

Consequences of Maternal Morbidity among Women within One Year Postpartum Period

Isabel Lawot¹, Bishnu Devkota² and Karuna Bajracharya³

¹Tribhuvan University, Institute of Medicine, Pokhara Nursing Campus, Pokhara, Nepal

² Tsho Rolpa Nursing College, Charikot, Dolkha, Nepal

³ Patan Academy of Health Science, School of Nursing and Midwifery (Lalitpur Nursing Campus), Nepal

Corresponding Author: Isabel Lawot,

Abstract

Background: Maternal Mortality and morbidity are the critical issue globally, however in insufficient consideration has been given to maternal morbidity and its obstetric consequences after childbirth. The true burden of maternal morbidity is still unclear, as the existing estimates and calculations are not standardized and do not use transparent methods. The study is to identify the physical consequences of maternal morbidity among women within one year postpartum period.

Methods and Materials: Descriptive, cross-sectional research design was used in this study with research population of mothers women within one year after delivery who had one of the maternal morbidities during pregnancy to 42 days of delivery with non-probability purposive sampling was used to select 302 women mothers in the outpatient department of Patan Academy of Health Science, Patan Hospital Nepal. Data was collected using structured interview schedule.

Results: The finding of the study shows the mean age of the respondent and standard deviation is SD 25.9±4.9171 with the range of 14 to 41 years. Regarding obstetrics information, last child (93.7%) delivered in the health institution, 94 percent were live birth and 60.9 percent were normal delivery and the maternal morbidities during pregnancy to 42 days of postnatal period was haemorrhage (27.8 %) and least abortion (5.3%). The physical consequences are hypertension (36.4%) and obstetric fistula (2.7%) Regarding the association between the variable, there is statistically significance between physical consequences and maternal morbidity.

Conclusion: It is concluded that majority of women who suffer from maternal morbidity, faced different problem after delivery up to one year postpartum period such as urine incontinence, hypertension, vaginal bleeding hemorrhage, obstetric fistula, etc, therefore, concerned authority of health facilities should develop protocol to increase awareness program to antenatal and postnatal mothers about the maternal morbidities through health personnel and should increase follow up services of the mother so that further physical disabilities could be prevented.

Key Words: Maternal morbidity, Physical, Consequences, One Year Postpartum Period Women,

Date of Submission: 15-07-2020

Date of Acceptance: 30-07-2020

I. Introduction

Safe motherhood programs in low- and middle-income countries, insufficient consideration has been given to maternal morbidity and its obstetric consequences after childbirth. The true burden of maternal morbidity is still unclear, as the existing estimates and calculations are not standardized and do not use transparent methods. It is estimated that 10–20 million women may suffer from mental and physical disabilities as a result of complications of childbirth. A great number of women who experienced complications during childbirth are discharged from hospital before they have fully recovered. Most problems related to long-term post-partum complications do not lead to death, but they are significantly disabling and have social and economic impacts on families, communities and society [1].

The prevalence of maternal morbidity in any countries is hard to identify due to its unclear definition but a study in Brazil according to recently developed definition of World Health Organization (WHO), was done to identify the severe maternal morbidity (SAMM) and maternal near miss (NM) was 72.6 cases/1,000 Live births and the maternal near miss: mortality ratio was 4.5cases/1 maternal death[2] whereas in Nepal, the maternal deaths due to morbidities such as hypertensive disorders (21%), haemorrhage (24%), sepsis (5%), and prolonged / obstructed labor (6%) were identified [3] however the information of the consequences of these morbidities who survive, are very limited.

Maternal deaths have been described as the tip of the iceberg and maternal morbidity as the base. For every woman who dies of pregnancy-related causes, 20 or 30 others experience acute or chronic morbidity, often with permanent sequelae that undermine their normal functioning. These sequelae can affect women's physical, mental health, and their ability to function normally [4]. According to University of Washington's Institute for Health Metrics and Evaluation's (IHME) Global Burden of Disease data, the global burden of years lived with disabilities from maternal disorders was nearly 1.8 million in 2010, an increase of nearly 30 percent since 1990 and the vast majority of those suffering from ongoing disabilities related to maternal complications are in developing countries [5].

Women who survive severe obstetric complications are a vulnerable population who can suffer from the physical, social, financial and psychological consequences of the near-miss event for up to 1-year postpartum. Yet the health and subsequent experiences of women who survive severe complications is underexplored in all countries [6]. Therefore, the study aims to identify the Physical consequences of maternal morbidity among women within one year postpartum period.

II. Materials and Methods

This study was carried out to identify the physical consequence of maternal morbidity among women with one year child on outpatients of Department of Patan Academy of Health Science, Patan Hospital Lalitpur Nepal from September 2016 to 2018. A total 302 women with one year child were participated for in this study.

Study Design: The descriptive, cross-sectional research design was used in this study.

Study Location: This Patan Academy of Health Science, Patan Hospital is a Tertiary level Teaching hospital in Patan Academy of Health Science, Patan Hospital Lalitpur in Nepal.

Study Duration: September 2016 to 2018.

Sample size: 302 women with one year postpartum period estimated using standard formula.

Subject & selection method: Non Probability purposive sampling was used to select respondents.

Inclusion Criteria: The women mothers within one year after delivery who had one of the maternal morbidities during pregnancy to 42 day of delivery were included in this study population who The study was conducted in Patan Hospital Lalitpur where such mothers attend for family planning service, and immunization for their children and pediatric outpatient department and other outpatient department to check up for their children or themselves. This hospital is located in Lagankhel of Lalitpur district.

Exclusion Criteria: Women who have any chronic disabling condition that would confound results (e.g. psychiatric illness treated during the period of data collection) was excluded from the study.

Data Collection Procedure: The three parts of structured interview schedule was used in the study to collect the data of interest. First part was background information, second part was modified assessment of severe maternal morbidity (adopted from Souza, et al.2010) which identified the history of maternal morbidity during pregnancy, childbirth and postnatal period, then third part was to explore physical consequences of maternal morbidity.

The content validity of the instrument in terms of the adequacy and the appropriateness of the content were established by seeking the expert opinions of concerned areas, research advisors and by the reviewing of the related literature. Opinion from the language expert was obtained for comprehensibility and simplicity of language during translation. The instrument was tested in 10% sample size in similar to the study setting and few modifications were done.

The data was collected after obtaining the approval of research proposal from Tribhuvan University, Institute of Medicine, and Institutional Review Board and To obtain permission from concerned hospital to collect data, we had to submit our research proposal. The authorities of the concerned health centers were briefed about the objective, process and importance of the study. Then after, formal permission was granted from Patan Academy of Health Science, Patan Hospital after three months from the concerned authorities. The instrument was also approved by the related authorities. On the data collection day, participant was given the introduction about the researcher as well as explanation about the study, its purpose and reason for choosing them as participants and informed consent was obtained before collecting data. The data was collected by the researchers themselves. Confidentiality and Privacy anonymity of the obtained information was maintained throughout the study by using form number instead of participant name. Data was collected using structured interview schedule.

Statistical Analysis: The collected data was checked and organized for completeness and accuracy and data coded, entered in to computer package with software: SPSS (Statistical Package for Social Science) version 16.23. The data was analyzed and calculated using descriptive (frequency, percentage, mean and standard deviation) and inferential (Chi square) statistics.

III. Results

Table 1 shows that 82.8 percent of respondents were from 20 to 34 years where the mean age of the respondent and standard deviation is SD 25.9±4.9171 with the range of 14 to 41 years. The secondary level and above educational status is 44.4 percent and 57.6 2 percent of respondents were unskilled manual labour. Majority (85.1%) of respondents were Hindu, 43.4 percent were Janajati and only 13.9 percent still live in rural area.

Table 2 depicts about obstetrics information about respondents. Regarding place of delivery of last child, most (93.7%) of the respondents had delivered in the health institution, 94.1 percent were live birth and 60.9 percent were normal delivery and 59.2 percent were male in their last delivery.

Table 3 shows about the maternal morbidities during pregnancy to 42 days of postnatal period of last birth. Among them the highest (27.8 %) maternal morbidity was haemorrhage which include antepartum and postpartum haemorrhage and least of them was abortion (5.3%).

Table 4 reveals the physical consequences of maternal morbidity, 36.4 percent has hypertension and obstetric fistula was 2.7 percent.

Table 5 shows the association between physical consequences and maternal morbidities during pregnancy to childbirth which was done using Pearson chi square test as cell values are less than 5 which shows P - Value (0.010) This shows that statistically significant between physical problems with maternal morbidities at 95% confidence level.

Table 1: Background Characteristics of the Respondent

n =302

Characteristics	Frequency	Percent
Age in years		
Less than 20	33	10.9
20-34	250	82.8
35 and above	19	6.3
Mean and SD 25.9±4.9171		
Education Status		
No education	20	6.6
Primary	59	19.5
Secondary	89	29.5
Higher Secondary and above	134	44.4
Occupation Status		
Service	80	26.5
Business	35	11.6
Agriculture	13	4.3
Unskilled manual labour	174	57.6
Religion		
Hindu	257	85.1
Buddhist	21	7.0
Christian	17	5.6
Muslim	7	2.3
Ethnicity		
Brahmin	31	10.3
Chhetri	94	27.8
Janjati	131	43.4
Others	56	18.5
Place of residency		
Urban	260	86.1
Rural	42	13.9

Table 2: Obstetric Information of the Respondents

n=302

Characteristics	Frequency	Percent
Place of delivery		
Health Institute	283	93.7
Home	19	6.3
Last birth history		
Live birth	284	94.1
Abortion	15	5.0
Neonatal death	3	0.9
Type of Delivery (n =287)		
Normal delivery	184	60.9
Caesarean section	71	23.5
Vacuum delivery	31	10.3

Consequences of Maternal Morbidity among Women within One Year Postpartum Period

Forceps delivery	1	0.3
Gender of last birth (n=287)		
Male	170	59.2
Female	117	40.8

Table 3: Maternal Morbidities among the Respondents during pregnancy to 42 days of postnatal period
n =302

Morbidities	Frequency	Percent
Haemorrhage (APH/PPH)	84	27.8
Prolonged/Obstetric Labour	66	21.8
PIH	57	18.9
Sepsis	36	11.9
Pre/eclampsia	31	10.3
Abortion	16	5.3
Others	12	4.0

Table 4: Physical Consequences of the Respondents within one year postnatal period n =181

Physical consequences*	Frequency	Percent
Hypertension	66	36.4
Anemia	37	20.4
Urine Incontinence	31	17.1
Haemorrhoid	30	16.5
Infection	25	13.8
Malnutrition	19	10.5
Dyspareunia	18	9.9
Weakness	17	9.3
Backache	16	8.8
Vaginal Bleeding	8	3.3
Genital uterine prolapse	6	2.7
Obstetric fistula	5	9.9
others	18	

*Multiple responses

Table 5: Association between Maternal morbidities and Experienced Physical Problems n =302

Maternal Morbidities	Physical Problems within one year after delivery		p - Value
	Yes(N)	No(N)	
Abortion	8	8	0.010*
APH/PPH	56	28	
Pre/Eclampsia	27	4	
Sepsis	18	18	
Prolong/ Obsetric Labour	38	29	
PIH	30	27	
Others	7	5	

*P Value Significant (<0.05)

IV. Discussion

The Present study was done with the objective of identifying the consequences of maternal morbidities among women mothers within one year postpartum period. The majority of the respondents (82.8%) are from age 20 to 34 years of age, 10.9 percent respondents are less than 20 years of age who were suffered from maternal morbidity and the mean age of them is SD 25.9±4.9171 which is similar to the study done by Pacheco et. al. [7,8]. Regarding educational status of respondents, 44.4 percent are secondary and higher level of education, similar finding (38.4%) was found in a study conducted in India [9]. About fifty seven percent of respondents are working as unskilled manual labour which is less than the finding of study conducted in India and the finding of present study shows that majority of respondent (85.1%) are Hindu which is also similar to same study [9]. About half (43.4%) of women are janajati and 13.9 percent respondents live in rural area and came to delivery in tertiary level hospital. Regarding obstetric variable, 6.3 percent respondent had delivered at home, 98 percent of respondent had live birth, and 60.9 percent had normal delivery which is almost similar to the study conducted in India [10] and regarding the gender of last delivery was male (59.2%).

The study has included 302 women with any of above mentioned maternal morbidities to identify the health problems faced after six weeks to within one year postpartum period. These morbidities are the direct causes of maternal mortality. Among them, Pregnancy induced hypertension (Hypertensive disorders) including

preeclampsia and eclampsia during pregnancy to childbirth is 29.2 1 percent which is first highest causes of health problems of women and the finding the study conducted by Subedi, et.al. [3] was similar however that study was done to identify the causes of maternal mortality in Nepal, whereas a study conducted in Ghana has shown the third highest cause of maternal mortality [11] and Globally it is higher (14%) than Ghana which suggest that pregnancy induced hypertension is not only affect health of the women but also death can cause among women.

Haemorrhage (antepartum and postpartum) was the second highest morbidity of the present study which is 27.8 percent. Similar finding has shown in Globally [3,12] and lower percentage (14%) of women died due to haemorrhage [13], however one study has shown 41.6 percent by Shrestha, et.al, 2010 which also suggests that haemorrhage not only affect health of the women but also cause death among women.

The finding of the study has shown that prolonged/obstetric labour (21.8 2.2 %) is also major cause of health problems of women after childbirth, but the study conducted to identify the cause of maternal mortality by Subedi, et. [3,11] were lower than present study finding. Puerperal sepsis (11.9%) is fourth causes which affect health of mothers however a study conducted by Rijal, et. al. [13] has shown the first cause of maternal death and similar finding has shown on studies [3,12].

The current study has revealed that abortion as morbidity is 5.3 percent among women who has suffered from health problem whereas the different studies have done to identify the causes of maternal mortality has shown that abortion is second highest cause of maternal mortality [11] and almost similar to the current study was found by Say, et.al. [12].

The main objective of the study was to reveal the consequences of maternal complication during pregnancy to six weeks of postpartum period. As many studies have found that maternal mortality is high prevalence in developing countries like Nepal and for every woman who dies of pregnancy-related causes, 20-30 others experience acute or chronic morbidity, often with permanent sequelae that undermine their normal functioning [4]. The study has revealed that 59.9 percent of women suffered from health problem as consequences of maternal morbidity, this finding also support by the study conducted in Bangladesh (40%) of women, including those with acute maternal complications during the intrapartum period and those with normal vaginal births, suffered from some postpartum morbidity—but most are relatively mild, including first-degree uterine prolapse, haemorrhoids, and hypertension [14].

Among them, the highest percent (36.4%) of women continue suffered from hypertension after delivery which is supported by a review study by Garovic and August [15] which says women with preeclampsia developed hypertension later in life providing a relative risk 3.7. According to Ferdous, et.al. [14] hypertension was faced by 5.1 percent of women.

The second highest health problem has been identified as anemia (20.4%). This finding is close to the studies conducted in different areas [16,17], whereas little higher found on study conducted by Mohandas & Bindhu [18]. Similarly, urine incontinence (17.1%) is also one of the problems identified by this present study which is also similar to the study conducted by different authors [19-23]. Among women, 16.5 percent has suffered from haemorrhoids which are higher in study conducted by Ansari, et.al. 2005 but it is less [18]. Likewise, Infection (13.8%), specially urinary tract infection is one of the problems faced by mother. This finding is similar to the study [14].

Many studies have revealed that many women face dyspareunia and the current study has also identified 9.9 percent of it and it is near to study [18,22,24]. The study also revealed that backache (8.8%) which is near to study done by Mohandas & Bindhu [18] and weakness is about 9 percent.

The nutritional status is measured by the body mass index and lowers than 18.5 considered as underweight. This study has identified 10.9 percent among women which is lower than study conducted in Vietnam [25]. This study also found that women suffered from frequent vaginal bleeding which is 4.4 percent.

Genital uterine prolapsed is one of the major issues among reproductive age of women in Nepal. This study has also revealed that 3.3 percent women have uterine prolapsed which is similar to the study conducted in Tribhuvan University Teaching Hospital, Nepal [26]. And one of the serious health issues is Genital Fistula, which is 2.7 percent in this study but according to the Foundation for Women's Health, Research and Development (FORWARD) (2003), 80 percent of VVF cases reported in Nigerian were due to unrelieved obstructed labour during childbirth among [27] and the systemic review was done which was similar with the study in Nigeria [28]. Rest of the health problems are very less so it is included in other (9.9%). It includes headache, breast problem, constipation, abdominal pain etc.

The study shows the association between the different variables. Regarding the maternal morbidity and physical consequence, Pearson chi square test was used as cell values are less than 5 which shows *P* - Value (0.010). This shows that statistically significant between physical problems with maternal morbidities at 95% confidence level but the others study shows that there is significant association between postpartum morbidities and mode of delivery, parity, socioeconomic status and anaemia [18].

V. Conclusion

Based on this study finding, it is concluded that majority of women who suffer from maternal morbidity such as hemorrhage, eclampsia/pre-eclampsia, prolonged labour, abortion, sepsis, faced different problem after delivery up to one year postpartum period such as urine incontinence, hypertension, vaginal bleeding hemorrhage, obstetric fistula, back pain, maternal malnutrition, weakness, anemia uterine prolapsed, dyspareunia & others problem. Therefore, concerned authority of health facilities should develop protocol to increase awareness program to the antenatal and postnatal mothers about the maternal morbidities and its consequences through health personnel. It should be increased follow up service to the patient so that further physical disabilities could be prevented.

Authors Contributions

Lawot has worked with the conception and design of work, literature review, data collection, analysis and interpretation, drafting of the article finalizing manuscripts. Bajracharya and Devkota have carried out the literature review, data collection data collection, finalizing manuscripts and other support.

Disclosure

No any disclosure present

Competing Interest

None

Funding

University Grant Commission, Bhaktpur Nepal

Ethical Consideration

Institutional Review Board of Tribhuvan Universtiy, Institute of Medicine and Institutional Review Committee of Patan Academy of Health Science.

Acknowledgement

Authors deeply acknowledge to the team of Research Division, University Grant Commission, Bhaktpur Nepal, Tribhuvan Universtiy, Institute of Medicine, Pokhara Nursing Campus, Patan Academy of Health Science and express gratitude to all the women mothers for their participation

References

- [1]. Assarag B, Dujardin B, Essolbi A, Cherkaoui I, Brouwere V. Consequences of severe obstetric complications on women's health in Morocco: Please, listen to me. *Trop Med Int Health* 2015 Nov;20(11). DOI: 10.1111/tmi.12586 retrieved on 18/1/2016
- [2]. Galvão LPL, Alvim-Pereira FC, Machado de Mendonça M., Menezes FEF, Góis KAN, Ribeiro RF et.al. The prevalence of severe maternal morbidity and near miss and associated factors in Sergipe, *Northeast Brazil*. *BMC Pregnancy and Childbirth* 2014, 14:25. doi:10.1186/-393-14-25
- [3]. Suedi BK, Pradhan A, Barnett S, Puri M, Rai Chitrakar S, Poudel P, et.al. Nepal maternal mortality and morbidity study 2008/2009: summary of preliminary findings. Kathmandu, Nepal. Family Health division, Department of Health Services, Ministry of Health, Government of Nepal. 2009 http://www.dpiap.org/resources/pdf/nepal_maternal_mortality_2011_04_22.pdf
- [4]. Firoz T, Chou D, Dadelszen P, Agrawal P, Vanderkruijk R, Tuncalp O. Measuring Maternal Health: Focus on Maternal Morbidity: *Bulletin of the World Health Organization* 2013;91:794-796. doi: <http://dx.doi.org/10.2471/BLT.13.117564>
- [5]. VanderZanden A. Visualizing maternal morbidity. University of Washington's Institute for Health Metrics and Evaluation (2014). www.humanosphere.org/wp-content/2014/10/matrnal_morbidity3.png
- [6]. Fottrell E, Kanhonou L, Goufodi S, Behague DP, Marshall T, Patel V et.al. Risk of psychological distress following severe obstetric complications in Benin: the role of economics, physical health and spousal abuse. *Br J Psychiatric* 2010; 196 (1):18-25. doi: 10.1192/bjp.bp.108.062489
- [7]. Pacheco AJC, Katz L, Souza ASR, Ramos de Amorim MM. Factors associated with severe maternal morbidity and nearmiss in the Sao Francisco Valley, Brazil: A retrospective, cohort study. *BMC Pregnancy Childbirth*.2014;14:19. doi:10.1186/1471-2393-14-91
- [8]. Souza JP, Cecatti JG, Parpinelli MA, Sousa MH, Lago TG, Pacagnrlla R, et.al. Maternal morbidity and near miss in the community: Findings from the 2006 Brazilian demographic health survey. *Br J Obstet Gynaecol*. 2010;117(13):1586–1592. DOI: 10.1111/j.1471-0528.2010.02746.x
- [9]. Chauhan S, Kulkarni R, Agrawal D. Prevalience and Facors associated with chronic obstetric morbidities in Nashik district Maharashtra, India. *Indian J Med Res*.2015 Oct; 142(4): 479-488. doi: 10.4103/0971-5916.169219
- [10]. Vyas N, Kamath R, Pattanshetty S, BinuVS. Postpartum related morbidities among women visiting government health facilities in UdupiTaluk, Karnataka, India. *J Family Med and Prim Care*. 2016; 5(2), 320–325. <http://doi.org/10.4103/2249-4863.192319>(Retrieved on: 2017-04-17)
- [11]. Asamoah BO, Moussa KM, Stafstrom M, Musinguzi G. Distribution of causes of maternal mortality among different socio-demographic groups in Ghana; a descriptive study. *BMC Health*.2011;11:159. doi: 10.1186/1471-2458-11-159
- [12]. Say L, Chou D, Gemmill A, Tuncalp O, Moller A, Daniels J et.al. Global causes of maternal death: a WHO systematic analysis. *The Lancet Global Health Blog*. 2014 ; 2(6):332-333. DOI: [http://dx.doi.org/10.1016/S2214-109X\(14\)70227-X](http://dx.doi.org/10.1016/S2214-109X(14)70227-X)
- [13]. Rijal P, Agrawal A, Pokhrel H, Pradhan T, Regmi MC. Maternal Mortality: A Review from Eastern Nepal. *NJOG* 2014 Jan-Jun; 17 (1):33-36. DOI: <http://dx.doi.org/10.3126/njog.v9i1.11185>
- [14]. Ferdous J, Ahmed A, Dasgupta SK, Jahan M, Huda A, Ronsmans C. Occurrence and determinants of postpartum maternal morbidities and disabilities among women in Matlab, Bangladesh. *J Health Popul Nutr* 2012 Jun;30(2):143-58. Retrived on 31/1/2016. <http://www.ncbi.nlm.nih.gov/pubmed/22838157>

- [15]. Garovi VD, August P. Preeclampsia and the future risk of hypertension: the Pregnant Evidence. *Curr Hypertens Res.* 2013 Apr; 15(2): 114-21. doi: 10.1007/s11906-013-0329-4.
- [16]. Bhagwan D, Kumar A, Rao CR, Karmath A. Prevalence of Anemia among Postnatal mothers in Coastal Karnataka. *J Clin Diagn Res.* 2016 Jan; 10(1): 17- 20. doi: 10.7860/JCDR/2016/14534.7086
- [17]. Chandyo RK, Henjum S, Ulak M, Thorne-Lyman AL, Ulvik RJ, Shrestha PS. The prevalence of anemia and iron deficient is more common in breastfed infants than their mothers in Bhaktapur, Nepal. *Eur J Clin Nutr.* 2016 Apr; 70(4): 456-462. doi: 10.1038/ejcn.2015.19922.
- [18]. Mohandas D, Bindhu B. Postpartum physical morbidities among postnatal mothers in a tertiary care centre. *J Evid Based Med Healthc.* 2017; 4(10), 564-567. DOI: 10.18410/jebmh/2017/110
- [19]. LakewY, Biadgilign S, Haile D. Anemia prevalence and associated factors among lactating mothers in Ethiopia: evidence from the 2005 and 2011 demographic and health surveys. *BMJ Open.* 2015; 5(4). doi: 10.1136/bmjopen-2014-006001
- [20]. Lopes DBM, Praca NDS. Prevalence and related factors of self- reported urinary incontinence in the postpartum periods. *ActaPaul.Enferm.* 2012; 25(4). <http://dx.doi.org/10.1590/S0103-21002012000400015>
- [21]. Brown SJ, Woolhouse H, Gartland D, Perlen S, Donath D. Physical health after childbirth and maternal depression in the first 12 months post partum: Results of an Australian nulliparous pregnancy cohort study. *Midwifery.* 2014 Mar; 30(3):378-84 <http://dx.doi.org/10.1016/j.midw.2013.03.006>
- [22]. Ansari D, Cohen MM, Gallop R, Kung R, Schei B. Predictors of Women's Health Problems after Childbirth. *J Psychosomatic Obstetrics & Gynecology.* 2005; 26(2): 115-125. DOI: 10.1080/01443610400023064
- [23]. Thom DH, Rortveit G. Prevalence of postpartum urinary incontinence: a systematic review. *Acta Obstet Gynecol Scand.* 2010 Dec; 89(12):1511-22. doi: 10.3109/00016349.2010.526188
- [24]. Brown S, Lumley J. Maternal Health after Childbirth: Results of an Australian Population Based Survey. *Br J Obstet Gynaecol.* 1998; 105(2): 156-161. doi:10.1111/j.1471-0528.1998.tb10045.x
- [25]. Nakamori M, Ninh NX, Isomura H, Yoshike N, Hien VTT, Nhug BT. Nutritional status of lactating mothers and their breast milk concentration of iron, zinc and copper in rural Vietnam. *J Nutr Sci Vitaminol.* 2009; 55(4):338-345.
- [26]. Shrestha NS, Saha R, Karki C. Near miss maternal morbidity and maternal mortality at Kathmandu Medical College Teaching Hospital. *Kathmandu Univ Med J.* 2010 Apr-Jun; 8(30):222-6. <http://www.ncbi.nlm.nih.gov/pubmed/21209540>
- [27]. Kemi Oddu B. Obstetric Labour: The main cause of Vesic-vaginal fistula-Review of literature. *Eur J Res in Med Sci.* 2013 Sep; 1(1). www.idpublications.org
- [28]. Tebe PM, Fomulu JN, Khadda S, Bemis L, Delvaux T, Rochat CH. Risk Factors for obstetric fistula: a clinical review. *Int Urogynecol J.* 2012 Apr; 23(4): 387-394. doi: 10.1007/s00192-011-1622-x
- [29]. Shrestha N, Hazrh P, Sagar R. Incidence And Prevalence Of Postpartum Depression In A Rural Community Of India. *Journal of Chitwan Medical College* 2015; 5(12): 11-19. DOI: <http://dx.doi.org/10.3126/jcmc.v5i2.13149>
- [30]. Brown S, Lumley J. Physical Health Problems after Childbirth and Maternal Depression at Six to Seven Months Postpartum. *Br J Obstet Gynaecol.* 2000; 107(10):1194-1201. doi:10.1111/j.1471-0528.2000.tb11607.x
- [31]. Furuta M, Sandall J, Cooper D, Bick D. The Relationship between Severe Maternal Morbidity and Psychological Health Symptom at 6-8 Weeks Postpartum: a prospective cohort study in one English maternity unit. *BMC Pregnancy and Childbirth.* 2014; 14: 133 doi:10.1186/1471-2393-14-13

Isabel Lawot,, et. al. "Consequences of Maternal Morbidity among Women within One Year Postpartum Period." *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 9(4), 2020, pp. 19-25.