Factors cause for abortion and their management

Partial fulfillment of the requirement degree of BS

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July 2013
FACTORS CAUSE FOR ABORTION AND THEIR MANAGEMENT

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Thesis submitted to the faculty of science and technology of Hargeisa University in the partial fulfillment for the requirement of Degree in Bachelor Science.

Hargeisa-Somaliland
June, 2013
FACTORS CAUSE FOR ABORTION AND THEIR MANagements

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DECLARATION

I declare that this research paper for my first degree of Biomedical, faculty of science and technology, University of Hargeisa, have not been submitted at any University. That is my own work and that materials consulted have been properly acknowledged.
Dedication

I want to dedicate my dissertation work to my wonderful parents my lovely mother Zahra Hassan Diiriye and my dear father Ahmed Ibrahim Hassan who gave me life, more support and endless love thank you for believing and always being there for me and pushing me to be the best person I can be. I could not have accomplished this without them.
Acknowledgment

Thanks to all Allah almighty for giving me the strength, motivation and courage to complete this paper. I am highly indebted to Mr. Abdirahman M. Osman for his guidance and constant supervision as well as for providing me a lot of sources and information regarding the project and also for his support in completing the project. I would like to express my special thanks of gratitude to Mr. Ahmed Mohamed Adaad, and Mr. Abdifatah Mohamoud Abdi who gave me the golden opportunity to do this wonderful project on the topic (factors cause for abortion and their management), which also let me doing a lot of research and I came to know about so many new things I am really thankful to them.

Special thanks also to my lecturer Mr. Hamse Ibrahim who educated me the course of research methodology and taught me the SPSS program which without him this paper will not put in the pen.

I desire to express my love and gratitude to my lovely mother Zahra Hassan and my dear father Ahmed Ibrahim who are most important part of my life, for their effort, courage and endless love through the duration of my studies.

Finally I would also like to thank my friends and my whole family my sister Jasmine and my brothers Ibrahim and Mohamed for giving me moral support throughout the project.
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Chapter one

Introduction

1.1 Background

The word abortion derives from the Latin-aboriri-meaning to miscarry. An abortion is the medical process of ending a pregnancy so it does not result in the birth of a baby. Any interruption of human pregnancy prior to the 28th weeks is known as abortion.

An abortion is different from miscarriage where the pregnancy ends without medical intervention. However, medical treatment may be needed after a miscarriage. Confusingly, healthcare professionals sometimes refer to a miscarriage as a ‘spontaneous abortion’.

Early spontaneous abortion is very common it’s usually due to malformation or chromosomal abnormalities. Spontaneous abortion during the last two thirds (2/3) of pregnancy is common due to maternal factors, for example abnormalities of the cervix or uterus, secretion of not enough progesterone, sexually transmitted disease which affects the genital tract, endocrine dysfunction as in hypothyroidism and diabetes mellitus, or saver emotional trauma.

Immunological reactions, in which maternal antibodies mistake the fetus for foreign tissues or foreign particle which stimulates an immune response, have been suggested as recurrent or habitual spontaneous.

The decision to have an abortion is a difficult one. There are many reasons why you might decide to have an abortion – for example, your health may be at risk, or there may be a high probability that the baby will have a medical condition.
Abortion in some cases is necessary because of medical reasons (before the fetus has soul). But what about those times when the fetus has a soul and it is alive but pregnancy endangers the mother’s life or even the fetus own life?

Allah subhanahu WA ta’ala says in the Holy Quran and do not kill the soul which Allah has forbidden to kill, but with a reason is correct.

One inquired imam Khomeini choosing between the life of the mother and the fetus, the late imam answered: “There is no preference. The fetus cannot be aborted and one cannot depend on chance either. If by keeping the fetus, the mother would certainly die and there is a chance that the fetus would survive, abortion is legal. However if there is a doubt about the survival of the fetus and there is only a fear of mother’s death, abortion is wrong and preferably is not legal.” Imam Khomeini believed there is no need for permission in cases where abortion is legal or necessary.

Types of abortion are the following:

- Threatened abortion.
- Inevitable abortion.
- Missed abortion.
- Recurrent or habitual abortion.

Abortion becomes inevitable because of the amount of blood loss or dilation of the cervix. Then it become either:

**Complete**  or  **incomplete**

Uterine contraction are felt, the cervix Dilates and blood loss continues. The fetus And placenta are expelled complete, The Uterus contracts and bleeding stops. No Further treatment will be needed.

In spite of uterine contraction and cervical dilation, only the fetus and some membranes are expelled. The bleeding continues. The abortion Must be completed by surgical methods.
Clinical features of abortion:

1. The haemorrhage is usually the first sign and may be very heavy if placental separation is incomplete.
2. Pain is usually intermittent, it’s like small labor. It ceases when the abortion is complete.

**Threatened abortion:**
Abortion is said to threaten when any bleeding, usually painless, occurs before the 24th week. It may be impossible to distinguish it from partial shedding of the decidua at the time of a missed period which can occur up to 12 weeks.

Bed rest has been traditionally advised as treatment but there is no evidence that it affects out and if the fetus is alive, the mother can be reassured that she could survive.

**Inevitable abortion:**
Inevitable abortion the bleeding may still be slight but uterine contractions have started to dilate the cervix. This can be detected on vaginal examination.

Ultrasound may diagnose an inevitable abortion at an earlier stage by demonstrating fetal death. Treatment is by evacuation of the uterus.

**Incomplete abortion:**
The patient will have had substantial bleeding and painful contraction. Tissue and blood clot may be found in the vagina. Bleeding may be controlled by an intramuscular injection of ergometrine 0.5mg. This often combined with analgesic such as pathidine or morphine. This will usually control the bleeding until surgical evacuation can be performed.

**Missed abortion:**
The term is used to describe the retention of a fetus, after its death, for a period of several weeks. Death of the fetus occurs unnoticed or is marked by some vaginal bleeding which is regarded as a threat to miscarry. The uterus shrinks as liquid is absorbed. The pregnancy test will become negative and ultrasound confirms the diagnosis.
If the fetus remains long enough the gestation may end up as a

**CARNEOUS MOLE** or **MACERATED FETUS**

A corneous mole is lobulated mass of Laminated blood clot. The projections into Shrunken cavity are caused by repeated Haemorrhage in the chorio-decidual space. In every early pregnancies (up to 12 weeks) Complete absorption of dead ovum may Occur.

The skull bones collapse and override and the spine is fixed and there is little or no amniotic fluid on ultrasound examination. The internal organs degenerate and the abdomen is filled with bloodstained fluid. The skin peels very easily.

Abortion, when induced in the developed world in accordance with local law, is among the safest procedures in medicine. However, unsafe abortion results in approximately 70,000 maternal deaths and 5 million hospital admissions per year globally. An estimated 44 million abortion are performed globally each year, with slightly under half of those performed unsafely. The incidence of abortion has stabilized in recent years, having previously spent decade declining as access to family planning, education and contraceptive services increased. 40% of the world women have access to induced abortion within gestational limits.

Abortion induced by herbs or manipulation was used as a form of birth control in Ancient Egypt, Greece, and Rome. Early Roman law was silent as to abortion, and it was common in Rome, especially among upper classes and probably earlier.

In the middle Ages in Western Europe it was generally accepted in the early months of pregnancy. However, in the 19th cent. Opinion about abortion changed. In 1869 the Roman Catholic Church prohibited abortion under any circumstances. In England and in the United States in the 19th cent. Stringent antiabortion laws were passed.
Serious complications arising from aspiration abortions provided before 13 weeks are quite unusual. About 88% of the women who obtain abortions are less than 13 weeks pregnant. Of these women, 97% report no complications, 2.5% have minor complications that can be handled at the medical office or abortion facility, and less than 0.5% have more serious complications that require some additional surgical procedure or hospitalization.

Early medical abortions are limited to the first 9 weeks of pregnancy. Medical abortions have an excellent safety profile, with serious complications occurring in less than 0.5% of cases. Over the last five years, six women in North America have died as a result of toxic shock secondary to a rare bacterial infection of the uterus following medical abortion with mifepristone. This type of fatal infection has also been observed to occur following miscarriage, childbirth and surgical abortion, as well as other contexts unrelated to pregnancy. The Centers for Disease Control and Prevention's (CDC) continuing investigations have found no causal link between the medications and these incidents of infection. Although the Food and Drug Administration (FDA) has issued an updated advisory for warning signs of infection following medical abortion, it has recommended that there be no changes in the current standards for provision of medical abortion.

Complication rates are somewhat higher for surgical abortions provided between 13 and 24 weeks than for the first-trimester procedures. General anesthesia, which is sometimes used in surgical abortion procedures of any gestation, carries its own risks.

In addition to the length of the pregnancy, significant factors that can affect the possibility of complications include:

- The kind of anesthesia used.
- The woman's overall health.
- The abortion method used; and
- The skill and training of the provider.

Possible complications from a surgical abortion procedure include:

- Blood clots accumulating in the uterus, requiring another suctioning procedure, (less than 0.2% of cases).
Infections, most of which are easily identified and treated if the woman carefully observes follow-up instructions, (0.1%-2.0% of North American cases).

Perforation (a puncture or tear) of the wall of the uterus and/or other organs (less than 0.4% of cases). This may heal itself or may require surgical repair or, rarely, hysterectomy.

Missed abortion, which does not end the pregnancy and requires the abortion to be, repeated (less than 0.3% of cases).

Incomplete abortion, in which tissue from the pregnancy remains in the uterus, and requires a repeat suction procedure, (0.3%-2.0% of cases).

Excessive bleeding requiring a blood transfusion (0.02%-0.3% of cases).

Death occurs in 0.0006% of all legal surgical abortions (one in 160,000 cases). These rare deaths are usually the result of such things as adverse reactions to anesthesia, embolism, infection, or uncontrollable bleeding. In comparison, a woman's risk of death during pregnancy and childbirth is ten times greater.

Complications of a medical abortion include:

- failure of the medications to terminate the pregnancy (less than 2% of cases), requiring a suction procedure to complete the abortion;\(^\text{11}\)

- Incomplete expulsion of the products of conception, requiring a suction procedure to complete the abortion (occurs in less than 6% of cases).

- Excessive bleeding, requiring a suction procedure, and rarely, transfusion (less than 1% of cases).

- Uterine infection, requiring the use of antibiotics (0.09%-0.6% of cases).

- Death secondary to toxic shock following infection with Clostridium sordellii (has occurred in less than 0.001% of cases in the US and Canada).
1.2 Problem statement

Abortion is a current and famous situation which affects the society, an enormous number of our community have had abortion due to the increase of other diseases that can cause abortion. We should create a strategy for reducing the increasing effect of abortion in Somaliland and the best way to face the increase of abortion in Somaliland is to promote the health of the nation. Abortion can cause health problems for women even despite the fact that the level of medical services may be very high. The danger increases if abortion is illegal, in such a case there are no guarantees for a woman that the operation would be run successfully and medical personal will be responsible for the result in such degree as it is normally done when abortion is legal. Abortion may cause problems with families which are part of the society. The fact there is extremely important for a woman to have a supportive atmosphere from the part of the closest relatives, namely husband and parents. Specialist highly recommended taking the abortion decision by both partners that may make the family stronger while disagreement can lead to a divorce. Traditionally, abortion was the point of serious arguments for and against this phenomenon in the majority of the society.

1.3 Research objectives

a) General objectives

- To determine the prevalence of abortion in Somaliland and how to decrease the maternal and prenatal morbidity and mortality.

b) specific objectives

The specific objective of this research paper is:

- To investigate the health seeking behavior of women in abortion.

- To identify and know the factors that cause for abortion and their management.
1.4 Research questions

- To increase access to safe abortion
- Should there be an age requirement to get an abortion, if so what should it be?
- Does u have any idea of the factors that cause for abortion?
- If you see someone who had abortion what kind of management would you provide for that person?
- Do you think women who have had an abortion are bad people, even though you do not know the circumstances around their decision?
- Do you know someone who has suffered from depression, because of a past abortion?
- Since abortion can lead to sterility, does that affect your opinion on whether or not abortion should be legal?
- Do you think that some drugs can cause abortion to the women?

1.5 Scope of the study

Geographic scope

Hargeisa is located in a valley in the northwestern section of the country. The city is situated in a mountainous area, in an enclosed valley of the Galgodon (Ogo) high lands. It sits at an elevation of 1,334 meters (4,377 ft) above sea level. This altitude gives Hargeisa and the surrounding area a milder climate than the Gulf of Aden coastal area, where the weather is typically hot. The temperature ranges between 13 and 32 degrees Celsius (55 and 89 degrees Fahrenheit).

Hargeisa receives larger amounts of rain, and used to be surrounded by forest when the city was smaller but the countryside around the city still has small juniper forests. Near Hargeisa are the fertile Sheikh and Daallo mountains, which also receive large amount of rain. South of Hargeisa is the Hawd Savannah (Baligubadle) which attracts many different animals to graze in the area.
Time scope

This study will take a time starts from 14 April to 7july 2013 during that time I will collect Information about the factors which cause abortion to the pregnant women.

1.6 Theoretical frame work

- Cultural
  - Stigma
  - Lack of education
  - Negative impact

Factors cause for Abortion

- Health service factors
  - Hardworking
  - Chromosomal abnormalities
  - Stress
  - Smoking
  - drugs
  - infections

- Social demography
  - Age
  - Occupation
  - Marital status
  - Wealth index
Chapter two

2.0 Literature Review

2.1 Anatomy and physiology of female reproductive system

The female reproductive system is designed to carry out several functions. It produces the female egg cells necessary for reproduction, called the ova or oocytes. The system is designed to transport the ova to the site of fertilization. Conception, the fertilization of an egg by a sperm, normally occurs in the fallopian tubes. The next step for the fertilized egg is to implant into the walls of the uterus, beginning the initial stages of pregnancy. If fertilization and/or implantation do not take place, the system is designed to menstruate (the monthly shedding of the uterine lining). In addition, the female reproductive system produces female sex hormones that maintain the reproductive cycle. (1)

The female reproductive anatomy includes parts inside and outside the body.
The function of the external female reproductive structures (the genitals) is twofold: To enable sperm to enter the body and to protect the internal genital organs from infectious organisms. The main external structures of the female reproductive system include:

**Labia majora:** The labia majora enclose and protect the other external reproductive organs. Literally translated as "large lips," the labia majora are relatively large and fleshy, and are comparable to the scrotum in males. The labia majora contain sweat and oil-secreting glands. After puberty, the labia majora are covered with hair. (1)

**Labia minora:** Literally translated as "small lips," the labia minora can be very small or up to 2 inches wide. They lie just inside the labia majora, and surround the openings to the **vagina** (the canal that joins the lower part of the uterus to the outside of the body) and urethra (the tube that carries urine from the **bladder** to the outside of the body). (1)

**Bartholin's glands:** These glands are located besides the vaginal opening and produce a fluid (mucus) secretion. (1)

**Clitoris:** The two labia minora meet at the clitoris, a small, sensitive protrusion that is comparable to the **penis** in males. The clitoris is covered by a fold of skin, called the prepuce, which is similar to the foreskin at the end of the penis. Like the penis, the clitoris is very sensitive to stimulation and can become erect. (1)

The internal reproductive organs in the female include:

**Vagina:** The vagina is a canal that joins the cervix (the lower part of uterus) to the outside of the body. It also is known as the birth canal. (2)

**Uterus (womb):** The uterus is a hollow, pear-shaped organ that is the home to a developing fetus. The uterus is divided into two parts: the cervix, which is the lower part that opens into the vagina, and the main body of the uterus, called the corpus. The corpus can easily expand to hold a developing baby. A channel through the cervix allows sperm to enter and **menstrual blood** to exit.
Ovaries: The ovaries are small, oval-shaped glands that are located on either side of the uterus. The ovaries produce eggs and hormones. (2)

Fallopian tubes: These are narrow tubes that are attached to the upper part of the uterus and serve as tunnels for the ova (egg cells) to travel from the ovaries to the uterus. Conception, the fertilization of an egg by a sperm, normally occurs in the fallopian tubes. The fertilized egg then moves to the uterus, where it implants into the lining of the uterine wall. (2)

2.2 Abortion and embryo / foetal loss

Abortion means the premature expulsion of dead or non-viable foetuses. Embryo loss occurs when there is death of embryos followed by absorption, or expulsion. Healthy embryos grow into foetuses. (3)

There is often alarm when an abortion is seen but it should be remembered that there can be loss of embryos at any time during early pregnancy, which often go unseen. (3)

Embryo loss or abortion can be considered in three main groups:

1. During the period from fertilization to implantation
2. During the period of implantation at around 14 days post-service to 35 days.
3. During the period of maturation, this results in premature farrowings. It can be seen therefore that losses can take place at any stage from approximately 14 days after mating.

4. When implantation has taken place, through to 110 days of pregnancy. (3)

2.3 Pathology

Hemorrhage into the decidua basalis, followed by necrosis of tissues adjacent to the bleeding, usually accompanies abortion. If early, the ovum detaches, stimulating uterine contractions that result in its expulsion. When a gestational sac is opened, fluid is commonly found surrounding a small macerated fetus, or alternatively no fetus is visible—the so-called blighted ovum. (4)

In later abortions, several outcomes are possible. The retained fetus may undergo maceration, in which the skull bones collapse, the abdomen distends with blood-stained fluid, and the internal organs degenerate. The skin softens and peels off in utero or at the slightest touch. Alternatively, when amniotic fluid is absorbed, the fetus may become compressed and desiccated, forming a fetus compressus. Occasionally, the fetus may become so dry and compressed that it resembles parchment—a fetus papyraceous. (4)

2.4 Epidemiology of Abortion

The prevalence of spontaneous abortion or miscarriage varies according to diligence used in its identification. For example, Wilcox and colleagues (1988) studied 221 healthy women through 707 menstrual cycles. They found that 31 percent of pregnancies were lost after implantation. Importantly, using highly specific assays for minute concentrations of maternal serum-human chorionic gonadotropin (-HCG), two thirds of these early losses were designated as clinically silent. (5)

A number of factors influence the spontaneous abortion rate, but it is not known at this time if those that are clinically silent are affected by some of these. For example, clinically apparent miscarriage increases with parity as well as with maternal and paternal age (Gracia, 2005; Warburton, 1964; Wilson, 1986, and all their colleagues). The frequency doubles from 12 percent in women younger than 20 years to 26 percent in those older than 40 years. For the same
comparison of paternal ages, the frequency increases from 12 to 20 percent. But again, it is not known if clinically silent miscarriages are similarly affected by age and parity. \(^{(5)}\)

Although mechanisms responsible for abortion are not always apparent, during the first 3 months of pregnancy, death of the embryo or fetus nearly always precedes spontaneous expulsion. Thus, finding the cause of early abortion involves ascertaining the cause of fetal death. In later losses, the fetus usually does not die before expulsion, and other explanations are sought. \(^{(5)}\)

### 2.4 Abortion-related morbidities and mortalities

Unsafe abortion is a global problem. Millions of women around the world risk their lives and health to end an unwanted pregnancy. Every day, 55,000 unsafe abortions take place—95% of them in developing countries—and lead to the deaths of more than 200 women daily. Globally, one unsafe abortion takes place for every seven births. \(^{(6)}\)

Many women fail to seek treatment for abortion-related complications, leading to countless-and uncounted deaths outside of health care systems. \(^{(6)}\)

Unsafe abortion is, however, one of the most easily preventable and treatable causes of maternal death and disability. Between 20 and 50% of all women who undergo unsafe abortions need hospitalization for complications. \(^{(6)}\)

**Acute Complications**

- Incomplete abortion, Sepsis, Hemorrhage, Uterine Perforation, and Bowel injury. \(^{(6)}\)

**Long-term Complications**

- Chronic pelvic pain, Pelvic inflammatory disease, Tubal blockage and secondary infertility, and Ectopic pregnancy.
- Increased risk of spontaneous abortion or premature delivery in subsequent pregnancies.

These complications can limit women’s productivity inside and outside the home, constrain their ability to care for children and adversely affect sexual life. \(^{(6)}\)
2.5 Factors that cause abortion

Chromosomal abnormalities:

Cause at least 50% of early abortions e.g. trismomy, monsomy X (XO) and triploidy.

Causes of trismomy Ares non dysjunction, fertilization abnormalities like digyny, dispermy, triploidy and tetraploidy, mosaics.
Second most common cause of chromosomal anomalies is monsomy X (45XO) 15-20% Of all spontaneous Abs.
45XO is the single most common chromosomal anomaly.
Only 1/300 will survive. (7)

Blighted ovum (an embryonic gestational sac):

Where there is no visible foetal issue in the sac. (7)

Maternal Infections: e.g. Listeria monocytogenes, mycoplasma hominis, urealyticum, cytomegalovirus and toxoplasma gondii which cause abortion if there is acute infection early in pregnancy.

Acute fever for whatever the cause can induce abortion. (7)

Trauma: external to the abdomen or during abdominal or pelvic operations. (7)

Endocrine causes:

a) Progesterone deficiency-progesterone stimulates the endometrium to become secretory if it does not then the embryo will not implant
Corpus luteum produces progesterone until the placenta takes over
Inadequate corpus luteum diagnosed with endometrial biopsy with 3 day discrepant. (7)
b) Thyroid antibodies present doubles the risk of abortions
   Hypo or Hyper thyroidism has not proven to increase the rate of abortions
   Hypothyroidism can cause an ovulation. (7)

c) Diabetes mellitus- Pregnant patients with diabetes and poor glycemic control
during the period of organogenesis (within 7 weeks after conception) have an
increased rate of spontaneous abortion, which is attributed to hyperglycemia,
possible immunologic factors, and uteroplacental insufficiency secondary to
maternal vascular disease. (7)

Drug and environmental causes:

   E.g. quinine, ergots, severe purgatives, tobacco, alcohol, arsenic, lead, formaldehyde,
   benzene and radiation. (7)

A variety of different agents have been reported to be associated with an increased incidence of abortion.

  ✓ Tobacco: Smoking has been linked with an increased risk for euploid abortion
   (Kline and co-workers, 1980). Two studies suggested that the abortion risk
   increased in a linear fashion with cigarettes smoked per day (Armstrong and
   colleagues, 1992; Chatenoud and associates, 1998). Subsequent studies, however,
   failed to support this association (Maconochie, 2007; Rasch, 2003; Wisborg,
   2003, and all their co-workers). (5)

  ✓ Alcohol: Both spontaneous abortion and fetal anomalies may result from frequent
   alcohol use during the first 8 weeks of pregnancy (Floyd and co-workers, 1999).
   The risk seems to be related to both frequency and dose (Armstrong and
   associates, 1992). A low level of alcohol consumption during pregnancy was not
   associated with a significant risk for abortion (Kesmodel and associates, 2002;
   Maconochie and co-workers, 2007). (5)
✓ Caffeine: Armstrong and associates (1992) reported that women who consumed at least five cups of coffee per day had a slightly increased abortion risk and that above this threshold, the risk correlated linearly. Similarly, Cnattingius and colleagues (2000) observed a significantly increased abortion risk only in women who consumed at least 500 mg of caffeine daily—roughly equivalent to five cups of coffee. Klebanoff and associates (1999) reported that pregnant women in whom levels of the caffeine metabolite paraxanthine were extremely elevated had a twofold risk for miscarriage. They concluded that moderate caffeine consumption was unlikely to cause spontaneous abortion. (5)

✓ Radiation: In therapeutic doses given to treat malignancy, radiation is certainly an abortifacient (see Chap. 41, Ionizing Radiation). Although lower doses are less toxic, the human dose to effect abortion is not precisely known. According to Brent (1999), exposure to less than five rads does not increase the risk for miscarriage. (5)

Miscellaneous:

✓ Chronic malnutrition
✓ Chronic anemia
✓ Chronic cardiac and renal disease
✓ Cigarette smoking and alcohol abuse (5)

Overdirtension of the uterus: e.g. acute hydramnios (5)

Immunological causes:

a) Systemic lupus erythematosus (7)

b) Antiphospholipic antibodies that are directed against platelets and vascular endothelium leading to thrombosis, placental destruction and abortion. (7)
c) Histocompatibility between mother and father and in turn the foetus. It is assumed that histoincompatibility particular in human leucocyte antigen (HLA-DR locus) is essential in for stimulation of immune system to produce blocking factors which prevent rejection of the foetus. (7)

**Aging sperm or ovum** (7)

**Maternal causes:**

a) Leiomyoma of the uterus

b) Uterine anomalies

- Leiomyoma
  - Approximately 25% of women have fibroids
  - Sub mucous fibroids appear to cause the biggest problem
  - Diagnosis with U/S, HSG, or hysteroscopy
  - Treatment is myomectomy or hysteroscopic resection (7)

- Uterine anomalies: Uterine adhesions- can be partial or complete
  - Can cause menstrual changes or amenorrhea. (7)

**Nervous, psychological conditions and over fatigue.** (7)

**Contraceptives:** Oral contraceptives or spermicidal agents used in contraceptive creams and jellies are not associated with an increased miscarriage rate. When intrauterine devices fail to prevent pregnancy, however, the risk of abortion, and specifically septic abortion, increases substantively. (5)
Environmental Toxins: Accurately assessing the relationship between environmental exposures and miscarriage poses challenges. There may be difficulties in measuring the intensity and duration of exposure, and there is little information to conclusively indict or absolve any specific agent. Some studies include those by Barlow and Sullivan (1982), who found that arsenic, lead, formaldehyde, benzene, and ethylene oxide possibly cause miscarriages. (5)

Inherited Thrombophilias

Some genetic disorders of blood coagulation may increase the risk of both arterial and venous thrombosis. The better studied Thrombophilias are caused by mutations of the genes for factor V Leiden, prothrombin, antithrombin, proteins C and S, and methylene. (5)

Tetrahydrofolate reductase (hyperhomocysteinemia). Because these are most commonly associated with recurrent miscarriage, they are considered in Inherited Thrombophilias. (5)

Antiphospholipic syndrome: Antiphospholipid antibodies comprise a heterogeneous group of immunoglobulin’s acting against plasma proteins. These represent a possible cause of spontaneous abortion through promotion of micro vascular thrombosis in the placenta, leading to infarction. (5)

2.5  Mechanism of Abortion

a) Up to 8 weeks: the gestational sac tends to be expelled complete and the decidua is shed thereafter. (7)

b) From 8-12 weeks: the decidua capsularis ruptures and the embryo expelled either entire or after rupture of the amnion. (7)

c) After 12 weeks: The placenta is completely formed and the process of abortion is like a miniature labour. It is more common for the fetus to be expelled but for the placenta to be retained due to firmer attachment to the uterine wall. (7)
2.6 Pre-abortion

Pre-Abortion is seen by some women having them as a way to salvage a relationship with a husband or boyfriend. But, a new study finds women and men who are not properly counseled before the abortion ultimately find themselves suffering from relationship problems and post-traumatic stress disorder. (8)

The study makes it apparent that many women are having abortions under the false assumption that it will aid their relationships. (8)

It indicates that better pre-abortion counseling would prevent some abortions by helping women understand abortion is not a solution to relationship problems -- but actually causes more. (8)

The purpose of the study was to "examine associations between perceptions of pre-abortion counseling adequacy and partner congruence in abortion decisions and two sets of outcome variables involving relationship problems and individual psychological stress." (8)

The researchers collected data through online surveys from 374 women who had a prior abortion and 198 men whose partners had an abortion. (8)

Women who had abortions and men whose partners had them, and believed their pre-abortion counseling to be of a poor quality faced a number of post-abortion problems. (8)

"For women, perceptions of pre-abortion counseling inadequacy predicted relationship problems, symptoms of intrusion, avoidance, and hyper arousal, and meeting full diagnostic criteria for posttraumatic stress disorder (PTSD) with controls for demographic and personal/situational variables used," the researchers note. (8)

"For men, perceptions of inadequate counseling predicted relationship problems and symptoms of intrusion and avoidance with the same controls used," the study indicated. (8)
2.7 Post abortion

Many women are concerned about a risk of getting pregnant right after a termination of pregnancy. Many women do not understand that they can get pregnant right after an abortion, as soon as 7-10 days after the termination of pregnancy. You can get pregnant even if you are still bleeding. It is most important that a reliable form of birth control is used. Birth control is best started during the week after the termination of pregnancy. If birth control pills, a Depo-Provera injection, a Nuvaring, or birth control patch are started within one week of the abortion, they should be effective immediately.

If unprotected sex occurs 8 or more days after an abortion.

Many women are also concerned that abortion may cause problems with fertility and want to make sure that they will be able to get pregnant when they are ready. Routine abortion does not cause problems with fertility. Infertility problems are caused by unusual scarring of the uterus after a D&C procedure (for abortion, management of miscarriage, or for incomplete abortion). It is thought that the scraping of the uterus (with a “curette” during a D&C procedure is responsible for scar tissues. In the extremely rare situation that scarring is extensive enough to cause fertility problems, it is called Asherman’s syndrome. There is no evidence that the Abortion Pill causes scarring. Theoretically Manual Vacuum Aspiration should diminish or eliminate the risk of scarring because there is no scraping, but there has been no research to confirm this. Theoretically, suction abortion without scraping (sometimes called “suction curettage”) should diminish or eliminate the risk of scarring, but there has been no research to confirm this.

2.8 Types of Abortion

2.8.1 Threatened Abortion

A threatened miscarriage is defined as painless vaginal bleeding occurring any time between implantation and 24 weeks' gestation. Probably one-quarter of all pregnancies are complicated by threatened miscarriage, although many patients may be unaware of their pregnancy when they present with vaginal bleeding.
Threatened miscarriage is one of the most common indications (together with suspected ectopic Pregnancy) for emergency referral of young women to a casualty department. The bleeding may resolve spontaneously in a few days, never to recur, or it may continue, or stop and start over several days or weeks. It is only when abdominal cramps supervene that the process may become inevitable, in particular if the cervix opens. The bleeding usually occurs between 6 and 9 weeks’ gestation when the definitive placenta forms. \(^{(10)}\)

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2.8.2 Inevitable Abortion

In case of inevitable abortion, a clinical pregnancy is complicated by both vaginal bleeding and cramp-like lower abdominal pain. The cervix is frequently partially dilated, attesting to the inevitability of the process. \(^{(10)}\)

2.8.3 Cervical abortion:

Is a variety of inevitable abortion in which the products of conception has been separated from the uterine cavity but retained in the cervical canal causing its distension. \(^{(10)}\)
2.8.4 Incomplete Abortion

Incomplete Abortion if Pregnancy is Greater than 16 Weeks

Incomplete Abortion In addition to passage of products of conception, often described by the women as looking like pieces of skin or liver. Vaginal bleeding, cramp-like pain, and cervical dilatation, an incomplete abortion involves the passage of the products of conception, often described by the woman as looking like pieces of skin or liver. (10)

2.8.5 Complete Abortion

In complete abortion, after passage of all the products of conception, the uterine contractions and bleeding abate, the cervix closes, and the uterus is smaller than the period of amenorrhea would suggest. In addition, the symptoms of pregnancy are no longer present, and the pregnancy test becomes negative. Evacuation of the uterus usually not necessary. (10)

2.8.6 Missed Abortion

The term missed abortion is used when the fetus has died but is retained in the uterus, usually for some weeks. After 16 weeks’ gestation, dilatation and curettage may become a problem. Fibrinogen levels should be checked weekly until the fetus and placenta are expelled. (10)

2.8.7 Septic Abortion:

Is any type of abortion, usually criminal abortion, complicated by infection?

Microbiology:

E.coli, bacteriods, anaerobic streptococci, clostridia, streptococci and staphylococci are among the most causative organisms. (7)

2.9 Clinical features of abortion

- Slight blood loss-fresh blood with clots or brown staining
- Little or no pain
- Fetal movements may be present
- No products of conception have been passed (11)
2.9.1 Clinical features of spontaneous features

- Heavy bleeding getting worse
- Severe colicky abdominal pain
- Products of conception may have passed (11)

2.9.2 Clinical features of complete and incomplete abortions

- Heavy bleeding getting worse
- Severe colicky abdominal pain
- Products of conception may have passed (11)

2.9.3 Clinical features of missed abortion

- No fetal movements
- No symptoms of conception have passed (11)

2.10 Managements of Abortion

This depends on the time in pregnancy when it occurs. She is wise to abstain from exertion, intercourse, and travelling until after the 14th weeks. The pregnancy should be monitored by Ultrasound to ensure that the fetus is present and developing normally. Late recurrent miscarriage after 12th week is often due to incompetence of the cervix which may require suturing prophylactically. (7)

If the woman is found to have APS, then treatment with Aspirin and Heparin during pregnancy improves the take-home-baby rate from 10% to 40%.
Investigations:

1- APS lupus anticoagulant and anticardiolipin antibodies are measured and repeated after 6 weeks. Two positive results are needed to confirm the diagnosis. \(^{(7)}\)

2- PCOS, LH, FSH, testosterone, ultrasound scan. \(^{(7)}\)

3- Cervical incompetence and congenital abnormalities-hysterosalpingograpy and transvaginal ultrasound scan may show an incompetent cervix or uterine anomaly.

   In pregnancy, transvaginal ultrasound is usually helpful in showing the same deficiency and/or changes in the cervical length and dilation. \(^{(7)}\)

4- Karyotype of both parents.

   Between pregnancies hysterosalpingogramphy may show an incompetent internal os.

   This may also reveal a congenital malformation of the uterus. \(^{(7)}\)

2.11 Diagnosis of abortion

Threatened Abortion

The clinical diagnosis of threatened abortion is presumed when a bloody vaginal discharge or bleeding appears through a closed cervical os during the first half of pregnancy. Occurring commonly, vaginal spotting or heavier bleeding during early gestation may persist for days or weeks and may affect one out of four or five pregnant women. \(^{(4)}\)

Overall, approximately half of these pregnancies will abort, although the risk is substantially lower if fetal cardiac activity can be documented. Even without abortion, these fetuses are at increased risk for preterm delivery, low birth weight, and perinatal death (Batzofin, 1984; Funderburk, 1980; Weiss, 2004, and their colleagues). Importantly, the risk of a malformed infant does not appear to be increased. \(^{(4)}\)

Some bleeding near the time of expected menses may be physiological. Cervical lesions commonly bleed in early pregnancy, especially after intercourse. Polyps presenting at the external cervical os and decidual reaction in the cervix also tend to bleed in early gestation.
Lower abdominal pain and persistent low backache do not accompany bleeding from these benign causes. (4)

Bleeding usually begins first, and cramping abdominal pain follows a few hours to several days later. The pain of abortion may manifest as anterior and clearly rhythmic cramps; as a persistent low backache, associated with a feeling of pelvic pressure; or as a dull, midline, suprapubic discomfort. Whichever form the pain takes the combination of bleeding and pain predicts a poor prognosis for pregnancy continuation. (4)

Because ectopic pregnancy, ovarian torsion, and the other types of abortion may mimic threatened abortion, the threshold to examine women with vaginal bleeding and pain should be low. If the bleeding is persistent or heavy, a hematocrit should be obtained. If blood loss is sufficient to cause significant anemia or hypovolemia, uterine evacuation is done. (4)

There are no effective therapies for threatened abortion. Bed rest, although often prescribed, does not alter the course of threatened abortion. Acetaminophen-based analgesia may be given to help relieve the pain. Vaginal sonography, serial serum quantitative human chorionic gonadotropin (HCG) levels, and serum progesterone values, used alone or in various combinations, can help ascertain if the fetus is alive and its location. (4) None of these tests, however, especially early in gestation, is 100 percent accurate to confirm fetal death; thus, repeat evaluations over 1 or 2 weeks may be necessary. Ectopic pregnancy should always be considered in the differential diagnosis of threatened abortion. (4)

Anti-D Immunoglobulin

We as well as others recommend treatment of D-negative women with anti-D immunoglobulin after abortion because up to 5 percent of D-negative women will become isoimmunized without it. In D-negative women with threatened abortion, this practice is controversial, because it lacks evidence-based support. (4)

Inevitable Abortion
Gross rupture of the membranes, evidenced by leaking amniotic fluid, in the presence of cervical dilatation signals almost certain abortion. Commonly, either uterine contractions begin promptly, resulting in abortion, or infection develops. Rarely, a gush of fluid from the uterus during the first half of pregnancy is without serious consequence. The fluid may have collected previously between the amnion and chorion. Thus, if a sudden discharge of fluid in early pregnancy occurs before any pain, fever, or bleeding, the woman may be put to bed and observed. If after 48 hours no additional amniotic fluid has escaped, and there is no bleeding, pain, or fever, she may resume her usual activities except for any form of vaginal penetration. If, however, the gush of fluid is accompanied or followed by bleeding, pain, or fever, abortion should be considered inevitable and the uterus emptied.

Complete and Incomplete Abortion

When the placenta, in whole or in part, detaches from the uterus, bleeding ensues. Following complete detachment and expulsion of the conceptus, termed complete abortion, the internal cervical os closes. During incomplete abortion, however, the internal cervical os remains open and allows passage of blood.

The fetus and placenta may remain entirely in utero or may partially extrude through the dilated os. Incomplete abortion may or may not require additional cervical dilatation before curettage.

In many cases, retained placental tissue simply lies loosely in the cervical canal, allowing easy extraction from an exposed external os with ring forceps. Suction curettage, as described later, effectively evacuates the uterus. In clinically stable women, expectant management also can be a reasonable option.

Hemorrhage from the incomplete abortion of a more advanced pregnancy, though rarely fatal, is occasionally severe. Therefore, in women with more advanced pregnancies or with heavy bleeding, evacuation should proceed promptly. Fever should not prohibit curettage once appropriate antimicrobials have been administered.
Missed Abortion

In this case, the uterus retains dead products of conception behind a closed cervical os for days or even weeks. In the typical instance, early pregnancy appears to be normal, with amenorrhea, nausea and vomiting, breast changes, and growth of the uterus. \(^{(4)}\)

After fetal death, there may or may not be vaginal bleeding or other symptoms of threatened abortion. For days or weeks, the uterus remains stationary in size, but then gradually becomes smaller. Mammary changes usually regress, and women often lose a few pounds. Many women have no symptoms during this period except persistent amenorrhea.

If the missed abortion terminates spontaneously, and most do, the process of expulsion is the same as in any abortion. \(^{(4)}\)

2.12 Prevention of Abortion

1. Prevention, early detection and treatment of pregnancy related complications as Pre-eclampsia, eclampsia and haemorrhage.
2. Prevention, early detection and treatment of medical disorders as anemia and diabetes.
3. Detection of malpresentations, malpositions and disproportion that may influence the decision of labour.
4. Instruct the pregnant woman about hygiene, diet and warning symptoms.

Laboratory studies of parameters may affect the foetus as blood group, Rh typing, Toxoplasmosis and syphilis. \(^{(7)}\)

**Frequency of antenatal visits:**

- Every month during the first 6 months.
- Every 2 weeks during the 7th and 8th months.
- Every week during the last month.

More frequent visits are indicated in high risk pregnancy.

The first visit:

1. *History.*
2. *Examination:* general, abdominal and local.
3. Laboratory investigations:
   - Blood grouping.
   - Rh typing.
   - Hemoglobin.
   - Toxoplasma and / or VDRL if needed.
   - Urine analysis particularly for albumin and sugar.

Return visits:
A-History: ask the patient about any complaint.

B-Examination:
   ✓ Blood pressure.
   ✓ Weight.
   ✓ Oedema.
   ✓ Abdominal examination.

C-Investigation: urine for albumin and sugar. \(^{(7)}\)

2.13 Treatment of Abortion

Conditions such as hormonal imbalance, infections of the uterus and chronic constipation can be remedied by natural methods of treatment. For congenital uterine malformation, recourse may have to be taken to surgery.

On appearance of the first symptoms of possible abortion, the patient should be put to bed immediately and the bottom end of the bed raised. Cold compresses at 60 of temperature should be applied continuously to the inner portion of the thighs, the perineum, the vagina and the lumbar region. Compresses should be changed every 15 to 20 minutes. When the compress is removed for renewing, the surface should be rubbed with a warm dry flannel for half a minute or until reddened, before applying the compress again. Simultaneously, a hot application should be made to the feet.
A neutral or warm water enema is an effective remedy for a constipated colon which is a major cause for the toxemic condition of the uterus. This will relieve the bowels and thus reduce any excessive pressure on the uterus and other pelvic organs.

A regular cold hip bath for duration of 10 minutes twice every day is very helpful in relieving congestion and inflammation of the uterus. Wet girdle packs, twice every day, on an empty stomach, also relieve congestion’s and infections in the uterus and other pelvic organs. It is advisable that women with a history of repeated abortions should adopt these techniques before conception and continue them during the first two months of pregnancy. Dietary control is of utmost importance in the prevention of habitual abortion. Pregnant women should avoid refined carbohydrates, sugars, non-vegetarian food, coffee, tea, oily and fried, smoking, chewing tobacco and drinking alcohol must be strictly avoided. (12)

Treatment of abortion can be divided in two:

A) Surgical methods

Surgical methods are currently the most common abortion procedures. (13)

1. First trimester

Vacuum aspiration is the standard first trimester surgical method.

Though used in other countries, sharp curettage is not widely available in the world for induced abortion. (13)

Vacuum aspiration

Introduction to this world in 1967, vacuum aspiration is now most widely used abortion procedure. In 1994, 97% of abortions were performed by vacuum aspiration.

This procedure is safe and simple way to empty the uterus completely and quickly with minimal cervical dilation. It is most safely performed using local anesthesia although many woman request general anesthesia. (13)

Perform a bimanual examination to determine the uterine size and angle of the cervical-uterine junction. Insert the speculum and cleanse the cervix. Using local anesthesia such as 0.5% to 1% lidocaine amide (limiting the amount to less than 2 milligrams per pound), place a paracervical block to reduce pain. (13)

If necessary, dilate the cervix using gently sloped Pratt or dennisnt dilators. (13)
Liminaria or other osmotic dilators placed up to 24 hours before the procedure can assist in dilating the cervix. Use a tenaculum to stabilize the cervix if necessary. After inserting a vacuum cannula, introduce negative pressure to evacuate the products of conception. Most clinicians use an electrical vacuum pump to create the negative pressure, although if the women dislike the sound of the electric pump, manual vacuum aspiration is possible using a syringe. (13) The cannula size generally used is 2mm less than the number of weeks gestation (measured from LMP), although a larger size may speed the abortion procedure. When the uterus feels empty, examine the tissue to ensure the pregnancy was intrauterine rather than ectopic or hydatidiform mole, as well as to confirm that the evacuation was complete. Tissue examination may be easier if the products of a conception are suspended in saline or white vinegar and checked with backlighting. (13)

For pregnancies less than 14 weeks gestation, vacuum aspiration can be done in a medical office, provided appropriate back-up and preparation are available for dealing with potentially adverse situations, such as allergic reactions to medication, uterine Antony, perforation, seizure, or cardiac arrest. Forceps are generally necessary to evacuate pregnancies less than 14 weeks gestation. (13)

2. Second trimester
The standard surgical method used for second trimester abortion is dilation and evacuation. A variety of adjunctive techniques make the procedure safer and more effective. (13)

1. Dilation and evacuation
D&E allows vacuum aspiration to be performed into the second trimester. D&E is especially appropriate for procedures performed between 13 and 16 weeks gestation, although some proponents use this method up through 20 or more weeks. An accurate estimate of gestational age crucial; intraoperative sonography may help. (13) The cervix requires more dilation for D&E than for vacuum aspiration, because the products of conception in the second trimester are much larger. Osmotic dilators are often used accommodate a gradual, less painful, and less traumatic dilation of the cervix. After administering a paracervical block or general anesthetic, remove the osmotic dilators and dilate the cervix is needed with mechanical dilators. (13)

The vacuum cannula, and the other instruments as needed, can then evacuate the fetus and placenta from the uterus.
2. Adjunctive Techniques
Several adjunctive techniques can assist the clinician in performing second trimester abortions.

**Laminaria.** Dried seaweed of the genus Laminaria is highly hygroscopic and can, over a period of time, dilate the cervix. Laminaria are effective and relatively painless, and they decrease the risk of cervical laceration of perforation, reducing mortality by nearly 50%. Place the Laminaria so they extend through the endocervical canal and dilate both the internal and external os. Usually, most of the cervical expansion occurs by 6 hours, but maximum dilation does not occur until 12 to 24 hours after placement of the Laminaria. (13)

**Synthetic osmotic dilators.** Two synthetic hygroscopic dilators are used in the United States. Lamicel is a magnesium sulphate-impregnated sponge. Dilapan is an expanding polymer of polycrilonitrile. Both produce faster cervical dilation than Laminaria. (13)
They have advantages of uniform size (3mm to 5mm diameter), assured sterility, and easy insertion and removal. Depending on cost, these synthetic dilators may eventually replace the natural products. (13)

**Oxytocin and vasopressin.** Intravenous Oxytocin may be used as an adjunct to vacuum aspiration to reduce the amount of bleeding. When used with second-trimester methods, Oxytocin facilitates uterine contraction, hastens the abortion, and limits blood loss. Some clinicians avoid using Oxytocin until the procedure is completed for fear of “trapping” the fetal skull (often the last part removed) as the uterus contracts. Other clinicians opt for vasopressin with the paracervical or intracervical block to constrict uterine vessels and decrease blood loss.

b) Medical methods
In the past few years, new medical methods of early abortion have been developed. In addition, some medical methods for later abortion have been refined. (13)

1. First trimester
Two new options for early medical abortion are available (or will be soon) in the United States. The first, mifepristone (formerly known as RU 486), together with a prostaglandin, is widely used to abort early pregnancies in several European countries and has recently been shown to be safe and effective as well as acceptable in developing countries. (13)
Clinical trials of mifepristone have been completed in the United States, and the drug has been recommended for approval by the U.S. food and drug administration (FDA). It’s use has recently been expanded in large-scale introductory studies. In addition, methotrexate in combination with misopristol (both widely available) have been used successfully to terminate early pregnancies. Women who are severely anemic should not use either method. (13)

Standard precaution for Rh0 (D) isoimmunisation should be used, as is the case with surgical methods. (13)

**Mifepristone and Misopristol**

Mifepristone is a 19-norsteroid with a high affinity for the progesterone receptors. The drug acts as a progesterone antagonist. The drug also binds strongly to glucocorticoid receptors, and to a lesser extent, to androgen receptors. (13)

It stimulates synthesis of prostaglandins by cells of the early deciduas. Mifepristone has been investigated as an early abortifacient and as an emergency contraceptive, as well as for other indications. It is marketed for abortion in France, the United Kingdom, Sweden, and China. Supplementing mifepristone with misopristol, a widely available low-dose E1 prostaglandin analogue, increases efficacy. Mifepristone appears to be more effective the earlier in the pregnancy it is used:

Women with pregnancy duration of 7 weeks or less LMP experience a complete abortion about 95% of the time. Success rates decrease to about 80% in the ninth week LMP.

Over 80% of women using the regimen report cramping and bleeding. In fact the drugs are intended to induce these actions to help create the abortion.

Women report medical abortion is experientially similar to miscarriage. (13) Most pain can be managed with acetaminophen (Tylenol) or acetaminophen with codeine phosphate. It is common practice to avoid giving aspirin or ibuprofen as these analgesics are anti-prostaglandins and may counteract the effects of misopristol. Although bleeding may seem significant to the woman, the amount of bleeding is rarely clinically significant. Median blood loss for a similar regimen (mifepristone plus gemeprost) is less than 100 mls, although the range can extend up to several hundred mls and is significantly correlated to length of gestation. Approximately 1% of women experience uterine bleeding that requires curettage, about 0.1% requires transfusion. Some clinicians report treating excessive bleeding with an ergot alkaloid such as methylergontivine maleate (Methergine) before resorting to aspiration or curettage. (13)
Mifepristone will be distributed directly to any licensed physician who trained in abortion, pregnancy diagnosis, and the gestational age assessment and can treat or refer complications to an appropriate back-up facility. Contraindications to the regimen include confirmed or suspected ectopic pregnancy or undiagnosed adnexal mass, chronic adrenal failure, concurrent long-term corticosteroid therapy, hemorrhagic disorders or concurrent anticoagulant therapy, or known allergy to mifepristone or misopristol. Remove the IUD from IUD users before starting treatment. The regimen involves three visits to clinic. One the first visit, the women takes 600mg mifepristone. Two days later, she returns to the clinic for administration of prostaglandin.  

A small percentage (fewer than 5%) of women will have expelled their pregnancies before the second visit. If the woman thinks she has expelled the pregnancy between two visits, perform a pelvic examination to assess whether the abortion has been completed. For all women who have not had complete abortion, administer two 200ug tablets of misopristol (400ug total) orally.  

These tablets can be purchased inexpensively directly from a pharmaceutical supply house. Their shelf life is short, however, so aspiration dates of misopristol should be checked frequency. Following administration of misopristol, the woman should stay under observation of 4 hours or until stable. During the first 4 hours following prostaglandin, most (about two thirds) of abortions takes place. Women should return to clinic after about 2 weeks for a follow-up appointment to ensure their abortion is complete. Several aspects of the mifepristone regimen remain to be refined. Preliminary research suggests a 200 mg dose of mifepristone may be as effective as a 600 mg dose. Vaginal administration of misopristol may work as well as oral administration, or possibly even better at the later gestational ages. Most important, the initial protocols used in the United States. As United States clinicians gain experience with the regimen, protocols may be adapted and simplified for home use. For example, the misopristol step may be administered at home by the woman herself, as in the case with methotrexate abortion.  

**Methotrexate and misopristol**

Methotrexate is a cytotoxic drug that has been used successfully to treat enraptured ectopic pregnancy, choriocarcinoma psoriasis, and rheumatoid arthritis. The drug is lethal proliferating...
trophoblastic tissue and causes early abortion by blocking the folic acid fetal cells so they cannot divide. Used in combination with misopristol, it is about 95% successful in terminating early pregnancies.

Methotrexate regimens have been developed to terminate intrauterine pregnancies only quite recently and involved off-labeled use of the drug. For this reason, no single standardized protocol has been set forth. Several methotrexate-misopristol protocols are currently used. All protocols involve a minimum of two clinic visits. All require women to be of good health with no contraindications to surgical abortion and no history of chronic renal hepatic disease, anemia, acute inflammatory bowel disease, or uncontrolled seizures. Women should discontinue using vitamins containing folate for 1 week after taking methotrexate.

Regardless of which protocol is used, on the first visit to the woman receives 50mg methotrexate per square meter of the body surface administrated intramuscularly in the gluteal muscle. All protocols follow methotrexate by 800ug misopristol inserted vaginally. One option is to give four 200ug tablets; advise the woman to hold the tablets in place with tampon. In such cases, instruct women to leave the tampon in place for 12 hours or until active vaginal bleeding begins.

Another option is to use vaginal suppositories (either tour 200ug suppositories or one 800ug suppository) prepared by local pharmacy. The optimum interval between methotrexate and misopristol insertion has yet determined. In some protocols, misopristol is administered 3 days after methotrexate, while in other; it is not administered until 5 to days later. Methotrexate protocols also vary as to whether women with acetaminophen containing codeine phosphate (300 mg/30 mg).

Instruction of Misopristol at home are as the following (1) use suppository (ies) when they can rest afterwards (i.e. before bedtime); (2) drink fluids to avoid feeling dizzy when rising; (3) eat lightly because of the possibility if nausea or vomiting; (4) insert suppository or tablets deep into the vagina with cleans hands; (5) rest on their backs for at least 30 minutes; (6) expect cramping bleeding within the next 12 hours; (7) use acetaminophen a codeine every 4 hours if needed for cramping; (8) use ibuprofen as backup only; and (9) call if they have heavy vaginal
bleeding (soaking four sanitary pads within 2 hours). Some protocols provide a second dose of misoprostol to use if women have not begun bleeding within 24 hours of the initial dose. Timing of follow up visits varies. Some protocols require women to return to the clinic as early as 3 days after the initial misoprostol administration. Others suggest women to return only after a week following misoprostol administration. If the women has not had a complete abortion by the first follow up visit (based on bimanual vaginal examination or vaginal ultrasound), if BHCG level has not declined by at least 50% at the first follow-up visit, offer an additional dose of misoprostol or a vacuum aspiration. For those accepting an additional misoprostol dose, schedule weekly follow up appointments for up a month, or longer if the woman opts to keep waiting for abortion to occur without surgical intervention.

2. Second trimester
Several medical agents may be used for second-trimester abortion when administered by amniocentesis and amnioinfusion. They fall into two broad groups; hypertonic solution (e.g., saline or urea) and uterotonic drugs (e.g., prostaglandin E2 suppositories or misoprostol). However in 1994, these methods combined accounted for only 0.7% of all abortions in the United States. They have been replaced by D&E procedures that are safer, faster and less expansive.

1. Hypertonic solutions
Two hypertonic solutions are typically used intra-amniotically.

a) Saline: saline is relatively inexpensive, readily available, and feticidal; in addition, considerable clinical experience with the procedure has been amassed. However, its disadvantages include higher rates of severe, disseminated intravascular coagulation.

b) Hypertonic urea: used to determine second-trimester pregnancies, hypersonic urea is relatively safe with a low cost and with feticidal effects. The major disadvantage has been the high failure rate when used as a sole abortifacient. Currently prostaglandins are generally used to augment labor in urea-induced abortions.

c) Uterotonic agents
Both E1 and E2 prostaglandins can be used for second trimester medical abortions with or without the hypertonic agents.
1) Dinoprostol. A prostaglandin E2 dinoprosone is marketed as PROSTIN E2, a vaginal suppository for evacuating a missed abortion. These 20 mg vaginal suppositories cause high incidence of gastrointestinal side effects and often affect the thermo regularly mechanism, causing a temperature elevation in some clients.

2) Misopristol. Misopristol (cytotec) is a synthetic E1 prostaglandin agent approved for the prevention and treatment of gastric ulcer disease. It is used in combination with other drugs for early medical abortion, but it is also effective for second-trimester abortion.

Vaginal administration of 200Ug misopristol every 12v hours produces pregnancy termination rates comparable to prostaglandin E2 suppositories given every 3 hours. The misopristol regimen is less expansive and entails fewer side effects than other prostaglandins.

2. Amniocentesis and Amnioinfusion

Amniocentesis (removal of fluid from the amniotic cavity) and amnioinfusion (infusion of medication into amniotic cavity) are techniques central to the second trimester instillation procedures.

As the woman to empty her bladder and the lie in the supine position. Cleanse the amniocentesis site with a disinfectant, and drape site with sterile towels. No premedication in recommended. At the injection site, infiltrate the skin with a local an aesthetic. Insert an 18-gauge spinal needle into the intrauterine cavity to obtain a flow of clear amniotic fluid.

Many clinicians also insert osmotic dilators in the cervix either before or at the time of the amniocentesis to expedite the procedure and decrease the incidence of cervical lacerations. Prostaglandin suppositories can help often the cervix. (13)

3. Adjunctive technique

Adjunctive techniques can also simplify second trimester medical abortion, but their advantages are mixed.

Intravenous Oxytocin may be used with the second trimester methods to facilitate uterine contractions, hasten the abortion, and limit blood loss. When used as an adjunct to second trimester saline abortion, Oxytocin increases the risks of disseminated intravascular coagulation, cervical abortion, and water intoxication, although it decreases the risks of infection and retained products of conception. (13)
Chapter Three

Research Methodology

3.0 Introduction

This chapter gives a full detail about the techniques that the researcher will use to select the geographical areas, from which the research will be passed through and methods of selection of respondents. Furthermore, this chapter explains the methods that will be used to gather procedure and analyze data.

3.1 Research Design

This is a descriptive research project, as it major it purpose was better knowledge and know how abortion effect women in Somaliland. The researcher used a close ended questioner study as well as draws the findings of the information as a quantitative methods, analysis approached in order to get a larger figure both in number and data.

3.2 Study Population

The target population consists of a total of 75 including women. The aim was to have a questionnaire that was simple to answer and record responses, and not take more than 45 minutes on average to complete. There were no open questions in the questionnaire making recording of answers simple and quick as well as those who can tell more about the demand of the food by the population. The research will focus on the households as they can give the needed detailed information by pre-questioner, inquiring discussion.
3.3 Study Area

The study area of this research paper is in Hargeisa city specially Hargeisa group Hospital, Edna Hospital and Gargaar Multispecialty Hospital.

3.4 Sample size

The sample size will be selected through simple random sampling procedure where women, men, household heads will be randomly selected from state house village in Hargeisa.

The sample size of the respondents will be determined using a census approach, in which all community members in the selected areas will be utilized in the study.

Slovel’s symbol

\[ N = \frac{n}{1 + (e)^2} \]

\[ N = \frac{75}{1+75 (0.05)^2} \]

\[ N = 63 \]

3.5 Sampling procedure

The study was used probability sampling techniques especially for random sampling.

3.6 Research instruments

The research was used questionnaires as its major instrument for gathering data. The collection of data from end to end tool has been directed by the nature of the data to be collected, the time obtainable and by the objectives of the study. Questionnaires will be used while the study is concerned with variables that cannot be straight observed for example views, opinions, perceptions and feelings of the respondents such information are best composed through questionnaires.

The targeted population is also largely educated and is doubtful to have difficulties responding to questionnaire items.

Data is gathered from respondents in Hargeisa, Somaliland. **Secondary data** is being obtained from the text books and the internet.
3.7 Validity and Reliability
The questionnaire was pre-tested to a selected sample of respondents in the state. These respondents were not part of the actual sample. Pre-testing helps in establishing the reliability of the instruments by comparing the responses of the respondents for the same items. The items that elicited responses that had wide variations among the respondents were improved so as to enhance their reliability. On the other hand, items whose responses were almost similar were retained without making further changes.

3.8 Data gathering procedure
The research movement of this study is started right away when a preliminary letter is secured from the Faculty of Science and technology of Hargeisa university. Afterward, copies of the letter are used to begin with the researcher to the respondents. The researcher have to introduce himself to the respondents and due their acceptance; collecting for the research started. After getting the questionnaire back, the researcher started analyzing.

3.9 Data Analysis
The research is using analyses through tables, charts, computer packages and percentages to analyze by using SPSS program, the different parts of the questionnaires, those questionnaires is based on the specific objectives or the research questions.

3.10 Ethical Consideration
The main ethical consideration of this research is the solitude and the privacy of the respondents. Getting a suitable sample requires gaining access to exact lists and files which itself is a violation on the privacy and the confidentiality of the respondents. However the respondents have the choice to ignore stuff that they do not wish to respond to. Due to the nature of this study confidentiality, tolerant principle and individualism is known due to consideration in addition any other form of secrecy among respondents is attended to.
Chapter four

4.0 Data analysis

The questionnaire which were the tool of data collection of the research project. I collected and checked the information after I have scattered individual questionnaires and I have analyzed what the respondents answered.

56 (42%) of the respondent ages were 20-30 and 27(36%) were 30-40 while 6(22%) where 30-40

Source: Primary Data
51 respondents (68%) were female while the others 24 were male 32%.
Source: Primary Data

31 of the respondents 41.3% were a university level and 38 respondents 50.7% were degree level while 6 of the respondents 8% were master’s degree.
Source: Primary Data
Marital status of respondents 60% was single while the others 40% were married.
Source: Primary Data

Most of the respondents 96% replied that they know abortion while 4% replied that they don’t know abortion.
Source: Primary Data
34.7% of the respondents replied that abortion in Somaliland is high and 60% answered middle while 5.3 replied that abortion in Somaliland is low.

Source: Primary Data

52% of the respondents answered agree, 41.3% of respondents responded strongly agree and 5.3% disagree while 1.3% of the respondents replied strongly disagree.

Source: Primary Data
86.7% of respondents responded that ignorance can lead to abortion while 13.3% told that ignorance can’t lead to abortion.

Source: Primary Data

44% of the respondents answered agree and 54.7 of the respondents responded strongly agree while 1.3% of respondents replied with no.

Source: Primary Data
69.3% of the respondents answered that the risks of abortion increases with maternal age while 30.7% of respondents the risk of abortion does not increase with maternal age.

Source: Primary Data

62.7% of respondents told that abortion in first trimester is safer than other two trimesters and 30.7% responded strongly agree while 6.7% respondents responded disagree.

Source: Primary Data
49.3% of the respondents responded that one of the symptoms of abortion is bleeding. Another 66.7% answered abdomen and pelvic pain. 12% answered back pain. The remaining 21.3 replied uterine contraction as a symptom of abortion.

Source: Primary Data

46.7% of the respondents told they will give an iv infusion if they see women who had abortion and 20% of the respondents told that they will provide bed arrest for her while 33.3% of the respondents told that they will give her antipain.

Source: Primary Data
81.3% of the respondents answered alcohol can lead to abortion and told that the alcohol will result in the fetus to born with congenital disorders, to become mentally retarded, and can cause the death of the fetus which may lead to abortion.

Source: Primary Data
Steps to reduce abortion or miscarrying again are: 1.3% of respondents answered avoid exposure to infectious diseases such as Lyme disease, toxoplasmosis (contact with cat litter boxes, eating raw meat) and cytomegalovirus.

Another 2.7% of respondents answered if you have had several miscarriages, have yourself checked for the possibility that there are anatomic abnormalities in your uterus or other reproductive organs.

4% answered make sure your environment and your workplace are safe. Make sure the air you breathe and the materials you work with are not harmful to either you or your future fetus.

The remaining 92% answered all.

Source: Primary Data
Majority of the respondents 53% answered that we could prevent abortion in early and routine checking were 26.7% of the respondents answered that we could prevent in having a good diet while 20% of the respondents responded avoid carrying heavy things in order to not get abortion.

Source: Primary Data

Most of the respondents 50.7% agree that treatment of abortion can be operational and non operational were 36% answered with agree while 13.3% of respondents disagree

Source: Primary Data
Chapter five

Conclusion and recommendation

5.1 Conclusion

The word abortion derives from the Latin-aboriri-meaning to miscarry; an abortion is the medical process of ending a pregnancy so it does not result in the birth of a baby. Any interruption of human pregnancy prior to the 28th weeks is known as abortion.

Abortion is one of the abundant abnormal pregnancies in Somaliland community, which is caused by a lot of things. As I find my results of questionnaire the major causes of abortion in Somaliland including chromosomal anomalies, maternal infections such as toxoplasma gondii, endocrine causes, drugs and environmental causes.

Abortion is said to threaten when any bleeding, usually painless, occurs before the 24th week. It may be impossible to distinguish it from partial shedding of the deciduas at the time of a missed period which can occur up to 12 weeks.

In complete abortion, after passage of all the products of conception, the uterine contractions and bleeding abate, the cervix closes, and the uterus is smaller than the period of amenorrhea would suggest. In addition, the symptoms of pregnancy are no longer present, and the pregnancy test becomes negative. Evacuation of the uterus usually not necessary.

Incomplete Abortion if Pregnancy is Greater than 16 Weeks Incomplete Abortion In addition to passage of products of conception, often described by the women as looking like pieces of skin or liver.
Vaginal bleeding, cramp-like pain, and cervical dilatation, an incomplete abortion involves the passage of products of conception, often described by the women as looking like pieces of skin or liver.

The term missed abortion is used when the fetus has died but is retained in the uterus, usually for some weeks. After 16 weeks’ gestation, dilatation and curettage may become a problem.

Fibrinogen levels should be checked weekly until the fetus and placenta are expelled. Inevitable abortion the bleeding may still be slight but uterine contractions have started to dilate the cervix. This can be detected on vaginal examination.

Cervical abortion: is a variety of inevitable abortion in which the products of conception has been separated from the uterine cavity but retained in the cervical canal causing its distension. Prevention, early detection and treatment of pregnancy related complications as Pre-eclampsia, eclampsia and haemorrhage.

Prevention, early detection and treatment of medical disorders as anemia and diabetes. Instruct the pregnant woman about hygiene, diet and warning symptoms. Laboratory studies of parameters may affect the foetus as blood group, Rh typing, toxoplasmosis and syphilis.

Treatment of abortion is surgical and medical. Conditions such as hormonal imbalance, infectious of the uterus and chronic constipation can be remedied by natural methods of treatment. For congenital uterine malformation, however recourse may have to be taken to surgery.
5.2 Recommendation

The research paper recommends for the following points:

- To increase the outcome of gynecology professionals.
- Establishment of well equipped gynecology hospitals.
- The decision to have an abortion should be motivated by more than one factor.
- To give a good care and treatment for women’s who get abortion.
- To quickly diagnose for the patients and make counseling and also examine their situation.
- Abortion is difficult to prevent, because of limits to women's ability to determine and control all circumstances of their lives.
- Abortion is not just a physical thing but a very emotional thing as well so women should be informed before doing it.
- When pregnancy occurs as a result of rape women have the right to do abortion.
- Somaliland government must support the patients who get abortion at the side of finance because of there are a lot of women’s that are not financial good and need a help.
- Establishment of a viable committee standing for monitoring and evaluation for the eventual prevention, control of the spread and elimination of abortion in Somaliland.
Appendix

University of Hargeisa

Faculty of science and technology

Department of Biomedical

Questionnaire about factors cause for abortion and their management

My name is Mona Ahmed Ibrahim, I am a senior student on her last year of bachelor degree of Science at the University of Hargeisa, and for my final project I am examining the above mentioned topic. I therefore, request you to kindly spare some of your valuable time to fill in the enclosed questionnaire to provide me the needed information. The data provided by you will be used for research purpose only and will remain confidential.

Thank you for being kind, and for the participants of the present study, I am extremely grateful for you devoting your precious time to participate in my research.

Questionnaire

Full name: ________________________________

1. Age:

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<th>40-50</th>
<th>&gt;50</th>
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<tr>
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2. Sex:

<p>| | |</p>
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3. Educational background

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4. Relation

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<tr>
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</thead>
<tbody>
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</tbody>
</table>

5. Do you know abortion?

Yes [ ] No [ ]

6. How does Abortion in Somaliland?

High [ ] Middle [ ] Low [ ]

7. Hemorrhage and sepsis are major causes of abortion related deaths

Agree [ ] strongly agree [ ] Disagree [ ] strongly disagree [ ]

8. Do you think ignorance can lead to abortion?

Yes [ ] No [ ]

9. Unsafe methods of induced abortion, especially traditional methods, can result in serious injuries and death to women

Agree [ ] Strongly agree [ ] Disagree [ ] strongly disagree [ ]

10. Do you think that the risks of Abortion increase with maternal age?

Yes [ ] No [ ]

11. Abortion is safer in the first trimester than the other two trimesters and will not result in the death of the mother

Agree [ ] Strongly agree [ ] Disagree [ ] strongly disagree [ ]
12. What are the symptoms of abortion?
.................................................................................................................................
.................................................................................................................................
13. If you see women who had abortion what can of management would you provide to her?
.................................................................................................................................
.................................................................................................................................
14. Do you believe alcohol can lead abortion?
   Yes  [ ]  No  [ ]
   If yes briefly explain what effect will do to the fetus
.................................................................................................................................
.................................................................................................................................
15. Steps to reduce abortion or miscarrying again
   A) Avoid exposure to infectious diseases such as Lyme disease, toxoplasmosis (contact
      with cat litter boxes, eating raw meat) and cytomegalovirus.
   B) If you have had several miscarriages, have yourself checked for the possibility that
      there are anatomic abnormalities in your uterus or other reproductive organs.
   C) Make sure your environment and your workplace are safe. Make sure the air you
      breathe and the materials you work with are not harmful to either you or your future fetus.
   D) All
16. How could we prevent abortion?
.................................................................................................................................
.................................................................................................................................
17. Treatment of abortion can be operational and non operational?
   Agree  [ ]  Strongly agree  [ ]  Disagree  [ ]  strongly disagree  [ ]
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