TREND ANALYSIS OF THE RISK FACTORS ASSOCIATED WITH MISCARRIAGE AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE AT DUTSE GENERAL HOSPITAL, JIGAWA STATE

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ABSTRACT

The research "Trend analysis of the risk factors associated with miscarriage among pregnant women attending Dutse General Hospital, Jigawa State" was carried out to find out risk factors amongst pregnant women and using Dutse General Hospital as a case study. The sample size for this study was the one hundred and five (105) patients registered (treated as outpatient and admitted) in the screening and control of miscarriage registered from October to December, 2023. The instruments for data collection of this research is self-designed questionnaire containing twenty-seven (27) tests using close ended questionnaire with two or more options. The tools for data analysis comprise the use of frequency distribution tables and simple percentage. The researcher found out that Progesterone therapy may be beneficial for women with ≥3 consecutive miscarriages immediately preceding their current pregnancy. In addition, approximately every abortion death and disability could be prevented through use of effective contraception sexuality education, legal induced abortion provision of safe and timely care for complications. With the plausible outcomes, the economic costs and burden associated with unsafe abortions and complications can be reduced and further enhance the progress of the country. The research shows that women between the ages of 21-25 have the highest number of miscarriage. Also the research shows that statistics of women and the duration they miscarry is mostly from 5-6 week of pregnancy. The research recommends that Government should collaborate with NGOs to provide proper awareness to nursing mother especially those who are at risk of having miscarriage; Government should also collaborate with other related bodies including the Media to help acquaint the populace of the importance of antenatal service in other to avoid miscarriage; Traditional and spiritual leaders should also be involved in the public enlightenment campaign about miscarriage.

CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

A miscarriage is the loss of a pregnancy during the first 20 weeks. It is usually your body's way of ending a pregnancy that has had a bad start. The loss of a pregnancy can be very hard to accept. You may wonder why it happened or blame yourself. But a miscarriage is no one's fault, and you can't prevent it. (Robinson *et al*, 2012)
Miscarriages are very common. For women who already know they are pregnant, about 1 out of 6 has a miscarriage. It is also common for a woman to have a miscarriage before she even knows that she is pregnant.
It can be suggested that developing countries, including Nigeria, are still racing towards achieving Millennium Development Goals (MDGs) 4 and 5 (to reduce child mortality and to improve maternal health). According to UNICEF, 800 women, globally, die every day of preventable causes related to childbirth and pregnancy, out of those, 160 women are from Nigeria. Although, maternal mortality rate has been successfully reduced from 197 in the year 2013 to 174 in the year 2015, mothers living in remote areas will still remain at risk of dying in childbirth due to lack of awareness, illiteracy and inappropriate healthcare facilities. On other hand, 1.05million infant deaths and 0.748million new born deaths occur every year in Nigeria. In addition, Nigeria has consistently displayed efforts in reducing overall child mortality rates. In Nigeria, since the year 2013 neo natal mortality rate, infant mortality rate and under 5 mortality rate was 30, 41 and 52 respectively, that reduced to28, 38 and 48 in the year 2015. Despite of modest reduction, occurrence of stillbirth is still highest in Nigeria indicating rates from 20 to 66 per 1,000 births in different states. (Wang *et al*, 2003).

It's been acknowledged by technical advisory group (TAG) that in comparison to maternal and post neonatal child mortality, the rate of reduction of new born mortality is slow and it is estimated that the interventions will reduce maternal mortality and saving newborn lives will prevent stillbirths. It is believed that increase in maternal deaths due to complications of abortions is higher in rural areas because of inappropriate measures in hospitals and unskilled healthcare professionals. In contrast, in Nigeria, maternal deaths due to abortion were high in urban than in rural areas. Still birth, induced abortion and miscarriages can be suggested a public health concern in Nigeria. Furthermore, lack of notification and unidentified cases could hamper progress of the country and will drive away from the target to conquer the MDGs 4 and 5. (Lashen et al, 2004).

1.2 STATEMENT OF THE PROBLEM

Miscarriage is the most common type of pregnancy loss and often occurs because the fetus isn't developing normally. Miscarriage is the most common complication of early pregnancy. Among women who know they are pregnant, the researcher opined that the miscarriage rate is roughly 10% to 20%, while rates among all the fertilization is around 30% to 50%. In those under the age of 35 the risk is about 10% while it is about 45% in those over the age of 40. Risk begins to increase around the age of 30. About 5% of women have two miscarriages in a row. Some recommend not using the term "abortion" in discussions with those experiencing a miscarriage in an effort to decrease distress. Symptoms include fluid, blood or tissue passing from the vagina and pain in the stomach or lower back. It's also common to feel sadness or grief. (Wang *et al*, 2003)
Unfortunately, the miscarriage process can't be reversed once it has started. However, medication or procedures such as a dilation and curettage can prevent certain types of complications. That is why this researcher work is going to find out the trend analysis of the risk factors associated with miscarriage among pregnant women attending Gwaram Cottage Hospital, Jigawa State.

1.3 AIM AND OBJECTIVES OF THE STUDY

1.3.1 Aim

This research study is focused at identifying the risk factors associated with miscarriage among pregnant women who has attended antenatal care at Dutse General Hospital, Jigawa State.

1.3.2 Objectives

- To detect the major cause of miscarriage among pregnant women
- To detect the types and levels of miscarriage among pregnant women
- To establish relationship between embryonic death and miscarriage

1.4 SIGNIFICANCE OF THE STUDY

The significance of this study is to access the risk factors associated of miscarriages among pregnant women attending antenatal care at Dutse General Hospital, so as to provide measures and enlightenment programs on the avoidance of such risk factors in such a way that it will be reduced.

1.5 SCOPE AND DELIMITATION OF THE STUDY

This research will be conducted at Dutse General Hospital between the period of October to December, 2023.

CHAPTER TWO

2.0 LITERATURE REVIEW

Biochemical pregnancy loss or miscarriage is the pregnancy loss, which occurs after positive urinary or serum Human Chorionic Gonadotropin (HCG), but before ultrasound or histological detection of pregnancy (<6 weeks). (Farquharson, 2005)
Clinical pregnancy loss or miscarriage is the pregnancy loss, which occurs after ultrasound detection of intrauterine gestational sac by histological evidence of products of conception after the miscarriage. Clinical miscarriages divided to; early clinical pregnancy losses (<12 weeks), and late clinical pregnancy losses (between 12-21 weeks). The ESHRE (European Society of Human Reproduction, and Embryology) defined MISCARRIAGE as ≥3 pregnancy losses before 22 weeks (Jauniaux, 2006).

2.1 EPIDEMIOLOGY OF MISCARRIAGE

The use of sensitive, and accurate urinary hCG assays in the diagnosis of pregnancy demonstrated that only one-third of conceptions progress to a live birth. Thirty percent of human conceptions are lost before implantation, and another 30% after implantation but before the missed menses (3rd or 4th week) (Wang *et al*, 2003). The incidence of early clinical miscarriage is about 10-15%. The incidence of late miscarriage is about 4% (Macklon, 2002). Compared to sporadic miscarriage the incidence of MISCARRIAGE is 0.8-1.4% if only clinical pregnancy included, and 2-3% if biochemical pregnancy included (Macklon, 2002). Maternal age, and number of previous miscarriages are two independent risk factors for a further miscarriage (Nybo, 2000). The incidence of early miscarriage significantly increased with advanced maternal age, from 10-15% in women aged 20 to 24 years to 51% in women aged 40 to 44 years. The risk of miscarriage is much higher in women with previous losses. The risk of miscarriage after two consecutive losses is between 17-25%, and the risk of miscarriage after three consecutive losses is between 25-46%, advanced paternal age has also been identified as a risk factor for miscarriage. The risk of miscarriage is highest among couples where the woman is ≥35 years of age, and the man ≥40 years of age. Current evidence is insufficient to confirm the association between maternal cigarette smoking, caffeine consumption, and increased risk of spontaneous miscarriage (Rasch, 2003). Moderate alcohol consumption of ≥ 5 units per week may increase the risk of sporadic miscarriage (Kesmodel, 2002). Recent retrospective studies have reported that obesity increases the risk of both sporadic, and RM (Lashen, 2004).

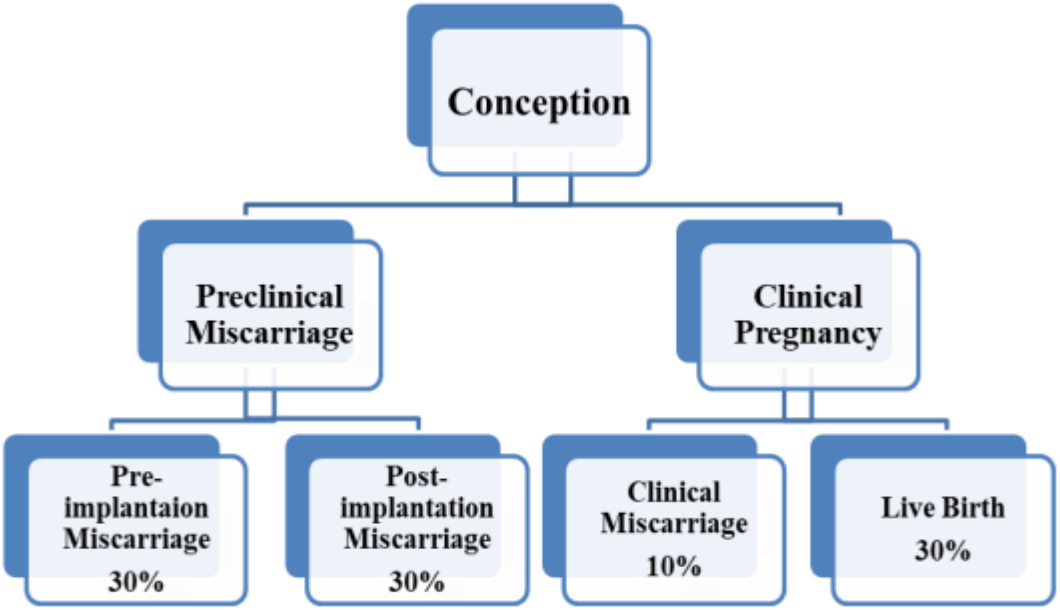


Figure 1: ***The outcome of conception; 60% preclinical miscarriage, 10% clinical miscarriage, and 30% live birth***

Where,

- ***Preclinical miscarriages*** is a type that happen at or before 5 weeks of gestation
- ***Clinical miscarriages*** must have documentation of pregnancy by an appropriate beta-human chorionic gonadotropin (β-hCG) level, ultrasound, or tissue pathology and include the following:
  a. ***Embryonic miscarriage*** occurs at 6 to 9 weeks of gestation or crown-rump length (CRL) >5 mm without cardiac activity.

  b. ***Fetal miscarriage*** occurs between 10 and 20 weeks of gestation or CRL >30 mm without cardiac activity.
- ***Pre-implantation miscarriage*** is a different population of leukocytes that is found in the pre- implantation endometrium from recurrent miscarriage patients as compared to those from fertile controls. These differences were accentuated in women who had a miscarriage subsequent to the biopsy compared with those who subsequently had a live birth.
- ***Post-implantation***: This occurs when a pregnancy is lost shortly after implantation, resulting in bleeding that occurs around the time of her expected period. The woman may not realize that she conceived when she experiences a chemical pregnancy. Most miscarriages occur during the first 13 weeks of pregnancy.
- ***Live birth***: In human reproduction , a live birth occurs when a fetus , whatever its gestational age, exits the maternal body and subsequently shows any sign of life, such as voluntary movement, heartbeat, or pulsation of the umbilical cord , for however brief a time and regardless of whether the umbilical cord or placenta are intact (Lashen, 2004).

2.2 CAUSES OF MISCARRIAGES

The following are some of the causes of miscarriage or losses among pregnant women;

1. Chromosomal abnormalities; especially autosomal trisomy.
2. Immunological causes associated with failure of the mechanisms involved in the prevention of fetal rejection
3. Thrombophilias A. Acquired Thrombophilia (APS). B. Inherited Thrombophilia (factor V Leiden, prothrombin gene mutations, protein C and S deficiencies). C. Methylenetetrahydrofolate reductase (MTHFR) gene mutation
4. Endocrine causes A. Polycystic ovary syndrome (PCOS), and insulin resistance (IR). B. Luteal Phase defect (LPD). C. Diabetes Mellitus (DM). D. Thyroid Disorders; Subclinical hypothyroidism and thyroperoxidase antibodies (TPO-Ab).
5. SpeMiscarriage DNA fragmentation.
6. Failure of embryo selection.
7. Uterine malformations.
8. HCG gene polymorphisms

9. Lifestyle factors; Alcohol, coffee, smoking, advanced maternal age, and BMI ≥30 kg/m2
10. Infections; Bacterial vaginosis as a risk factor for late miscarriage (Macklon, 2002).

2.3. MANAGEMENT

Psychological support, and counseling are crucial during the evaluation, and treatment of Miscarriage. The value of psychological support in improving pregnancy outcome has not been tested in RCTs. However, data from several non-randomized studies suggested that attendance at a dedicated early pregnancy clinic has a beneficial effect, through unknown mechanism (Brigham, 1999). Genetic counseling offers the couple a prognosis for the risk of future pregnancies with an unbalanced chromosome complement, and the opportunity for familial chromosome studies. Healthy life style, free from alcohol, tobacco, and undue stress may significantly improve the chances for successful pregnancy. A Cochrane review concluded that the vitamin supplements before or during pregnancy did not prevent sporadic or Miscarriage mechanism (Brigham, 1999).

CHAPTER THREE
RESEARCH METHODOLOGY

3.0 MATERIALS AND METHOD

The population of the study comprises of pregnant women who are attending antenatal care in Dutse General Hospital, Jigawa State from the period of October to December, 2023.

3.1 **RESEARCH DESIGN**

A research design is a plan which specifies how data relating to a given problem should be collected and analyzed. It provides the procedures for the conduct of any investigation (Lashen, 2004).

Based on the above definitions, the research work is designed to assess the extent community participation of pregnant women screening and control of miscarriage.

3.2 POPULATION AND SAMPLE

3.2.1 POPULATION OF THE STUDY

The population of the study comprises of pregnant women who are attending antenatal care in Dutse General Hospital, Jigawa State from the period of October to December, 2023.

3.2.2 SAMPLE OF THE STUDY

The sample size for this study was the one hundred and five (105) patients registered (treated as outpatient and admitted) in the screening and control of miscarriage registered from January to September, 2021 at Dutse General Hospital, Jigawa State.

3.3 SAMPLE AND SAMPLING TECHNIQUES

Sample is defined as fraction or portion of the population or small amount of something that is examined in order to find out something about the whole group in which the study is conducted (Peck, 2010).

The method used is primary data collection. This involves the aid of an interviewer-administered, semi-structured questionnaire. A wealth index was constructed using principal components analysis.

3.4 INSTRUMENTS FOR DATA COLLECTION

The instruments for data collection of this research is self-designed questionnaire containing twenty-seven (27) tests using close ended questionnaire with two or more options. The subject were asked to rate their responses by indicating what they agree or disagree, and also give their opinion based on the subject matter. The items were weighed in the like summative scale of agree and disagree. Its choice depended on the nature of the research. The questionnaire is primary source, which is constructed in such a way that is discloses relevant information about miscarriage from the respondents required for the study. The questionnaire contains of two sections, section one (1) carry personal data of the respondent and section two (2) consist of medical research question.

3.5 TOOLS FOR DATA ANALYSIS

The tools for my data analysis comprise the use of frequency distribution tables and simple percentage.

3.6 ADMINISTRATION OF THE INSTRUMENTS

The researcher personally takes time to distribute the questionnaire (according to sampling techniques and allowed for a maximum time respecting respondents time then went back and collected the filled questionnaire from respondents).

3.7.1 RESEARCH QUESTION

Questionnaire is a method of collecting data whereby the researcher gave out some sets of questions in a written information about miscarriage to the respondent to answer.

CHAPTER FOUR

4.0 METHODS OF DATA PRESENTATION AND ANALYSIS

4.1 INTRODUCTION

This chapter contains the method and procedure used for collecting and analyzing the data for the purpose of the study. It deals with data collected for the research work. The respondents are mostly people who are concerned with miscarriage.

4.2 DATA PRESENTATION AND ANALYSIS

The data for this project work was obtained through questionnaires from various respondents intended to be analyzed information about Miscarriage of tabulations in order to make it clear and appreciative. Twenty-three (23) out of the thirty (30) questionnaires from various people selected as sample was successfully collected.

TABLE 1: SEX DISTRIBUTION

SEX	NO. OF RESPONDENTS	PERCENTAGE
Male	6	10%
Female	17	90%
TOTAL	**23**	**100%**

Source: Questionnaire response from Dutse General Hospital, , Jigawa State.

The table above shows the sex distribution of 27 respondents 10% of them were males while the remaining 90% were females. This implies that the majority of those interviewed were of the stronger sex who mostly faces the issues of miscarriage.

TABLE 2: AGE DISTRIBUTION

AGE	NO. OF RESPONDENTS	PERCENTAGE
19 – 24	10	50%
25 – 29	6	20%
30 – Above	7	30%
TOTAL	**23**	**100%**

Source: Questionnaire response from Dutse General Hospital, , Jigawa State

Table 2 above represents the age distribution of the respondents. 10 (ten) respondents of 50% are within the age range of 19 — 24 years, while 6 (six) respondent of those between 25 — 29 made up 20% and those who are between 30 — above are seven (7) representing 30%. This implies that majority of respondents (100%).

TABLE 3: STATISTIC OF PREGNANT WOMEN WHO LOST THEIR PREGNANCY IN THE 2019 AS A RESULT OF MISCARRIAGE

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE
Experience Miscarriage	16	80%
Non-Experience Miscarriage	7	20%
TOTAL	**23**	**100%**

Source: Questionnaire response from Dutse General Hospital, , Jigawa State

The table above shows that total of 16 (sixteen) of the 80% of pregnant women have experienced miscarriage, while 7 (seven) of the 20% of pregnant women have not experienced miscarriage.

TABLE 4: STATISTIC OF PREGNANT WOMEN WHO LOST THEIR PREGNANCY IN THE 2019 AS A RESULT OF MISCARRIAGE

MONTH	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**
	9	13	15	13	9	11	18	14
TOTAL	-	-	-	-	-	-	-	**102**

Source: From Dutse General Hospital, , Jigawa State

The table above shows that total of 102 pregnant women had lost their pregnancy as a result of miscarriage, in the cause of eight (8) month.

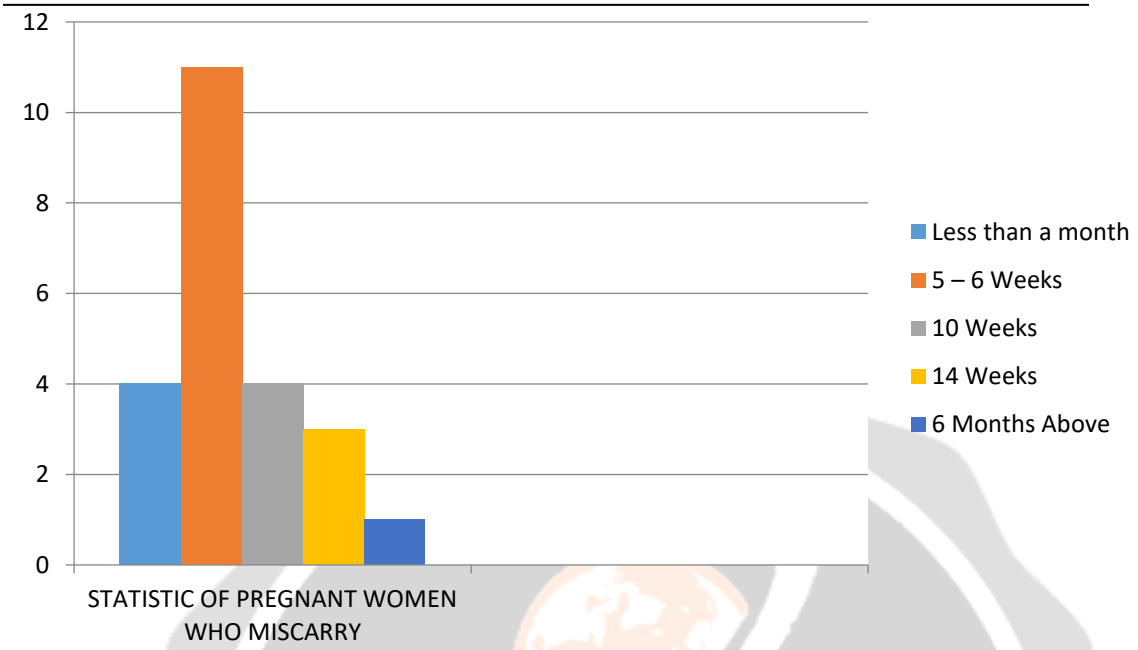
TABLE 5: STATISTIC OF PREGNANT WOMEN WHO HAS BEEN TO HOSPITAL FOR MISCARRIAGE CONSULTATION

RESPONSE	**NO. OF RESPONDENTS**	**PERCENTAGE**
Hospital Consultation for Miscarriage	17	80%
No Hospital Consultation for Miscarriage	6	20%
TOTAL	**23**	**100%**

Source: Questionnaire response from Dutse General Hospital, , Jigawa State

The table above shows that total of 17 (seventeen) of the 80% of pregnant women have been to hospital for consultation, while 6 (six) of the 20% of pregnant women have not been to hospital for consultation.

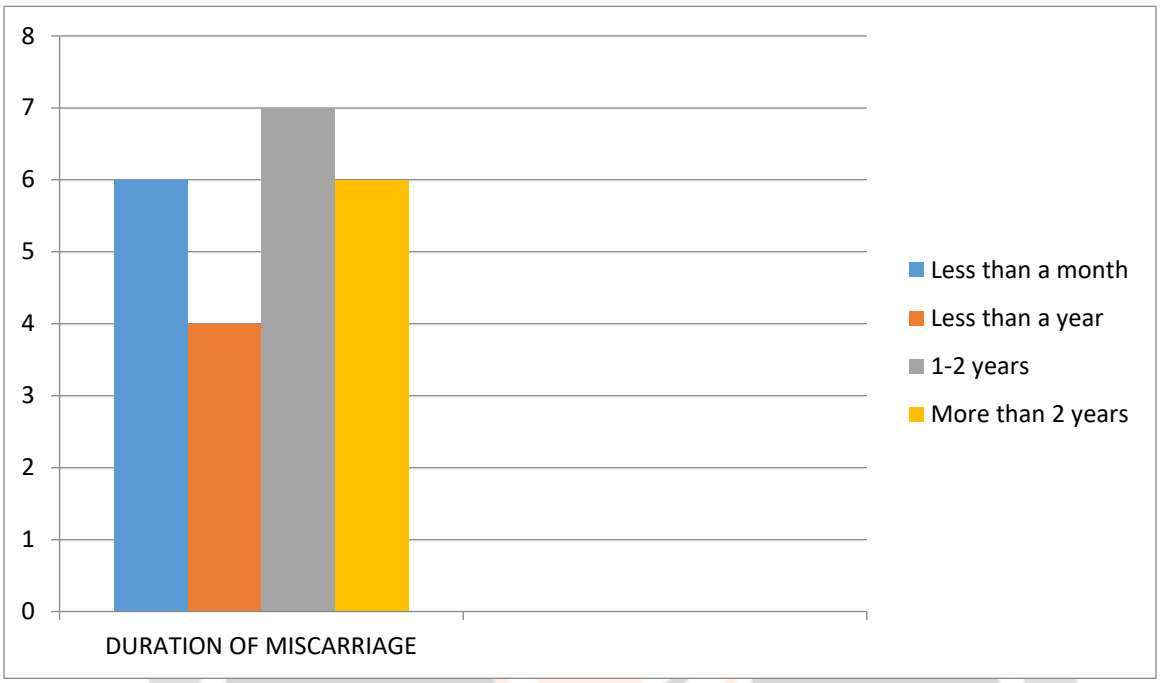
TABLE 6: STATISTIC OF PREGNANT WOMEN WHO MISCARRY



Source: Questionnaire response from Dutse General Hospital, , Jigawa State

The table above shows that total of 11 (eleven) of the 70% of pregnant women who miscarry, 4 (four) of the 10% of pregnant women who miscarry 5-6 weeks and less than a month respectively, while 3 (three) of the 7% of pregnant women who miscarry in the cause of 14 weeks and 1 (one) of the 3% of pregnant women miscarried 6 months and above.

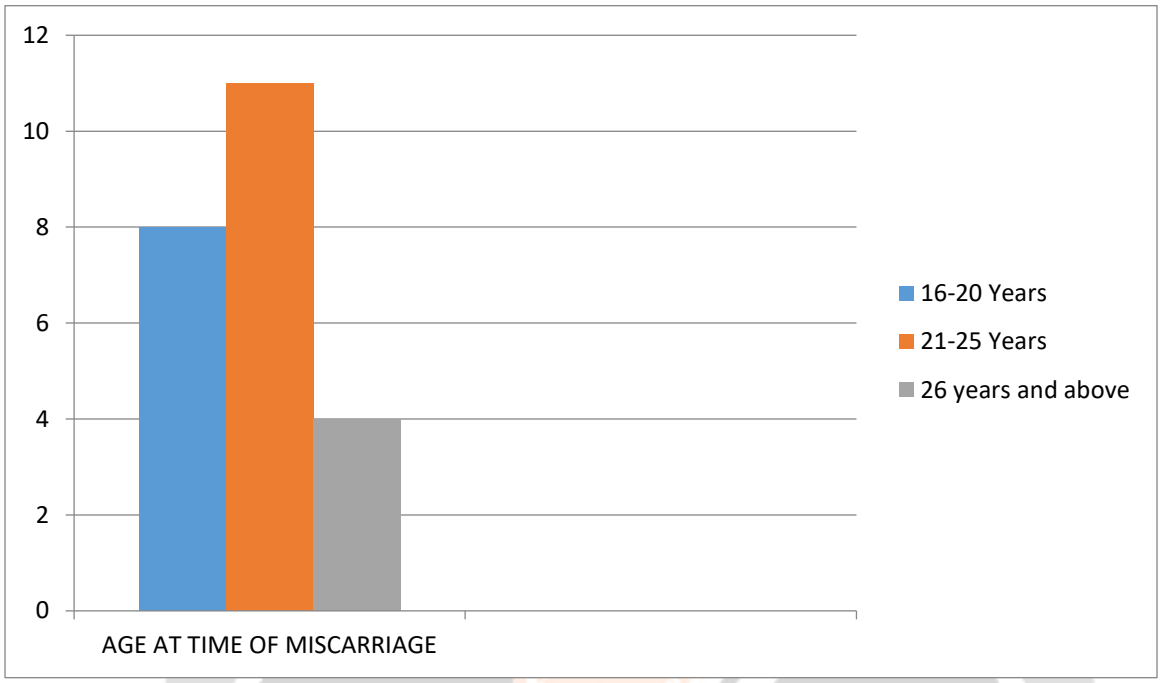
TABLE 7: HOW LONG SINCE YOUR LAST MISCARRIAGE?



Source: Questionnaire response from Dutse General Hospital, , Jigawa State

The table above shows the duration since the respondents have had a miscarriage. 26.1% of the respondents said less than a month, 17.4% of the respondents said less than a year, 30.4% of the respondents said 1-2 years, and 26.1% of the respondents also said More than 2 years.

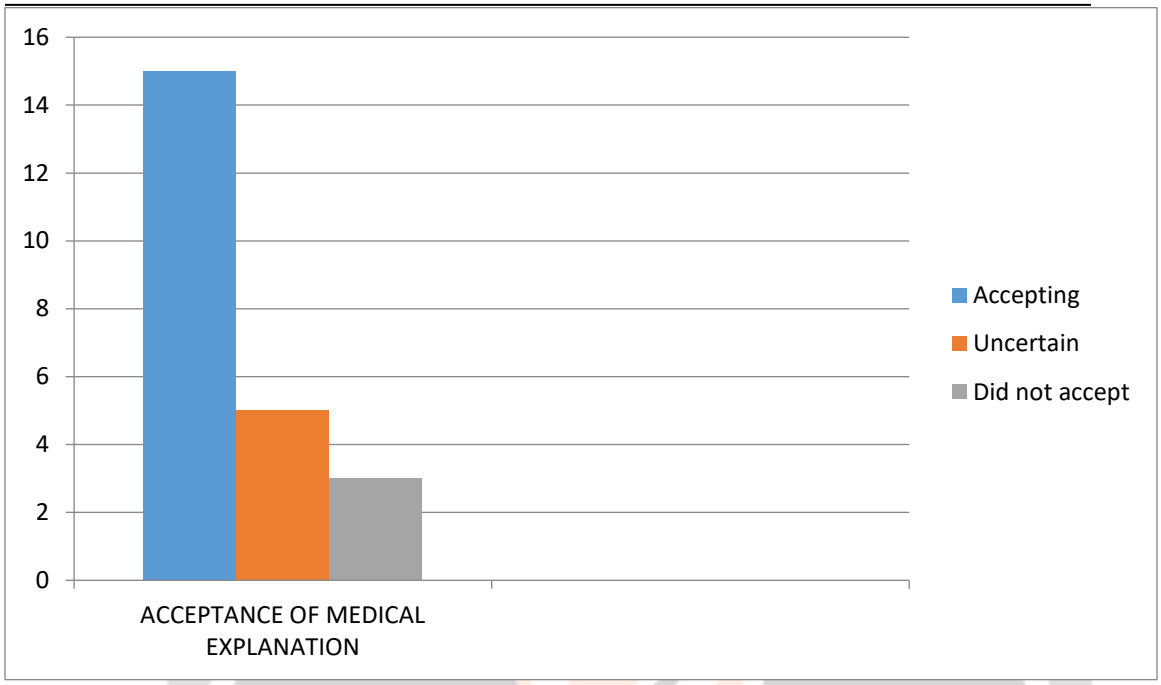
TABLE 8: HOW OLD WERE YOU AT THE TIME OF THIS MISCARRIAGE?



Source: Questionnaire response from Dutse General Hospital, , Jigawa State

The table above shows that 8 of the respondents were 16-20 years old at the time of the miscarriage, 47.8% of them were 21-25 years old and 17.4% were from 26 years and above. Therefore, the majority of the women were 21-25 years of age at the time of their miscarriage.

TABLE 9: HOW ACCEPTING WERE YOU OF THE MEDICAL EXPLANATION TO YOUR MISCARRIAGE?



Source: Questionnaire response from Dutse General Hospital, , Jigawa State

The table above shows that 15 of the respondents representing 65.2% accepted the explanation given to them of their miscarriage, 217.7% of them were not certain (uncertain) and 13.1% did not accept. This means that majority of the women accepted the explanation and few did not.

CHAPTER FIVE

5.0. SUMMARY CONCLUSION AND RECOMMENDATIONS

5.1. SUMMARY

APS is the only proven thrombophilia associated with adverse pregnancy outcomes, and aspirin plus heparin is the only treatment associated with reduction of miscarriage rate. The association between inherited thrombophilias, and fetal loss varies according to the type of fetal loss, and type of thrombophilia. The risk of miscarriage doubled in women with TSH >2.5 mIU/L in the first trimester, evidence suggests association between TPO-Ab, and Miscarriage. Although, the majority of women have successful pregnancy after metroplasty, there is no strong evidence to recommend metroplasty in women with septate uterus. Cervical cerclage, and vaginal progesterone are equally effective in prevention of PTL in women with single pregnancy, and short cervix (< 25 mm) detected by TVS. Progesterone therapy may be beneficial for women with ≥3 consecutive miscarriages immediately preceding their current pregnancy. The live birth rate of women with unexplained Miscarriage who conceive naturally is significantly higher than currently achieved after PGD/IVF. Evidence failed to show any benefit for hCG and/or aspirin in unexplained Miscarriage. Steroids, IVIG, TNFα antagonists and/or G-CSF efficacy in Miscarriage due to immunologic dysfunction are controversial.

5.2 CONCLUSION

There is no denial that miscarriages, still births and abortions remain a public health problem in developing and developed countries. Moreover, development of a robust policy, regulatory principles and laws is the hour of the need today. Despite of several countries managed to control the maternal mortality and morbidity and control the death rate between 0-5 year age group, India is still yet to accomplish the MDG 4 and 5. In India, especially in rural areas, it is essential to educate and create awareness among the vulnerable population by community health workers like Anganwadi (AGW), ANMs and ASHAs, as these health workers are first line of contact in the community, they stay within the vicinity and there are less postings and transfers. Involving stakeholders like community, families, local leaders and media can help to curb stigma about abortions and can assist in promoting safe abortion in the society in equitable manner. In addition, approximately every abortion death and disability could be prevented through use of effective contraception sexuality education, legal induced abortion provision of safe and timely care for complications. With the plausible outcomes, the economic costs and burden associated with unsafe abortions and complications can be reduced and further enhance the progress of the country.

5.3 RECOMMENDATIONS

With references to the findings and conclusion above, the following recommendations are therefore;

1. Government should collaborate with NGOs to provide proper awareness to nursing mother especially those who are at risk of having miscarriage.
2. Government should also collaborate with other related bodies including the Media to help acquaint the populace of the importance of antenatal service in other to avoid miscarriage
3. Traditional and spiritual leaders should also be involved in the public enlightenment campaign about miscarriage.

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