*Social Science Spectrum* ISSN 2454-2806
*Vol. 1, No. 2, June 2015, pp. 106-113*

# Self-reported Reproductive Morbidity and Pregnancy Outcome among Currently Married Women in India

Rakesh Kumar Singh[*], Sayeed Unisa[**] and Shraboni Patra[#]

Abstract

*Reproductive morbidity is one of the critical health issues in the developing countries. The present study focuses on the relationship between self-reported reproductive morbidity and last pregnancy outcomes among currently married women in India. District Level Household and Facility Survey 2007-08 (DLHS-III) data have been used. Bivariate and multivariate analyses (logistic regression analysis) are also used. The study found a positive relationship between self-reported reproductive morbidity and pregnancy wastage. The women who experienced pregnancy outcomes in terms of stillbirth were more (OR=1.462; p<0.01) likely to have reproductive morbidity than those women who had a live birth. Women who experienced induced or spontaneous abortions were two times more (OR=2.287 and OR=1.625; p<0.01) likely to develop reproductive morbidity. Hence, a consolidated and effective programme is needed to reduce the prevalence of pregnancy loss by providing medical assistance to women during delivery. More integrated programme to increase the awareness among Indian women about reproductive health and morbidity is required.*

Key words: Reproductive morbidity, Pregnancy outcome, Induced abortion, India

## I. Introduction

Reproductive health problems are the foremost cause of womenôs ill health and mortality in developing countries (Garg et al., 2002; Singh & Patra, 2013; Sontakke et al., 2009). The fifth Millennium Development Goal (MDG 5) was proposed by the United Nations to reduce the maternal mortality ratio by three-quarters between 1990 and 2015 (WHO, 2014). Globally, 289,000 maternal deaths occurred in 2013. Almost all of these deaths occurred in low-resources setting, most of which could have been prevented (WHO, 2014). In reality, maternal mortality is the tip of the iceberg. Behind every maternal death, there were twenty other serious long-lasting morbidities (Tehrani et al., 2011; UNFPA, 2009). Around 33 percent of the burden of disease was due to reproductive illness (Tehrani et. al., 2011). Reproductive morbidity is defined as ôany condition or dysfunction of the reproductive tract, or any morbidity which is a consequence of reproductive behaviour, including pregnancy, abortion, childbirth, or sexual behaviourô (Sontakke et. al., 2009). Some studies have shown that reproductive morbidity is a complex process because often women do not consider it as serious health problem or feel shy to share it with others (Garg et. al., 2002; Rangaiyan & Sureender, 2000; Younis et al., 1993; Khattab, 1992). Consequently, reporting of the reproductive morbidity in hospitals is very rare in developing countries such as in India (Bhatia & Cleland, 1995). Therefore, hospitals do not represent the actual prevalence of reproductive morbidity of the community.

[*] Rakesh Kumar Singh, Ph.D Research Scholar, International Institute for Population Sciences, Deonar, Govandi Station Road, Mumbai, Maharashtra, 400088. Email: rakeshiips5700@gmail.com

[**] Sayeed Unisa, Professor, Department of Mathematical Demography and Statistics, International Institute for Population Sciences, Govandi Station Road, Deonar, Mumbai, Maharashtra 400088. Email: unisa@iips.net

[#] Shraboni Patra, Ph.D Research Scholar, International Institute for Population Sciences, Govandi Station Road, Deonar, Mumbai, Maharashtra 400088. Email: shrageo@gmail.com

Pregnancy is an important event in a womanôs life (Weintraub & Sheiner, 2011). However, it turns out to be dangerous for her life in developing countries like India (Sontakke et al., 2009). About, one in four maternal deaths occurred in India (Jejeebhoy, 2000) due to pregnancy- related complications which could be prevented (WHO, 2014). Although some attention was paid to improve the health status of women in the country, still it is not sufficient and much more attention is required to reduce reproductive morbidity among them. Consequently, it is necessary to explore the factors responsible for the reproductive morbidity.

Pregnancy loss is the unexpected loss of a foetus before the twentieth week of pregnancy or gestation (gestation is the period of pregnancy from conception to birth) (NICHD, 2012). The loss of a pregnancy after the twentieth week of gestation is called a stillbirth and can occur before or after delivery (NICHD, 2012; PubMed Health, 2012). Spontaneous abortion is a pregnancy that ends spontaneously before the foetus has reached a viable gestational age (Weintraub & Sheiner, 2011). The WHO defines it as an expulsion or extraction of an embryo or foetus weighing equal and above 500g (typically corresponds to a gestational age of greater or equal to 22 weeks) (Weintraub & Sheiner, 2011; Meka & Reddy, 2006). About 12-15 per cent of recognised pregnancies and 17-22 per cent of all pregnancies end in spontaneous abortion (Weintraub & Sheiner, 2011). We hardly find any study that has shown the relation of reproductive morbidity and pregnancy outcomes in the Indian context. The present study attempts to focus on the linkage between reproductive morbidity and pregnancy outcome.

Therefore, the fundamental objectives of this study are: first, to examine the prevalence of reproductive morbidity in association with pregnancy outcomes in India and second, to identify the relationship between pregnancy outcome and self-reported reproductive morbidity.

## II. Methods and Materials

### *Data and sample size*

Data from the third round of the District Level Household and Facility Survey (DLHS-III) have been used in the study. The survey was conducted by the International Institute for Population Sciences (IIPS) during 2007-08. The sample size of DLHS-III is 720,320 households from 28 states and six union territories of India. Of these households, 643,944 ever-married women aged 15-49 years were interviewed. The survey was funded by Union Ministry of Health and Family Welfare of India, United Nations Population Fund (UNFPA) and United Nations Childrenôs Fund (UNICEF). The ever-married womenôs questionnaire contains information on womenôs characteristics, pregnancy history, maternal care, contraception and fertility preferences, reproductive health including knowledge about RTI/STI and HIV/AIDS (DLHS-2007-08) (IIPS, 2010).

The ever-married women questionnaire was used as a survey instrument in DLHS-III. Using the questionnaire, information was collected on pregnancy history of currently married women of age groups 15-49 years since January 2004. In this study, we selected those women who were currently married and had pregnancy outcome as a live birth, stillbirth, induced and spontaneous abortion in the last pregnancy from the date of interview. The sample size of the last pregnancy outcome was 46,021 of the currently married women of age group 15-49 years since 2004.

### *Statistical analysis*

The study uses bivariate and multivariate techniques to understand the relationship between pregnancy loss and reproductive morbidity among currently married women in age group 15-49 years. Multivariate logistic regression analysis is applied to examine the effect of self-reported reproductive morbidity on pregnancy outcomes after controlling for the demographic and socio-economic variables.

*Dependent variable*

In the reproductive morbidity section, respondents were asked about the symptoms of reproductive morbidity in the three months prior to the survey. By using this information, we made a reproductive morbidity variable. Reproductive morbidity is considered as the dependent variable. Six morbidities have been considered to construct the reproductive morbidity variable. These are itching, pain in the lower abdomen, pain during sexual intercourse, abnormal vaginal discharge, lower backache and urinary tract infection during the three months prior to the survey. Those women who had at least one symptom of the above mentioned reproductive morbidity were considered as the women who had a reproductive health problem.

*Independent variables*

Demographic characteristics of women considered are: Age of women (15-19, 20-24,25-29,30-34,35-39,40-44,45-49 years);Age at consummation of marriage (below 18 years, above 18 years); and Marital duration (0-4,5-9, 10-14, 15+ years).

Socio-economic characteristics of women are considered as: Place of residence (rural, urban);Womenôs education (non-literate, less than 5 years, 5-9 years, 10+ years);Husband's education (non-literate, less than 5 years, 5-9 years, 10+ years);Wealth quintile (poorest, poor, middle, rich, richest);Religion (Hindu, Muslim, Christian, others);Caste (scheduled caste, scheduled tribes, other backward castes, others);spacing method (met need, unmet need);and limiting method (met need, unmet need).

*Logistic regression analysis*

This model has been utilized for the dependent variable, reproductive morbidity that is coded in binary form. The logistic regression model is commonly estimated by maximum likelihood function for dependent variables. Logistic model takes the following general form:

$$\text{Logit } P = \ln[p/(1-p)] = b_o+b_1x_1+b_2x_2+é\ é\ é\ é\ é\ é\ .+b_ix_i+e_i$$

Where $b_1$, $b_2$, é ..and $b_i$ represent the coefficient of each of the independent variables included in the model while $e_i$ is an error term. Ln [p/(1-p)] represents the natural logarithms of the odds of the outcomes. The SPSS ($20^{th}$ version) statistical package was used to set the odds ratios that indicate the magnitude of independent variables on the probability of occurring of the outcomes.

The odds ratios are the measures of odds that women had reproductive morbidity (response variables) as indicated by the predictor variables. This model has been used to elicit the net effect of each of the explanatory variables under analysis, on the likelihood of suffering from at least one of the reproductive morbidity symptoms among currently married women who had a pregnancy loss within six months of the date of the interview of the survey.

## III. Results

*Prevalence of self-reported reproductive morbidity by last pregnancy outcome:*

Table 1 shows that the prevalence of reproductive morbidities (such as itching, lower abdomen pain, pain during intercourse, abnormal vaginal discharge, lower backache and urinary tract infection) varies with pregnancy loss (i.e. stillbirth, induced abortion and spontaneous abortion). Prevalence of abnormal vaginal discharge (18.7%), pain in lower abdomen (9.4%) and lower backache (16.8%) are the highest among women who had a stillbirth. Prevalence of itching (9.8%), lower abdomen pain (12.1%), pain during intercourse (6.9%), abnormal vaginal discharge (25.5%) and lower backache (20.8%) are the highest for those pregnancies that were turned into

induced abortion. Even vaginal discharge (19.6%) and lower backache (15.3%) are high among women whose last pregnancy outcome was spontaneous abortion. As a whole, the prevalence of vaginal discharge (12.6%) is the highest and urinary tract infection (3.1%) the lowest among different reproductive morbidities experienced by women. Reproductive morbidity is found to be less among women who had given a live birth (or successful pregnancy outcome) as compared with women who had at least one pregnancy loss.

**Table 1. Prevalence (per hundred) of self-reported reproductive morbidity by last pregnancy outcomes for currently married women 15-49 years, India, DLHS-III, 2007-08**

| Outcome of Pregnancy* | Reproductive Morbidity** | | | | | | Sample of Pregnan-cies[£] |
|---|---|---|---|---|---|---|---|
| | Itching | Lower Abdomen | Pain during Sexual Intercourse | Abnormal Vaginal Discharge | Lower Backache | Urinary Tract Infection | |
| Live birth | 4.9 | 5.1 | 3.0 | 11.4 | 11.1 | 2.8 | 41500 |
| Stillbirth | 8.0 | 9.4 | 4.9 | 18.7 | 16.8 | 6.6 | 743 |
| Induced abortion | 9.8 | 12.1 | 6.9 | 25.5 | 20.8 | 5.6 | 1014 |
| Spontaneous abortion | 6.7 | 8.2 | 6.4 | 19.6 | 15.3 | 3.8 | 2764 |
| Total | 5.3 | 5.7 | 3.4 | 12.6 | 11.8 | 3.1 | 46021 |

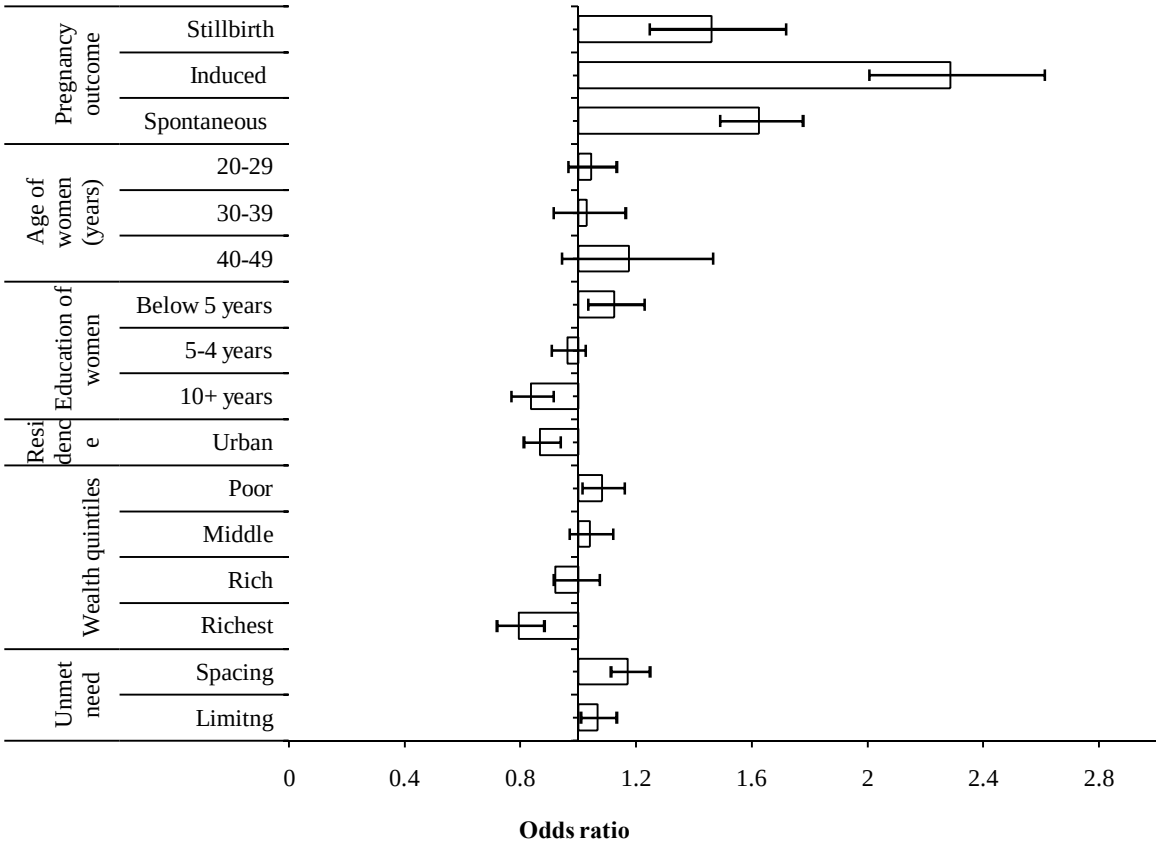
** Reproductive morbidity data pertain to only three months prior to the survey; * Considered the outcome of the last pregnancy only; [£] Chi-square test: p<0.01

*Self-reported reproductive morbidity by pregnancy outcomes*

The logistic regression analysis is performed to estimate the effect of socioeconomic factors, demographic factors and pregnancy outcomes on reproductive morbidity. Pregnancy loss, age at consummation of marriage, marital duration, women's education, religion, wealth quintile and unmet need for family planning are found to be statistically significant in determining the self-reported reproductive morbidity (Figure 1). Women who had experienced stillbirth were significantly more likely to have reproductive morbidity (OR=1.462; p<0.001) than those women who had a live birth. Women who experienced induced abortion are twice (OR=2.287; p<0.001) more likely to have reproductive morbidity as compared with women who had alive birth.

Those women who had a spontaneous abortion are about twice (OR=1.625; p<0.001) more likely to have reproductive morbidity as compared with women who had a live birth. Women with marital duration above five years are significantly more likely (OR=1.142; p<0.001) to experience reproductive morbidity as compared with women with less than five years of marital duration. Similar results are found in respect of the place of residence. Urban women are significantly less likely (OR=0. 867; p<0.001) to acquire reproductive morbidity than rural women. Women belonging to the richer section of the society are significantly less likely (OR=0.795; p<0.001) to develop reproductive morbidity than the poorer women. Those women who have more than a high school education are less likely (OR=0.836; p<0.001) to develop reproductive morbidity due to pregnancy loss. Women having an unmet need for spacing (OR=1.177; p<0.001) and limiting methods (OR=1.067; p<0.001) are more likely to develop reproductive morbidity than the women who do not have such kind of need (table 2).

Figure 1: Odds Ratio for self-reported reproductive morbidity among women 15-49 years in India (n=40,621)




## IV. Discussion

The findings of the study have established a relationship between the self-reported reproductive morbidity and pregnancy outcomes. They show that women who had experienced pregnancy loss (such as stillbirth, spontaneous and induced abortion) are more likely to have reproductive morbidity as compared with women who had a live birth. Agarwal & Agarwal (2013) support the findings of the present study. They have also shown that women who had experienced induced abortion are more likely to have at least one symptom of reproductive morbidity in India. They also suggested that induced abortion might have negative consequences for womenôs reproductive health (Agarwal & Agarwal, 2013).Under-reporting of abortion incidents and unavailability of accurate data on abortion are still a hindrance to the exploration of the current scenario of pregnancy loss in India. Dr. Gilda Sedgh of the Sexual and Reproductive Health Advocacy Center, Guttmacher Institute, United States, believes óabout half of all abortions worldwide are unsafeô (TIME, 2013).In India, the problem of unsafe abortions is severe. About 620,472 abortions were reported in 2012, while specialists say that the correct number of the abortions performed in the country could be near about 7 million, with two-thirds of them taking place outside authorized health facilities (TIME, 2013). We have found positive relationship between reproductive morbidity and induced abortions.

Many studies have also shown that unsafe abortion has very adverse effects on womenôs health, especially on their reproductive health (Sedgh et al. 2012; Santhya & Verma, 2004; Duggal & Ramachandran, 2004). Studies have shown the multiple consequences of unsafe abortion which include not only mortality but also chronic injuries. The enormity of pregnancy loss not only

**Table 2. Results of Logistic Regression Analysis of self-reported reproductive morbidity among currently married women aged 15-49 years, India, DLHS-III, 2007-08.**

| Background characteristics | Odds Ratio (Exp(β)) | 95% C.I. for EXP(β) | |
|---|---|---|---|
| | | Lower | Upper |
| **Pregnancy Outcome** | | | |
| Live birth® | 1 | | |
| Stillbirth | 1.462*** | 1.245 | 1.716 |
| Induced abortion | 2.287*** | 2.004 | 2.610 |
| Spontaneous abortion | 1.625*** | 1.488 | 1.775 |
| **Age (years)** | | | |
| 15-19® | 1 | | |
| 20-29 | 1.044 | 0.963 | 1.131 |
| 30-39 | 1.030 | 0.913 | 1.162 |
| 40-49 | 1.175 | 0.942 | 1.464 |
| **Age at consummation of marriage** | | | |
| Below18 year® | 1 | | |
| Above18 year | 0.888*** | 0.841 | 0.937 |
| **Marital duration (years)** | | | |
| 0-4® | 1 | | |
| 5-9 | 1.142*** | 1.075 | 1.214 |
| 10-14 | 1.200*** | 1.107 | 1.300 |
| 15+ | 1.230*** | 1.097 | 1.379 |
| **Residence** | | | |
| Rural® | 1 | | |
| Urban | 0.867*** | 0.810 | 0.937 |
| **Education level (years)** | | | |
| Non literate® | 1 | | |
| Less than 5 | 1.125*** | 1.032 | 1.227 |
| 5-9 | 0.963 | 0.906 | 1.023 |
| 10+ | 0.836*** | 0.766 | 0.913 |
| **Caste** | | | |
| Scheduled castes® | 1 | | |
| Scheduled tribes | 0.867*** | 0.800 | 0.939 |
| Other backward castes | 0.979 | 0.920 | 1.042 |
| Others | 1.128*** | 1.048 | 1.213 |
| **Religion** | | | |
| Hindu® | 1 | | |
| Muslim | 1.513*** | 1.421 | 1.610 |
| Christian | 1.051 | 0.933 | 1.183 |
| Others | 0.786*** | 0.692 | 0.892 |
| **Wealth quintiles** | | | |
| Poorest® | 1 | | |
| Poor | 1.083** | 1.013 | 1.158 |
| Middle | 1.041 | 0.969 | 1.119 |
| Rich | 0.990 | 0.914 | 1.073 |
| Richest | 0.795*** | 0.717 | 0.881 |
| **Spacing method** | | | |
| Met need® | 1 | | |
| Unmet need | 1.177*** | 1.111 | 1.246 |
| **Limiting method** | | | |
| Met need® | 1 | | |
| Unmet need | 1.067*** | 1.007 | 1.131 |
| **Sample Size (N)** | 46,021 | | |

Significance level: ***p<0.001, ** p<0.01,* p<0.5.,® Reference category.

affects womenôs health, it has also consequences on their children, families and communities (Brookmen-Amissah, 2004). Santhya (2004) argued that an unsafe abortion has played a significant role in the prevalence of reproductive morbidity (Santhya & Verma, 2004). However, we do not have any clear evidence about the association between pregnancy loss and reproductive morbidity in the Indian context in the previous studies. The present study has found a significant relationship between abortions (both induced and spontaneous) and reproductive morbidity.

The study shows that women who live in an urban area are more aware of the seriousness of the pregnancy loss and take proper treatment that decreases the prevalence of reproductive morbidity among them. Education has played a significant role in controlling reproductive morbidity. Women who have completed ten years of education are significantly less likely to experience reproductive morbidity than those who have less than ten years of education. Many studies show that if the reproductive morbidity is detected in its early stage, it can be cured completely (Rani & Bonu, 2003).

Women who had induced abortion have more problem of itching and abnormal vaginal discharge. Findings of this study are also similar to the results of previous studies. For instance, Rob Stephenson et al. (2006) have found that about 15 percent of the women respondents reported an abnormal vaginal discharge in North India.

Women belonging to the poorest section of the society are more likely to have reproductive morbidity after the loss of their pregnancy as compared with those belonging to the richest section of the society. It is quite evident that the richest quintile women are more educated and financially strong that enable them to be aware of the adverse effects of pregnancy loss on their health. One of the important findings emerging from the study is that if women have ever experienced any form of pregnancy loss in last pregnancy, then they would have more risk of developing reproductive morbidity in the future. Therefore, it can be easily assumed that if it would be possible to reduce the rate of pregnancy loss, the chance of getting the risk of reproductive morbidity will indeed be reduced.

This study is based on self-reported reproductive morbidity by the women, and it is not clinically tested. From it, we cannot infer that morbidity after induced abortion is due to the use of unsafe methods. As the study explains relationship between pregnancy loss and reproductive morbidity from the cross-sectional survey data, there may be some of errors in the reported information due to the recall bias.

A follow-up of women after stillbirths and abortions are required to reduce reproductive morbidities among them. Women, who are experiencing any reproductive health problem, should be given proper medical attention. Promoting awareness programmes on reproductive health issues mainly focusing on pregnancy loss and reproductive morbidity is important at the community level. Moreover, well spread knowledge about safe abortion services will reduce the bane of reproductive morbidities among women.

***Acknowledgement:*** *The authors would like to thank the anonymous referees of the journal for their valuable suggestions and comments on this manuscript.*

## References


Agrawal, S., & Agarwal, P. K. (2013). Induced abortion and womenôs reproductive health in India. *Global Journal of Medicine and Public Health*, 2(5): 1-11.

Bhatia, J. C., & Cleland, J. (1995). Self-reported of gynaecological morbidity and their treatment in South India. *Studies in Family Planning*, 26(1): 203-216.

Brookman-Amissah, E. (2004). Woman-centered safe abortion care in Africa, *African Journal of Reproductive Health*, 8 (1): 37-42.

Duggal, R., & Ramachandran, V. (2004). *Summary and key findings, abortion assessment project-India*. Mumbai: Centre for Enquiry into Health and Allied Themes (CEHAT) and Healthwatch, 2004.

Garg, S., et al. (2002). Reproductive morbidity in an Indian urban slum: need for health action. *Sex Transm Infect*, 78: 68-69.

International Institute for Population Sciences (IIPS) (2010). *District Level Household and Facility Survey (DLHS-3), 2007-08*: India. Mumbai: IIPS.

Jejeebhoy, S. J. (2000). Womenôs autonomy in rural India: Its dimensions, determinants, and the influence of context. In Harriet B. Presser and Gita Sen (eds.), *Women's Empowerment and Demographic Processes: Moving Beyond Cairo.* New York: Oxford University Press.

Khattab, H. (1992). *The silent endurance: Social conditions of women's reproductive health in rural Egypt*. Amman: UNICEF, and Cairo: The Population Council.

Meka, A., & Reddy, B.M. (2006). Recurrent spontaneous abortions: An overview of Genetic and Non-Genetic Backgrounds. *International Journal of Human Genetic,* 6(2): 109-117.

NICHD. (2012). *Pregnancy loss*, National Institute of Child Health and Human Development. Available at: http://www.nichd.nih.gov/health/topics/pregnancyloss/conditioninfo/Pages/default.aspx

PubMed Health. (2012). PubMed Health A.D.A.M. *Medical Encyclopaedia*, Miscarriage. Retrieved from http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0002458/

Rangaiyan, G., & Sureender, S. (2000). Womenôs perceptions of gynaecological morbidity in South India: Causes and remedies in cultural context. *Journal of Family Welfare*, 46: 31-38.

Rani, M., & Bonu, S. (2003). Rural India: Womenôs care-seeking behaviour and choice of provider for gynaecological symptoms. *Studies in Family Planning,* 34 (3): 173-185.

UNFPA. (2009). *Safe Motherhood: Surviving Childbirth, But Enduring Chronic Ill Health. Book Safe Motherhood: Surviving Childbirth, But Enduring Chronic Ill Health City*. United Nation Population Fund; 2009.

Santhya, K. G., & Verma, S. (2004). Induced abortion: The current scenario in India. *Regional Health Forum* 8 (2):1-14.

Sedgh, G., Singh, S., Henshaw, S. K., & Bankole, A. (2012). Induced abortion: incidence and trends worldwide from 1995 to 2008, *The Lancet*, 379 (9816): 625-632

Singh, R. K., & Patra, S. (2013). Differentials in the utilization of antenatal care services in EAG states of India. *International Research Journal of Social Sciences*, 2 (11): 1-6.

Sontakke, P., Reshmi, R. S., & Sebastian, D. (2009). Obstetric morbidity among currently married women in Selected States of India. *The Journal of Family Welfare*, 55 (2): 17-26.

Stephenson, R., Koenig, M.A., & Ahmad, S. (2006). Domestic violence and symptoms of gynaecologic morbidity among women in North India. *International Family Planning Perspectives,* 32 (4): 201-208.

Tehrani, F. R., Simbar, M., & Abedini, M. (2011). Reproductive morbidity among Iranian women; issues often inappropriately addressed in health seeking behaviours. *BMC Public Health*, 11: 1-8.

TIME, (2013). Every two hours in India, a woman dies from an unsafe abortion. *TIME*. Retrieved from http://world.time.com/2013/07/19/world-population-focus-on-india-part-2-unsafe-abortions/

Weintraub, A. Y., & Sheiner, E. (2011). Early Pregnancy Loss, In E. Sheiner (ed.) Bleeding during pregnancy: A comprehensive guide, *Springer Science Business Media, LLC.*doi. 10.1007/978-1-4419-9810-12.

WHO. (2014). *Maternal Mortality, Fact sheet*. Geneva. Retrieved from http://www.who.int/mediacentre/factsheets/fs348/en/

Younis, N., Khattab, H., Zurayk, H., El-Mouelhy, M., Amin, M. F., & Farag, A. M. (1993). A community study of gynecological and related morbidities in rural Egypt, *Studies in Family Planning,* 24(3): 175-186.