A Study of Socio-Economic Risk Factors for Missed Abortion

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Abstract

Missed abortions represent a significant gynecological emergency workload. Nearly 20% of all confirmed pregnancies end in missed abortion. Clinicians still do not recognize risk factors for miscarriage. Early identification of the at risk women could help decrease this incidence. The investigators did a hospital based analytical study to investigate the risk factors for these abortions. Women with pregnancy which had ended in first trimester missed abortion (<12 weeks of gestation) were compared with normal pregnant women. Socio-demographic profile was assessed and data analyzed to evaluate risk factors difference between the two groups which showed that women with higher age and under 20 years age, poor literacy, lower educational status and with lower income had an elevated risk of missed abortion. Gravidity and
interpregnancy interval showed no effect in the study. The socially patterned risk indicated that a proportion of missed abortions may be preventable and that factors related to social position, probably of the environmental and behavioural type, may affect missed abortion risk. 

**Key words:** Missed abortion, high risk, socio-economic status, literacy.

### Introduction

Abortion is the most common complication of early pregnancy. The incidence of missed abortion in clinically recognized pregnancies up to 20 gestational weeks is 8 to 20 percent [1] but clinicians still do not recognize risk factors for miscarriage. Early identification of the at-risk women could help decrease this incidence.

### Objective

The aim of the research was to investigate the risk factors for missed abortions by assessing and comparing the profile of women who experienced missed abortion (cases) with those who experienced normal pregnancy (control).

### Materials and Methods

**Research Approach:** Hospital Based Research  
**Research Design:** Analytical Research.  
**Symbolic Presentation of Research Design:**

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Variable 1
{ — description of variables — analysis and interpretation of result —
Hypothesis formation

Variable 2

Setting: Department of Obst. & Gynae., S.M.S. Medical College & Hospital, Jaipur, Rajasthan
Population: pregnant women attending the outpatient department
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Sample: 400 pregnant

Sampling technique – Convenient sampling technique

Sampling criteria: women 200 pregnant women with pregnancy which had ended in first trimester miscarriage (Variable 1, <12 weeks of gestation) and 200 normal pregnant women (Variable 2, control group) were studied.

Data collection tools and technique

Data collection procedure

Formal permission was taken from the necessary authorities.

Women were informed about the purpose of the study and their informed written consent were taken.

Data collected for the study from 1st January to 30th June, 2015

Structured proforma: was filled by the investigator.

Variables studied:

Age
Demographic data,
Literacy level,
Socio-Economic class {Revised modified B G Prasad socioeconomic classification scale, Jan 2014} Gravidity
Interpregnancy interval
Gestational age

Data analysis: Significance of difference in proportion in various variables of missed abortion in both the group was inferred by Chi-square test and students T Test.

Results And Discussion

Most of the women in both the groups were in 20-29 years age group. Significant
difference was observed according to age groups.

Table 1. Relation Between Age And Risk Of Missed Abortion

<table>
<thead>
<tr>
<th>Age group</th>
<th>Cases</th>
<th>Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>&lt;20</td>
<td>48</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>20 to 24</td>
<td>108</td>
<td>54</td>
<td>80</td>
</tr>
<tr>
<td>25 to 28</td>
<td>28</td>
<td>14</td>
<td>64</td>
</tr>
<tr>
<td>29 to 34</td>
<td>12</td>
<td>6</td>
<td>32</td>
</tr>
<tr>
<td>&gt;35</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100</td>
<td>200</td>
</tr>
</tbody>
</table>

Chi-square = 9.837 with 4 degrees of freedom; P = 0.043 Sig

The table 1 shows that the mean age among cases was 24.7±4.03 yrs which was significantly higher than that of control group, 23.10±2.8 years (p=0.023). There were significantly high proportion of women in < 20 years age group in cases than controls (P=0.03)

Table 2. Relation Between Literacy Level And Risk Of Missed Abortion

<table>
<thead>
<tr>
<th>Literacy Status</th>
<th>CASES</th>
<th>CONTROL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>(%)</td>
<td>N</td>
</tr>
<tr>
<td>Illiterate</td>
<td>52</td>
<td>26</td>
<td>16</td>
</tr>
<tr>
<td>Primary</td>
<td>96</td>
<td>48</td>
<td>60</td>
</tr>
<tr>
<td>Secondary</td>
<td>44</td>
<td>22</td>
<td>64</td>
</tr>
<tr>
<td>Graduate</td>
<td>8</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100</td>
<td>200</td>
</tr>
</tbody>
</table>

Chi-square = 17.709 with 3 degrees of freedom; P < 0.001 Sig
Data in table 2 shows that poor literacy had a significant bearing on the outcome of pregnancy. Proportion of women with education secondary or higher was more in control group than the missed abortion one. (p<0.001).

### Table 3. Relation Between Socio-Economic Class And Risk Of Missed Abortion

<table>
<thead>
<tr>
<th>Socio-Economic Class</th>
<th>CASES N (%)</th>
<th>CONTROL N (%)</th>
<th>TOTAL N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper</td>
<td>-</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Upper Middle</td>
<td>-</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>Middle</td>
<td>156</td>
<td>96</td>
<td>252</td>
</tr>
<tr>
<td>Lower Middle</td>
<td>32</td>
<td>48</td>
<td>80</td>
</tr>
<tr>
<td>Lower</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
</tbody>
</table>

(p<0.001)

In the table 3, significant difference was observed according to socioeconomic status of the family. There were more women with missed abortion from SES middle or less as compared to control group. (p<0.001). Poor economic condition perhaps directly has an affect on the diet, sleep, stress level and physical activity level of the pregnant woman. The data in table 4 shows the majority (59%) of women in the study had gestational age six to eight weeks. Significantly lower mean gestational age was observed in cases than control group. There was no significant difference observed according to gravidity and time since last pregnancy.

Arck et al [2] and Maconochie N [3] also in their study found that the risk of miscarriage was significantly increased in women at higher age (>33 years). According to Nybo [4] the risk of a spontaneous abortion was 8.9% in women aged 20-24 years and 74.7% in those aged 45 years or more. Wilcox et al [5] and Wang et al [6] both also reported a decreasing frequency with increasing gestational age and lower among women who have previously had a child.
(5 percent). Coste J [7] stressed the importance of four risk factors for fetal loss: maternal age, number of prior spontaneous abortions, ethnic origin and psychological problems at the time of conception.

Table 4. Relation Between Gestational Age And Risk Of Missed Abortion

<table>
<thead>
<tr>
<th>Gestational Age In weeks</th>
<th>CASES N (%</th>
<th>CONTROL N (%)</th>
<th>TOTAL N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;6</td>
<td>20 (10)</td>
<td>12 (6)</td>
<td>32 (8)</td>
</tr>
<tr>
<td>6 to 8</td>
<td>120 (60)</td>
<td>116 (58)</td>
<td>236 (59)</td>
</tr>
<tr>
<td>8 to 10</td>
<td>36 (18)</td>
<td>52 (26)</td>
<td>88 (22)</td>
</tr>
<tr>
<td>&gt;10</td>
<td>24 (12)</td>
<td>20 (10)</td>
<td>44 (11)</td>
</tr>
</tbody>
</table>

Mean±SD: 7.6 ±1.7 wks, Mean±SD: 7.94±1.8 wks, Mean±SD: 7.8±1.7 wks

Osborn et al [8] found the risk to be increased for women aged 35-39 (odds ratio = 1.45) and women over age 40 (odds ratio = 3.10) in comparison with women under age 20 years. The odds ratio was almost 2 for women who have been pregnant two or more times previously. Unmarried women have an increased risk (odds ratio = 1.33), but no important effect of education was observed.

Norsker et al [9] found that educational level and income were inversely associated with the risk of spontaneous abortion. The findings indicate that factors related to social position, probably of the environmental and behavioural type, may affect spontaneous abortion risk. The s
study highlights the need for studies addressing such exposures in order to prevent abortions. In the study of Jibril et al [10], 51.6% women with missed abortion were aged between 31 to 40 years and 40.5% were gravid 3 or 4.

Formulation of hypothesis

**H1**- There is significant relationship between age and missed abortion at 0.05 level of significance.

**H2** There is significant relationship between socio-economic status and missed abortion at 0.05 level of significance.

**H3** There is significant relationship between literacy level and missed abortion at 0.05 level of significance.

**H4** There is significant relationship between gestational age and missed abortion at 0.05 level of significance.

**H5** There is no significant relationship between gravidity and time since last pregnancy and missed abortion at 0.05 level of significance.

Conclusion

Higher age and under 18 years maternal age were independently associated with increased risk. We also found an association with educational level and socio-economic circumstances. The analytic methods suggest how age and other factors can be simultaneously examined for associations.

Recommendations

Careful evaluation of the pregnant women should be done for these risk factor at the 1st antenatal visit, to recognize pregnant women who require extra monitoring and who might benefit from therapeutic interventions such as progestogen supplementation, especially during the first weeks of pregnancy, so the incidence of missed abortion could be lowered.
Limitations of The Study

The present study is based upon a small population. To study abortions is difficult since a great part of spontaneous abortions happen very early in the pregnancy period, many even before the women themselves know that they are pregnant.

References


Authors Column

Dr. Nupur Hooja is a Professor in S.M.S. Medical College, Jaipur with vast clinical and research experience. She did her postgraduation in Obstetrics and Gynaecology from S.M.S. Medical College, Jaipur. She also hold a Post Graduate Diploma in Medico-Legal Systems [Symbiosis, Pune], Post Graduate Diploma in Health and Hospital Management [IGNOU] besides a Post Graduate degree in Clinical Research [Symbiosis, Pune]. She has published her papers in leading national and international Journals.