

Assessment of Determinants of Miscarriage in Primigravida visiting Gynaecology outpatient Department DHQ Hospital, Dera Ghazi Khan.

Dr.Saim Noman, Dr.Muhammad Amir Shafiq, Dr.Ata ul Mohsin

ABSTRACT

Introduction: Neonatal, prenatal and infant mortality rates are still high in developing countries despite national and international efforts to redress this problem. This study was conducted to investigate maternal knowledge and attitudes regarding the risk factors that adversely affect pregnancy outcomes and miscarriages in DHQ Dera Ghazi Khan. A longitudinal study was conducted among 100 pregnant women attending antenatal clinics from start of their pregnancy to 22 weeks of gestation. Socio-economic, demographic, anthropometric, biomedical and obstetric information was collected. Results showed that, majority of the pregnant women (> 70%, n = 70) were aware of the risk factors that could adversely affect the pregnancy outcomes, however, they did not know the exact mechanisms by which the risk factors acted to cause the adverse effects. Occurrence of risk factors among pregnant women was severe anaemia - smoking, passive smoking, alcohol consumption, unmarried, under-age (< 20 years), over-age (> 35 years), history of stillbirth, history of caesarean section and history of miscarriage. A larger study should

also be conducted to ascertain the association of the other risk factors with pregnancy outcomes, starting with pregnant women in their first trimester.

Materials and Methods: A longitudinal study was conducted from May to June, 2017 to assess the “Determinants of miscarriages in primigravida visiting gynaecology outpatient department, DHQ hospital, Dera Ghazi Khan. In this regard a comprehensive questionnaire was prepared to collect data from respondents.

Results: The potentially modifiable pre-pregnant risk factors associated with increased miscarriage risk were: age of 30 years or more at conception, underweight, and obesity. During pregnancy, the modifiable risk factors were: alcohol consumption, lifting of >20 kg daily, and night work. We estimated that miscarriages might be prevented by reduction of all these risk factors to low risk levels. Maternal age at conception and alcohol consumption were the most important risk factors.

Conclusion: Miscarriage risk is increased by multiple potentially modifiable risk factor and

thus considerable proportion of miscarriages may be preventable.

INTRODUCTION

Miscarriage is the most common type of pregnancy loss, according to the American College of Obstetricians and Gynaecologists (ACOG). Studies reveal that anywhere from 10_15% of all clinically recognized pregnancies will end in miscarriage. Miscarriage is the loss of baby before it was able to survive independently outside the womb of mothers. It usually occurs in 20_24 weeks of gestation.

Miscarriage is a major public health problem across the globe due to the higher incidence and severity of its complications such as severe per vaginal bleeding, incomplete miscarriage, septic miscarriage, ill health, infertility and death of the woman. It is sometimes caused by trauma to the abdomen. The degree of force, if severe, can cause serious internal injuries without necessarily succeeding in miscarriage².

A woman who is pregnant for the first time is known as primigravida. The present study is designed to determine the causes of miscarriage in primigravida.

For women in their childbearing years, the chances of having a miscarriage can range from 10-25%, and in most healthy women the average is about a 15-20% chance. An increase in

maternal age affects the chances of miscarriage. Women under the age of 35 yrs. old have about a 15% chance of miscarriage. Women who are 35-45 yrs. old have a 20-35% chance of miscarriage. Women over the age of 45 can have up to a 50% chance of miscarriage. A woman who has had a previous miscarriage has a 25% chance of having another (only a slightly elevated risk than for someone who has not had a previous miscarriage)

The definition by IPAS (1991) is a comprehensive definition which is miscarriage, also known as spontaneous abortion, is the unintentional expulsion of an embryo or foetus before the 20th to 22nd week of gestation. A pregnancy that ends before 37 weeks of gestation resulting in alive-born infant is known as a "premature birth" or a "preterm birth".³ Premature births and stillbirths are generally not considered to be miscarriages although usage of these terms can sometimes overlap. Only 30 to 50% of conceptions progress past the first trimester⁴.

The most common cause of spontaneous miscarriage during the first trimester is chromosomal abnormalities of the embryo/foetus, accounting for at least 50% of sampled early pregnancy. Other causes include diseases such as lupus erythematosus, diabetes mellitus, other hormonal problems, infection,

and abnormalities of the uterus. Advancing maternal age and a patient history of previous spontaneous miscarriages are the two leading factors associated with a greater risk of spontaneous miscarriage can also be caused by accidental trauma.

There are various types of miscarriages as follows.

Threatened miscarriages: Some degree of early pregnancy are accompanied by uterine bleeding, cramping or lower backache. The cervix remains closed. This bleeding is often the result of implantation. Inevitable or Incomplete Miscarriage: Abdominal or back pain accompanied by bleeding with an open cervix. Miscarriage is inevitable when there is a dilation or effacement of the cervix and/or there is rupture of the membranes. Bleeding and cramps may persist if the miscarriage is not complete.

Completed miscarriage: It is when the embryo or products of conception have emptied out of the uterus. Bleeding should subside quickly, as should any pain or cramping. A completed miscarriage can be confirmed by an ultrasound or by having a surgical curettage performed.

Missed miscarriages: Women can experience a miscarriage without knowing it. A missed miscarriage is when embryonic death has

occurred but there is not any expulsion of the embryo. It is not known why this occurs. Signs of this would be a loss of pregnancy symptoms and the absence of foetal heart tones found on an ultrasound.

Recurrent miscarriages (RM): Defined as 3 or more consecutive first trimester miscarriages. This can affect 1% of couples trying to conceive.

LITERATURE REVIEW

Two reviewers independently searched the Pub Med database for articles published between 1956 and August 31, 2011, relevant to smoking and risk of adverse pregnancy outcomes. The search terms were (“smoking” OR “tobacco”) AND “pregnancy.” From the chosen articles, those relevant to miscarriage or perinatal death were selected for inclusion and/or review of references. We then conducted manual searches by checking references of the articles identified in the Pub Med searches. The articles referenced by all relevant articles (original articles, reviews, and letters) were searched by at least 1 reviewer, and the articles referenced by included articles and all Surgeon General reports regarding tobacco and health were searched by 2 reviewers. Disagreements on final inclusion status were resolved by discussion.⁸

In a cohort of pregnant women without overt thyroid dysfunction, the risk of child loss increased with higher levels of maternal TSH. Maternal FT4 concentrations and child loss were not associated.

The relation between heavy and inconvenient working load and the outcome of pregnancy was studied among women. A slightly, but not significantly, increased risk of miscarriage was found in women who worked irregular hours or rotating shifts compared with women who worked only during the day.

One recent review article cited more than 200 papers. The problem is that women who drink more coffee than most nearly always differ from other pregnant women in other ways too. They are more likely to smoke, for one thing, which makes it difficult to decide what is causing what.

Miscarriage risk is 67% lower with 30-31 day cycles, 60% less likely after long menstrual bleeds

Obesity is associated with increased risk of first trimester and recurrent miscarriage.

This was a nested case-control study. The study population was identified from a maternity database. Obese [body mass index (BMI) >30 kg/m²] women were compared with an age-matched control group with normal BMI

(19–24.9 kg/m²). Only prim parous women were included in the study to avoid including the subject more than once, and to be able to correctly identify recurrent miscarriages. The prevalence of a previous history of early (6–12 weeks gestation), late (12–24 weeks gestation) and recurrent early miscarriages (REM) (more than three successive miscarriages <12 weeks) was compared between the two groups. A total of 1644 obese and 3288 age-matched normal weight controls with a mean age of 26.6 years [95% confidence interval (CI) 26.5–26.7] were included in the study. The risks of early miscarriage and REM were significantly higher among the obese patients (odds ratios 1.2 and 3.5, 95% CI 1.01–1.46 and 1.03–12.01, respectively; P = 0.04). Obesity is associated with increased risk of first trimester and recurrent miscarriage.

Spontaneous miscarriage affects 12–15% of all pregnancies. Eighty percent of miscarriages occur before 12 weeks of gestation, and the majority are due to chromosomal abnormalities. Our figures from this study population are consistent with previously published data.

OBJECTIVES

- Objective of this research was to give

suggestions and recommendations for prevention and control of miscarriages in primigravida.

- To assess the knowledge of patients reporting to DHQ, Dera Ghazi Khan, about miscarriage and its risk factors.
- To identify practices by patients, that may contribute to increased risk of miscarriages.

MATERIALS AND METHODS

- **General:** Methodology is the theoretical and systematic analysis of the methods applied to the field of study.
- **Study design:** We conducted a follow-up study based on pregnancies enrolled in the DHQ, Dera Ghazi Khan, between June to Sept 2017. The recruitment of participants occurred in connection with the antenatal visit at the general practitioner, which in Dera Ghazi Khan normally takes place shortly after recognition of the pregnancy. The pregnant women provided informed consent, and permission was obtained before initiation of the study.
- **Place of study:** The place of study was OPD of DHQ/UTH Dera Ghazi Khan. It is a

prominent city of Dera Ghazi Khan district of Punjab. It is one of the fastest developing city of Pakistan.

- **Study population:** We included all pregnancies with information on risk factors for miscarriage that was provided either in an interview during pregnancy (past miscarriage) or after a miscarriage. We set some further exclusion criteria: hydatid form mole and ectopic pregnancies, pregnancies enrolled in the DHQ at 22 gestational weeks or later, and pregnancies with no information on gestational age.

- **Duration of study:** The study was conducted from May, 2017 to June, 2017.

- **Sampling technique:** Simple Random Sampling was used for the selection of sample among miscarriage patients.

- **Sample Size:** 50 women visiting Gynaecology Department, DHQ Hospital were included in sample.

- **Sample selection:**

Inclusion criteria: Females who had miscarriage in primigravida visiting OPD at DHQ Dera Ghazi Khan were included in the study sample.

Exclusion Criteria: Females who had

miscarriage in second or third trimester, pregnant women and patients with any other gynaecological cause visiting OPD at DHQ Dera Ghazi Khan were excluded from the study.

- **Ethical issues:** Formal written consent and permission had been taken from patients and superintendent, DHQ Dera Ghazi Khan to conduct the study. It was insured that this data will be kept confidential.
- **Data Collection:** A semi structured questionnaire was prepared by the researcher. The females who had miscarriage in primigravida visiting OPD, Dera Ghazi Khan were face to face interviewed and the data was noted on questionnaire.

- **Data Analysis:** The data collected was analyzed thereafter, using SPSS software version 2.0.

RESULTS AND ANALYSIS

A self-administered questionnaire has been got filled from 100 females who had miscarriage in primigravida, visiting OPD at DHQ Hospital, Dera Ghazi Khan. The information has been gathered regarding the bio data of patient and the determinants of miscarriage. The analysis is given in the following tables, figures, charts and detailed descriptions.

Table 1: Age distribution of the sample

Age at miscarriage	Frequency	Percentage
20-25	10	20%
25-30	14	28%
30-35	26	52%

Females between age 20-25 had miscarriage 20%, 25-30 were 28% and between 30-35 were 52%.

Table 2: Gestational age

	Frequenc y	Percent	Valid Percent	Cumulative Percent
1st trimester	39	77.6	77.6	77.6
Valid 2nd trimester	11	22.4	22.4	100.0
Total	50	100.0	100.0	

Percentage of Miscarriages in 1st trimester is 77.6% and percentage of Miscarriages in 2nd trimester: 22.4% .

Table 3: Hypertension

	Frequency	Percent	Valid Percent	Cumulative Percent
No	41	78.1	78.1	78.1
Valid Yes	9	21.9	21.9	100.0
Total	50	100.0	100.0	

Percentage of Miscarriages in Hypertensive is 78.1% and Percentage of Miscarriages in Non Hypertensive is 21.9%.

Table 4: Smoking(Active/Passive)

	Frequency	Percent	Valid Percent	Cumulative Percent
Active	2	4.0	4.0	4.0
Valid No	33	66.0	66.0	70.0
Passive	15	30.0	30.0	100.0
Total	50	100.0	100.0	

Percentage of Miscarriages in Non –Smokers is 66%, percentage of Miscarriages in Active Smokers is 4% and percentage of Miscarriages in Passive Smokers is 30%

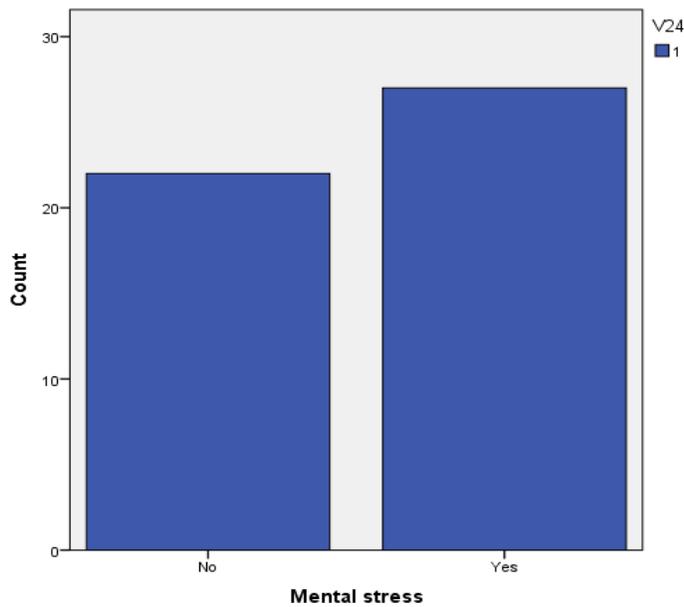


Figure 1

➤ The ratio of miscarriages was relatively higher in women who were stressed during their conception period than those who were not.

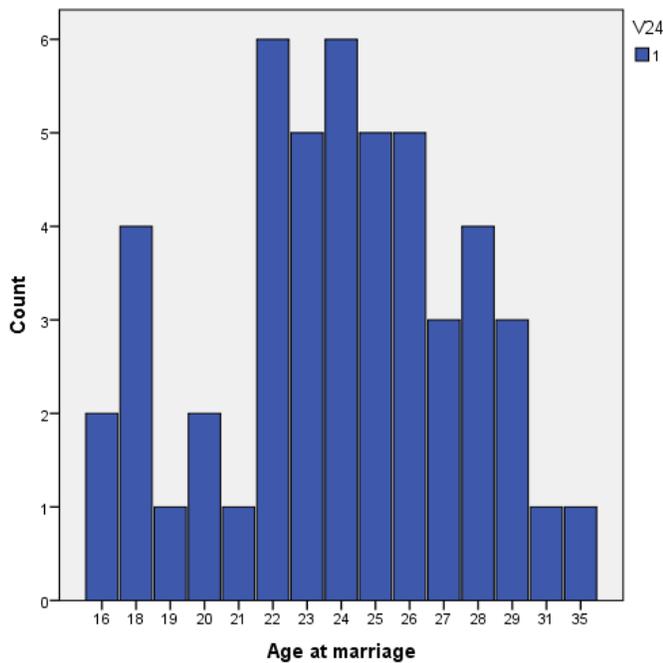


Figure 2

➤ The rate of primigravida miscarriages is highest between the age group of 22 and 26 and falls at extreme of ages

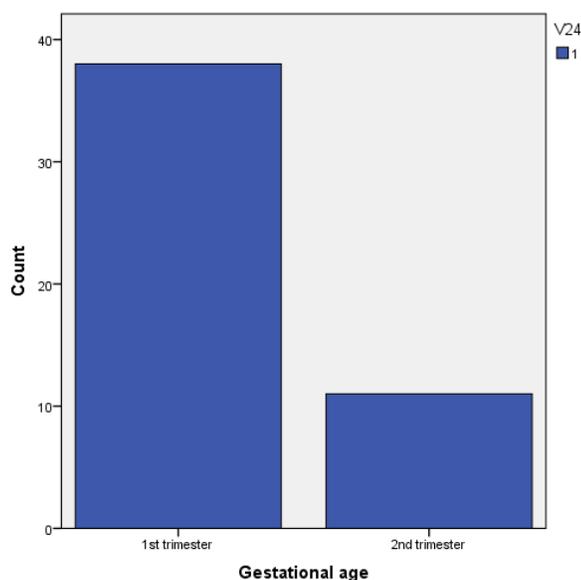


Figure 3

➤ This study shows that primigravida miscarriage are more in 1st trimester than in 2nd trimester.

DISCUSSIONS

In this small hospital confined case control study, we found that majority of the miscarriages were preventable by modification of multiple risk factors to low risk levels.

Maternal stress and tobacco consumption were most common determinants of miscarriage in primigravida. Our study extends the relative risk approach used in most previous studies by estimating determinants of miscarriage attributed to multiple modifiable risk factors.

Tobacco and drugs like caffeine (coffee) use are some of the lifestyle behaviors that have been reported to cause poor pregnancy outcome i.e; miscarriages in primigravida. These findings are consistent with our study too.

Low education level has indirect effects on the understanding of nutrition and food aspects as well as improvement of the socio-economic conditions. Maternal education level therefore influences the food choices and feeding patterns of family members. Majority of the women in this study had attained above primary level

education so unlike previously done studies, in our study, no significant relationship was established between this variable and miscarriage.

Contrary to the present study, smoking was found to explain relatively high proportions of miscarriage in some previous studies. In a more recent cohort study; however, no association between smoking and miscarriage was identified.

Mother's age at miscarriage is also an important risk factor for miscarriage in primigravida, according to previous studies²² but our study is not consistent with this finding as majority of our samples included females with primigravida miscarriage in early and late twenties due to early adult marriages in this region.

Gestational Age is also important determinant in primigravida miscarriage with majority of miscarriages being occurring in first trimester attributed to maternal and chromosomal aberrations.

CONCLUSION

This study adds an important perspective to the miscarriage research by suggesting that some miscarriages are preventable. A future study based on similar methods but using relative risk estimates obtained from meta-analysis would be

a preferred approach to estimate PAFs. Factors such as tea/coffee consumption, mental stress, and oral contraceptives should be modified during pregnancy to improve the outcomes and prevent miscarriages in primigravida. Age at the time of miscarriage is found to be early twenties in our study, according to social settings of the area.

If our findings are supported by future prospective cohort studies, they may be used in a prevention strategy against miscarriages.

RECOMMENDATIONS

That said a healthy lifestyle before and during pregnancy may help produce a safe and healthy output of pregnancy. In the light of our research and previously done studies, here are some recommendations:

- **If you're not already pregnant:**
Schedule a pre-conception visit with your gynecologist. She'll review your medical history, ask about your lifestyle, perform an annual exam (if you're due for one), and take blood samples to check for blood type, Rh factor. If you haven't been vaccinated against these infectious diseases, now's the time to get your shots.
- **Eat a well-balanced diet:** A

well-balanced, healthy diet is the best way to get the vitamins and nutrients your body needs to nourish your baby, studies have found that loading up on a variety of fresh fruits and veggies every day can significantly lower your odds of having a miscarriage.²⁵

- **Exercise in moderation:** You should continue your usual exercise routine once you're pregnant. The key is moderation: Some research indicates that seven hours or more of high-impact exercise a week while pregnant could greatly increase your risk of miscarriage.²⁶

- **Limit caffeine:** Some doctors suggest moms-to-be restrict their intake to no more than 200 milligrams a day, or roughly two 6-ounce cups of coffee, tea, or other caffeinated beverage. But to be on the safe side, ask your ob-gyn what she recommends.²⁷

- **Avoid drugs, smoking, and alcohol.**

- **Get a handle on stress:** Besides improving your overall mood, staying relaxed may also help the health of your pregnancy. In one study, women who said they felt happy relaxed, and in control were 60 percent less likely to have a miscarriage.²⁷

- **Get your blood sugar under control (if you have diabetes):** Elevated blood sugar can

lead to fetal malformation and a subsequent loss. So it must be avoided.²⁷

- **Ask if you should take low-dose aspirin:** Although a recent National Institutes of Health study found that, in general, low-dose aspirin did not appear to prevent miscarriage in women with one or two prior pregnancy losses, it did appear to be effective for a smaller subset of women.²⁸

- **Vet any meds you're taking with your doctor:** If you're taking medication (even an over-the-counter remedy), always run it past your ob-gyn first to make sure it's safe for your baby.

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ANNEXURE 1:

RESEARCH QUESTIONERE

PART A

Name: _____ Age (in years): _____ Husband's Name: _____
Educational qualifications: Under matric: () Matric: ()
Intermediate: () Graduate: () others: () specify others:



Husband's age at marriage: () Husband's educational status: Under matric: () Matric: ()
) Intermediate: () Graduate: () others: () Specify others:

Residence: _____ Socioeconomic status: Very poor () Poor () Rich () Very rich ()
) Religion: _____ Occupational status: housewife () working woman ()

PART B:

- Age of mother at time of marriage? ____
- Age of mother at time of miscarriage? - ____
- At which gestational age, you had miscarriage? _____
- Did you have a history of hypertension before conception: (yes) (no)
- Did you have a history of gestational HTN? (Yes) (No)
- We're you diabetic before conceiving? (Yes) (No)
- Did you have Gestational diabetes? (Yes) (No)
- Did you use oral contraceptives in past? (Yes) (No)

- Are you a smoker: (Yes active smoker) (No only passive smoker) (no not at all)
- What kind of family do you live in? (Nuclear)(Joint) (Extended)
- If consulted a doctor, How far you had to travel for the health care facility from your home? (Not so far)(V near)(V far) .Did you visited you doctor regularly for routine check-up during pregnancy? (Yes) (No)
- Have you suffered from any kind of stress during pregnancy? (Yes) (No)
- If yes, what kind of stress? Mental: Physical:



- Is there a family history of some congenital disorder(s) in your family? (Yes) (No)

Specify the disorder, if yes: _____

- Did you drink tea or coffee during pregnancy: (Heavily) (one or two cups) (rarely) (never)

- Did you had a history of PCOS before pregnancy? (Yes)(No)

- Did you had any menstrual issues before pregnancy? (Yes)(No)Specify: _____

- Was miscarriage spontaneous or deliberately planned? _____

- If Spontaneous, what was the cause of miscarriage? (Maternal) specify: _____ (Foetal) specify: _____

- Were you and your husband both cousins before marriage? _____

- Pre pregnant weight status: Underweight () Normal () Overweight () Obese ()

Thank you!