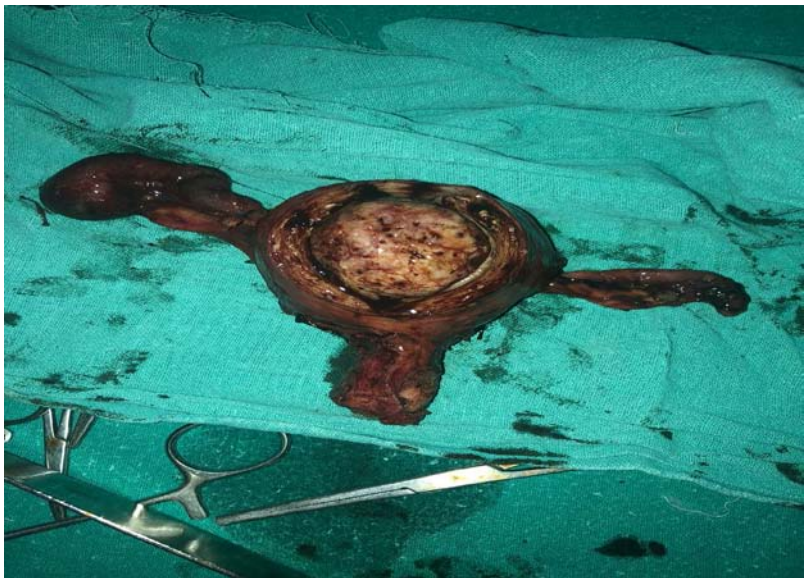


Fig. 1-5: Endometrial polyp with hematometra with old healed endometriotic lesion.

© 2019 Global Journals

III. Discussion

Endometrial polyps are composed of endometrial glands, fibrous tissue and can contain smooth muscle[6]. These polyps can occur at any age but frequently occurs around menopause[7]. In this case, patient have hematometra may be due to endometrial polyp.

IV. Conclusion

Giant endometrial polyp, as seen in this case, are exceedingly rare variants of classical polyp. Associated with hematometra. To the best of my knowledge, this is a rare case of postmenopausal women with giant endometrial polyp with hematometra with old healed endometriotic lesion.

References Références Referencias

1. Bennett M W, Dick E J Jr., Schlabritz-Loutsevitch N E, Lopez-Alvarenga J C, Williams P C, Sharp R M et al. Endometrial and cervical polys in 22 baboons (Papio sp.), 5 cynomolgus macaques (Macaca fascicularis) and one marmoset (Callithrix jacchus). J Med Primatol 2009; 38: 257-62.
2. Peterson W F, Novak E R. Endometrial polyp. Obstet Gynecol 1956; 8: 40-9.
3. Dabrosin C, Gyorffy S, Margetts P, Ross C, Gauldie J: Therapeutic effect of angiostatin gene transfer in a murine model of endometriosis. Am J Pathol. 2002, 161: 909-918.
4. Punnonen R, Klemi P J, Nikkanen V: Postmenopausal endometriosis. Eur J Obstet Gynecol Repord Biol. 1980, 11: 195-200. 10.1016/0028-2243(80)90069-6.
5. Wu M-P, C-C, Chang F-M, Yen YET, Hsieh M-F, Chao M-H. Endometrial carcinoma presenting as hematometra mimicking a large pelvic cyst. J Clin Ultrasound. 1999; 27: 541-3.
6. Bennett M W, Dick E J Jr., Schlabritz-Loutsevitch N E, Lopez-Alvarenga J C, Williams P C, Sharp R M et al. Endometrial and cervical polys in 22 baboons (Papio sp.), 5 cynomolgus macaques (Macaca fascicularis) and one marmoset (Callithrix jacchus). J Med Primatol 2009; 38: 257-62.
7. Reslova T, Tosner J, Resi M, Kugler R, Vavrova I. Endometrial polyp. A clinical study of 245 cases. Arch Gynecol Obstet 1999; 262: 133-9.

© 2019 Global Journals

This page is intentionally left blank

© 2019 Global Journals

Global Journal of Medical Research: E
Gynecology and Obstetrics
Volume 19 Issue 4 Version 1.0 Year 2019
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Emergency Peripartum Hysterectomy in a Tertiary Care Centre and Medical College of Jharkhand, India: A Retrospective Study

By Dr. Meena Mehta, Dr. Meetali Parashar & Dr. Sandhya Tiwary

Abstract- *Introduction:* Emergency Peripartum Hysterectomy (EPH) is a lifesaving surgical procedure that is associated with maternal mortality and morbidity, especially in developing countries. Worldwide, the rate of peripartum hysterectomy varies widely. Developing countries like India have higher incidence of EPH because more deliveries take place outside health facilities and are unsupervised or poorly supervised. The aim of this study was to find the incidence, indications, risk factors and clinical implications of EPH in a tertiary care referral centre of Jharkhand.

Material & Methods: This was a retrospective study to identify and analyse the cases of EPH at Rajendra Institute of Medical Sciences, Ranchi, Jharkhand between May 2018 to april 2019.

Observation & Result: During this study period, there were 9006 deliveries with 72 cases of EPH identified giving an incidence of 7:1000. Out of 72, only 50 cases were included in our study as: 36 patients (72%) belonged to 21 -30 years of age group and 14 (28%) were more than 30 years of age.

Keywords: *emergency peripartum hysterectomy, atonic pph, rupture uterus, placenta praevia, placenta accreta, rajendra institute of medical sciences, maternal mortality, maternal morbidity, fetal mortality.*

GJMR-E Classification: *NLMC Code: WP 660*



Strictly as per the compliance and regulations of:

© 2019. Dr. Meena Mehta, Dr. Meetali Parashar & Dr. Sandhya Tiwary. 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.

Emergency Peripartum Hysterectomy in a Tertiary Care Centre and Medical College of Jharkhand, India: A Retrospective Study

Dr. Meena Mehta [α], Dr. Meetali Parashar [σ] & Dr. Sandhya Tiwary [ρ]

Abstract- *Introduction:* Emergency Peripartum Hysterectomy (EPH) is a lifesaving surgical procedure that is associated with maternal mortality and morbidity, especially in developing countries. Worldwide, the rate of peripartum hysterectomy varies widely. Developing countries like India have higher incidence of EPH because more deliveries take place outside health facilities and are unsupervised or poorly supervised. The aim of this study was to find the incidence, indications, risk factors and clinical implications of EPH in a tertiary care referral centre of Jharkhand.

Material & Methods: This was a retrospective study to identify and analyse the cases of EPH at Rajendra Institute of Medical Sciences, Ranchi, Jharkhand between May 2018 to april 2019.

Observation & Result: During this study period, there were 9006 deliveries with 72 cases of EPH identified giving an incidence of 7:1000. Out of 72, only 50 cases were included in our study as: 36 patients (72%) belonged to 21 -30 years of age group and 14 (28%) were more than 30 years of age. 12 patients (24%) were grand multipara and 38 patients (76%) were between Para1 –Para4. Most of the women (66%) belonged to low socioeconomic status. In 38 patients (76%), the gestational age was between 37 to 40 weeks. Mode of delivery was vaginal only in 3 cases (6%). Primary caeserian section was done in 13 cases and there was history of previous cs in 14 cases. Repeat 2nd caeserian section was in 6 cases. In those cases where primary cs was done, placenta praevia was seen only in 4 (8%) cases but the incidence of placenta praevia was higher in repeat cs cases. It was 16% in patients with previous 1 caeserian and 12% with previous 2 caeserian section. The cases of placenta accreta was seen in cases of repeat caeserian cases only and the incidence was 6 % in cases with previous 2 cs. 19 cases (38 %) presented with rupture uterus. In this study, instrumental delivery was nill. laparotomy was done in 20 cases (40%). In 12 % cases, baby weight was > than 3.5 kg. The main indication of EPH were rupture uterus (38 %), placenta praevia (30%), placenta accreta (32 %) and atonic PPH (36%). In 38 patients (76%), subtotal hysterectomy was done and in 24 % total hysterectomy was done. Most common complication was wound sepsis. It was present in 24 patients (48%), followed by febrile morbidity in 14 (28 %). 1 case had ureteric injury which was managed successfully. Bladder injury occurred in 7 cases (14%). All those cases in which bladder and ureteric injury occurred, were post caeserian cases. Paralytiv ileus occurred in 2 cases (45). 1 patient had endotoxic shock .Blood transfusion more than 4 units were required in 11 cases. There were 3 cases of maternal death. There was 58 % fetal mortality overall and most of these cases were of rupture uterus.

Conclusion: EPH is an obstetric emergency that has potentially devastating consequences .The rate of EPH is high, and the associated maternal –fetal outcome is poor at our institution. The worldwide increase in caesarian section rates may lead to a rise in the number of EPH required in future because of placenta praevia and morbidly adherent placenta and rupture uterus. Thus, there is a need for institutions to monitor their caesarian section rates.

Keywords: *emergency peripartum hysterectomy, atonic pph, rupture uterus, placenta praevia, placenta accreta, rajendra institute of medical sciences, maternal mortality, maternal morbidity, fetal mortality.*

I. Introduction

EPH is a lifesaving surgical procedure that is associated with maternal mortality and morbidity, especially in developing countries.[1] Emergency hysterectomy is the surgical removal of the uterus following an unexpected and sudden event. When it is carried out in a woman with a pregnant uterus less than 24 hrs after delivery, it is termed as emergency peripartum hysterectomy.[2,3] This life saving obstetric procedure has been in use for more than 100 years, since Edward Porro in 1876 published the first case report of a successful procedure in which both mother and baby survived.[2]

EPH is most commonly performed to arrest or prevent hemorrhage from intractable uterine atony, abnormal placentation or trauma to genital tract following instrumental delivery. Other indications are uterine rupture, placenta praevia and placenta accreta. Conservative measures to arrest bleeding are initially tried before considering EPH. The measures include uterotonic drugs, hemostatic compression sutures, stepwise uterine, ovarian and bilateral internal iliac artery ligation. Conservative methods should be applied when the patient is hemodynamically stable to avoid morbidity associated with hysterectomy. The major complications of hysterectomy include increased blood loss, bladder injury, coagulopathy, wound infection and death. Thus,

Author α: Associate Professor, department of obstetrics & gynaecology, RIMS, Ranchi, Jharkhand, India.
Author σ: Senior resident, department of obstetrics & gynaecology, RIMS, Ranchi, Jharkhand, India. e-mail: mparashar04@gmail.com
Author ρ: Junior resident, department of obstetrics & gynaecology, RIMS, Ranchi, Jharkhand, India.

© 2019 Global Journals

peripartum hysterectomy is a near miss maternal event, and this intervention is performed in life threatening obstetric situations to prevent death.

Worldwide, the rate of peripartum hysterectomy varies widely .In high income countries less than 1:1000 deliveries is complicated by EPH [4] whereas in Nigeria and Pakistan, the incidence is 4 and 11:1000 deliveries, respectively.[5,6] The rate of EPH is increasing over time. [7] In USA, it increased by 12 % between 1998 and 2003[8] and by 15% between 1995 and 2007.[9]

Developing countries like India have higher incidence of EPH because more deliveries take place outside health facilities and are unsupervised or poorly supervised .There is high prevalence of risk factors such as multiple pregnancies, grand multi parity, unbooked cases and prolonged labour (which are associated with uterine atony). In getting appropriate care during labour has been attributed to poor development of essential obstetric care facilities. Most rural public hospitals and health centre do not function 24 hours per day and road networks and transportation systems to the cities are poor, especially in Jharkhand. Recent advances in the medical and conservative management of postpartum hemorrhage have reduced the rate of and the indications of EPH.[10]

The aim of this study was to find the incidence, indications, risk factors and clinical implications of EPH in a tertiary care referral centre of Jharkhand.

II. Material and Methods

This was a retrospective study to identify and analyse the cases of EPH at Rajendra Institute of Medical Sciences between May 2018 to april 2019. Case records were collected from medical records department and maternal characteristics, indications of hysterectomies, complications and types of surgeries were reviewed.

III. Observation and Result

During this study period, there were 9006 deliveries with 72 cases of EPH identified giving an incidence of 7:1000. Out of 72, only 50 cases were included in our study. The clinical characteristics of women with EPH are shown in table 1.

Table 1 shows demographic and clinical characteristics of women with EPH. 36 patients (72 %) belonged to 21 -30 years of age group and 14 (28%) were more than 30 years of age. 12 patients (24%) were grand multipara and 38 patients (76%) were between Para1 –Para 4. Most of the women (66 %) belonged to low socioeconomic status. 39 cases (78%) were unbooked. In 38 patients (76%), the gestational age was between 37 to 40 weeks.

Table 1: Demographic and Clinical Characteristics of Women with EPH

Characteristics	Category	No. of Cases	Percentage
• Age (years) -			
	15-20	00	00%
	21-30	36	72%
	31-40	14	28%
• Parity-			
	0	0	00%
	1-4	38	76%
	≥5	12	24%
• Socioeconomic status -			
	Upper	17	34%
	Lower	33	66%
• Booking status -			
	Booked	11	22%
	Unbooked	39	78%
• Gestational age -			
	28-36	12	24%
	37-40	38	76%

Table 2 shows mode of delivery and baby birth weight. Mode of delivery was vaginal only in 3 cases (6%). 27 women (54%) were delivered by caeserian section, out of which only 13 women were primary caesarian whereas history of repeat caeserian section was done in 14 (28%) cases. In 12 % cases, baby weight was > than 3.5 kg but most of the case (64%) had average baby weight at birth between ≥ 2.5 to ≤ 3.5 kg.

Table 3 shows distribution of cases on the basis of indications of LSCS. Primary caeserian section was done in 13 cases and there was history of previous cs in 14 cases. Repeat 2nd caeserian section was in 6 cases. In those cases where primary cs was done, placenta praevia was only in 4 (8%) cases but the incidence of placenta praevia was very high in repeat cs cases. It was 16% in patients with previous 1 caeserian and 12% with previous 2 caeserian section .The cases of placenta accreta was seen in cases of repeat caeserian cases only and the incidence was 6 % in cases with previous 2 cs. 19 cases (38%) presented with rupture uterus .In this study, instrumental delivery was nill. laparotomy was done in 20 cases (40%).

The main indication of EPH were rupture uterus (38%), placenta praevia (30%), placenta accreta (32%) and atonic PPH (36%). All the patients of rupture uterus were unbooked and brought from periphery in unstable condition and absent fetal heart.

In 38 patients (76%), subtotal hysterectomy was done and in 24 % total hysterectomy was done.

© 2019 Global Journals

Table 3: Distribution of Cases on the Basis of Indications of Primary Lscs and Association with Placenta Praevia-Accreta

	No. of Cases	Percentage
• Primary CS	13	
Placenta praevia	4	8%
Abruptio placentae	1	2%
Fetal distress	1	2%
Malpresentation	3	6%
Obstructed labour	4	8%
• Previous 1 CS	8	
Placenta praevia	8	16%
Placenta accreta	2	4%
• Previuos 2 CS	6	
Placenta praevia	6	12%
Placenta accreta	3	6%
Total	27	54%

Table 4 shows the complications of EPH .Most common complication was wound sepsis. It was present in 24 patients (48%), followed by febrile morbidity in 14 (28 %). Wound dehiscence occurred in 3 cases. 1 case had ureteric injury which was managed successfully. Bladder injury occurred in 7 cases (14%). All those cases in which bladder and ureteric injury occurred, were post cesarian cases. Paralytiv ileus occurred in 2 cases (45). 1 patient had endotoxic shock .Minor complications like urinary tract infection occurred in 13 cases (26%).

Blood transfusion more than 4 units were required in 11 cases.

Table 4: Showing Complications Associated with EPH

Complications	No. of Cases	Percentage
Wound sepsis	24	48%
Febrile morbidity	14	28%
UTI	13	26%
Bladder injury	7	14%
Wound dehiscence	3	6%
Paralytic ileus	2	4%
Endotoxic shock	1	2%
Ureteric injury	1	2%
Relaparotomy	0	0%
Pelvic infection	0	0%
Relaparotomy	0	0%

Table 5 shows maternal and fetal outcome. There were 3 cases of maternal death. 2 cases were due to irreversible hemorrhagic shock and 1 was because of acute renal failure .There was 58 % fetal mortality overall and most of these cases were of rupture uterus.

Table 5: Showing Maternal and Fetal Outcome

Outcome	No. of Cases	Percentage
Maternal death	3	6%
Perinatal death	29	58%

IV. Discussion

The incidence of EPH varies in literature from 0.2 to 2.7 per 1000 deliveries.[11] In our study, the incidence was 7 per 1000 deliveries. This is slightly higher which may be because in developing countries like ours, there is high prevalence of risk factors for EPH such as multiple pregnancy, grand multiparity, cephalopelvic disproportion, prolonged labour, previous caesarian, placenta praevia In addition, most pregnant women are unbooked and undergo labour and delivery outside the health facilities without the assistance of a skilled healthcare provider. This is a result of low level of literacy, marriage at an early age, socioeconomic deprivation of women, desire for a large family and low prevalence of contraceptive users.

The incidence of EPH occurring with history of previous cesarian section had increased significantly over the last few decades .In the present study, 31 patients (62 %) had previous 1 or 2 cesarian section. This is consistent with the findings in the recent literature, with a range of 18.8 to 60.5%.[12]

The association between the incidence of EPH with a history of previous cesarian section is mainly because of morbidly adherent placenta .In the present study, placenta accreta was an important indication for EPH and accounted for 5 (10%) of our cases of EPH. There has been a remarkable increase in the incidence of placenta accreta over the past 50 years and it has been the most common indication for EPH in recent studies where it has accounted for 38 - 50% of all cases of EPH.[13] This has been attributed to the increasing caesarian rate and the concomitant rise in the prevalence of placenta praevia and placenta accreta worldwide. [14]

Uterine atony was another frequent indication for EPH in our study accounting for 18 (36%) of all cases. The incidence of atonic pph has declined relatively over the decades due to increased success of treatment with uterotonic agents, embolisation and better surgical procedures. However, this largely preventable indication for EPH continues to predominate in developing countries due to lack of proper facilities and delayed patient referral from distant areas.[15]

Rupture of uterus accounted for 38% of all cases of EPH in the present study. There has been a significant decrease in the incidence of uterine rupture as the indication of EPH in the developed world where it accounts for only 4% of cases of EPH, [16] but it continues to be a predominant indication in developing countries like India due to grand multiparity, lack of antenatal care and unsupervised labour at home.[17] Studies from developing countries have shown that 74% of cases referred to tertiary centres were because of mismanagement by the unskilled birth attendant .[18]

© 2019 Global Journals

Uterine rupture and placenta praevia accreta were risk factors that were significantly associated with EPH in this study, a finding in agreement with other studies from developing countries. [19] This is probably because uterine rupture and placenta praevia accreta tend to be relatively less amenable to medical and conservative surgical management and mostly necessitates radical surgical interventions such as hysterectomy. Placenta praevia accreta may predispose to partial separation of placenta in which EPH is usually required to control hemorrhage.[20]

The choice between total and subtotal hysterectomy has long been debated. Due to potential risk of developing malignancy in the cervical stump, total hysterectomy is the preferred surgical method .The future rise of cervical stump carcinoma is low (0.1% to 0.15 %) [21] and can be prevented by regular cytological screening.[22] However, there are several advantages of subtotal hysterectomy like lesser blood loss, reduced operating time and reduced intra and post operative complications.[23] Other studies have shown that both types of hysterectomies are comparable with regards to blood loss and complication rates.[24] The final decision to perform subtotal or total hysterectomy should be influenced by patient 's condition.

In this study, 38 (76%) patients had subtotal hysterectomy, probably because most of the patients were not fit for surgery and anaesthesia. The cervix and paracolpos are not usually the source of hemorrhage and so subtotal hysterectomy is adequate to achieve haemostasis.[25]

In our study, maternal mortality was 6 %. This high mortality rate could be due to delay in carrying out the lifesaving hysterectomies. A sequence of conservative measures to control uterine hemorrhage are attempted before resorting to hysterectomy. Delay is associated with further bleeding, anemia and DIC. Timing is critical to an optimal outcome.

The high perinatal mortality rate (58%) found within study was probably because in most of the cases EPH was done for rupture uterus or placenta praevia .After uterine rupture, immediate laparotomy is necessary to salvage the fetus and this is not feasible in patients who deliver outside the hospital.

V. Conclusion

EPH is an obstetric emergency that has potentially devastating consequences. The rate of EPH is high, and the associated maternal –fetal outcome is poor at our institution .The worldwide increase in cesarian section rates may lead to a rise in the number of EPH required in future because of placenta praevia and morbidly adherent placenta and rupture uterus. Thus, there is a need for institutions to monitor their cesarian section rates. Beside that, improvement in female literacy level, prevalence of contraception, effective and efficient antenatal care, provision of institutional delivery with adequate facilities, and efficient blood transfusion services are also needed to reduce the rate of EPH and to improve the outcome.

Acknowledgement

Authors would like to thank all those hospital staffs of medical records department who helped in collecting data.

Disclosure of Interest: None.

Contribution to Authorship: Dr. Meena Mehta has prepared the manuscript, Dr. Meetali Parashar has done the typing, editing and formatting and Dr. Sandhya has collected the data.

Details of Ethical Approval: Permission from ethical committee of the institute was taken.

Funding: None.

References Références Referencias

1. Anita K, Kavita WW.Emergency obstetric hysterectomy. J Obstet Gynaecol India 2005; 55: 132-4.
2. Nasima S, Asifa G, Shazia J, Tehmina A. Emergency obstetric hysterectomy (EOH): a life saving procedure in obstetrics. Pakistan J Surg 2007; 23: 217-9.
3. Rossi A C, Lee R H, Chmait R H. Emeregency postpartum hysterectomy for uncontrolled postpartum bleeding : a systematic review. Obstet Gynaecol 2010; 115: 637-44.
4. Campbell S M, Corcoran p, Manning e, Greene R A. Peripartum hysterectomy incidence, risk factors and clinical characteristics in Ireland. Eur J Obstet Gynecol Reprod Biol.2016; 207: 56-61.
5. Omole.– Ohonsi A, Olayinka H T. Emergency peripartum hysterectomy in a developing country .J obstet Gynaecol Can .2012; 34 (10): 954-60.
6. Khan B, Khan B, Sultana R, Bashir R, Deepa F A. Ten year review of emergency peripartum hysterectomy in a tertiary care hospital. J Ayub Med Coll Abbottabad .2012; 24 (1): 14-7.
7. Shahin S, Guzin K, Eroglu M, Kayabasoglu F, Yasartekin M S. Emergency peripartum hysterectomy: our 12-year experience. Arch Gynecol Obstet.2014; 289 (5): 953-8.
8. Whiteman M K, Kuklina E, Hillis S D, Jamieson D J, Meikli S F, Posner S F, et al. Incidence and determinants of peripartum hysterectomy. Obstet Gynecol.2006; 108 (6): 1486-92.
9. Bateman B T, Mhyre J M, Callaghan W M, Kuklina E V. Peripartum hysterectomy in the United States: nationwide 14 years experience. Am J Obstet Gynaecol.2012; 206 (1): 63.e1-8.
10. Zwart J J, Dijk P D, van Roosmalen J. Peripartum hysterectomy and arterial embolization for major

© 2019 Global Journals

obstetric hemorrhage: a 2 –year nationwide cohort study in the Netherlands. Am J Obstet Gynecol 2010; 202: 150, e1-e7.
11. Awan N, Bennett M J, Walters W A. Emergency peripartum hysterectomy; A 10 year review at the Royal Hospital for Women, Sydney. Australian and New Zealand Journal of Obstetrics and Gynaecology 2011; 51: 210-215.
12. Jou H J, Hung H W, Ling P Y, Chen S M, Wu S C. Peripartum hysterectomy in Taiwan. Int J Gynaecol Obstet 2008; 101: 269-72.
13. Razia Korejo, Shereen Bhutta Ayesha Nasir ,Haleema Yasmin. Emergency Obstetric Hysterectomy. JPMA 2012; 62: 1322.
14. Childbirth Connection. Why is the U. S. national Cesarian rate so high? Available at http://www.childbirthconnection.org/article.asp?ck=10456. Accessed July 20, 2010.
15. Knight M, on behalf of UKOSS. Peripartum hysterectomy in the UK: management and outcomes of the associated hemorrhage. BJOG 2007; 114: 1380 -7.
16. Flood K M,Said S, Geary M, Robson M, Fitzpatrick C, Malone F D. Changing trends in peripartum hysterectomy over the last 4 decades. Am J Obstet Gynaecol 2009; 200: 632.
17. Marwaha P ,Kaur M & Gupta A .Peripartum hysterectomy –a five year study .J Obstet Gynaecol India 2008 ;58(6): 504-506.
18. Kuti O, Dare F O, Ogunniyi S O. The role of referring centres in the tragedy of unbooked patients. Trop J Obstet Gynaecol 2001; 18: 24-6.
19. Ezechi O C, Kalu BKE, Njokanma F O, Nwokoro C A, Okeke GCE. Emergency peripartum hysterectomy in a Nigerian hospital: a 20 –year review. J Obstet Gynaecol 2004; 24 (24): 372-3.
20. Shellhas C S, Gilbert S, Landon M B, Verner M W, Leveno K J, Hauth J C, et al; Eunice Kennedy Shriver National Institutes of Health and Human Development Maternal–Fetal Medicine Units Network .The frequency and complication rates of hysterectomy accompanying caeserian delivery. Obstet Gynaecol 2009; 114 (2 Pt 1): 224-9.
21. Omole-Ohonsi A, Ashimi O A. Ruptured uterus in Kano, Nigeria –study of risk factors. Niger Hosp Pract 2008; 2(3): 65-9.
22. Kastner E S, Figueroa R, Garry D, Naulik D. Emergency peripartum hysterectomy; experience at a community teaching hospital. Obstet Gynaecol 2002; 99: 971-5.
23. Lovina S M, Machado. Emergency peripartum hysterectomy: Incidence indications, risk factors and outcome. N Am J Med Sci.2011; 3(8): 358 -361.
24. Smith J, Mousa H A. Peripartum hysterectomy for primary postpartum hemorrhage: Incidence and maternal morbidity. J Obstet Gynaecol 2007; 27: 44-7.
25. Baskett T F. Peripartum hysterectomy. In: B –Lynch C, Keith L G, Lalonde A B, Karoshi M, Eds. A textbook of postpartum hemorrhage. Duncow UK: Sapiens Publishing; 2006: 312-5.

© 2019 Global Journals

This page is intentionally left blank

© 2019 Global Journals

Global Journal of Medical Research: E
Gynecology and Obstetrics
Volume 19 Issue 4 Version 1.0 Year 2019
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Domestic Violence against Married Female Nurses

By Sanjana Asma, Kamrun Nessa & Hosne Ara Akter

Abstract- *Background:* Domestic violence against married female nurses is one of the major problems in Bangladesh. They experience various types of domestic violence in any stage of their lives. The study aim was to assess the magnitude of domestic violence among married female nurses.

Methods: This cross-sectional study was carried out among 192 married female nurses from January to December 2017. Data were collected by face to face interview with the help of semi-structured questionnaire.

Results: Among 192 female nurses, about 32% were victims of domestic violence, 22.4% suffered from mental violence. Husband those who had passed HSC or equivalent level (41.0%) created more domestic violence and there was a strong association (p=0.002) between education of husbands and violence. Monthly income of the nurses had Tk. 20001-30000 and there was very high significant (p=0.000, 0.01) relation between monthly income of nurses, their husbands and domestic violence.

Keywords: *domestic violence, mental violence, dreadful pressure.*

GJMR-E Classification: *NLMC Code: W 860*



Strictly as per the compliance and regulations of:

© 2019. Sanjana Asma, Kamrun Nessa & Hosne Ara Akter. 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.

Domestic Violence against Married Female Nurses

Sanjana Asma [α], Kamrun Nessa [σ] & Hosne Ara Akter [ρ]

Abstract- ***Background:*** Domestic violence against married female nurses is one of the major problems in Bangladesh. They experience various types of domestic violence in any stage of their lives. The study aim was to assess the magnitude of domestic violence among married female nurses.

Methods: This cross-sectional study was carried out among 192 married female nurses from January to December 2017. Data were collected by face to face interview with the help of semi-structured questionnaire.

Results: Among 192 female nurses, about 32% were victims of domestic violence, 22.4% suffered from mental violence. Husband those who had passed HSC or equivalent level (41.0%) created more domestic violence and there was a strong association (p=0.002) between education of husbands and violence. Monthly income of the nurses had Tk. 20001-30000 and there was very high significant (p=0.000, 0.01) relation between monthly income of nurses, their husbands and domestic violence. Total family income (Tk. 50000 – 70000) of the nurses, 39.3% were victims and there was a strong association (p=0.02) between total family income and victim of domestic violence. 69.2% of nurses experienced beating and main perpetrators were their husbands (74.6%). Only 46.2% received treatment and (58.2%) had taken preventive measures. The reason was dreadful pressure (84.2%) from in-laws' side. Only 33.3% tried to make them mentally strong to cope with the violence.

Conclusion: The pattern and factors responsible for domestic violence identified in this study might help to reduce and prevent domestic violence against married female nurses.

Keywords: domestic violence, mental violence, dreadful pressure.

I. Introduction

Domestic violence against women is as a significant social as well as public health problem. Nurses are a large group of service providers having a central moral of caring in health promotion through their work to improve the health status of communities. As a group of health workers, female nurses who are married traditionally have been insecure to consider domestic violence as a health issue. They have also been reluctant to deliberate this issue in hospital settings. Besides this, female nurses have an essential role to play in their work in hospital and community levels and to assist women and their children who are victims of violence in a domestic situation. Limited studies are available on the prevalence of domestic violence against them globally *[1]*. The nature of duty and work schedules of nurses are unique that can have different implications for their family life. As there is a high level of role conflicts and significant level of occupational stress, nurses have been recipients of abuse or witness abuse either at home or workplace. *Arends et al. [2]* found that statistical evidence on domestic violence against female nurses showed that, knowledge about the characteristic of violence and its effects were almost absent among them. The term 'Domestic Violence' refers to physical, verbal, psychological, sexual, or economic abuse (e.g., withholding money, lying about assets) in a domestic setting used to exert power or control over someone or to prevent someone from making a free choice. This includes any behaviors like intimidate, manipulate, humiliate, isolate, frighten, terrorize, coerce, threaten, blame, hurt, injure, or wound someone. Rape, incest, and dating violence are all considered to be forms of domestic violence in *Fedovskiy et al. [3]*. There are four main types of domestic violence (also called intimate partner violence):

- Physical
- Sexual
- Psychological
- Economical *[4]*

Brown et al. [5] shows that nurses have to play a significant role in the prevention and early intervention of domestic violence. *Florence [6]* describes in a recent review of international literature on abuse or violence identified that female nurses who have been assaulted by their partner mostly have worse health than other women. They may also appear nervous, ashamed, or evasive. They cannot concentrate on their work and duties might be hampered or sometimes disgraced on by patients and colleagues. *Costa et al. [7]* shows maintaining peace and harmony, caring for children while protecting them from the impact of the abuse or violence, as well as living with the fear of precarious personal safety. *Campbel [8]* proves that many women do not want to end their relationship, but they however, want the violence to stop. Nurses should ensure their ways of improving their self-esteem and the health status of nurses of all communities.

In Bangladesh, violence against married female nurses is a very common practice. It leads to inequality

Author α: Coordinator, Department of Obstetrics and Gynaecology, BRB Hospital ltd. Dhaka, Bangladesh.
e-mail: dr.sanjanaasma@gmail.com
Author σ: Professor, Department of Obstetrics and Gynaecology, BRB Hospital ltd. Dhaka, Bangladesh. e-mail: knessa3@gmail.com
Author ρ: Senior Lecturer, Department of Reproductive and Child Health, Shahabuddin Medical College and Hospital, Dhaka, Bangladesh. e-mail: drsoukatali3400@gmail.com

© 2019 Global Journals

in the distribution of power, deprivation of their equal opportunity of work and decision making. *Martin et al. [9]* shows that nurses can suffer from various types of domestic violence in their lives. Although domestic violence was usually done by husband, children, and in-laws also committed different types of violence. *Vacherc et al. [10]* presents that domestic violence has direct consequences for their physical, mental, sexual and reproductive health of nurses as well as economic cost which effect the psychological development of children. To fight against this violence, strict laws can implement. *Kaur et al. [11]* proves that multisectoral organizations can also take necessary steps to prevent domestic violence. *Kumar et al. [12]* shows that a coordinated effort for practical and different interventions can be invented to eradicate violence against female nurses to achieve their equality and self-dignity. To achieve success in this regard, legislation and developed policies may able to focus on the discrimination against female nurses and thus may promote gender equality, support, and help to move towards more peaceful cultural norms.

II. Materials and Methods

It was a cross-sectional prospective study, carried out in Sir Salimullah Medical College and Mitford Hospital, Dhaka, Monowara Hospital limited, Dr. Sirajul Islam Medical College and Hospital, Dhaka Shishu Hospital and Victoria Crescent Hospital, etc. from January to December 2017.The study population was married female nurses working in private and Government hospitals. The Standard method of sample size calculation was used to determine the sample size in the study. The formula was-

$$n = {z^2 pq}/{d^2}$$

We included those female nurses informationthat provided written consent and exclude those who were ill or absent from their work. We used appropriate type of non-probability sampling and the nurses fulfilling the above mentioned criteria were selected for the interview. A semi-structured questionnaire developed for collection of required information. Before collection data, pre-testing of questionnaire was done in Sir Salimullah Medical College and Mitford Hospital. Data were collected by woman to woman interview of respondents by the researcher. Before data collection, informed written consent was taken from the nurses. They were informed clearly about the objective of the study. The interview conducted in Bangla. Data processing involved categorization of the data, coding, summarization the data, categorization to detect errors to maintain consistency and validity. After collection, data checked, verified, compiled and analyzed by SPSS (Statistical Package for Social Science) software version 22. Prior authorization was taken from the Institutional Ethical Committee (IEC) of Sir Salimullah Medical College and Mitford Hospital, Dhaka, Bangladesh. Administrative permission was taken from the respective hospitals. All nurses were informed verbally about the study design and the objective. A written consent form was obtained from each subject. No medical surgical or therapeutic intervention was applied. There was no involvement of physical and social risks. All the records were kept under lock and key. Every respondent had the opportunity to receive or refuse participation.

III. Results

Table 1 shows that out of 192 nurses, around 44.3% were between 31 to 40 years of age and second highest (37.4%) percentage were between 41 to 50 years. About 9.9 % were between 51 to 60 years and only 8.3% were between 21 to 30 years.

Table 1: Distribution of nurses by age

Age (years)	Frequency	Percent
21-30	16	8.3
31-40	85	44.3
41-50	72	37.5
51-60	19	9.9
Total	192	100.0
Statistics	Mean ± SD (40.98 ±7.232) years	

Figure 1 shows that the majority of the nurses were Muslims (71.4%) followed by 24.5% were Hindus and only 4.2% of them were Christians.

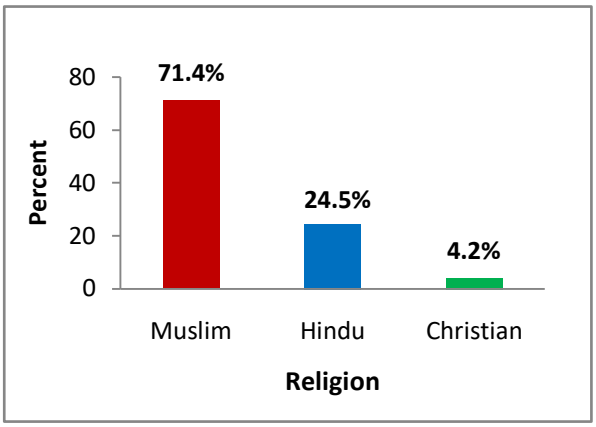


Fig. 1: Distribution of nurses by religion

Figure 2 estimated that according to the educational status of nurses, the highest (45.8%) percentage of them studied SSC or equivalent level. The second (40.1%) highest percentage had passed HSC or equivalent class. About 7.8% of nurses were graduated and only 6.3% of them were posted graduated.

© 2019 Global Journals

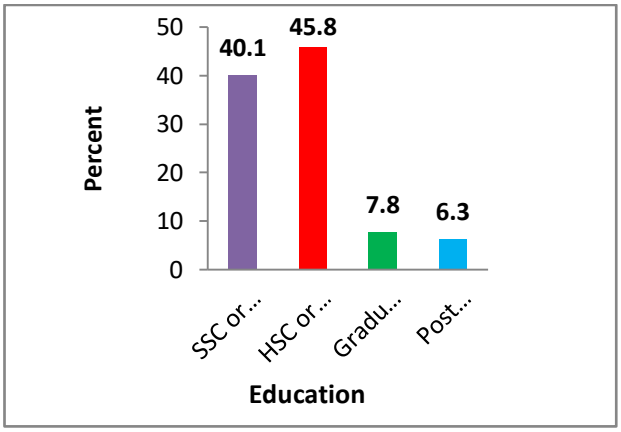


Fig. 2: Distribution of nurses by education

Average monthly incomes of the nurses were Tk. 30729.6. Among them, the majority (30.2%) had a monthly income between Tk. 10001-20000; while about 25.5% had between Tk. 20001-30000 and lowest (9.4%) number of nurses had a monthly income between Tk. 50000-70000 as shown in Table 2.

Table 2: Distribution of nurses by monthly income

Income (Tk.)	Frequency	Percent
10001-20000	58	30.2
20001-30000	49	25.5
30001-40000	29	15.1
40001-50000	38	19.8
50001-70000	18	9.4
Total	192	100.0
Statistics	Mean ± SD (30729.66±8434.37)	

Table 3 depicts that according to monthly family income of nurses, the average monthly family income was Tk. 50130.7 and the highest (53.6%) number of them had between Tk. 50001-70000. Approximately 21.9% had between Tk. 30000- 40000 and only 3.6% had between Tk. 20001-30000.

Table 3: Distribution of nurses by monthly family income

Income (Tk.)	Frequency	Percent
20001-30000	07	3.6
30001-40000	42	21.9
40001-50000	40	20.8
50001-70000	103	53.6
Total	192	100
Statistics	Mean ± SD	

Table 4 illustrates that according to the educational status of the husband, around (44.3%) percentage were graduated followed by 30.7% completed HSC or equivalent class. About 18.2% were post-graduated and only 6.3% and 0.5% studied SSC or equivalent level and others respectively.

Table 4: Distribution of husband by education

Education	Frequency	Percent
SSC or equivalent	12	6.3
HSC or equivalent	59	30.7
Graduate	85	44.3
Post graduate	35	18.2
Others	1	0.5
Total	192	100.0

Table 5 demonstrated that according to the occupational status of the husband, around 46.4% were businessmen, while 29.7% were non-Government service holder. About 15.1% were paramedics and only 3.6% and 2.6% were doctors and Government service holders respectively.

Table 5: Distribution of husband by occupation

Occupation	Frequency	Percent
Doctor	5	2.6
Government service	5	2.6
Non-Government	57	29.7
Paramedics	29	15.1
Business person	89	46.4
Others	7	3.6
Total	192	100.0

The average monthly income of husbands was Tk. 27086.44 and majority (43.2%) of them had between Tk. 20001-30000. About 31.3% had 30001-50000 and very few (0.5%) of them had a monthly income between Tk. 1001-10000 as shown in Table 6.

Table 6: Distribution of husband by income

Income (Tk.)	Frequency	Percent
1001-10000	1	0.5
10001-20000	48	25.0
20001-30000	83	43.2
30001-50000	60	31.3
Total	192	100.0
Statistics	Mean ± SD = 27086.44±2024.9	

From figure 3, it is estimated that among 192 female nurses, most (72%) of them were both, the main earning member of the family. About 19.0% were self and only 9.0% were husbands who were the main earning members in the family.

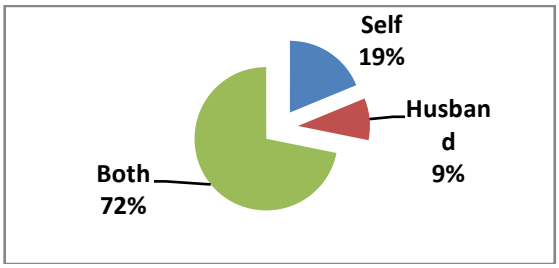


Fig.3: Distribution of main earning member of the family

© 2019 Global Journals

Table 7 shows that greater (65.6%) number of victim nurses were Muslims. Approximately 27.9% of victims were among Hindu nurses and only 6.6% were among Christian nurses. Though the evidence of violence was more among Muslim female nurses, there was no statistical association between religion and victim of domestic violence in this study (as P>0.05).

Table 7: Association between religion and victim of DV

Religion	Victim of Domestic Violence		Total	Significance
	Yes	No		
Muslim	40	97	137	X^2= 2.065 , df= 2, p= 0.356
	65.6%	74.0%	71.4%	
Hindu	17	30	47	
	27.9%	22.9%	24.5%	
Christian	4	4	8	
	6.6%	3.1%	4.2%	
Total	61	131	192	
	100.0%	100.0%	100.0%	

Table 8 depicts that according to the educational status of the married female nurses, those who passed HSC or equivalent level, suffered more (49.2%) DV than others and around 42.6% victims studied SSC or equivalent level. DV was lower among graduated (4.9%) and post-graduated (3.3%).

Table 8: Association between education and victim of DV

Education	Victim of Domestic Violence		Total	Significance
	Yes	No		
SSC or equivalent	26	51	77	X^2= 2.582, df= 3, p= 0.461
	42.6%	38.9%	40.1%	
HSC or equivalent	30	58	88	
	49.2%	44.3%	45.8%	
Graduate	3	12	15	
	4.9%	9.2%	7.8%	
Post graduate	2	10	12	
	3.3%	7.6%	6.3%	
Total	61	131	192	
	100.0%	100.0%	100.0%	

Table 9 shows that about the educational status of the husband, those who studied HSC or equivalent level created more (41.0%) domestic violence; while among graduated about 31.1% were victims of DV.

Table 9: Association between the education of husband and victim of DV

Husband Education	Victim of Domestic Violence		Total	Significance
	Yes	No		
SSC or equivalent	08	04	12	X^2= 16.709, df= 4, p= 0.002
	13.1%	3.1%	6.3%	
HSC or equivalent	25	34	59	
	41.0%	26.0%	30.7%	
Graduate	19	66	85	
	31.1%	50.4%	44.3%	
Post graduate	8	27	35	
	13.1%	20.6%	18.2%	
Others	01	00	01	
	1.6%	0.0%	0.5%	
Total	61	131	192	
	100.0%	100.0%	100.0%	

But among SSC or equivalent level of the educational status, it was much less (13.1%) and there was a strong association between the education of husband and domestic violence (P<0.01).

Table 10 describes between Tk. 20001-30000 monthly incomes of nurses, the highest (42.6%) number of victims were present followed by approximately 34.4% of victims had between Tk. 10001 – 20000. Only 4.9% of victims had between Tk. 50001 – 70000 and there was a very highly significant relation between monthly income of nurses and DV (P<0.005).

Table 10: Association between monthly income of nurses and victim of DV

Monthly Income	Victim of Domestic Violence		Total	Significance
	Yes	No		
10001-20000	21	37	58	X^2= 20.383, df= 4, p= 0.000
	34.4%	28.2%	30.2%	
20001-30000	26	23	49	
	42.6%	17.6%	25.5%	
30001-40000	6	23	29	
	9.8%	17.6%	15.1%	
40001-50000	5	33	38	
	8.2%	25.2%	19.8%	
50001-70000	3	15	18	
	4.9%	11.5%	9.4%	
Total	61	131	192	
	100.0%	100.0%	100.0%	

© 2019 Global Journals

Table 11 mentions that bythe monthly income of the husband, those who had between Tk. 20001 – 30000 created more (44.3%) domestic violence, followed by 37.7% of victims had between Tk. 10001-20000. Only 11% of victims had between Tk. 30001 – 50000 and DV were almost absent (0.0%) between Tk. 1001-10000 monthly income group. There was high statistical significance between the income of husband and domestic violence as $p<0.05$

Table 11: Association between the income of husband and victim of DV

Husband Income	Victim of Domestic Violence		Total	Significance
	Yes	No		
1001-10000	0	1	1	X^2= 11.258, df= 3, Significant= 0.010
	0.0%	0.8%	0.5%	
10001-20000	23	25	48	
	37.7%	19.1%	25.0%	
20001-30000	27	56	83	
	44.3%	42.7%	43.2%	
30001-50000	11	49	60	
	8.2%	25.2%	19.8%	
Total	61	131	192	
	100.0%	100.0%	100.0%	

Table 12 estimates that domestic violence was more (39.3%) prevalent among those who had a monthly income between Tk. 50001 – 700000, while it was lowest (9.8%) those had between Tk. 20001 – 30000 and the second highest (27.9%) number of victims were present between Tk. 40001 – 50000 income group. There was a strong association between monthly incomes of the families and victim of DV as $p<0.05$.

Table 12: Association between monthly total family income and DV

Family Income	Victim of Domestic Violence		Total	Significance
	Yes	No		
20001-30000	6	1	7	X^2=14.977, df=3, p=.002
	9.8%	0.8%	3.6%	
30001-40000	14	28	42	
	23.0%	21.4%	21.9%	
40001-50000	17	23	40	
	27.9%	17.6%	20.8%	
50001-70000	24	79	103	
	39.3%	60.3%	53.6%	
Total	61	131	192	
	100.0%	100.0%	100.0%	

Table 13 illustrates that greater number (82.0%) of domestic violence was present among those nurses who were both, the earning member of the family, while it was lowest (6.6%) among them whose husbands were the main earning member of the family. There was no significant association between the earning member of the family and victim of domestic violence ($p>0.05$) in this study.

Table 13: Association between earning members of the family and DV

Earning Member	Victim of Domestic Violence		Total	Significance
	Yes	No		
Self	7	29	36	X^2= 4.547, df= 2, p= 0.103
	11.5%	22.1%	18.8%	
Husband	4	14	18	
	6.6%	10.7%	9.4%	
Both	50	88	138	
	82.0%	67.2%	71.9%	
Total	61	131	192	
	100.0%	100.0%	100.0%	

Table 14 shows that according to the family member of nurses, the majority (71.0%) of them had 6-8 and only 12.9% had 9-11 family members.

Table 14: Distribution of family members of the nurses

Family Members	Frequency	Percent
3-5	5	16.1
6-8	22	71.0
9-11	4	12.9
Total	31	100.0
Statistics	Mean ± SD (6.97±1.278)	

Figure 4, the pie chart describes that among 192 married female nurses, 32% was the victim of domestic violence while about 68% had no evidence of domestic violence.

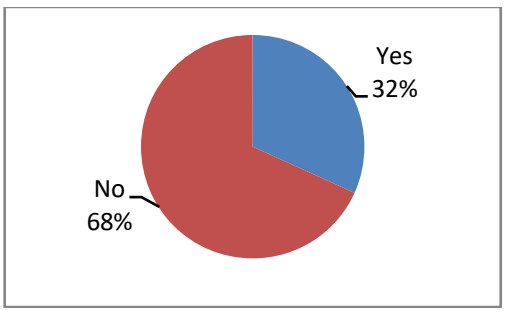


Fig. 4: Distribution of married female nurse victim of DV

© 2019 Global Journals

Figure 5 demonstrates that among 32% victim married female nurses, around 22.4% suffered from mental violence, about 6.8% physical, 2.1% sexual and only 0.5% tolerated economic violence.

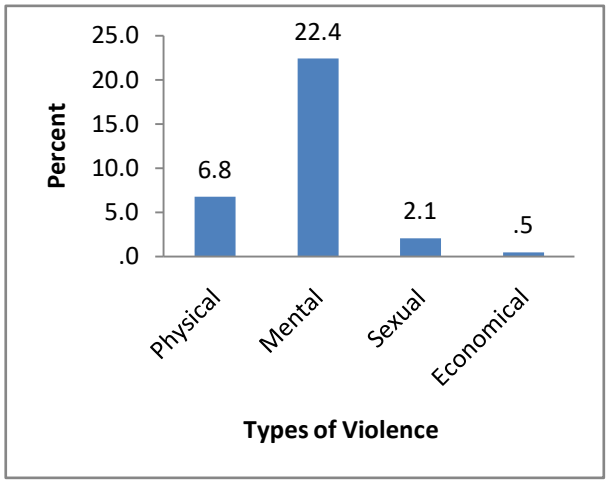


Fig. 5: Distribution of nurse victim of DV

Table 15 shows that nurse who suffered from physical violence, the most common type was beating (69.2%) and another common type of physical violence was slapping (30.8%) by their husbands.

Table 15: Types of physical violence

Physical Violence	Frequency	Valid Percent
Beating	9	69.2
Slapping	4	30.8
Total	13	100.0

The most common (30.8%) reason for physical abuse was related to appearance, followed by about 23.1% were related to their children and only 7.7 % were related to dowry as shown in Table 16.

Table 16: Causes of physical violence

Reasons for abusing physically	Frequency	Valid Percent
Related to appearance	4	30.8
Related to household matter	1	7.7
Related to your children	3	23.1
Related to your paternal	4	30.8
Related to dowry	1	7.7
Total	13	100.0

Figure 6 shows that greater (62%) number had moderate and around 38% had a severe impact on the health of married female nurses due to physical violence.

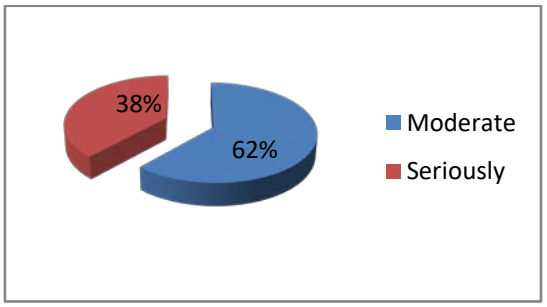


Fig. 6: Weight up physical violence from nurses

Table 17 depicts that the most common (31.7%) type of mental violence was using abusive language and another common (25.0%) type was created pressure doing things they didn't like. About 8.3% was stopping talking and only 5.0% was another type of mental violence they experienced.

Table 17: Types of mental violence

Types of mental violence	Frequency	Percent
Using abusive language	19	31.7
Stop talking	5	8.3
Restricting from doing things what she like	10	16.7
Restricting decision making in the family	8	13.3
Creating pressure to do things what you does not like	15	25.0
Others	3	5.0
Total	60	100.0

Table 18 reveals that most (47.4%) common reason of the economic violence was not willing to spend for the family. Approximately 26.3% had multiple families of the husband that was another common reason and only 10.5% were related to dowry.

Table 18: Reasons for economical abuse

Reason of abuse	Frequency	Percent
Unemployment of the husband	3	15.8
Not willing to spent for the family	9	47.4
Dowry	2	10.5
Multiple families of the husband	5	26.3
Total	19	100.0

Table 19 shows that majority (66.7%) had the reason of sexual violence was promiscuity of the husband, while about 22.2% were victims by forceful intercourse and around 11.1% were had having suspicious behavior of the husband on working women.

© 2019 Global Journals

Table 19: Types of sexual abuse suffered by the nurses

Types of abused	Frequency	Valid Percent
Forceful intercourse	2	22.2
Promiscuity of the husband	6	66.7
Husband having suspicion on the working women	1	11.1
Total	9	100.0

Table 20 shows that a large (74.6%) number of domestic violence was created by their husbands while about 22% were created by their mothers –in law and only 3.4% were victims by their fathers-in-law.

Table 20: Person responsible for DV

By whom abused	Frequency	Percent
Husband	44	74.6
Mother-in-law	13	22.0
Father-in-law	2	3.4
Total	59	100.0

Table 21 illustrates that about 41.5% tried to get help from in-law's families followed by approximately 39.0% tolerated all by them without any protest and only 2.4% seek help from different NGOs working for women.

Table 21: Types of preventive measures

Types of preventive	Frequency	Percent
Try to get help from in-laws	17	41.5
Try to get help from paternal side of the respondent	6	14.6
Try to get help from different NGOs working for women	1	2.4
Tolerated all by herself without any protest	16	39.0
Others	1	2.4

Among those who had received treatment, only 3.6% took psychiatric treatment or medicine and 2.6% received psychiatric counseling for their mental trauma shown in table 22.

Table 22: Types of treatment

Types of treatment	Frequency	Percent
Psychiatric treatment/take medicine	7	3.6
Psychological counseling	5	2.6
Total	12	6.3

IV. Discussion

This descriptive type of cross-sectional study was carried out in Government and private hospitals in different areas of Dhaka city. The purpose of this study was to assess the pattern and reasons responsible for domestic violence against married female nurses.

This study revealed that out of 192 nurses, about 44.3% were in 31- 40 years of age and the second-highest (37.5%) number of nurses was between 41-50 years of age. Only 9.9 % were between 51- 60 years and the lowest percentage (8.3%) were between 21-30 years of age. *Sharma et al. [13]* shown that majority 41.58% of victim nurses were between 30- 40 years followed by 22% were between 21-30 years and lowest number only (2%) were between 51-60 years of age.

Most (71.4%) of the nurses were Muslims, followed by 24.5% nurses were Hindus and only 4.2% of them were Christians. About DV, most (65.6%) of victim nurses were Muslims followed by 27.9% were Hindus, estimated in this study. According to *Rao [14],* DV was more prevalent among Muslims (80%); while about 65% were among Hindus and the lowest numbers only 5% were among Christian nurses.

This study illustrated that the majority (45.8%) of nurses studied up to SSC or equivalent level followed by 40.1% had passed HSC or equivalent level. Only 7.8% and 6.3% were graduated and post-graduated respectively in this study. In compliance with domestic violence, the prevalence was highest (42.6%) among female nurses those had passed HSC or equivalent level. Around 42.6% of victims were having SSC or equivalent level of education and the lowest numbers only (3.3%) were among post graduated. There was no statistical significance ($p= 0.461$) between the education of nurses and DV in this study. In agreement with this present study findings, *Kidwai[15]* reported that nurses completed only HSC or equivalent level suffered the highest level of DV but it was lower (5.2%) among post-graduated and there was a strong association ($P=0.005$) between the educational status of nurses and domestic violence.

On the other hand, according to the educational status of the husband, the present study also estimated that around 44.3% were graduated followed by 30.7% were having HSC or equivalent level. About 18.2% were post-graduated and only 6.3% studied SSC or equivalent level of education. Husbands studied HSC or equivalent level, the highest (41.0%) rate of domestic violence was created by them and the graduated husbands ranked second highest (31.1%) in creating DV. There was a strong association ($p=0.002$) between the education of husbands and DV. In this respect *Vachercet al. [10]* emphasized that husbands those who had passed HSC or equivalent level of education produced more (59%) DV.

This study depicted that there was a very highly significant relation between monthly income of nurses and victim of domestic violence. This study demonstrated that DV was lower in the higher monthly income group of nurses. Moreover, *Campbell [8]* reported that DV was widely prevalent among those nurses having a monthly income between Tk.

© 2019 Global Journals

15000-30000 and there was a highly significant relation (p=0.001) between monthly income and domestic violence.

The current study identified that the majority (46.4%) of them were a businessman. Sambisa*et al. [16]* shown that majority (65.5%) of husbands of nurses were businessmen and the husbands those did service in private sectors created more (45.3%) domestic violence. The majority (43.2%) of them had income between Tk. 20001-30000 and the largest (44.3%) numbers of perpetrators were among this income group. In this regard, *Willson [17]* stated that DV was more prevalent among the nurses whose husband had a monthly income between Tk. 25000-30000. *Campbell [8]* predicted that, the husbands of nurses having a monthly income between Tk. 20000-40000 created the highest range of domestic violence.

This study estimated that among 192 nurses most (72.0%) of them were the both, the earning members in their families and DV was also frequent (82.0%). There was no statistical association between earning member of family and DV in this study as p=0.103. But *Khan et al. [18]* predicted that domestic violence was more prevalent among them; those husbands were the main earning member of the family.

Most (49.2%) of victim nurses were between 21 – 25 years of age at the time of marriage. However, there was no significant (p=0.196) relation between victim of DV and age of the nurses at the time of marriage. According to *Sayem et al. [19],* they demonstrated that the occurrence DV was higher between 20-30 years of age and there was a strong (0.001) association between age at the time of marriage and DV.

In this study, we found, most of them (96.7%) were the victim of DV getting marriage arranged by their families. Another study *Ahmed et al. [20]* revealed that DV was widely prevalent (85.0%) among nurses who had got married arranged by their families.

This study identified that majority (95.3%) of them had their first marriage and the most common reason for getting re-marriage was physical torture (55.6%) by their husbands. Approximately (22.2%) were due to dowry and 11.1% were due to widowed and being a job holder.

This study showed that the majority belongs to nuclear family and the prevalence was highest (86.9%) among them. In agreement with this *Baral et al. [21]* demonstrated a significant relationship between types of family and their exposure to DV.

The current study identified that most (81.0%) of female nurses had one or two children and only 0.6% had 5 or 6 children. Another study *Schular et al. [22]* illustrated that nurses having 5-6 children experienced more (52.2%) DV in their lives.

This study illustrated that 32% were the victim of DV, among them, 22.4% suffered from mental violence, 6.8% physical, 2.1% sexual and only 0.5% economic violence. Meanwhile, *Vacherc et al. [10]* revealed that majority (49.0%) of female nurses suffered from mental violence and 15% experienced economic violence.

A notable number (69.2%) were beaten by their husbands and the most common reason was related to appearance (30.8%), (23.1%) due to their children. The most common type of physical torture was beating (65.0%) and slapping (43.0%). *Trevillion et al. [23]* reported in a study of DV in Minia, Egypt. Dowry was another main cause of physical violence against female nurses in India which is focused in *Ali et al*. [24].

53.8% of nurses did not receive any type of treatment; while about (46.2%) had taken. *Cope et al. [25]* reported that most (68.0%) of nurses did not receive any treatment as a result of DV and especially physical violence caused serious impact on their reproductive health as well as overall wellbeing.

31.35% experienced mental violence and the most common reason was using abusive language (31.7%) by their husbands. Another important cause was creating pressure to do things they didn't like (25.0%). On the same line, a study on nursing students in Australia *Doran et al. [26]* stated that using abusive language was one of the most common.

Only 4.7% of nurses had experienced sexual violence and the majority (66.7%) of them had the reason for the promiscuity of husbands. Also about 22.2% were abused by forceful intercourse by their husbands and minor (11.1%) were the cause of suspicious behavior of husbands on working women, as reported in this study. In another study *Woods [27]* represented that major (35%) cause of sexual violence experienced by nurses was promiscuity of husbands.

The current study also depicted that DV was mainly created by their husbands (74.6%). The main perpetrators of violence were their husbands (85%) and about (64%) were mothers-in-law in *Khan et al. [18].*

58.2% had taken preventive steps among victim nurses. The most common (41.5%) approaches were negotiation and seeking family help while restoring to legal actions was much less (2.4%) according to this report. Moreover, *Kalokhe et al., [28]* mentioned that majority (56.0%) of victim nurses tried to solve their problems by discussing with the members in their laws' families. In another study, *Florence [6]* illustrated that nurses working in private sectors were more vulnerable to DV due to their financial incapability and only 5.0% seek help from NGOs Meanwhile, *Kader [29]* in Malaysia demonstrated that none of the female nurses exposed to DV in Malaysia took a legal step in Malaysia in Malaysia.

This study was shown that only 6.3% received treatment for mental trauma. Few of them received psychiatric treatment (3.6 %) and psychological counseling (2.6%). Only (5.0%) took treatment for mental illness and among them, only 2% received

© 2019 Global Journals

psychological counseling. A similar finding was reported in a study of DV in Bangladesh in *Khan et al. [18].*

This study also described that about 33.3% tried to make them mentally strong as cope with violence. In another study *Sayem et al. [30]* revealed that nurses victim of DV tried to make them financially (45.0%) and mentally (34.0%) strong so that they could cope the violence easily.

From the above discussion, it was revealed that according to religion, educational status of nurses, type of family, ways of marriages, age at the time of marriage, main earning member of the family, there was no significant relation with domestic violence. But on the basis of the education of husband, incomes of nurses, their husband, and total family income, there was a very strong and notable association with domestic violence.

V. Conclusion

Domestic violence against female nurses is one of the burning issues in contemporary Bangladesh. Women, working as nurses in Bangladesh, have many limitations to expose the violence against them. The bindings of cultural norms and values trigger the violence against them. Though prevention and protection act 2010 was being implemented at the local level rigorously designed research was also needed to develop and make a coordinative intervention with victim and perpetrator. Attention should be needed on government and as well as non-Government nurses by the government and other NGOs.

References Références Referencias

1. Akar, T., Aksakal, F. N., Demirel, B., Durukan E., Ozkan, S. (2010) The Prevalence of Domestic Violence against Women among a Group Woman: Ankara, Turkey. *Journal of Family Violence*. Vol 25, p. 449.
2. Arends-Keunnig, M. and Amin, S. (2001) Women's Capability and Right to Education in Bangladesh. *International Journal of Politics, Culture and Society*. Vol 15, No 13, pp. 125-142.
3. Fedovskiy, K., Higgins S., Pranajep, A. (2008) Intimate Partner Violence: How Does It Impact Major Depressive Disorder and Post Traumatic Stress Disorder among Immigrant Latinas? *Journal of Immigrant and Minority Health*. Vol 10, No 1, pp. 45-51.
4. Beydoun, H. A., Beydoun, M. A., Kaufman, J. S. (2012) Intimate Partner Violence against Adult Women and Its Association with Major Depressive Disorder, Depressive Symptom and Postpartum Depression: A Systemic Review and Meta Analysis. *Social Science and Medicine*. Vol 756, pp. 959-975.
5. Brown, J. B., Lent, B., Brett, P. J., Sas, G. and Pederson, L. L. (1996) Development of the Women Abuse Screening Tool for Use in Family Practice. *Family Medicine*. Vol 28, No 6, pp. 422-428.
6. Florence, I. (2009) Domestic Violence against Women and Girls. *Innocenti Digest*.
7. http://www.unicef.icdc.org/publications/pdf/digest6e.pdf (accessed on 25.11.2017).
8. Costa, D., Hatzidimitriadou, E., Ioannidi-Kapolou., Lindert, J. J. Sundin, O., Toth, O., and Barros, H. (2016) Male and Female Intimate Partner Violence and Socio-economic Position. *Public Health*. Vol 13, pp. 44-52.
9. Campbell, J. C. (2002) Health Consequences of Intimate Partner Violence. *Lancet*. Vol 359, pp. 1331–1336.
10. Martin, S. L., Tsui, A. O., Maitra, K., Marinshaw, R. (1999) Domestic Violence in Northern India. Am J Epidemiol. Vol 150, pp. 417–420.
11. Vacherc, J., Sharma, A. (2010) Domestic Violence against Women and Their Mental Health Status in a Colony in Delhi. *Indian Journal of Community Medicine*. Vol 35, No 7, pp. 403–405.
12. Kaur, R., Garg, S. (2008) Addressing Domestic Violence against Women: An Unfinished Agenda. *Indian Journal of Community Medicine*. Vol 33, pp. 73–76.
13. Kumar, S., Jeyaseelan, L., Suresh, S. (2005) Domestic Violence and Its Mental Health Correlates in Indian Women. *Br J Psychiatry*. Vol 187, pp. 62–67.
14. Sharma, K. K. and Vasta, M. (2014) Coping Strategies Adapted by Female Nurses Experiencing Domestic Violence by Their Marital Partners. *The Nursing Journal of India*. Vol 105, No 1, pp. 11-14.
15. Rao, V. (1997) Wife-beating in rural South India: A Qualitative and Econometric Analysis. Social Science Medicine. Vol 44, No 13, pp. 1169–1170.
16. Kidwai, R. (2007) Silent Acceptance of Violence at Home. http://www.telegraphindia.com/1001117/front_pa.htm (accessed on 15.12.2017).
17. Sambisa, W., Angels, G., Lance, P. M., Naved, R. T and Thorton, J. (2011) Prevalence and Correlates of Physical Spousal Violence against Women in Slum and Nonslum Area of Urban Bangladesh. *Journal of Interpersonal Violence*. Vol 26, pp.2592: 2600.
18. Willson, P. (1998) Domestic Violence: Are Nurses Hiding The Facts? *Internet J A Domestic Violence Nurse Pract*.
19. http://www.ispub.com/journal/the_internet_journal_of_adomestic violenceance…-60k (accessed on 30. 11.2017).
20. Khan, M. E., Aeron, A. (2006). Prevalence, Nature and Determinants of Violence against Women in Bangladesh.*The Journal of Famiky Welfare*. Vol 52, pp. 33-51.
21. Sayem, A. M. and Khan, M. A. U. (2014) Women's Strategic Response to Intimate Partner Violence: A

© 2019 Global Journals

Study in Rural Community of Bangladesh. *Asian Social Work and Policy Review*. Vol 6, pp.23-39.
22. Ahmad, I., Ali, P. A., Rehman, S., Talpur, A. and Dhingrra, K. (2016). Intimate Partner Violence Screening in Emergency Department: A Rapid Review of Literature. *Journal of Clinical Nursing*. Vol 14, pp. 123-125.
23. Baral, I., Kora, K., Yiiksel, S., Sezgin, U. (1998) Self Mutilating Behavior of Sexually Abused Female Nurses in Turkey. *Journal of Interpersonal Violence*.Vol 13, pp. 427-429.
24. Schular, S. R., Bates, L. M. and Islam, F. (2008) Women's Rights, Domestic Violence and Resourse Seeking in Rural Bangladesh. *Violence against Women*. Vol 14, No 3, pp. 326-330.
25. Trevillion, K., Oram, S. and Feder, G. (2012) Experience of Domestic Violence and Mental Disorder: A Systematic Review and Meta-Analysis. *PLOS ONE*. Vol 7, No 12, pp. 517-520.
26. Ali, P., McGarry, J. and Dhingra, K. (2016) Indentifying Signs of Intimate Partner Violence. *Emergency Nurse*. Vol 23, No 9, pp 9-12.
27. Copp, J. E., Giordano, P. C., Manning, W. and Langmore, M. A.(2016) Couple-Level Economic Carrier Corners and Intimate Partner Violence in Young Adulthood. *Journal of Marriage and Family*. Vol, 78, No 3, pp. 744-758.
28. Doran, F. and Hutchinson, M. (2016) Student Nurseses' Knowledge and Attitude toward Domestic Violence.*Journal of Clinical Nursing*. Vol 5, No 1, pp. 45-50.
29. Woods, S. J., Hall, R. J., Campbell, J. C. (2008) Physical Health and Posttraumatic Stress Disorder Symptoms in Women Experiencing Intimate Partner Violence. *Journal of Midwifery Women's Health*. Vol 53, No 6, pp.538-540.
30. Kalokhe, A., Del Rio, C., Dunkle, K., Stephenson, R., Metheny, N., Paranjape, A. and Sahay, S. (2017) Domestic Violence against Women in India. A Systematic Review of a Decade of Quantitative Studies. *Global Public Health*. Vol 12, No 4, pp. 498-500.
31. Kader, M. S. F., Siddik, S. M., Rampal, L. and Mukhtar, F. (2014) Prevalence, Associated Factors and Predictors of Depression among Adults in Community of Selangor, Malaysia. *PLoS One.* Vol 9, No 4, pp. 953-960.
32. Sayem, A. M., Begum, H. A. and Moneesha, S. S. (2015) Women's Attitudes toward Formal and Informal Support Seeking Coping Strategies against Intimate Partner Violence. *International Social Work*. Vol 58, No 2, pp. 270-286.

© 2019 Global Journals

Global Journal of Medical Research: E
Gynecology and Obstetrics
Volume 19 Issue 4 Version 1.0 Year 2019
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Adherence Status and Associated Factors of Iron and Folic Acid Supplementation among Pregnant Women Attending Ante Natal Care at Jimma Town Public Health Facility, South West Ethiopia, 2017

By Marta Tessema & Aster Fufa
Jimma University

Abstract- *Background:* Iron and folic acid supplementation is the feasible and cost-effective strategy to control and prevent anemia in pregnancy. In Ethiopia, the national data suggests that from all pregnant women supplemented with these tablets, only 0.4% consumed more than 90 tablets during their pregnancy time. The factors for this low adherence are not clearly known.

Objective: To assess adherence status and associated factors of iron and folic acid supplementation among pregnant women attending Antenatal care in Jimma town public health facilities, 2017.

Method: An institution based cross-sectional study design was employed using both quantitative and qualitative methods on 226 pregnant women attending Antenatal care clinic in Jimma Town public health facilities from April 10 – May 10/2017. Systematic random sampling method was used. A Pre-tested structured questionnaire was used for interview mand analyzed using chi-square test.

Keywords: *adherence, pregnant women, iron, folic-acid, antenatal care.*

GJMR-E Classification: *NLMC Code: QU 188*



Strictly as per the compliance and regulations of:

© 2019. Marta Tessema & Aster Fufa. 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.

Adherence Status and Associated Factors of Iron and Folic Acid Supplementation among Pregnant Women Attending Ante Natal Care at Jimma Town Public Health Facility, South West Ethiopia, 2017

Marta Tessema [α] & Aster Fufa [σ]

Abstract- Background: Iron and folic acid supplementation is the feasible and cost-effective strategy to control and prevent anemia in pregnancy. In Ethiopia, the national data suggests that from all pregnant women supplemented with these tablets, only 0.4% consumed more than 90 tablets during their pregnancy time. The factors for this low adherence are not clearly known.

Objective: To assess adherence status and associated factors of iron and folic acid supplementation among pregnant women attending Antenatal care in Jimma town public health facilities, 2017.

Method: An institution based cross-sectional study design was employed using both quantitative and qualitative methods on 226 pregnant women attending Antenatal care clinic in Jimma Town public health facilities from April 10 – May 10/2017. Systematic random sampling method was used. A Pre-tested structured questionnaire was used for interview and analyzed using chi-square test. A P-value <0.05 was declared as statistically significant. For qualitative data, 8 IDI was done from purposively selected6 pregnant women and 2 Midwifes. The data was analyzed using thematic analysis method and triangulated with quantitative data.

Result: 226 pregnant women was participated in the study with 100% response rate. 8 IDI respondents were included in the data analysis for triangulation. The adherence rate was 136(60%)and factors significantly associated with adherence to Iron and folic acid supplementation were, time of registration for Antenatal care, X^2 (1, N=226) = 7.3997, p= 0.006523, knowledge of anemia, X^2 (1, N=226) = 24.4671, p= 0.00001, history of anemia during current pregnancy X^2 (1, N=226) = 5.5078, p= 0.018932, and gravidity, X^2 (1, N=226) = 22.9821, p=0.00001. Forgetfulness and fear of side effects were the major reasons for missing the doses of tablets.

Conclusion: Iron and folic acid adherence rate were low in the study area. Thus, increasing knowledge of pregnant women about iron and folic acid supplementation, through adequate counseling, community education helps to increase adherence.

Keywords: adherence, pregnant women, iron, folic-acid, antenatal care.

Author α σ: Jimma University Institute of Health, Faculty of Health Science, School of Nursing and Midwifery.
e-mails: marta.tessema@gmail.com, asterfufa6@gmail.com

I. Background

Iron deficiency anemia during pregnancy is a serious public health problem due to its high prevalence and potential negative consequences. Estimates from the World Health Organization report that from 35% to 75% (56% on average) of pregnant women in developing countries, and 18% of women from industrialized countries are anemic (WHO, 1992). Studies done by (Haidar and Pobocik) also indicate that one in every three women had anemia and deficiency of folic acid, while one in every five had iron deficiency anemia, indicating that both folic acid and iron deficiencies constitute the major micronutrient deficiencies in Ethiopian women (Haidar and Pobocik, 2009). It can lead to several adverse birth outcomes including low birth weight, preterm delivery, stillbirth, and maternal and neonatal mortality (WHO, 1992). Infants are among the vulnerable groups of iron deficiency, since there is a link between maternal and neonatal iron status, interventions on infant alone will be insufficient to decrease infant iron status (Harris.ED.1992; WHO, 1992).

Oral iron and folic acid supplementation are a feasible and cost-effective strategy that exists for iron deficiency anemia prevention and control (CDC, 1998; WHO, 1989). Studies done on well-nourished Danish women, shows that: women were given either a placebo or 66 mg Fe/d as ferrous fumarate beginning week 16 of pregnancy. At term, in the placebo group, 92% of women had no bone marrow iron, 65% of women had latent iron deficiency, and 18% of women had iron deficiency anemia. Even in the group supplemented with iron, iron stores at term were exhausted in 54% of women, although only 6% of women had latent iron deficiency and no women had iron deficiency anemia (US, National Academy Press, 1993). Infants born to anemic mothers were 5.7 more likely to become anemic than women born to nonanemic mothers (Colomer J, et al. 1990).

© 2019 Global Journals

Several developing countries are now implementing iron/folic acid supplementation programs, but only a few countries had significant improvement in anemia control and prevention. Studies conducted in different parts of the world (Asia, Latin America and African countries) have shown low adherence of women taking daily iron/folic acid supplementations and this is among one of the main reasons why IFAS programs have been less effective (Mithra et al., 2014; Bekele et al. 2015; Wendt et al., 2015). In Ethiopia, iron/foliate supplementation is the main strategy for Anemia control and prevention. However, adherence rate remains very low. The national data suggests that from all pregnant women supplemented with IFA tablets only 0.4% consumed more than 90 tablets during their pregnancy time (Fiedler et al. 2014). Eighty-three percent of women did not take iron tablets during their last pregnancy. Fifteen percent took for less than 60 days, and less than 1 percent took for three months or more during their last pregnancy (CSA, 2011). A comparison of 2005 and 2011 EDHS data reveals that the percent of women with at least one ANC visit who took iron tablets increased by 63 percent (CSA 2005; CSA 2011). Despite this progress, Studies conducted in different parts of the country showed that the adherence rate is low (Samson et al., 2014; Bekele et al., 2015; Abel et al., 2015). Even though adherence is a major problem in IFA supplementation programs, limited researches have been done to investigate factor associated with it. Therefore, study try to determine the adherence status and associated factors of IFAS among pregnant women attending at ANC clinic in Jimma town public health facilities.

II. Objectives

a) General Objective

To assess adherence status and associated factors of Iron and folic acid supplementations among pregnant women attending Ante natal care clinic at Jimma town public health facilities, south west of Ethiopia, 2017.

b) Specific Objectives

To determine adherence level of Iron and folic acid supplementations among pregnant women attending, Ante natal care clinic at Jimma town public health facilities, south west of Ethiopia, 2017.

To identify factors associated with adherence to Iron and folic acid supplementation among pregnant women attending Ante natal care clinic at Jimma town public health facilities, south west of Ethiopia, 2017.

III. Methods

a) Study design, period and area

Institutional based cross-sectional study design was employed from April 10 - May 10, 2017 at public health facilities of Jimma town, south west Ethiopia.

b) Source population

All pregnant women who took IFAS and visited the ANC clinic at Jimma town public health facilities during the study period

c) Study Population

All selected pregnant women who took IFAS at least for a month and visited the ANC clinic during the study period.

d) Dependent Variables

Iron and folic acid supplementations adherence whereas, Independent variables are, Age, religion, residence, marital status, mother education level, partner education level, support from family, family size, income, number of visits, time of registration, gravidity, parity, trimester, history of previous anemia, history of current anemia, Adequate explanation about the tablets by providers, distance from the health facility, Knowledge on Anemia and knowledge on IFAS.

e) Sample size determination

The sample size was determined by a single population proportion formula by considering the following assumptions:

$$\boldsymbol{n = \frac{(Z_\alpha/2)^2 * P\,(1-P)}{d^2}}$$

Where:

f) Sample size

From the previous study the proportion of adherence level of IFAS among ANC followers was 37.2%. By taking 95% CI, a margin of error 5%, the sample size comes= 359. Since the source population is <10,000, by taking population correction formula and Considering 10% non-response rate, the total study subjects were 226- pregnant women. For qualitative data collection, eight IDI was done from six mothers and two midwives who have long time working experience on ANC clinic.

g) Sampling techniques

Initially, out of four health centers and two hospitals in the town one hospital and two health centers were selected by using simple random sampling techniques. Then the final sample size was allocated proportionally for each health facilities based on their number of ANC followers. By using the list of ANC registration book as sampling frame, simple random sampling technique were applied. For qualitative study participant were selected purposively from mothers ANC followers and midwifes work on ANC clinic.

h) Data collection tool and procedure

Data collection tool was prepared by reviewing different literature and first prepared in English then translated to Oromic language. Interviews were done to collect data from participants. Data was collected by four data collectors and one supervisor who had BSC and MSC respectively.

© 2019 Global Journals

i) Data Quality Assurances

The data collectors and supervisors were trained for two days before pre-test on the objective, how to use the questionnaires to ensure consistency. Pre-test was conducted on 5% of sample size in jimma zone health facility out of town.

j) Data analysis

Data was analyzed using Pearson chi-square test. Variables found significant when its (p–value ≤ 0.05). Descriptive statistic including frequency, percentage was used to describe the data. Finally, the results were presented in the form of texts and tables. For qualitative study thematic analysis was done and triangulated with quantitative data.

IV. Result

a) Socio-demographic Characteristics of study participant

A total of 226 pregnant women were participated in the study, making a response rate of 100%. Majority of 124 (54.0%) were≥25 years. One hundred ninety (84.1%) of study participants resided in urban. The vast majority, 112(49.5%) were Muslim followers, and 214 (94.7%) of the participants were married. According to mother's response about 26 (11.5%) and 27 (11.9%) respondents and respondents' husband were cannot read and write respectively. About 97 (42.9%) of the study participants were house wife followed by daily laborer 12(5.3%), and 187(80.97%) of the study participants had family size of at most three. About 51(22.5%) of the participants had monthly income of 1000-3000 birr. Table (1)

Table 1: Socio-demographic characteristic of anc followers among jimma town public health facilities south west Ethiopia, 2017

Variable	Category	Frequency	Percent
Age	<25 yrs	102	45.1
	>25 yrs	124	54.9
Religion	Orthodox	92	40.7
	Muslim	112	49.5
	Protestant	21	9.3
	Others*	1	0.4
Residence	Urban	190	84.1
	Rural	36	15.9
Educational status	Cannot read and write	26	11.5
	Can read and write	60	26.5
Occupational status	Primary education	97	42.9
	Secondary and above	43	19.1
	Government employee	51	22.6
	Daily laborer	12	5.3
	Merchant	66	29.2
	House wife	97	42.9
	Others**	0	0
Marital Status	Married	214	94.7
	Unmarried	12	5.3
Husband Educational status	Cannot read and write	27	11.9
	Can read and write	48	21.2
	Primary education	50	22.2
	Secondary and above	101	44.7
Family size	1-3	43	19.0
	4-6	121	53.5
Family income	>6	62	27.5

© 2019 Global Journals

Variable	<500 birr	76	33.6
	500-1000birr	99	43.8
	1000-200birr	36	15.9
	<3000birr	15	6.7

b) Obstetric and Health Facility related characteristics of the respondents

One hundred thirty-one (58.0%) of the respondents were in their second trimester. About 30(13.3%) of the participants were primigravida, and only 196 (86.7%) were Multiparous. More than two-third 201(88.9%) of the respondents visited the ANC clinic within their 16weeks of gestation. More than ninety percent (226) of the respondents, had at most four ANC visits. About 125 (55.3%) of the respondents spent more than 30 minutes (by foot) to reach the health facility, and 180 (79.6%) of the respondents got medical advice about IFAS) (Table 2).

Table 2: Obstetric and health facility related characteristics of pregnant women attending anc, at jimma town public health facility, south west Ethiopia, May 2017, (n=226)

Variable	Category	Frequency	Percent
Gravidity	Primigravida	30	13.3
	Multigravida	196	86.7
Parity	Nulliparous	0	0
	Primiparous	30	13.3
	Multiparous	196	86.7
Trimester	First	43	19.0
	Second	131	58.0
	Third	52	23.0
Time of registration	<16 weeks (Early)	201	88.9
	≥16 weeks (Late)	25	11.1
Number of Visits	≤4	144	63.7
	>4	82	36.3
Distance from health facility	≤30 minutes	101	44.7
	>30 minutes	125	55.3
Get Medical advice about IFAS	Yes	180	79.6
	No	46	20.4

c) Self-reported rate of Adherence to IFAS and Reasons

One hundred thirty-six (60%) of pregnant women adhered to IFAS (took ≥4 tablets per week in the previous one month preceding the survey) (Figure 1). The leading reason for adherence was getting medical advice (79.6%) followed by fear of illness if not taking the supplement (20.4%). Findings from the qualitative part of the study also revealed that most pregnant mothers' main reason for consuming the tablets was getting medical advice from health care providers.

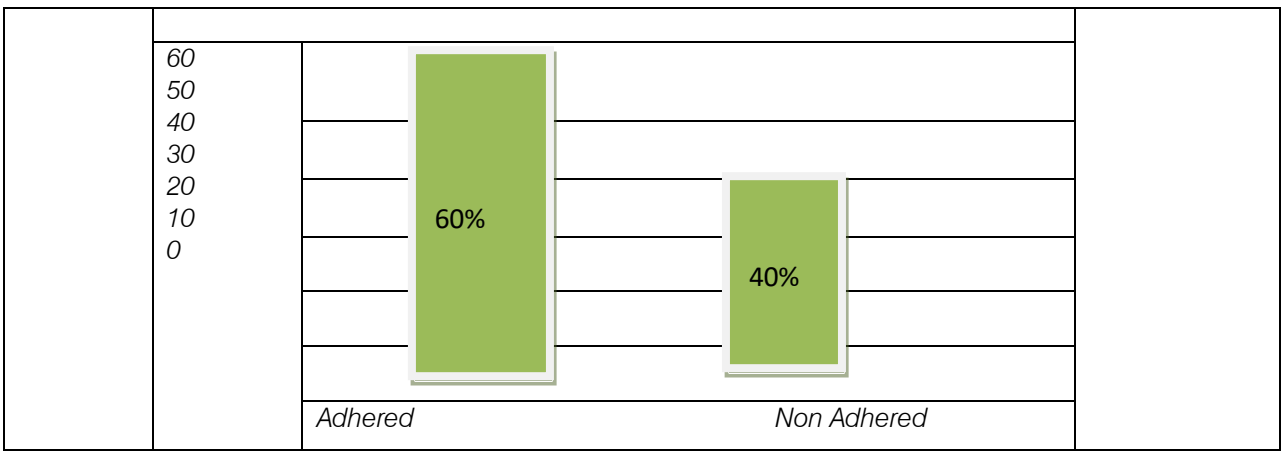


Figure 1: Self-reported rate of Adherence among Pregnant women attending ANC, in Jimma town south west Ethiopia, May 2017, (N=226).

© 2019 Global Journals

Twenty-eight years old, pregnant women said that, "I took IFAS*'s because the health care providers (both at a health facility and home visit) told me it prevents you from anemia and your fetus from diseases."*

The other qualitative finding showed that, fear of illness, if tablets are missed was the second main reason to adhere IFAS.

Thirty-two years old, pregnant women said that … "I am forced to take the IFAS, because I fear the illness that would happen to me and my fetus, if I missed the doses of IFAS."

Another reason for taking IFAS raised by in-depth interview participants was getting family support.

Thirty years old, pregnant women said that …" I never missed the tablet, because my husband reminds me to take it."

From women who missed the doses of IFAS, the leading reason was forgetfulness (88, 38.9%) followed by fear of side effect (72, 31.9%). Other reasons for missing the doses of IFAS were the belief that taking IFAS leads a too big baby (56, 24.8%) and taking too many IFAS tablets, would harm the mother and infant (24, 10.6%).

Findings from the qualitative component also revealed that most pregnant mothers' main reason for missing the doses of tablets was forgetfulness.

Twenty-six years old, pregnant women said that …" Since I forgot, I missed more than half of the tablets. Pills are taken at night time; I spent all day with work, when I returned to home, I will be so exhausted then I will forget them. "

A thirty-five years Midwife *said that…."* the main reason for missing the doses of tablets was forgetfulness, not side effect since we gave them counseling about side effects."

d) Knowledge of Anemia and IFAS

Accordingly, the median was 47.4%. About 78 (61.9%) of the respondents had good knowledge of anemia (scored median and above), and 48 (38.0%) of the respondents had poor knowledge of anemia (scored below the median. The median was 71.4%. One hundred five (46.5%) of the respondents had good knowledge of IFAS (scored median and above), and about 61(26.9%) of the respondents had poor knowledge of IFAS (scored below the median).

e) Factors Associated with Adherence to IFAS

To know the association of predictor variables with IFAS, Pearson chi-square test was used. Four variables: -Gravidity, time of ANC registration, history of anemia during the current pregnancy and having knowledge about anemia were showed an association with p-value ($P<0.05$).

A chi-square test was performed to examine the relation between gravidity and adherent to iron and folic supplementations of pregnant women. The relation between these variables was significant, X^2 (1, N=226) = 22.9821, p=0.00001.Multiparity were more likely than primiparity to be able to adherent to iron and folic supplementations.

There is a significant association between registration time and iron adherent and folic supplementations. The relation between these variables was significant, X^2 (1, N=226) = 7.3997, p= 0.006523. Mothers who registered early gestational age (<16 weeks) were more likely to adherent iron and folic supplementations than who were registered lately (>16 weeks).

Qualitative finding also supports this finding:

Thirty years old, female midwife said that … "If they come to health facility at early gestational age, we get more time for counseling and knowing each other, that helps them to adhere for IFAS."

There is a significant association between history of anemia during current pregnancy and adherent to iron and folic supplementations. The relation between these variables was significant, X^2 (1, N=226) = 5.5078, p= 0.018932. Women who had history of anemia during current pregnancy were more likely to be adhered to Iron and folic acid supplementations than those who hadn't.

This is supported by qualitative finding:

Twenty -eight years old, pregnant women said that … "I am forced to take IFAS because of I have anemia."

There is a significant relationship between knowledge of anemia and adherent to iron and folic supplementations. The relation between these variables was significant, X^2 (1, N=226) = 24.4671, p= 0.00001.Mothers who had good knowledge about anemia had more likely to adhere iron and foliate supplementations.

This finding supported by qualitative data.

Thirty-two years old pregnant women said that … "I am forced to take the tablets because I know about anemia that may cause serious complication if I bleed during delivery."

Table 3.

© 2019 Global Journals

Table 3: Chi- square test that shows may factors associated with Adherence to IFAS among pregnant women attending ANC, in Jimma town public health facility, southwest of Ethiopia, 2017

Variables	Adhered No. (%)	None adhered No. (%)	Chi-square	p-value
Educational status				
Cannot read and write	36	40	8.3811	0.38758
Can read and write	42	18		
Primary education	38	20		
Secondary and above	20	12		
total	136	90		
Monthly family income				
< 500	36	24	0.6008	0.896258
500 – 1000	28	22		
> 1000	31	20		
1000-3000	41	24		
Total	136	90		
Gravidity				
Primigravida	91	31	22.9821	0.00001
Multigravida	45	59		
Total	136	90		
Trimester				
First	40	31	2.6369	0.267558
Second	44	34		
Third	52	25		
Total	136	90		
Time of regiratation				
Early (≤16 weeks)	102	52	7.3997	0.006523
Late (>16 weeks)	34	38		
Total	136	90		
History of anemia current pregnancy				
Yes	99	52	5.5078	0.018932
No	37	38		
Total	136	90		
Knowledge of anemia				
Poor	48	62	24.4671	0.00001
Good	88	28		
Total	136	90		
Knowledge of IFAS				
Poor	31	28	1.942	0.163449
Good	105	62		

V. Discussion

The result revealed that 60% of pregnant women were adhered to Iron and folic acid supplementation (took ≥4 IFAS tablets per week in the previous one month preceding the survey) which is consistence with the study done in Indonesia (53.7%) (Wulandari et al. 2013). However; it is higher than the study done in Mecha district, Northwest Ethiopia (20.4%) (Bekele et al. 2015), Tigray, Ethiopia (37.2%) (Abel et al., 2015), Misha district, South Ethiopia (39.2%) (Abient et al., 2015), Kenya (24.5%) (Dinga et al., 2013).This difference might be due to difference in study setting, time variation related with currently accelerated maternal and child health promotions, and majority of the respondents being urban residents' this helps to get information from media. It is lower than the study done in South India (64.7%) (Mithra et al., 2014). The variation may be due difference in geographic locations, socio cultural, healthy life style, inaccessibility of health services and lack of awareness.

The study revealed that, women who had history of anemia during current pregnancy had more likely to adhere with Iron and folic acid supplementations. The finding is consistent with other studies conducted in Mecha district, Northwest Ethiopia (Bekele et al. 2015), Tigray, Ethiopia (Abel et al., 2015), Kenya (Dinga et al., 2013) and Tanzania (Ogundipe et al., 2012). This might be due to health care providers given more attention for anemic women during counseling which increases client's awareness and knowledge of Iron and folic acid supplementations. The other reason might be due to women's fear of anemia complications for both them self's and their infants, they try to take more pills to be cured from the anemia.

Mothers who were registered early for ANC services had more likely adhere to IFAS than those who were late registered. The result of this study is supported by other studies done in Tigray, Ethiopia (Abel et al., 2015), Ethiopia (Fiedler et al., 2014), India (Wendt et al., 2015) and Indonesia (Titaley and Dibley, 2015). The reason may be pregnant women who had early registration for ANC services probably had better concern for their pregnancy and had more ANC visits which in turn leads to getting better medical advice and

© 2019 Global Journals

ultimately improved their knowledge about anemia and Iron and folic acid supplementations.

The other important factors that had a significant association with Iron and folic acid supplementation adherence was, knowledge of Anemia. A mother who has good knowledge of anemia more likely adherent to IFAS than who had poor knowledge. The finding is supported by other studies done in Eight rural districts of Ethiopia (Samson et al., 2014, and India (Mithra et al., 2014).The possible reason is that those pregnant women who had good knowledge of anemia, were aware of the effect of anemia on pregnancy this may cause fear of anemia complications, this helps them to know the importance of IFAS to alleviate anemia and the problem if missed the tablets. Similarly, the result also indicates that, multipara mothers have, more likely to had adherence of IFAS. The reason may be multipara mothers may have more contact with health care providers during previous pregnancy, so this may improve time to time their knowledge and experience about IFAS, anemia and its complications, finally they can easily adhere to IFAS.

In addition to the above-mentioned association the study participant raised different reasons for adherence and non-adherence to iron and folic acid supplementations. Among the reasons that make the pregnant women to be adhered to iron and folic acid supplementations, getting medical advice, partner support and fear of illness if missed the tablets, were the major ones. The finding was supported by the study conducted in Kenya (Dinga et al., 2013) and qualitative finding in this study. This can be related with knowledge of both anemia and its complications that results women's fear of the quensquence of anemia, finally this causes adherence to IFAS. The other important reason is knowledge of the benefit of iron and folic acid supplementations that resulted from proper counseling through medical advice from health care providers. Partner support also related with, opportunity not to forget the tablets and giving more concern for the health of the baby and the mother.

The other reason of pregnant women for adherence was getting family support. The justification behind is that when pregnant women get family support, they will have an opportunity not to forget the tablets and great concern for adherence. The study was supported by the study conducted in Pakistan (Nisar et al., 2014).

Forgetfulness, misconception and fear of side effect was the most mentioned reason mentioned qualitatively for pregnant women for non-adherence to iron and folic acid supplementations. A possible explanation for forgetfulness as a major reason is that the timing that the tablet is taken. Findings from the qualitative study revealed that since most of health professional advise them to taken at night, pregnant women were forced to forget the tablet because they spent the day time with different activities and they tired and sleep early by forgetting the tablets to take. The finding also supported by other studies done in Misha district, South Ethiopia (Abient et al., 2015), Ethiopia (Fiedler et al., 2014), and South India (Mithra et al., 2014). Misconceptions and fear of side effect like taking the tablets will lead to, too big baby and harm the mother and the infant, were the other reasons of pregnant women mentioned fornot continuously using the tablets. This is probably resulted from getting inadequate counseling during medical advice from health care providers results women's poor knowledge of anemia and IFAS. The finding is supported by other studies done in eight rural districts of Ethiopia (Samson et al., 2014), Misha district, South Ethiopia (Abient et al., 2015), Kenya (Dinga et al., 2013), South India (Mithra et al., 2014), Pakistan (Nisar et al., 2014). (Bekele et al. 2015), Ethiopia (Fiedler et al., 2014), and Pakistan (Nisar et al., 2014).

VI. Conclusions

This study revealed that adhered to Iron and folic acid supplementation of the respondent was low. Early time of registration, history of anemia during current pregnancy, knowledge of anemia significantly and gravidity are associated with pregnant women adherence to iron and folic acid supplementations. Getting medical advice and partner support followed by fear of illness if missed were the major reasons that enforce pregnant women to take the tablets. On the other hand, the perceived cause of missing tablet is forgetfulness misconception and fear of side effects.

List of Abbreviations

ANC…. Antenatal Care, CSA…. Central statistical Agency, EDHS…. Ethiopian Demographic and Health Survey, FMOH… Federal Ministry of Health, IFA…. Iron Folic Acid, IFAS…. Iron Folic Acid Supplementation, IHRERC… Institutional Health Research Ethics Review Committee, NGO…….Non-Governmental Organization, WHO….World Health Organization.

Ethics approval and consent to participate

Ethical clearance was obtained from Jimma University ethical revive board. Official permission was obtained to conduct the study from Jimma town public health facilities. The respondents were informed about the objective and the purpose of the study. There was no coercion to participate in the study and participations were free to decline, giving information at any time without any justification and prejudice. Verbal consents were obtained from each mother. Confidentiality of the information was ensured by not asking the name of the client or other identifiers.

Consent for publication

Not applicable in this study.

© 2019 Global Journals

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request. But all data generated or analyzed during this study are included in this published article [and its supplementary information files].

Competing Interests

The authors declare that they have no competing interests.

Funding

This study was not funded by a grant. The study was funded by the Jimma University. There have been no reimbursements, fees, funding, nor salary from any organization that depends on or influence the results and publication of this study.

Acknowledgement

We would like to express our deepest gratitude to Jimma University College of Health Sciences for financially supporting us. Our appreciation also goes to our data collectors, supervisors and study participants for their valuable contribution in the realization of this study.

Author contributions

MT: conceptualized, designed the study, collect, analyzed interpretation the data, advising the whole research paper and also drafting of the manuscript. *AF:* conceptualized, designed the study, collect, analyzed and interpretation of the data and also drafting manuscript.

References Références Referencias

1. Abdullahi, H., G. Gasim, A. Saeed, A. Imam and I. Adam. 2014. Antenatal iron and folic acid supplementation use by pregnant women in Khartoum, Sudan. BMC Public Health, 7(498).
2. Abel Gebre, Mulugeta Afework and Etana Belachew. 2015. Assessment of Factors Associated with Adherence to Iron-Folic Acid Supplementation Among Urban and Rural Pregnant Women in North Western Zone of Tigray, Ethiopia: Comparative Study. International Journal of Nutrition and Food Sciences, 4(2): 161-168.
3. Abinet Arega Sadore, Lakew Abebe Gebretsadik, and Mamusha Aman Hussen. 2015. Compliance with Iron-Foliate Supplement and Associated Factors among Antenatal Care Attendant Mothers in Misha District, South Ethiopia: Community Based Cross Sectional Study. Journal of Environmental and Public Health http://dx.doi.org/10.1155/2015/781973.
4. Burke, R., J. Leon and P. Suchdev 2014. Identification, Prevention and Treatment of Iron Deficiency during the First 1000 Days. Nutrients, 6: 4093-4114.
5. Casey, G. Phuc, L. Macgregor, A. Montresor, T. Mihrshahi, N. Tien, et al. 2009. A free weekly iron-folic acid supplementation and regular deworming program is associated with improved hemoglobin and iron status indicators i6. Centers for Disease Control and Prevention. Recommendations to prevent and control iron deficiency in the United States. *MMWR Morb Mortal Wkly Rep* 1998; 47: 1–29.n Vietnamese women.BMC Public Health.
6. World Health Organization: Preventing and controlling iron deficiency anemia through primary health care, a guide for health administrators and Programme manager; Geneva: World Health Organization, 1992.
7. CSA (Central Statistical Agency). 2005. Addis Ababa, Ethiopia and Calverton, Maryland, USA:, Ethiopia Demographic and Health Survey. Central Statistical Agency and ICF International.
8. CSA (Central Statistical Agency). 2011. Addis Ababa, Ethiopia and Calverton, Maryland, USA:, Ethiopia Demographic and Health Survey. Central Statistical Agency and ICF International.
9. DeBenoist, B., E. McLean, I. Egli and M. Cogswell. 2008. Worldwide prevalence of Anemia 1993-2005. Geneva.
10. Debremarkos town administration communication office annual report. 2014. Unpulished document. Debremarkos town administration health office annual report. 2014. Unpulished document.
11. Debremarkos town administration public health faclilities antenatal care clinic report. 2015. Unpulished document.
12. Dinga, L., A. Mwangi and G. Abong. 2013. Factors associated with adherence to iron/foliate supplementation among pregnant women attending antenatal clinic at thika district hospital in kiambu county, Kenya.
13. Fiedler, Jack, D'Agostino, Alexis, Sununtnasuk and Celeste. 2014. Nutrition Technical Brief: A Rapid Initial Assessment of the Distribution and Consumption of Iron-Folic Acid Tablets through Antenatal Care in Ethiopia.
14. FMOH (Fedreal Ministry of Health). 2012. Best practice, progress updates, initatives and artiticles, special bulletin.
15. FMOH (Fedreal Ministry of Health). 2014. Implementation Guidelines for the Prevention and Control of Micronutrient Deficiencies. FMOH, Ethiopia.
16. Haidar, J. A. and R. S. Pobocik. 2009. Iron deficiency anemia is not a rare problem among women of reproductive ages in Ethiopia: a community based cross sectional study. BMC Blood Disorders.

© 2019 Global Journals

17. Harris E D. New insights into placental iron transport *Nutr Rev*.1992; 50: 329 –31.
18. Institute of Medicine, Food and Nutrition Board. Iron deficiency anemia: guidelines for prevention, detection and management among U.S. children and women of childbearing age. Washington, DC: National Academy Press, 1993.
19. Ibrahim, Z. El-Hamid, H. Mikahil and S. Khatttab. 2011. Assessment of Adherence to Iron and Folic Acid Supplementation and Prevalence of Anemia in Pregnant Women. Medical Journal of Cairo University, 79(2): 115-121.
20. KuMar, S., S. Kar, S. SarKar and Gks. 2014. Iron-Folic Acid Intake among Pregnant Women in Anumanthai PHC of Villupuram, Tamil Nadu. Indian Journal of Clinical Practice, 24(9).
21. Lacerte, P., M. Pradipasen, P. Temcharoen, N. Imamee, Thavatchai and Vorapongsathorn. 2011. Determinants of Adherence to Iron/Foliate Supplementation During Pregnancy in Two Provinces in Cambodia. Asia-Pacific Journal of Public Health, 23(3): 315-323.
22. Mithra, P., B. Unnikrishnan, T. Rekha, K. Nithin, K. Mohan, V. Kulkarni, et al. 2014. Compliance with iron-folic acid (IFA) therapy among pregnant women in an urban area of south India. African Health Sciences, 14(1): 255-260.
23. Nisar, Y., A. Alam, B. Aurangzeb and M. Dibley. 2014. Perceptions of antenatal iron-folic acid supplements in urban and rural Pakistan: a qualitative study. BMC Pregnancy and Childbirth, 14(344).
24. Nisar, Y. and M. Dibley. 2014. Earlier Initiation and Use of a Greater Number of Iron-Folic Acid Supplements during Pregnancy Prevents Early Neonatal Deaths in Nepal and Pakistan. PLoS one, 9(11).
25. Nisar, Y., M. Dibley and A. Mir. 2014. Factors associated with non-use of antenatal iron and folic acid supplements among Pakistani women: a cross sectional household survey. BMC Pregnancy and Childbirth, 14(305).
26. Ogundipe, O., C. Hoyo, T. stbye, O. Oneko, R. Manongi, R. Lie, et al. 2012. Factors associated with prenatal folic acid and iron supplementation among 21,889 pregnant women in Northern Tanzania: A cross-sectional hospital-based study. BMC Public Health, 12(481).
27. Peña-Rosas, J. P., L. M. De-Regil1, T. Dowswell and F. E. Viteri. 2014. Daily oral iron supplementation during pregnancy. BMC Public Health.
28. Samson Gebremedhin, Aregash Samuel, GirmaMamo, Tibebu Moges and Tsehai Assefa. 2014. Coverage, compliance and factors associated with utilization of iron supplementation during pregnancy in eight rural districts of Ethiopia: a cross-sectional study. BMC Public Health.
29. Samuel, P., Scott, P. Lenis, Chen-Edinboro, E. Laura, Caulfield, et al. 2014. The Impact of Anemia on Child Mortality: An Updated Review. 6: 5915-5932.
30. Stoltzfus, R. J., and Dreyfuss, M. L. (1998) Guidelines for the use of iron supplements to prevent and treat iron deficiency anemia. ILSI Press, 18-21.
31. BekeleTaye, Gedefaw Abeje and Alemetsehaye Mekonen. 2015. Factors associated with compliance of prenatal iron foliate supplementation among women in Mecha district, Western Amhara: a cross-sectional study. Pan African Medical Journal, 20(43).
32. Titaley, C. R. and M. J. Dibley. 2012. Antenatal iron/folic acid supplements, but not postnatal care, prevents neonatal deaths in Indonesia: analysis of Indonesia Demographic and Health Surveys 2002/2003-2007, a retrospective cohort study: BMJ
33. Titaley, C. R. and M. J. Dibley. 2015. Factors associated with not using antenatal iron/folic acid supplements in Indonesia: the 2002/2003 and 2007 Indonesia Demographic and Health Survey. Asia Pac J ClinNutr, 24(1).
34. Wendt, A., R. Stephenson, M. Young, A. Webb Girard, C. Hogue and U. Ramakrishnan. 2015. Individual and Facility-Level Determinants of Iron and Folic Acid Receipt and Adequate Consumption among Pregnant Women in Rural Bihar, India. PloS, 10(3).
35. WHO (World Health Organization). 2011. Haemoglobin concentrations for the diagnosis of Anemia and assessment of severity. Geneva, Switzerland, WHO. WHO (World Health Organization). 2012. Guideline: Daily iron and folic acid supplementation in pregnant women. Geneva, Switzerland, WHO.
36. World Health Organization: The prevalence of anaemia in women: a tabulation of available information. 2nd ed. Geneva: World Health Organization, 1992.
37. Wulandari, L., P. Craig, A. Klinken and Whelan. 2013. Foetal Health Locus of Control and iron supplementation adherence among pregnant women in Bali. Journal of Reproductive and Infant Psychology.
38. Yekta, Z., R. Pourali, N. Mladkova, M. ghasemi-rad, F. Boromand and K. Tappeh. 2011. Role of iron supplementation in promoting maternal and fetal outcome. Therapeutics and Clinical Risk Management, 7: 421-42.

© 2019 Global Journals

Global Journals Guidelines Handbook 2019

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 repute 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.

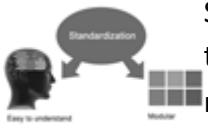


© Copyright by Global Journals | Guidelines Handbook

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 addres with 100 GB of space e.g. 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 you 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.

© Copyright by Global Journals | Guidelines Handbook



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. Afterbecoming 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 benefitscan 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 willbe given a renowned, secure and free professional email address with 30 GB of space e.g. johnhall@globaljournals.org. This will include Webmail, Spam Assassin, Email Forwarders,Auto-Responders, Email Delivery Route tracing, etc.



© Copyright by Global Journals | Guidelines Handbook



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.

© Copyright by Global Journals | Guidelines Handbook

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.

© Copyright by Global Journals | Guidelines Handbook

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 or get in touch with 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.



© Copyright by Global Journals | Guidelines Handbook

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 though 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.



© Copyright by Global Journals | Guidelines Handbook

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.



© Copyright by Global Journals | Guidelines Handbook

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**
Abstract	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
Introduction	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
Methods and Procedures	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
Result	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
Discussion	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
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

INDEX

B

Biopsychosocial · 3

C

Cephalopelvic · 12, 13, 19, 32
Coagulopathy · 14, 29

D

Dendritic · 1, 3, 6
Dorsolateral · 7

E

Embolisation · 32
Endometrium · 12, 22

G

Granuloma · 22

H

Haemorrhage · 14
Hematoxylin · 1
Hysterectomy · 14, 28

M

Myelination · 3
Myometrium · 12

N

Nabothian · 22

P

Paracolpos · 14, 34
Primigravida · 15, 18
Puerperium · 3

R

Rectovaginal · 14

S

Stenosis · 22
Submucosal · 22
Synaptogenesis · 3
Syncopation · 7

T

Tubectomy · 12, 16, 19

V

Vesicovaginal · 14

save our planet



Global Journal of Medical Research

Visit us on the Web at www.GlobalJournals.org | www.MedicalResearchJournal.org
or email us at helpdesk@globaljournals.org

ISSN 9755896

© Global Journals