



INTERNATIONAL MISCARRIAGE RATES: A COMPREHENSIVE OVERVIEW OF PREVALENCE AND CAUSES

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ABSTRACT

Purpose: This research and analysis seek to determine the frequency and total number of miscarriages among women of reproductive age over a span of six years in MBAL "NiaMed", locally and globally.

Material/Methods: In an observational study, researchers collected data from scientific articles and workplace sources to investigate miscarriages. The study concentrated on women of reproductive age who had experienced pregnancy-related issues, with all information derived from scientific literature and medical records.

Results: Both locally and globally, the incidence of spontaneous abortions remains high despite advances in medical prophylaxis and prevention of reproductive failures. The rates per 1,000 women are 53.7 in Russia, 33 in Mexico, and 11.9 in Bulgaria. This is compared with the local incidence at MBAL "NiaMed" among women who have had two or more miscarriages.

Conclusion: Miscarriages represent a major global health concern, impacting millions of women annually. Identifying risk factors and implementing effective interventions can decrease miscarriage rates and enhance pregnancy outcomes. Essential components of a comprehensive strategy to tackle this issue include public health initiatives, better access to healthcare services, and ongoing research into potential treatments.

Keywords: miscarriage, pregnancy losses, prevalence, global incidence, challenges,

INTRODUCTION

Spontaneous miscarriages, also referred to as spontaneous abortions or pregnancy losses, are distressing and painful experience for many prospective parents. These miscarriages occur without apparent cause or intervention, often leaving couples feeling bewildered, desolate, and overwhelmed. In this article, we delve into the various factors contributing to spontaneous miscarriages, the different types of miscarriages, and the emotional impact on those affected. Furthermore, we discuss the available support systems and resources for individuals coping with the loss of a pregnancy. [1]

Spontaneous miscarriages are prevalent, with approximately 10-25% of recognized pregnancies ending in miscarriage. This common occurrence, however, does not diminish the emotional toll it takes on affected individuals and their families. Numerous factors may increase the risk of experiencing a spontaneous miscarriage, including: [2]

Chromosomal abnormalities: One of the primary causes of spontaneous miscarriages is chromosomal abnormalities in the developing fetus, resulting from errors in cell division or incorrect genetic material transfer during fertilization. In many instances, these abnormalities are non-survivable, prompting the body to terminate the pregnancy naturally.

Hormonal issues: Problems with hormones, such as insufficient progesterone levels, can hinder the proper nourishment and support of the growing embryo by the uterine lining, often leading to a miscarriage, particularly during the early stages of pregnancy. [3]

Lifestyle factors: Certain lifestyle choices, including smoking, excessive alcohol consumption, and drug use, can heighten the risk of miscarriage by harming the developing fetus and disrupting its growth. Additionally, obesity and underweight status have been linked to an increased likelihood of pregnancy loss.

Medical conditions: Conditions such as diabetes, thyroid disorders, autoimmune diseases, and specific infections can raise the chances of a spontaneous miscarriage.

Environmental factors: Exposure to certain environmental elements, such as radiation, chemicals, and heavy metals, can pose risks to the developing fetus and poten-

tially result in a miscarriage. [4]

There are three primary types of spontaneous miscarriages: [5]

Threatened miscarriage (missed abortion): Also known as a silent miscarriage, a threatened miscarriage occurs when the pregnancy sac is empty or contains no signs of a developing embryo. This type of miscarriage typically happens early in pregnancy and may be accompanied by mild cramping and vaginal bleeding.

Incomplete miscarriage: In an incomplete miscarriage, part of the fetus or placenta remains within the uterus following the miscarriage, resulting in ongoing pain, cramping, and vaginal bleeding.

Complete miscarriage: A complete miscarriage involves the entire fetus and placenta being expelled from the uterus. This type of miscarriage commonly occurs later in pregnancy and is often characterized by strong cramping and bleeding.

The emotional consequences of a spontaneous miscarriage can be profound, affecting all aspects of an individual's life. [6] Common emotions experienced by those who have suffered a miscarriage include:

Grief: The loss of a baby, regardless of the stage of pregnancy, can trigger intense feelings of sadness, loss, and grief.

Guilt: Many individuals feel guilty for believing they were responsible or could have prevented the miscarriage. This guilt can be particularly challenging to cope with, as there is often nothing that could have been done to prevent the miscarriage.

Anger: Feelings of anger and frustration are common, as individuals may struggle to understand why this happened to them. They may also feel angry at themselves, their partners, or even healthcare providers for not being able to save the pregnancy.

Isolation: The emotional pain associated with a miscarriage can lead to feelings of isolation, as individuals may feel like no one understands what they are going through.

Fear: After experiencing a miscarriage, many individuals fear that it may happen again, which can make future pregnancies anxious and stressful.

Support systems and resources are vital for individuals and couples dealing with the loss of a pregnancy. Some valuable resources include:

Support groups: Participating in a support group for individuals who have experienced miscarriages can provide a safe space for sharing experiences, coping strategies, and emotional support. [7]

Counseling and therapy: Seeking professional help from a counselor or therapist can assist in processing emotions and navigating the grieving process. [8]

Online communities: Numerous online forums and communities offer opportunities for connecting with others who have experienced similar losses and sharing advice and experiences.

Healthcare providers: Open communication with

healthcare providers can help individuals better comprehend the reasons behind the miscarriage and discuss potential treatments or preventative measures for future pregnancies. [9]

In summary, spontaneous miscarriages are a complex and emotionally taxing experience for many expectant parents. Understanding the various contributing factors, types of miscarriages, and emotional impacts can aid individuals and couples in navigating this challenging time. Seeking support from friends, family, support groups, and healthcare providers can also play a crucial role in healing and recovery. [10]

PURPOSE:

This research and analysis seek to determine the frequency and total number of miscarriages among women of reproductive age over a span of six years in MBAL "NiaMed", locally and globally.

MATERIALS/METHODS:

In this observational study, researchers collected data from scientific literature and medical records, along with workplace sources, to delve into the phenomenon of miscarriages. Their focus was on women of reproductive age who had encountered issues related to pregnancy. By meticulously charting yearly data, the researchers unveiled the monthly incidence of miscarriages among these women, uncovering intriguing patterns and trends.

The study participants had varied experiences; some grappled with their first miscarriage, while others endured recurrent losses. These diverse encounters provided valuable insights into potential contributing factors to miscarriage incidence.

While the study didn't pinpoint specific causes, it offered crucial information regarding the prevalence of miscarriages. This broader understanding allows researchers to now delve deeper into factors that may influence miscarriage risk. Consequently, this study acts as a foundational step for further investigations in this critical realm of women's health.

RESULTS:

In an observational study, researchers gathered data from scientific articles and workplace sources to explore miscarriages. The study focused on women of reproductive age who had encountered pregnancy-related issues. All information was sourced from scientific literature and medical records.

The study team meticulously charted the yearly data, highlighting the monthly incidence of miscarriages among women. This visual representation revealed intriguing patterns and trends. Notably, participants had varying experiences—some faced their first miscarriage, while others coped with recurrent losses. These diverse encounters offer valuable insights into potential contributing factors.

Although the study didn't delve into specific

causes, it provided essential information about miscarriage prevalence. By understanding the broader landscape, researchers can now explore factors that may influence miscarriage risk. This study serves as a stepping stone for further investigations in this critical area of women's health.

1. Prevalence and Risk Factors

1.1 Global Incidence

- Annually, 23 million miscarriages occur worldwide, translating to roughly 44 per minute. [2]
- Stillbirths account for nearly 2 million babies each year, with many of these cases being preventable. [11]

1.2 Risk Factors

- Factors such as increasing maternal and paternal age, higher body mass index, and ethnicity (particularly Black ethnicity) contribute to higher miscarriage rates.
- Lifestyle choices, including alcohol consumption, smoking, and exposure to air pollution, also play a role in pregnancy loss. [12]

2. Challenges and Stigma

2.1 Silence and Shame

- Despite its prevalence, miscarriage remains a topic associated with stigma and guilt.
- Societal expectations often lead women to suffer in silence, hindering open discussions about grief and loss.

2.2 Cultural Perspectives

- Cultural beliefs significantly influence how miscarriage is perceived globally.
- In sub-Saharan Africa, stillbirths are sometimes attributed to witchcraft or malevolent spirits.
- Stigma persists, affecting emotional well-being and access to support. [13]

3. Urgent Reforms Needed

3.1 Addressing Healthcare Disparities

- Access to healthcare services varies widely across countries.
- Under-resourced and understaffed healthcare facilities pose challenges in providing quality care for women experiencing pregnancy loss.

3.2 Mental Health Considerations

- Miscarriage can have long-lasting effects on mental health.
- Comprehensive care and emotional support are crucial for recovery.

4. Insights from Specific Countries

4.1 United States

- Total Abortions in 2020: A total of 620,327 abortions were reported to the Centers for Disease Control and Prevention (CDC) from 49 reporting areas in the U.S. Among the 48 reporting areas with consistent data from 2011 to 2020, 615,911 abortions occurred in 2020. [12]

Abortion Rate: The abortion rate in 2020 was 11.2 abortions per 1,000 women aged 15–44 years¹.

Abortion Ratio: The abortion ratio (number of abor-

tions per 1,000 live births) was 198 abortions per 1,000 live births in 2020. [12]

Age Groups: Women in their 20s accounted for more than half of all abortions (57.2%). Specifically:

Women aged 20–24 and 25–29 years had the highest percentages of abortions (27.9% and 29.3%, respectively). [14]

Adolescents aged <15 years and women aged 40 years had the lowest percentages of abortions¹.

Trends: From 2011 to 2020: [14]

The total number of reported abortions decreased by 15%.

The abortion rate decreased by 18%.

The abortion ratio decreased by 9%¹.

Recent Changes: From 2019 to 2020: [14]

The total number of abortions decreased by 2%.

The abortion rate decreased by 2%.

The abortion ratio increased by 2%¹.

• Understanding Spontaneous Abortion (Miscarriage) in the U.S - A Concise Overview

Spontaneous abortion, commonly known as miscarriage, occurs when a pregnancy ends before 20 weeks of gestation. Approximately 10 to 15% of confirmed pregnancies result in miscarriage, with most occurring during the first trimester. However, miscarriages can happen at any stage of pregnancy.

• Most common causes and factors

Chromosomal Abnormalities: Early miscarriages often occur due to chromosomal issues in the developing fetus.

Maternal Reproductive Tract Conditions: Abnormalities like bicornuate uterus, fibroids, and adhesions may contribute to pregnancy loss.

Viral Infections: Certain viruses (such as cytomegalovirus, herpesvirus, and rubella) can lead to isolated miscarriages.

Other Influences: Immunologic factors, physical trauma, and unknown causes also play a role.

• Risk Factors

Several factors increase the risk of spontaneous abortion:

Maternal Age: Extreme maternal age (both young and older) is associated with higher miscarriage risk.

History of Previous Miscarriages: Women with a history of miscarriages are more likely to experience another.

Lifestyle Factors: Smoking, substance use, and poorly controlled chronic diseases contribute to pregnancy loss.

Legal Landscape: While federal laws do not criminalize abortion, individual states have varying regulations.

Spontaneous abortion remains a complex topic. Advances in reproductive medicine and ongoing advocacy efforts aim to improve support and access for women facing pregnancy loss.

4.2 Russia

Spontaneous abortions, commonly known as miscarriages, have significant implications for maternal health and reproductive rights. Recent developments in Russia indicate a shifting landscape concerning abortion policies. In this article, we explore the prevalence, legal framework, and societal perspectives on spontaneous abortions.

Health Ministry data reveals that the number of abortions in Russia decreased by 3.9% (16,213 cases) from 2021 to 2022 [16]. While this decline suggests progress, it is essential to consider the broader context. Nearly a third of Russian women report having undergone an abortion [17]. In 2022 alone, over 500,000 pregnancies were terminated, compared to 1.3 million live births in the country [17]. These statistics underscore the persistent demand for abortion services.

Under current Russian law, women can obtain an abortion on request up to the 12th week of pregnancy. In exceptional cases, such as rape, spousal death during pregnancy, or imprisonment, abortions may be obtained up to the 22nd week [16]. De facto, Russia's abortion system remains progressive compared to many other countries, allowing women significant autonomy in their reproductive choices.

Despite historically liberal abortion policies, Russia is witnessing a conservative shift. The Russian Orthodox Church, along with the country's leadership, advocates for a defense of "traditional Christian values." Health Minister Mikhail Murashko has publicly supported initiatives to limit the distribution of abortion-inducing drugs and restrict privately owned medical facilities from administering abortion procedures. These moves reflect a growing tension between reproductive rights and religious conservatism. [16]

Medication abortion considered the safest method for terminating a pregnancy, is primarily available in privately run clinics across most Russian regions. However, the proposed restrictions on abortion-inducing drugs appear contradictory. While the government aims to reduce abortion rates, limiting access to medication abortion may not align with this goal. Advocates emphasize the importance of expressing public opinion on these matters. [16]

- Russia faces reproductive health challenges, evident in its high abortion rate (53.7 per 1,000 women). [17]

4.3 Mexico

In a historic ruling on September 6, 2023, Mexico's Supreme Court declared that all federal criminal penalties for abortion are unconstitutional. As a result, abortion has been removed from the federal penal code, allowing access to the procedure through federal health institutions. However, it's important to note that while the federal level has decriminalized abortion, 20 Mexican states still criminalize it. Advocates continue their state-by-state efforts to expand abortion access. The ruling has sparked both celebration and controversy, emphasizing the need to protect women's rights. Approximately 200

women remain imprisoned in Mexico under outdated anti-abortion state laws despite the Supreme Court's earlier decriminalization ruling. In summary, Mexico's journey toward comprehensive abortion access involves ongoing state-level efforts, but the recent Supreme Court decision is a significant milestone in advancing reproductive rights and gender equality. [19] [20]

- Mexico has the lowest abortion rate (0.1), highlighting the need for comprehensive sexual and reproductive health services. [17]

4.4 Bulgaria

- The average annual miscarriage rate in Bulgaria is 11.3%. (11.90 per 1,000 women)

- Bulgaria faces unique challenges concerning miscarriages.

- Approximately half of all pregnancies end in miscarriage [20]

- Infectious agents, such as bacterial and viral pathogens, have been implicated in pregnancy loss. [20]

- Chlamydia trachomatis, a common sexually transmitted infection, has been associated with an increased risk of miscarriage in Bulgarian women. [21]

- Public health efforts should focus on preventing and managing infections to reduce miscarriage rates. [22]

- Recent Statistics: Just in the first three months of 2019, 5,800 abortions were performed in Bulgaria. Sofia and Plovdiv are among the cities with the highest abortion rates in the country.

4.5 Niamed Hospital, Bulgaria - Stara Zagora

Spontaneous abortions, commonly known as miscarriages, are emotionally distressing events for patients and their families. Understanding the patterns and prevalence of spontaneous abortions is crucial for improving patient care and outcomes. In this article, we delve into the data collected at Hospital "Nia Med" in Bulgaria over a six-year period (2017-2022). (Fig.1 – Fig. 6)

Fig. 1. Spontaneous abortions 2017 - Total patients: 25

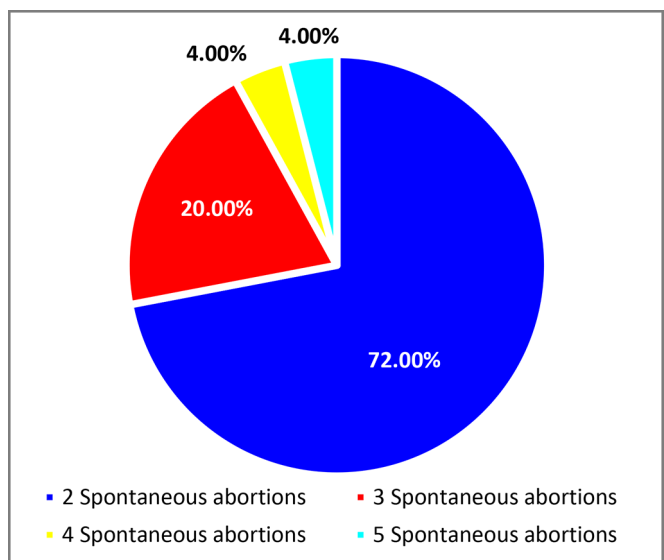


Fig. 2. Spontaneous abortions 2018 - Total patients:

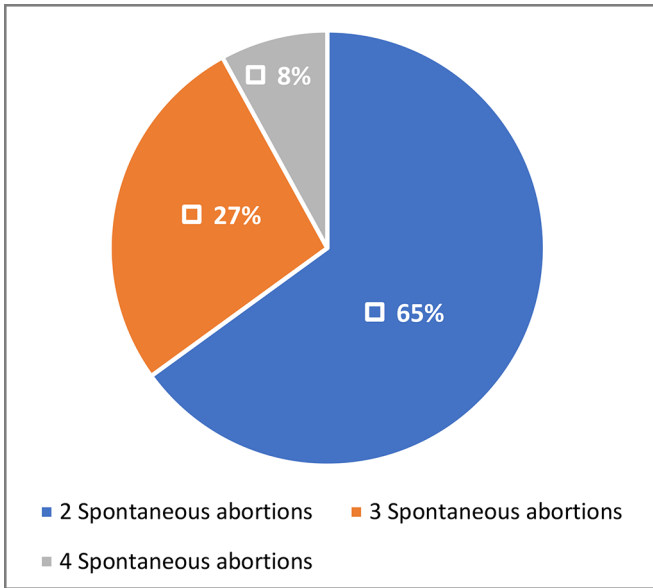


Fig. 4. Spontaneous abortions 2020 - Total patients:

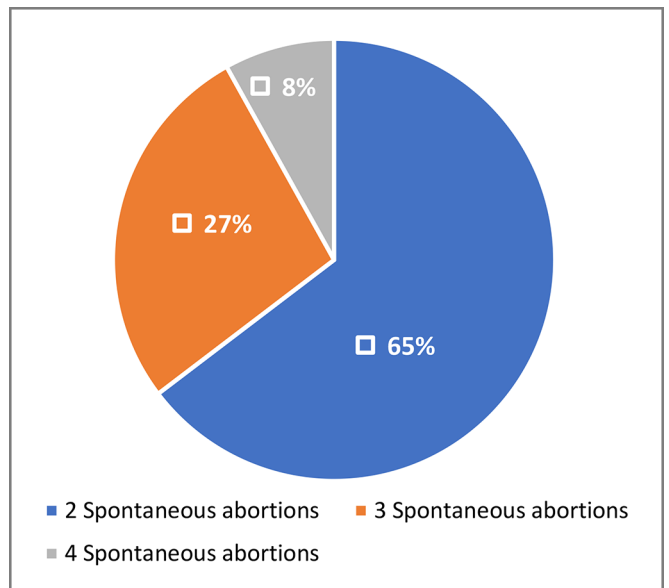


Fig. 3. Spontaneous abortions 2019 - Total patients:

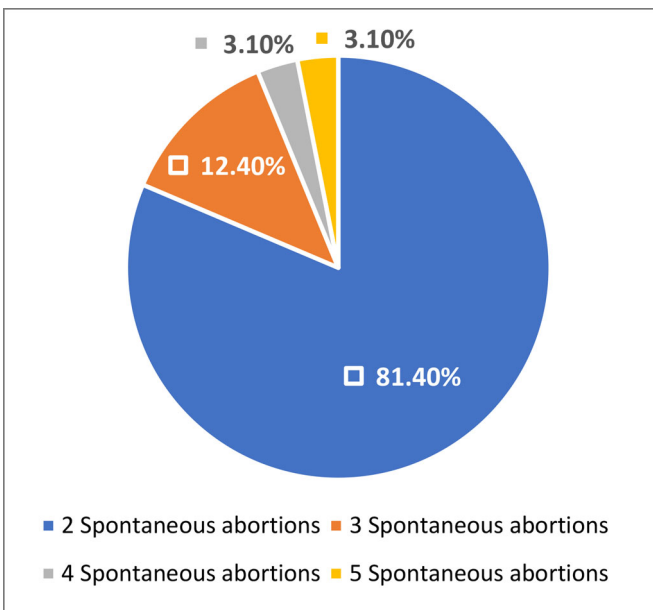


Fig. 5. Spontaneous abortions 2021 - Total patients:

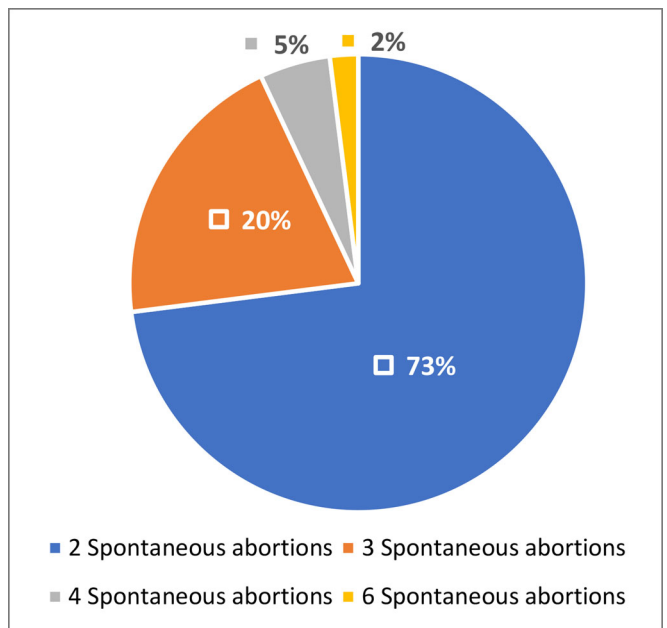
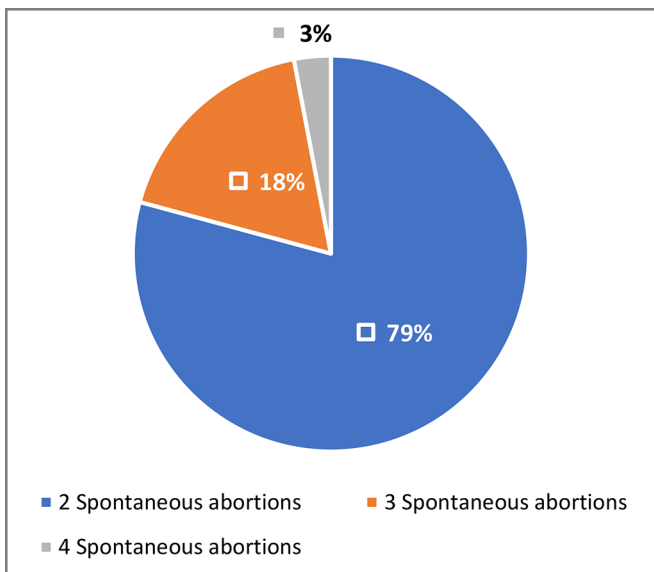


Fig. 6. Spontaneous abortions 2022 - Total patients:

DISCUSSION

Miscarriages are a common occurrence worldwide, affecting an estimated 10-25% of known pregnancies. Despite their prevalence, miscarriages remain a sensitive and often misunderstood topic. This discussion aims to provide an overview of the global prevalence of miscarriages, risk factors, and potential interventions to reduce the incidence of miscarriages.

Prevalence:

Miscarriages can occur at any stage of pregnancy, but they are most common during the first trimester (approximately 80-90%). The global prevalence of miscarriages varies depending on the population studied and the method of data collection. A systematic review conducted by the World Health Organization (WHO) in 2018 found that the overall prevalence of spontaneous abortion was 16.1% (95% confidence interval: 14.7-17.5%) among women who had at least one pregnancy. However, this number may be underestimated due to limited access to healthcare services and lack of reporting in some regions.

Risk Factors:

Several factors have been identified as increasing the risk of miscarriage, including maternal age, lifestyle factors, medical conditions, and environmental exposures. Advanced maternal age (35 years or older) is a significant risk factor for miscarriage, with the risk increasing steadily after the age of 35. Other modifiable risk factors in-

clude smoking, alcohol consumption, obesity, and poor nutrition. Certain medical conditions, such as diabetes, thyroid disorders, and uterine abnormalities, can also increase the risk of miscarriage. Additionally, exposure to certain environmental factors, such as radiation, heavy metals, and certain chemicals, has been associated with an increased risk of miscarriage.

Interventions:

Reducing the incidence of miscarriages requires a multifaceted approach, including public health interventions, improved access to healthcare services, and research into potential treatments. One key intervention is improving access to preconception care, which can identify and address modifiable risk factors before conception occurs. This includes counseling on healthy lifestyle choices, management of existing medical conditions, and vaccination against infections that can cause miscarriage, such as rubella and cytomegalovirus.

Another important intervention is the early detection and management of complications during pregnancy. Regular prenatal care, including ultrasound monitoring and biochemical screening, can help identify high-risk pregnancies and initiate appropriate treatment promptly. This may include medications to prevent premature labor, bed rest to reduce stress on the uterus, or hospitalization for close monitoring.

Research into potential treatments for recurrent miscarriage is ongoing, with some promising developments in recent years. For example, thrombophilia, a condition characterized by an increased tendency for blood clotting, has been identified as a risk factor for recurrent miscarriage. Treatment options for thrombophilia include anticoagulant medications, such as heparin and warfarin, which can help prevent blood clots from forming and improve pregnancy outcomes. Additionally, research into the use of progesterone supplementation, stem cell therapy, and immunotherapy for preventing miscarriage shows promise but requires further investigation.

CONCLUSION

Miscarriages are a significant global health issue, affecting millions of women each year. Understanding the risk factors and implementing effective interventions can help reduce the incidence of miscarriages and improve pregnancy outcomes. Public health initiatives, improved access to healthcare services, and continued research into potential treatments are essential components of a comprehensive strategy to address this important issue.

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