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STUDY OF SUBCHORIONIC HAEMORRHAGE AND ITS OUTCOME IN PREGNANCY

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ABSTRACT -

The purpose of this research is to evaluate neonatal, immunological, and maternal outcomes related to subchorionic haemorrhage (SCH) during pregnancy and to investigate the impact of presentation timing throughout trimesters on pregnancy outcomes. An observational study was undertaken in a hospital setting with 105 pregnant women diagnosed with subchorionic haemorrhage. Maternal socio-demographic attributes, obstetric history, pregnancy trimester, body mass index, and gestational age upon presentation are noted. Immunological and coagulation indicators were evaluated to investigate their correlation with vaginal haemorrhage. Maternal outcomes, including preterm birth, rupture of the membranes, hypertensive disorders, miscarriage, and delivery technique, have been examined. Birth weight, Apgar scores, as well as NICU hospitalisation, were among the neonatal outcomes that have been assessed. The results revealed that SCH is more common among multigravida women and women who are pregnant during the early to mid-pregnancy stage. The results on maternal health revealed high incidences of adverse effects such as miscarriages, hypertension, premature births, and a high incidence of C-section deliveries. Immunological markers indicated minimal autoimmune positivity, suggesting a reduced role for immune-mediated processes. Neonatal outcomes are predominantly positive, although a subgroup of neonates necessitated specialised care. The study suggests that subchorionic haemorrhage correlates with heightened maternal and neonatal risk. Pregnancy outcomes vary according to the trimester in which they occur. Timely detection and trimester-specific surveillance may significantly enhance maternal and newborn outcomes in pregnancies complicated by subclinical hypothyroidism (SCH).

KEYWORDS: Subchorionic haemorrhage; Pregnancy outcomes; Ultrasonography; Maternal complications; Neonatal outcomes**.**

1. INTRODUCTION

Subchorionic haemorrhage (SCH) occurs when the decidua basalis and chorion break apart and haemorrhage, leading to a collection of blood between the two structures. A crescent-shaped, hypoechoic / anechoic area between the gestational sac as well as the uterus may be seen on ultrasonography as SCH. They are believed to be caused by the chorionic membrane's partial separation from the uterine wall (Leite et al., 2006) (Maso et al., 2005) Between 0.46 and 39.5% of people have SCH. In (Qin et al., 2022) The population being diagnosed, ultrasound technology, and the weeks of pregnancy at which it is discovered are the main causes of the notable variations in its clinical incidence. While some early-pregnancy SCH patients don't exhibit any symptoms, when an abortion is threatened, they frequently do exhibit symptoms including lower stomach pain or vaginal bleeding. Despite being somewhat prevalent, there is ongoing debate on the precise aetiology and clinical importance of SCH.

On the other hand, there have been many research works focused on SCH in the past years. Some of them show that the existence of prethrombotic states and abnormal maternal immunity is related to the development of SCH. However, other studies prove that SCH leads to unfavourable results, such as spontaneous abortion, premature birth, and premature rupture of membranes. For instance, Li Y & Alijotas J et al. state that the rate of positivity in autoantibodies like ANA and ACL is higher in the SCH group than in healthy pregnant women (Tuuli et al., 2011)(Elmas et al., 2023). Several studies have shown the effects of SCH, wherein preterm birth, miscarriage, and spontaneous rupture of the membranes are prevalent. The precise cause of SCH is yet unknown. There are studies indicating that women with an impaired immune system might serve as the root cause of SCH, other than being its result. This study has been conducted to explore the causes of adverse pregnancy outcomes through the immunological perspective and the development of novel treatment strategies for clinical SCH.

1.1 Definition of Subchorionic Haemorrhage

A Subchorionic Haemorrhage happens when the chorionic membranes separate from the decidua basalis, causing bleeding that gets trapped between the chorion, which is the outer membrane of the fetus, and the uterine wall (Al-Memar et al., 2020). The formation of haematomas occurs due to the presence of blood in the separation region. One of the most frequently occurring sonographic findings in early pregnancy is the SCH, which is seen as either a crescent shape or hypoechoic/anechoic zone separating the uterine wall from the gestational sac. Incidences of SCH in pregnancies vary significantly between 0.46% and 39.5%. The variations might be due to differences in sample populations, diagnostic

techniques, and time periods of sonography tests. Increasingly, smaller subclinical SCHs that might have gone undetected in the past are being found thanks to early and high-resolution ultrasonography. Women of advanced maternal age, those with a history of repeated pregnancy loss, and pregnancies arising from assisted reproductive technologies are more likely to experience SCH (Gu et al., 2023).

'Figure 1 Subchorionic Haemorrhage with Blood Pooling Between the Chorionic Membrane and Uterine Wall.'

Figure 1 depicts a SCH, this occurs when the decidua basalis and chorionic membranes partly split, leading to a pooling of blood between the uterine wall as well as the chorionic membrane. A clear region, formed by the collected blood, is next to the gestational sac, when the haematoma is located. In the first trimester of pregnancy, this condition is among the most common sonographic findings. SCH may resolve on its own without harming pregnancy, or it may be linked to difficulties like miscarriage, intrauterine growth restriction (IUGR), or preterm delivery, depending on its location and size.

SCH pathophysiology is not completely understood. The partial detachment of the chorionic villi is considered as the secondary factor behind the bleeding, which is caused by the rupture of the blood vessels of the mother that separate the chorionic tissue from the decidua. Trophoblasts can further worsen this condition due to their invasion into the maternal arteries (Loverro et al., 2022). Apart from the aforementioned factors, females can also be at risk of developing SCH due to the existence of thrombophilia, coagulopathy, and hypertension. In addition, immunological disorders, including autoantibodies, such as anti-nuclear antibodies and anti-cardiolipin antibodies, have been recently established as a potential cause of SCH (Tourkochristou et al., 2021). From the clinical point of view, the main cause of vaginal bleeding in early pregnancy is SCH. Bleeding, abdominal pains, and pelvic pains are among the various manifestations of SCH, although many cases may not present any symptoms, thus being diagnosed accidentally using ultrasounds. The clinical outcome is greatly determined by the location and size of the hematoma, since preterm birth, intrauterine growth restriction, pregnancy loss, and premature rupture of membranes have been linked to big SCHs, which are usually retroplacentally located (Liu et al., 2020). Rather, spontaneous SCH events of a smaller size are likely to be self-limiting and not influence pregnancy outcome at all.

The importance of the prognosis of SCH in spite of the many articles is unknown. While there are researchers who claim the existence of an association between SCH and poor pregnancy outcome, there are also studies that failed to show any difference in the course of pregnancy for women with or without SCH.

1.2 Clinical Importance of Subchorionic Haemorrhage in Early Pregnancy

Subchorionic Hemorrhage (SCH) is one of the most common ultrasound findings observed early in pregnancy. Subchorionic Hematoma is among the most common reasons for vaginal bleeding in pregnant women. Studies have proven that SCH has a great potential of causing spontaneous abortion, preterm delivery, placental abruption, and premature rupture of membranes (PROM). On the other hand, some SCHs may be self-limiting, and result in healthy pregnancies (Yan et al., 2023). The high occurrence of SCH when the mother is just starting to conceive and the significant variance in prognosis based on its size, location, duration, and gestational age upon diagnosis make it clinically significant. Because of this, enhancing maternal and foetal outcomes requires early discovery and close monitoring The risk of miscarriage is the primary concern when SCH is detected during the first trimester. Comparing pregnancies with SCH to those without haematoma, numerous investigations have shown that the incidence of spontaneous abortion is almost doubled(Yan et al., 2023).

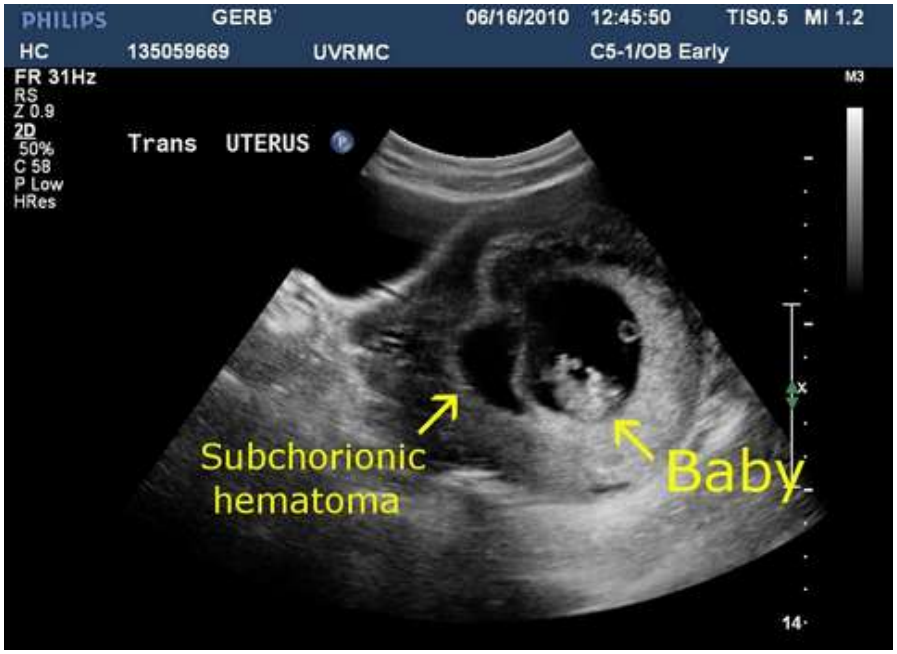


Figure 2 Ultrasound Showing Subchorionic Haemorrhage in Early Pregnancy, A Key Risk Factor for Miscarriage And Other Complications.

The ultrasound image shows an early pregnancy with a subchorionic haemorrhage (SCH) next to the gestational sac and a foetus that is plainly visible. As a result for the chorionic membranes partially separating, the SCH is a pool of blood that shows up as a hypoechoic spot near the uterine wall. This discovery is clinically significant since SCH is one for the most frequent sonographic abnormalities in the first trimester as well as is often associated with vaginal haemorrhage. SCH increases the likelihood of complications such as PROM, placental abruption, preterm birth, and miscarriage, depending on its size, location, and duration. Larger or retroplacental haematomas need careful monitoring with follow-up ultrasonography and clinical evaluation, but many minor ones go away on their own without any negative effects. This demonstrates the application of ultrasonic techniques in diagnosing and managing risks associated with SCH during early pregnancy stages.

Even after controlling for potential confounding factors like maternal age, parity, among others, larger sample sizes have consistently demonstrated that SCH diagnosed before 20 weeks of gestation is a predictor for pregnancy loss (Lou et al., 2024). The next significant factor that affects the outcome of this condition is the gestational age at which it occurs: SCH detected earlier than 7 weeks has significantly higher probabilities of leading to miscarriage when compared to those diagnosed later than this period (Naz et al., 2022).

As the example above demonstrates, it is very important for diagnosis whether the transvaginal ultrasound was made early or late when the woman is faced with high-risk pregnancy because this will allow predicting the future progression of the disease. Not only is SCH associated with miscarriages, but also it can cause complications in the course of the pregnancy. The first and foremost among such complications are premature births in the affected individuals (Yan et al., 2023). The reduced blood flow between the placenta and uterus, along with insufficient formation of placentation resulting from excessive bleeding, provides the physiological reasoning for this phenomenon. Larger volumes of bleeding could exert mechanical strain on the pregnant sac, thus preventing trophoblast infiltration and causing contraction of the uterus. Placental abruption is another complication associated with SCH. Numerous studies have confirmed that it is highly likely for placental abruption to occur in the later stages if the SCH is big, especially if the SCH is posteriorly positioned (Chen et al., 2025). However, it is evident that there is no total stoppage of maternal blood loss through this decidual-placental interface. As a consequence, the placenta can be detached gradually, putting the foetus at risk. Likewise, it has also been observed that women with SCH have an increased risk of PROM and TPROM (Fu et al., 2023). The fact that SCH has the potential of being used as a prognostic factor for complications both early and late in pregnancy rather than a physiological state becomes more evident through the correlations mentioned above.

Those factors which play a role in the prognosis include size, site, and duration of SCH. While some reports suggest that larger SCH carry a poor prognosis, others reveal that although there is a high correlation with size and placental abruption, there is no relationship with miscarriages (Pan et al., 2023). The frequency of adverse events occurring during the perinatal period, including intrauterine growth restriction, premature rupture of membranes, and early onset labor, leads to the prolonged time of the placental hematoma, especially if it lasts for weeks. Besides, the site plays an important role because retroplacental hematomas can cause more damage to the placental vascular system than other locations, which increases the risk of complications. This information emphasizes the significance of personal risk assessment when managing women with subchorionic hematoma and unpredictable outcomes. Moreover, there is now scientific data that certain hematological and immunological processes cause the occurrence and progression of subchorionic hematoma. According to some researchers, pregnant women with subchorionic hematoma have elevated titers of autoantibodies, such as antinuclear and anticardiolipin antibodies (Y. Li et al., 2021). This indicates the existence of a causality where dysfunction of the immune system increases vulnerability and makes it complicated for the effects of SCH on pregnant women. Under

this theory, besides defining SCH as the detachment of the chorion from the decidua, it is also considered a sign of certain immune and coagulation dysfunctions. This is an essential line of investigation since it allows for developing therapies including the application of immunotherapeutic and anticoagulant medications in some selected cases. A third significant element to take into consideration when discussing the issue relates to the timing of the detection of the condition. It is crucially associated with early miscarriages and poor outcomes since early bleeding leads to difficulties in the process of implanting and developing the placenta. While they still need to be monitored, SCHs discovered later in pregnancy have a higher chance of going away without causing major issues. As a result, early ultrasonography is essential for risk assessment of expectant mothers and can assist physicians in determining how frequently to perform follow-up scans and other laboratory tests.

a management standpoint, thorough counselling and monitoring are required when SCH is discovered in the early stages of pregnancy. Depending on the extent and duration of the haemorrhage, several clinicians recommend progesterone supplementation, decreased physical activity, or close sonographic monitoring, even though there are currently no established therapeutic guidelines. Although bigger randomised trials are required to prove its effectiveness, recent investigations have also suggested that dydrogesterone may lower the risk of miscarriage in pregnancies complicated with SCH. Low-dose aspirin or heparin has been suggested as a possible preventative measure for women with SCH linked to positive autoantibodies and recurrent pregnancy loss (Yu & He, 2021). It is vital that these techniques emphasize the importance of conducting haematology and immunology tests while carrying out the clinical assessment of the SCH.

1.3 Incidence and Epidemiological Significance

The subchorionic hemorrhage (or SCH) is considered the most common problem that occurs during pregnancy and can be identified by routine ultrasound or by examining the presence of vaginal bleeding during the first trimester. SCH makes up around 1% to 25% of all pregnancies; however, this percentage varies significantly from a scientific (Bondick & Fertel, 2020). There are differences that arise from variations in the diagnostic criteria, characteristics of the population studied, and the sensitivity of the techniques employed in ultrasonography. While SCH can appear or extend into later stages, it usually appears early in the first trimester. Diagnosis is crucial at this point because its presence might affect the progress and management of the pregnancy.

According to the literature, there are several maternal risk factors that predispose someone to develop SCH. According to scientific findings, advanced age, recurring miscarriage, and obstetric history have been found to put women at risk of developing SCH. Additionally, pregnant women with ART also show high rates of SCH owing to the increased monitoring of the pregnancy and routine use of ultrasound. Some other maternal risk factors for SCH include thrombophilia, hypertension, and uterine abnormalities (Wei et al., 2025). Although SCH is not uncommon, there is still controversy on its clinical importance. The more serious or long-lasting cases are linked to higher risks of miscarriage, placenta abruption, early labour, and poor fetal development, although it should be noted that most cases heal by themselves without any adverse effects. Regional differences in prevalence and complications have been seen, which emphasizes the importance of local studies.

1.3.1 Prevalence in Different Trimesters

Subchorionic Hemorrhage (SCH) is one of the most common causes of vaginal bleeding during the early stages of pregnancy. According to research, SCH has been noted to occur most frequently during the first trimester of pregnancy, but the occurrence rate varies from one trimester to another. For proper intervention measures to be made available to pregnant women, it is important to know the prevalence of SCH in each trimester (Naqvi et al., 2021).

- **First Trimester**

SCH happens during the first trimester, a period that covers up to three months of pregnancy. Research conducted in this field has led to the revelation that subchorionic hemorrhage is capable of affecting 25 percent of all women who are pregnant (Günay & Yardımcı, 2021). Diagnosis of SCH can be made during the first trimester through regular ultrasonography tests or by symptoms like cramping, abdominal pain, or vaginal spotting (Bondick & Fertel, 2020).

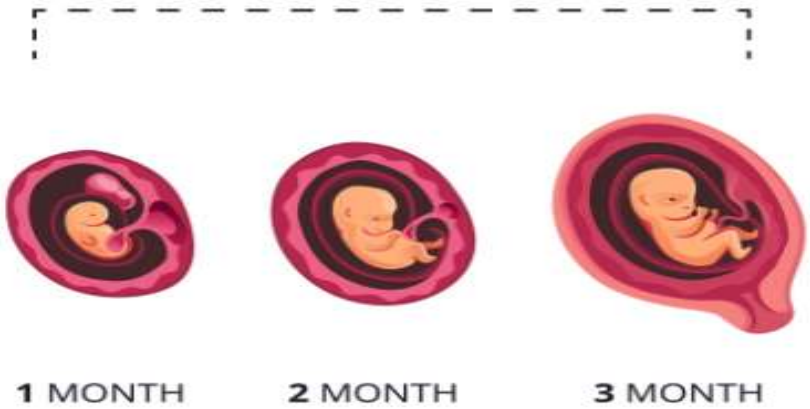


Figure 3 First Trimester

There is a lot of importance attached to the diagnosis of SCH early on in pregnancy. There is a high probability that the woman will suffer a miscarriage, especially if diagnosed before the seventh week of pregnancy (Ali & Ismail, 2021). The

likelihood of adverse effects is higher when the size of the hemorrhage is bigger and accompanied by signs of bleeding. Moreover, preterm birth and IUGR have been associated with the occurrence of SCH in pregnancy, particularly when there is an enlargement of the hemorrhage size. Studies have shown that SCH can lead to anxiety in expectant mothers (Lou et al., 2025).

1.3.2 Demographic and Regional Variations

Sub-chorionic hemorrhage (SCH) is one of the most common findings in obstetrics. Sub-chorionic hemorrhage (SCH) is a situation whereby there is bleeding occurring between the gestational sac and the uterine lining. SCH has been found to be influenced by age, parity, and geographical variables.

- **Maternal Age**

There is evidence that the likelihood of developing SCH becomes greater as mothers grow older. From past studies, it has been seen that pregnant women aged above 35 years have a higher likelihood of developing SCH than those aged lower than 35 years. One potential explanation for the higher risk of SCH among pregnant women can be associated with aging alterations that occur in placental implantation and maternal vascular system (Wei et al., 2025).

- **Parity**

Acquisition of SCH is also dependent on parity, where parity means previous pregnancies of an individual. Women who have previously been pregnant are exposed to a certain degree of risk that differs from those women who are experiencing pregnancy for the first time. According to a few researchers, the probability of acquiring SCH is higher among multiparous women because of probable alteration of the uterus due to previous pregnancy, leading to improper attachment of the placenta.

- **Geographical Factors**

SCH prevalence may differ geographically, which can be impacted by several factors, including demographic variables, diagnostic criteria, and access to healthcare facilities. Higher prevalence rates for SCH may result from an increase in the identification of SCH in regions that provide more advanced antenatal care, as well as more frequent use of prenatal ultrasounds. On the other hand, SCH may not be identified in regions where prenatal ultrasounds are uncommon.

1.4 Etiology and Pathophysiology

The development of partial separation of the chorionic membrane results in the formation of blood in the area between the uterus and the chorion, known as subchorionic haemorrhage (SCH). The causation of SCH is based on a complex etiology that incorporates elements from the placenta, fetus, and mother. Some of the maternal elements that make one prone to SCH include age, history of miscarriage, and high blood pressure (Blitz et al., 2020). IVF procedures and other fertility treatments are also recognized as risk factors, possibly due to altered implantation kinetics. The condition may also put women at risk of developing SCH when they have an infection or inflammation of the uterus (So et al., 2020). SCH is caused by the breakage of maternal vessels that exist at the interface where the chorion and decidua meet, leading to bleeding. While the hemorrhage can be localized or widespread and vary widely in size, in ultrasound imaging, they may be seen as crescent-shaped hypoechoic or anechoic structures. The quantity of bleeding and the extent of chorionic detachment determine the importance of SCH. Some disorders that can result from SCH include miscarriage, intrauterine growth restriction, preterm labor, and placental abruption.

The contribution of placental elements in the etiology of the disease is just as important. Subchorionic haemorrhage may be due to problems with the way the placenta attaches itself to the uterus. There might be problems with the way the trophoblast cells infiltrate maternal blood vessels; this would lead to the impaired development of the foetus. The outcome depends on the stage at which the disease occurs – SCH that was detected at a later stage of pregnancy has a tendency to self-heal without causing any problems.

1.4.1 Role of Placental Attachment Abnormalities

Subchorionic Hemorrhage (SCH), which is a problem in pregnancy, normally occurs due to improper attachment and inadequate infiltration of the trophoblast cells. Proper attachment of the placenta to the uterine decidua and infiltration of the trophoblast cells into the spiral arteries of the uterus play an essential role in ensuring that the placenta acts effectively as an organ that supports the development of the fetus. If there is no proper implantation of the placenta, SCH may occur (Burton et al., 2025). One of the most frequent causes of subchorionic hemorrhage is the failure of the placenta to adhere to its proper position, which results in blood forming in the area between the uterus and the chorionic layer.

Trophoblast cells from the blastocyst's outer layer infiltrate the mother's decidua and remodel spiral arteries in the early stages of pregnancy. The change of high-resistance, low-capacitance maternal arteries into low-resistance, high-capacitance vessels that can provide enough blood flow to the growing foetus is guaranteed by this process, which is called trophoblastic invasion. Incomplete spiral artery remodelling brought on by defective trophoblastic invasion lowers uteroplacental perfusion and increases the risk of haemorrhage (Guzman Lopez et al., 2022). Blood builds up behind the chorionic membrane and forms a SCH as a result of the disturbed maternal-fetal interaction, which also produces a situation where delicate capillaries are prone to rupture.

SCH is also linked to abnormalities in placental implantation, including placenta previa and placenta accreta spectrum diseases. Excessive placental villi invasion into the myometrium causes placenta accreta, increta, and percreta, which hinder decidual development and separation from the uterine wall. In addition to impairing placental function, such aberrant implantation raises the possibility of bleeding, which may show up as subchorionic haemorrhage. The chance of developing SCH is also influenced by the placental attachment site. For example, because of the greater vascular fragility in the lower uterine segment, low-lying placentas or placenta previa that implant there are more likely to haemorrhage.

Numerous studies have shown that important factors influencing the results for both the mother and the foetus include the size, location, and persistence of SCH. A higher risk of miscarriage, preterm labour, and intrauterine growth restriction (IUGR) is linked to larger haemorrhages, particularly those that enlarge by more than 50% of the gestational sac circumference (Liu et al., 2020).
In a similar vein, haematomas in the lower uterine region or retroplacentally are more likely to result in negative consequences than smaller, anteriorly placed collections (So et al., 2020). Another important factor is when SCH is detected; haematomas seen in the first trimester of pregnancy are more closely linked to pregnancy loss than those found later in gestation.

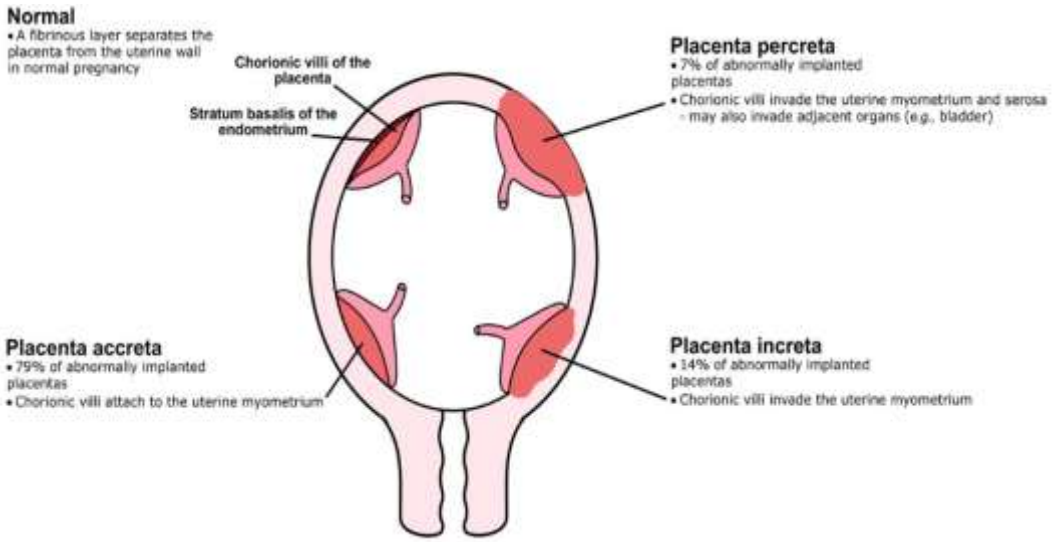


Figure 4 Abnormalities of Placental Implantation

The figure 6 shows placental implantation anomalies in contrast to typical attachment. A fibrinous layer separates the placenta from the uterine wall during a typical pregnancy. The accreta (79%) adheres to the myometrium, the increta (14%) invades the myometrium, and the percreta (7%) penetrates the myometrium, sometimes reaching adjacent organs, in abnormal instances of placental villi invasion. Subchorionic haemorrhage, bleeding, and unfavourable pregnancy outcomes are all associated with these implantation abnormalities.
In addition to SCH, aberrant placentation and defective trophoblastic invasion may impair placental perfusion, which in turn might impact the development and health of the foetus. Chronic placental hypoxia brought on by reduced perfusion may cause adaptive foetal responses such stunted development and altered cardiovascular function (Bujorescu et al., 2023). Some of the long-term impacts of these changes on neonatal health include low birth weight, early delivery, and heightened perinatal morbidity. In addition to making therapy even more difficult in pregnancy, SCH if repeated causes stress in the mother and needs careful monitoring and treatment (Bilbul et al., 2022). The pathology associated with SCH could be considered as a result of inadequate adhesion of decidua and chorionic tissues and inadequate vascularization of the placenta. Decidua is the main tissue which supports the structural composition of maternal vessels and serves as an environment for placental villi formation (Ng et al., 2020).
Similarly, placental implantation problems and increased chances of bleeding can also result from hormonal imbalance in pregnant women, where progesterone levels and vascular endothelial growth factor (VEGF) become irregular (Sato, 2020). In the clinical view, ultrasonography is critical in handling and managing SCH. The transvaginal ultrasound is the most common and preferred form of diagnosing SCH since it can assess the amount, location, and progress of the bleeding. It will become easier for health care professionals to classify risks and monitor them accordingly to prevent any harmful consequences from occurring. It is prudent to monitor women who are pregnant and have SCH to ensure that they do not have complications that might arise from the pregnancy. This clinical approach is achieved when there is an understanding of how the placenta implants itself.
Abnormal placental attachment in pregnancy gains importance from its association with SCH as well as other obstetric problems. Trophoblastic invasiveness and abnormal placental attachment are associated with various diseases including preeclampsia, placental abruption, and intrauterine growth retardation. Thus, SCH is a marker of placental pathology, which means that the patient will need to be carefully monitored during the process of interaction between the fetus and the mother. There is little knowledge about the causes of SCH formation despite progress made in the field of obstetric medicine and ultrasound imaging techniques. Individual susceptibility to the development of SCH and the risk of abnormal placental attachment and trophoblastic invasion may depend on multiple parameters including maternal age, parity, co-morbid conditions, and genetic preconditions affecting the degree of trophoblastic invasiveness and placental attachment. Further investigation in the area is needed for the development of predictive models of SCH formation.

1.5 Clinical Features and Diagnostic Approaches

The clinical features and diagnostic characteristics of SCH have been extensively studied in the present study to determine their impact on pregnancy outcomes. The most prevalent finding observed was vaginal bleeding that ranged from mild spotting to severe bleeding episodes (Naseri et al., 2021). Many of the patients have also suffered from pain in the pelvic

area and lower abdomen, suggesting that the blood has affected the uterine functioning. Nevertheless, it is necessary to note that there have also been instances where the condition was asymptomatic, and the diagnosis of subchorionic hematoma happened coincidentally during the process of prenatal ultrasonic examination of the fetus. The necessity for early diagnosis and consultation can be proved by the fact that the variation in symptoms often made the patients feel frightened and uncertain about what to do next. The diagnosis of SCH among the patients under study has been mainly based on ultrasonography. Because these criteria are known to have predictive importance, the extent of the haemorrhage in respect to the gestational sac and its location—whether marginal, retroplacental, or subchorionic—were carefully documented Additionally, follow-up scans helped predict maternal and foetal outcomes by tracking the hemorrhage remission or progression Ultrasonography was necessary to differentiate SCH from a number of differential diagnoses, such as threatened abortion, ectopic pregnancy, molar pregnancy, and implantation haemorrhage, since vaginal bleeding in the early stages of pregnancy may be linked to these diseases (Jain et al., 2020). This precise separation minimised needless interventions and guaranteed suitable management tactics. Overall, our study's results highlight the importance of ultrasonography in the diagnosis and treatment of SCH while also highlighting the diverse clinical presentation that calls for close monitoring of all expectant mothers who experience bleeding or pain in the early stages of pregnancy.

1.5.1 Symptoms and Signs in Pregnant Women with Subchorionic Haemorrhage

A major source of bleeding in the first trimester of pregnancy, subchorionic haemorrhage (SCH) is one of the most prevalent sonographic abnormalities in the early stages of pregnancy. From utterly asymptomatic appearances to concerning vaginal haemorrhage and stomach discomfort, its clinical manifestations are diverse. The variation in symptoms affects the prognosis in addition to making diagnosis more difficult. To properly diagnose, track, and treat SCH, obstetricians must be aware of the range of symptoms and indicators.

- **Vaginal Bleeding**

➢ **Presentation and Incidence**

Vaginal bleeding is the most common and stable sign of SCH. The bleeding usually starts in the first trimester and may vary from faint spotting to heavy flow with clots. According to a number of studies, SCH may be identified by ultrasonography in 18–22% of women who have first-trimester haemorrhage (Matar et al., 2025).

➢ **Bleeding Characteristics**

SCH-related bleeding might occur continuously or intermittently. While some women arrive with bright red bleeding that resembles a threatening abortion, others describe brownish spotting. There is often a correlation between the extent of the haemorrhage and the amount of bleeding. While tiny SCHs may only result in little spotting, larger SCHs are more likely to cause substantial bleeding (Bikdeli et al., 2022).

➢ **Prognostic Significance**

For both women and medical professionals, bleeding during the first trimester of pregnancy is always concerning. Compared to pregnancies without SCH, there is a higher chance of miscarriage and placental problems when SCH is present. According to one research, women with SCH had almost twice as many miscarriages as women without SCH who experienced first-trimester haemorrhage (Pogorzelska et al., 2020). Therefore, bleeding's occurrence, severity, and duration directly affect prognosis.

- **Abdominal Pain and Pelvic Discomfort**

➢ **Nature of Pain**

Abdominal discomfort or pelvic cramps are often reported symptoms in addition to bleeding. Pain that is restricted to the lower abdomen or pelvis is often characterised as dull, tugging, or cramping. Some women could also have related back pain.

➢ **Frequency of Occurrence**

Although pain is less common than bleeding, it often coexists with SCH when it is bigger or puts pressure on nearby tissues. The discomfort is often minor, temporary, and goes away on its own. However, the discomfort may worsen in extreme situations with bigger haemorrhages or gradual membrane separation (Fang et al., 2022).

➢ **Clinical Significance**

Despite the fact that moderate cramping is normal in the early stages of pregnancy and does not always signify a medical condition, its correlation with vaginal bleeding often leads to a clinical assessment. It's important to remember that pain level does not necessarily indicate how a pregnancy will turn out; some women may have low pain but still have difficulties, while others may have significant agony yet take their pregnancies to term (Yuan & Greenwood-Van Meerveld, 2021).

- **Asymptomatic Presentations**

Many SCH cases are asymptomatic and discovered by chance during standard ultrasonography examinations. These instances are especially significant since they show that SCH is not excluded by the lack of symptoms. Risks may still exist for asymptomatic SCHs based on their size, location, and persistence. According to retrospective research, for instance, women with ultrasound-detected SCH who do not have bleeding are more likely to experience issues such intrauterine growth restriction (IUGR) or premature birth (Pan et al., 2023). that many instances are quiet emphasises how crucial normal prenatal imaging is in the early stages of pregnancy.

- **Implications for Clinical Practice**

➢ Assessing symptoms and indicators in clinical settings yields important prognostic information:

➢ Ultrasound examination should be prompted by vaginal bleeding in order to confirm or rule out SCH.

➢ Counselling on the higher risks of miscarriage or premature delivery should be given to women who have heavy or frequent bleeding.

- Because size and duration might affect results, follow-up is necessary even for asymptomatic women with incidentally discovered SCH.
- It is important to evaluate pain in light of uterine tone, bleeding, and ultrasound results.

1.5.2 Role of Ultrasonography in Diagnosis

Vaginal bleeding in the early stages of pregnancy is often caused by subchorionic haemorrhage (SCH), which is defined by the buildup of blood between the uterine wall and the chorionic membrane. Because ultrasonography offers physicians a non-invasive, real-time imaging method to evaluate the existence, size, and course of these haemorrhages, it has greatly improved the capacity to detect and treat SCH (Chu et al., 2021).

When SCH is evaluated ultrasonographically, a crescent-shaped hypoechoic or anechoic region next to the gestational sac is usually seen. The age of the haemorrhage affects its echogenicity; older haemorrhages become hypoechoic as they clear, while acute haemorrhages seem hyperechoic. Clinical care and prognosis are significantly impacted by the hemorrhage's location, size, and proximity to the placenta.

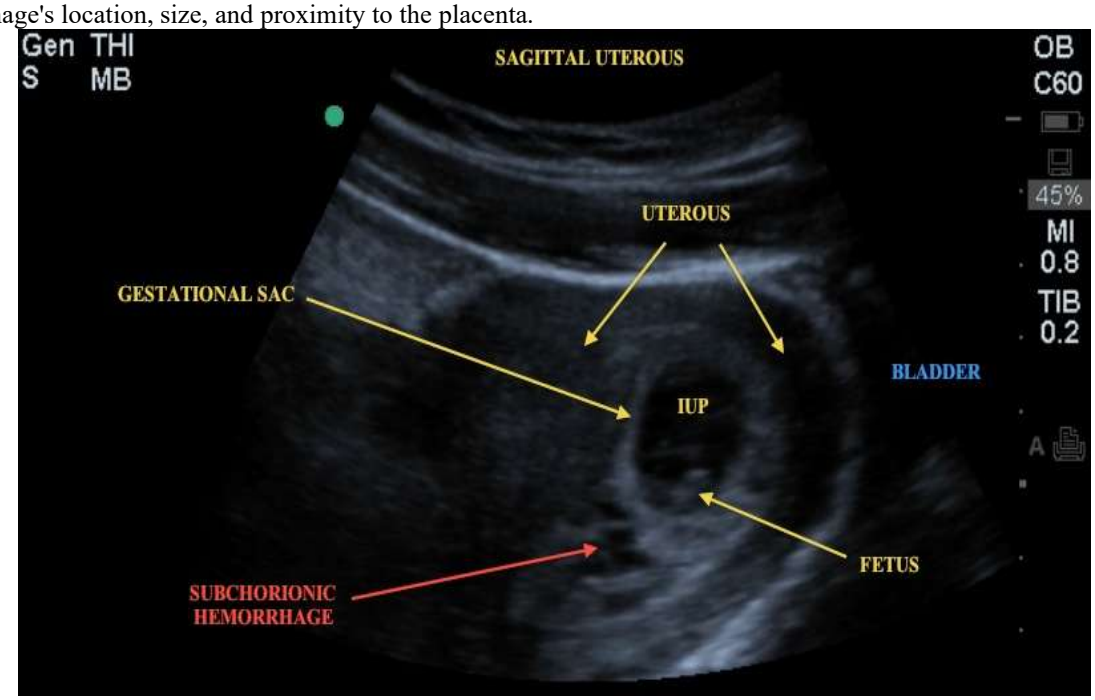


Figure 5 Transvaginal Ultrasound Showing Subchorionic Haemorrhage.

An ultrasound picture of subchorionic haemorrhage (SCH) taken transvaginally is seen in Figure 7. The SCH is a hypoechoic, crescent-shaped region that lies between the uterine wall and the gestational sac. Accurate evaluation of the hemorrhage's size, location, and extent is made possible by this imaging, which is crucial for clinical care and pregnancy outcome prediction.

The best imaging technique for assessing SCH, especially in the early stages of pregnancy, is transvaginal ultrasonography. Better visualisation of the haemorrhage is made possible by its higher resolution and ability to go closer to the uterus. Although less intrusive, transabdominal ultrasonography is often used as a supplemental technique and may not provide the same degree of information (Tan et al., 2024). Ultrasonography's ability to identify SCH has important clinical ramifications.

Predicting unfavourable pregnancy outcomes may be aided by ultrasonographic characteristics such the hemorrhage's size, position in relation to the placenta, and the existence of related abnormalities like placental abruption. For example, there is a greater chance of miscarriage, premature labour, and placental abruption in SCHs that are bigger and situated close to the placental edge.

The development or resolution of SCH, serial ultrasonographic assessments are crucial. Follow-up imaging provides important information for clinical decision-making by evaluating changes in the hemorrhage's size and echogenicity (Epstein et al., 2021). To improve the results for both the mother and the foetus, more stringent monitoring and management techniques could be necessary if the SCH worsens or continues. In order to diagnose and treat subchorionic haemorrhage, ultrasonography is essential (Wiles et al., 2022). Clinicians may make better judgements and improve pregnancy outcomes by using it to precisely visualise the haemorrhage, evaluate its features, and track its course. The use of ultrasonography in conjunction with other diagnostic techniques shows promise for improving the treatment of pregnancies complicated with SCH as technology develops.

1.6 Scope of the Study

The health of the mother and foetus may be affected by subchorionic haemorrhage (SCH), one of the most frequent causes of vaginal bleeding in the early stages of pregnancy. Understanding the clinical importance of SCH, forecasting unfavourable pregnancy outcomes, and directing obstetric care all depend on research on the condition and its consequences. The incidence, risk factors, clinical presentation, and pregnancy outcomes of SCH in a specific population are all included in the study's scope. a thorough understanding of the ways in which SCH influences pregnancy outcomes,

such as placental problems, intrauterine growth restriction (IUGR), premature labour, and miscarriage. It assesses the relationship between the prognosis of the mother and foetus and the size, location, and time of SCH discovery. By concentrating on these elements, the research aims to find trends that will assist obstetricians in foreseeing issues and putting prompt measures into place. the importance of ultrasonography in the diagnosis and follow-up of SCH, emphasising how imaging results may inform risk assessment and clinical judgement. Additionally, it fills in the gaps in regional data, particularly in areas where little is known about the frequency and consequences of SCH.
In the end, this study's conclusions may help with patient counselling, enhance early detection techniques, and advance obstetric treatment. In order to improve maternal and foetal outcomes, the scope include clinical assessment and follow-up of pregnancies complicated by SCH, offering evidence-based insights to healthcare professionals. The research advances knowledge of SCH and its treatment in modern obstetric practice by analysing the illness within the framework of a particular patient group.

1.7 Problem Statement

Subchorionic haemorrhage (SCH), which is defined as the buildup of blood between the uterine wall and the chorionic membrane, is one of the most frequent causes of vaginal bleeding in the early stages of pregnancy. SCH has been linked to unfavourable pregnancy outcomes, such as miscarriage, premature labour, intrauterine growth restriction, placental abruption, and, in rare instances, maternal morbidity, even though the majority of cases end on their own without serious consequences. The size and location of the haemorrhage, the gestational age at diagnosis, and maternal risk factors are some of the variables that affect the likelihood and severity of these events.
Comprehensive information on the prevalence, clinical profile, and pregnancy outcomes of SCH is lacking, despite its clinical significance, especially in certain geographical populations. Small sample numbers, retrospective designs, or a focus on Western populations restrict the majority of current research, which may not adequately represent the local healthcare and demographic environment. Although ultrasonographic detection is often used to diagnose SCH, doctors' interpretations of the condition's size, location, and prognostic relevance vary. In clinical decision-making and counselling for impacted pregnant women, this heterogeneity adds to the uncertainty.
The prevalence, clinical presentation, ultrasonographic features, and postpartum outcomes of SCH must all be thoroughly investigated because to the possible influence it may have on maternal and foetal outcomes. Obstetricians can detect high-risk situations, improve monitoring techniques, and carry out prompt treatments by being aware of these factors. In order to fill in the gaps in the literature and enhance evidence-based management of pregnancies complicated by SCH, this study intends to present a thorough analysis of subchorionic haemorrhage in pregnancy, with an emphasis on its clinical features, ultrasonographic findings, and correlation with maternal and foetal outcomes.

1.8 Significance of the Study

A common pregnancy problem in the first trimester, subchorionic hemorrhage (SCH) is often linked to vaginal bleeding and stomach pain. The size, location, and gestational age of the hemorrhage at diagnosis are some of the variables that affect its clinical relevance, despite the fact that ultrasonography is often used to identify it. Premature rupture of membranes (PROM), intrauterine growth restriction (IUGR), miscarriage, and preterm labor are among the negative consequences that may occur in both the mother and the fetus when SCH is present. Notwithstanding these correlations, there is still a great deal of ambiguity around the prognostic significance of SCH and the variables affecting pregnancy outcomes, especially in certain communities.
The incidence, clinical presentation, and consequences of SCH in pregnant women in a local or regional population, the current research seeks to close these gaps. The research will provide vital insights into risk assessment and management tactics for impacted pregnancies by methodically examining mother and fetal outcomes in SCH instances. This study is important because it provides region-specific information that may help obstetricians manage and advise patients, especially in communities with little data. provide a more comprehensive knowledge of the genesis of SCH, the research also investigates the possible involvement of immunological and maternal health variables in its development. The results of this research have the potential to enhance maternal and fetal health by influencing clinical standards, boosting early intervention techniques, and lowering the prevalence of unfavorable outcomes. This study offers obstetric practice both scientific and practical relevance by filling up current knowledge gaps.

2. LITERATURE REVIEW

Early pregnancy sonograms often show subchorionic haemorrhage (SCH), which occurs when the chorion partially detaches and blood pools between the membrane and uterine wall. It is the most common cause of first-trimester vaginal bleeding, affecting 1% to 3% of pregnancies depending on demographic and diagnostic procedures. SCH is common, but its effects on pregnancy outcomes are debated. Some studies link it to miscarriage, preterm labor, placental abruption, and intrauterine growth restriction, while others find no effect when the haematoma is small or resolves spontaneously. Understanding SCH is crucial since it causes clinical and emotional stress for pregnant women. The size, place, and timing of SCH-complicated hemorrhages affect pregnancy outcomes. Larger retroplacental haematomas have worse prognosis than marginal ones. Advanced diagnostic imaging, particularly ultrasonography, has improved early diagnosis, but conservative therapy techniques focus on rest, follow-up imaging, and sometimes pharmaceutical interventions like progesterone supplements.
The literature shows that results and management approaches vary widely between populations. This requires regional investigations on SCH and pregnancy outcomes in specific circumstances. This study analyzes SCH and its effects on pregnancy outcomes to help physicians and researchers.

2.1 Introduction to Subchorionic Haemorrhage (SCH)

(Shi et al., 2024) evaluated ART-conceived women's first trimester subchorionic hemorrhage (SCH) and maternal and infant outcomes. Nine observational studies on singleton pregnancies and women without SCH were searched. Early pregnancy loss, early delivery, caesarean section, and live birth rates mattered. Women with early pregnancy SCH had the same risk of preterm birth, low birth weight, and fetal growth limitation as those without SCH. Both groups had comparable odds of early pregnancy loss, live birth, and cesarean. Hypertension, gestational diabetes, preterm rupture of membranes, and placental abruption were equally common in both groups. Publication bias was absent. that SCH may not significantly increase the risk of poor maternal and perinatal outcomes in ART-conceived pregnancies, particularly IVF.

(Xu et al., 2024) Subchorionic hematoma (SCH) occurs when blood pools between the chorion and decidua basalis due to its separation. Ultrasound is the primary method of detection for patients with threatening abortion in early pregnancy. SCH typically appears as a dark, crescent-shaped fluid region on ultrasound scans. While SCH has been extensively studied, its pathophysiology, etiology, and impact on pregnancy outcomes are still debated. there are no universal clinical treatment guidelines. that SCH may be caused by variables such as poor coagulation function, auto-immune factors in pregnant women, assisted reproduction, drug usage during pregnancy, and reproductive tract infection. the specific cause is still unknown. SCH may be linked to unfavourable pregnancy outcomes such miscarriage, premature birth, preeclampsia, and fetal growth limitation, although other studies have shown no association. the pathogenesis, etiology, and therapy of SCH in pregnant women, providing a reference for therapeutic management.

(W. Wang et al., 2024) evaluated how first-trimester subchorionic hematomas (SCH) affected pregnancy outcomes after euploid embryo transfer. From January 2017 to January 2022, they evaluated singleton pregnant women with PGT-A or PGT-SR. A viable intrauterine pregnancy at ultrasonography between 6 and 8 weeks was required for trial enrollment. Patients with and without SCH were compared for pregnancy outcomes and maternal issues. Confounding factors were accounted for using logistic regression. The sample includes 1539 women, 298 with SCH and 1241 without. Early miscarriage was much higher in the SCH group (10.1% vs. 5.6%, adjusted odds ratio [aOR] 1.99, 95% CI 1.25–3.16, P=0.003). SCH had a far lower live birth rate than non-SCH. 85.6% vs. 91.2% (aOR 0.57, 95% CI 0.39–0.84, P=0.005). SCH patients had a greater incidence of hypertensive disorder of pregnancy (HDP) (8.9% vs. 5.2%, P=0.022), especially in cases of hematoma with bleeding (19.3% vs. 6.0%, P=0.002). Both groups exhibited identical incidences of GDM, serious congenital abnormalities, normal birth weight, and low birth weight. After euploid embryo transfer, first-trimester SCH was associated with early miscarriage, hypertension, and reduced live birth rates.

(Bastawi et al., 2024) Pregnancy termination before the twenty-week mark or a fetus weighing less than five hundred grams before becoming viable are both considered miscarriages. It affects 15–25% of pregnancies and is associated with anxiety in the mother, family, and medical professionals. Nearly half of pregnancies in which abortion is threatened end in pregnancy loss. There isn't a trustworthy biochemical marker for sonographic diagnosis at the moment. the predictive value of maternal blood beta HCG levels and cancer antigen 125 (CA-125) for miscarriage. Due to its accessibility, cost, and absence of pain, blood CA 125 levels are a sensitive and accurate diagnostic of pregnancy loss in instances when an abortion is threatened.

(L. Wang et al., 2024) assessed the risk of stillbirth or miscarriage in women with subchorionic hematoma (SCH) compared to those without. SCH and non-SCH pregnant women were examined using machine learning classifiers and regression models. SCH women had a considerably higher risk of stillbirth or miscarriage than non-SCH women. First positive HCG, hematoma duration, CA125, gestational sac diameter, fibrinogen, and spouse age substantially impacted delivery outcomes. However, clinical indications did not predict NICU transfer for 12.7% of appropriately born SCH neonates. Successful SCH deliveries occurred at 38.8 weeks gestation, however indices did not predict preterm/full-term delivery. Live birth times and gestational age considerably affected birth weight. However, SCH indices did not affect birth weight or NICU transfer. First-trimester miscarriage/stillbirth is frequent, and full-term infants weigh more.

(Yoshihara et al., 2024) evaluated "considered" subchorionic hematoma (SCH) and its association to pregnancy problems. A 2019–2020 retrospective cohort research compared SCH size in pregnancy-complicated and non-complicated groups. The research employed Receiver Operating Characteristic (ROC) curve analysis to identify cutoff values and compared pregnancy problems in three groups: big SCH (above the cutoff value), non-large SCH (below the cutoff), and non-SCH. Of the 1305 singleton pregnancies handled, 80 developed SCH and 15 had pregnancy problems, which increased SCH size. The research found that big SCHs may signal a significant risk of pregnancy difficulties, and treating instances that above the threshold value may prevent pregnancy issues.

(Liang et al., 2024) explored how various grades of subchorionic hematoma (SCH) affect delivery timing and pregnancy outcomes in singleton pregnant women. In the analysis of 171 singleton pregnancies, 72 had SCH before 20 weeks and 12–20 weeks. Using ultrasound imaging, patients were separated into three categories by subchorionic hematoma size. Miscarriage, early preterm birth, premature rupture of membranes, fetal growth restriction, and delivery 13.18 days earlier were more common in SCH pregnancies than in the without SCH group. In individuals with SCH identified between 12 and 20 weeks of GA, miscarriage increased and live birth dropped considerably. the anterior placenta protects against subchorionic hematoma. that SCH is independently related with miscarriage, early preterm delivery, premature rupture of membranes, and fetal growth limitation.

(Uysal, 2024) evaluated how second-trimester subchorionic hematoma (ScH) and aberrant placental implantation affect pregnancy outcomes. 50 second-trimester vaginal hemorrhage patients diagnosed with ScH at an Obstetrics Department between February and August 2024 were retrospectively investigated. Ultrasonography, clinical profiles, and medical records showed placenta previa and circumvallate. SPSS 23.0 compared and described. The mean participant age was

28.2 years, gestational age 25 weeks and 2 days, and hematoma size 3 cm. The mean hematoma was 2.3 cm in 4 aberrant placentas, 3 previa marginalist and 1 circumvallate. Miscarriage and partial abortion were early; preterm birth, PPROM, and intrauterine growth restriction were late. Second-trimester ScH may induce placental implantation errors, premature birth, and fetal growth limitation. Better pregnancy outcomes need early ScH discovery and monitoring. ScH with placental anomalies and associated medications should be studied in bigger samples and prospectively.

(B. Thakkar et al., 2024) First-trimester vaginal bleeding complicates 16-25% of pregnancies. Primary reasons include miscarriage, ectopic pregnancy, and cervical pathology. Comparative study of pregnancy outcomes in threatened abortion patients with and without subchorionic hematomas (sch). A study of 150 threatening abortions was conducted from May to October 2022. Miscarriage rates were compared between two groups based on the presence or absence of subchorionic hematomas. Both groups had comparable demographics. Out of 150 individuals, 30 had USG-detected with SCH group and 120 had no SCH. 9 patients (30%) in the with SCH group had miscarriage, whereas 12 patients (10%) in the without SCH group did. Subchorionic hematoma increases miscarriage risk.

(Porcaro et al., 2024) included 56 pregnant women with threatening miscarriage (subchorionic hematomas, pelvic pain/uterine contractions, or vaginal bleeding) between the 6th and 13th weeks. They were given vaginal progesterone (200 mg/twice a day) (without SCH group; n = 25) or 200 mg HMWHA, 100 mg ALA, 450 mg magnesium, 2.6 mg vitamin B6, and 50 mcg vitamin D (treatment group; n = 31; DAV®-HA, LoLi Pharma srl, Rome, Italy). First visit (T0), 7 days (T1), and 14 days (T2) ultrasounds were conducted until hematoma resorption. The treatment group had quicker subchorionic hematoma resorption than the without SCH group at both T1 ($p < 0.0031$) and T2 (without SCH group: 72 (48-112), treated group: 0 (0-0), $p < 0.0001$). The therapy group also reduced subjective symptoms such vaginal bleeding, stomach discomfort, and uterine contractions quicker than the without SCH group. The association may resolve impending miscarriage and accompanying symptoms faster than the local procedure.

(White & Venables, 2023) investigated sub-chorionic haemorrhage (SCH) ultrasonography features for poor pregnancy outcomes. An early pregnancy assessment unit examined 160 ultrasound reports and images from January 2018 to January 2019. First-trimester SCH patients were selected. Multinominal logistic regression was utilized to establish predictive value from pregnancy outcomes and SCH features such size, location, and echogenicity. The majority of asymptomatic mothers produced healthy babies. 24% miscarried or had stillborn babies; moderate-sized haemorrhage increased the probability ($p = 0.02$). When haemorrhage encircled the gestation sac, 61% of lost babies showed “wrapping” SCH (p 0.01). 71 percent of miscarriages occurred at 5–10 weeks. SCH was 57% more prevalent in negative outcome groups. No link between prenatal abnormalities and miscarriage. Early birth and jaundice were more prevalent ($p = 0.001$) following SCH. Early pregnancy SCH significantly predicted miscarriage. SCH ultrasound findings such a relatively big wrapping site may enhance miscarriage or postpartum issues. Placental dysfunction may cause preterm births and jaundice.

According to (Xu et al., 2023) the pathophysiology and processes of subchorionic haemorrhage (SCH), an uncommon ultrasound pregnancy problem, are currently unknown. It could be connected to coagulation problems, autoimmune diseases, and aberrant placenta production. Zhengzhou University conducted retrospective cohort research that looked at the potential causes of SCH, how it relates to autoimmune dysfunctions, and how SCH patients fared throughout pregnancy. that SCH during the first trimester was linked to increased incidences of miscarriage and preterm membrane rupture. SCH patients with positive autoantibodies did not significantly vary from those without in terms of other clinical features or pregnancy outcomes. Patients with SCH who tested positive for autoantibodies also had a greater risk of miscarriage. SCH raises the chance of an early rupture of the membranes and an abortion and may be linked to immunological disorders in the mother.

(Huang et al., 2023) examined third-trimester subchorionic hematomas (SCHs) clinical characteristics, pregnancy concerns, and outcomes. A January 2014–December 2020 retrospective analysis of 1112 SCH patients. Clinical variables (number of pregnancies, parity, gestational weeks, and age), pregnancy difficulties, and SCH outcomes were compared. Most patients (799/1112) had pregnancy difficulties. GDM, HDCP, PROM, and IVF rates were 12.14, 7.55, 17.27, and 10.34. Excellent preterm delivery and LBW at 9.35% and 6.47%. Many pregnancies are associated with GDM ($p < 0.05$), but not HDCP, PROM, or IVF. IVF rates for SCH patients were greater for primiparas compared to multiparas ($p < 0.05$), although there was no significant difference in GDM, HDCP, or PROM. The majority of SCH patients with HDCP, IVF, or PROM had no preterm delivery risk factors ($p < 0.05$) and delivered at term. SCH patients with GDM, HDCP, or IVF had a greater likelihood of cesarean section compared to vaginal births ($p < 0.05$), regardless of age. Cesarean delivery increased with HDCP, IVF, or PROM but did not predict preterm birth.

(Mei et al., 2023) evaluated risk variables for subchorionic hematoma (SCH) in first-trimester IVF twin pregnancies and pregnancy outcomes. a prospective cohort study at Chengdu Women and Children's Central Hospital. IVF patients with first-trimester twin pregnancies from January 2020 to May 2021 were included. Demographics and pregnancy outcomes were compared between SCH and non-SCH groups. Logistic regression research found SCH risk factors and poor pregnancy outcomes. SCH was 38% in the first trimester. Male factor, hydrosalpinx, PCOS, past miscarriage, and adenomyosis are independent SCH risk factors. Only twin pregnancy loss before 20 weeks was significantly higher in the SCH group than in the non-SCH group. After correcting for confounding factors, SCH decreased ovarian reserve and past miscarriage was connected to twin pregnancy loss before 20 weeks. SCH risk factors in twin pregnancies following IVF-ET/FET may inform clinical practice. Research links SCH to the loss of both fetus before 20 weeks. These people need strict observation and timely treatment.

(Zhu et al., 2022) investigated the effects of IV immunoglobulin (IVIg) on subchorionic hematoma (SCH), pregnancy outcomes, and offspring health in recurrent spontaneous miscarriage (RSA) patients. A retrospective examination of 775 RSA patient records found 14.2% had SCH, with early identification at 8.29 weeks. that IVF-ET patients had a greater

rate of SCH than spontaneous pregnancy patients. RSA patients with SCH had similar loss, stillbirth, preterm, and live birth rates. The vaginal bleeding rate was greater in Group A than B. Large SCHs in RSA patients were associated with greater premature birth rates than moderate SCHs. The RSA SCH rate was 14.2%. It demonstrated equal physical development for RSA with SCH and other children, but SCH's influence on neurodevelopment has to be confirmed with a larger sample size. Even after IVIg, RSA patients with SCH, vaginal haemorrhage, or SCH volume ratio > 50% had a significant premature birth rate.

(Inman et al., 2022) evaluated infertile pregnancy outcomes after an accidental subchorionic hematoma. University hospital retrospective cohort study. It comprised 1210 intrauterine pregnancy patients on first obstetric ultrasound who attended an infertility clinic between January 2015 and March 2018, regardless of treatment cycle. Nonviable pregnancies were excluded. The main effect was first-trimester miscarriage from subchorionic hematoma. Subchorionic hematoma occurred 12.5% (n = 151) regardless of reproductive treatment. Although there was no link between subchorionic hematoma and first trimester loss, those with bleeding and cramping had a greater chance of miscarriage (0.62 vs. 0.12, P <0.001). This group had an 81.3% live birth rate and no significant differences in pregnancy outcomes between those with and without subchorionic hematoma. Those with vaginal bleeding and cramping had a much greater chance of miscarriage than those with subchorionic hematoma on early ultrasonography.

(Aki et al., 2022) Early pregnancy recurrent vaginal bleeding may indicate high-risk subchorionic hematomas (SCHs). two groups of 56 patients hospitalized for SCH with vaginal bleeding in early pregnancy were divided: 1) no hematoma by ultrasonography when vaginal bleeding occurred and then “bleeding to hematoma (BH group, n = 15)”; and 2) no vaginal bleeding when routine ultrasonography detected hematoma and then “A retrospective cohort research examined maternal and neonatal outcomes. The mean BH group experienced SCHs and/or vaginal bleeding for 60.8 days, compared to 33.3 days for HB (p = 0.015). BH patients delivered earlier (mean: 27.3 weeks [BH group] vs. 35.6 weeks [HB group], p = 0.0028). BH patients showed a higher risk of chronic abruption and oligohydramnios sequence (CAOS) (3/15; 20.0% [BH group] vs. 0/41; 0.0% [HB group], p = 0.016 BH group showed a greater risk of severe fetal distress (Apgar score <4 points) (4/15; 26.7% [BH group] vs. 0/41; 0.0% [HB group], p = 0.0037 BH had lower factor XIII levels than HB (mean: 54.8% (n = 4) [BH group] vs. 76.1% (n = 7 [HB group], p = 0.077). Chronic vaginal bleeding/SCHs cause preterm birth. Chronic bleeding reduces haemostasis by depleting coagulation factor XIII.

(Yin et al., 2022) SCH in the first trimester was not significantly associated with poor pregnancy outcomes in a study of 3074 singleton pregnancies after fresh embryo transfers. In 3074 women with 17.1% SCH, vaginal haemorrhage occurred in 92 SCH and 215 controls. There were 415 SCH-positive and 807 SCH-negative women in the post-PSM asymptomatic group. These secondary outcomes were comparable: GA at delivery, delivery mode, infant sex, birthweight, gestational hypertension/preeclampsia, and gestational diabetes mellitus. Regression study, both univariate and multivariable, revealed no association between SCH and pregnancy outcomes in those with symptoms. Live birth was predicted by vaginal bleeding rather than hematoma size. First-trimester SCH at 6–8 weeks did not improve singleton pregnancies after fresh embryo transfers. Pregnancy loss and vaginal bleeding were hazards associated with SCH.

2.2 Epidemiology of SCH in Pregnancy

(Dewan et al., n.d.) evaluated the frequency of SCH in pregnant women and its association with maternal and newborn problems. They did cross-sectional observational research on 100 pregnant women with thyroid dysfunction at Dr. S.S. Tantia Medical College in Sri Ganganagar and Saraswathi Institute of Medical Sciences in Hapur, Uttar Pradesh. Results of Thyroid hormone levels (TSH, FT3, FT4) were analyzed using SPSS 16. A prevalence of 73% was found, with strong correlations between SCH and preterm delivery, pregnancy loss, and low birth weight. Overt hypothyroidism increased preeclampsia and neonatal difficulties. Early first-trimester identification and treatment minimized poor outcomes. These data corroborate the Indian Thyroid Society's recommendation for early pregnancy TSH screening.

(Zhou et al., 2025) analyzed pregnancy outcomes with subclinical hypothyroidism (SCH) and levothyroxine (LT4). LT4 was given to 266 pregnant women with SCH at The Fourth Hospital of Shijiazhuang and 672 without SCH. Chi-square test and logistic regression compared adverse pregnancy outcomes. To assess LT4, pregnant women were separated into sustained euthyroid status (SES) and substandard thyroid status (STS) groups and compared to the non-SCH group using chi-square test. Spearman's rank test examined relationship between TSH levels at different pregnancy stages. In the SCH group, hypertensive disorders of pregnancy (HDP), premature rupture of membranes (PROM), and newborn outcomes (V/ASD, hyperbilirubinemia, and pneumonia) were more common than in the non-SCH group ($p < 0.05$ The SCH-STS group (two or three gestational trimesters) had higher maternal and neonatal issues than the SCH group. TSH rises during pregnancy. LT4 therapy may reduce the chances of SCH during pregnancy by maintaining normal blood TSH levels.

(Grandi et al., 2024) effected of commencing levothyroxine on pregnancy loss in women with SCH was assessed in research utilizing observational data. a target trial using the UK's Clinical Practice Research Datalink, taking into account women's admittance to prenatal care as well as staggered SCH diagnosis and treatment. The time of diagnosis, gestational week of the first eligible trial, and high-dimensional propensity score were used to compare eligible users with non-users. women who began using levothyroxine during pregnancy had higher thyroid-stimulating hormone levels and a higher history of hypothyroidism. Compared to non-initiators, levothyroxine initiators had a lower cumulative incidence of pregnancy loss. Pregnancy loss was adjusted to provide an HR of 0.87 (95% CI: 0.22, 1.56). the possibility of employing the target trial emulation framework to assess pharmaceutical efficacy during pregnancy, despite the fact that the large confidence intervals prevent the study from drawing firm conclusions.

(Wood, 2024)examined early pregnancy exposures and consequences. To reduce biases in observational studies, they emphasize the use of target trial emulation, a technique that simulates the planning and analysis of intervention research. the impact of starting levothyroxine on the likelihood of non-live birth in pregnant women with subclinical

hypothyroidism is presented by the authors. the difficulties in utilizing healthcare data for research, such as problems with competing events, immortal person time, left truncation, and missing data. the possible advantages of therapy early in pregnancy, but it does provide light on the impact of starting levothyroxine after entering prenatal care. The authors recognize the limits of practical analysis in regularly obtained healthcare data and stress the significance of matching the research topic with the available data.

(Mariko et al., n.d.) evaluated haemorrhagic placenta previa prevalence, epidemiology, clinical profile, and prognosis. The cross-sectional research examined 40 haemorrhagic placenta previa patients from February 1, 2016 to January 31, 2017. Data was entered and evaluated using SPSS 16.0. they found 54 placenta previa cases in 946 births, 40 of which were haemorrhagic, 4.2%. Patients aged 19–35 comprised 50%. Epidemiological profiles included married (80%), housewives (50%), and multiparous (45%) women. High-route delivery was done 87.5%, 70%, and 6% separately for placenta previa covering, bleeding despite amniotomy in labour, breech presentation, and severe fetal distress. The fetal mortality rate was 25%. Haemorrhagic shock and delivery haemorrhage affected 60% and 40% of moms. Bloody placenta previa may jeopardize mother and child. Fast care by obstetricians, resuscitators, neonatologists, and biologists may enhance mother and fetal outcomes.

(Geng et al., 2022) The pregnancy-related subclinical hypothyroidism (SCH) has risen, and the main therapy for SCH during pregnancy is a levothyroxine sodium pill. Its impact on treatment and the results of pregnancies is still up for dispute. Pregnant women treated with levothyroxine sodium had higher incidences of preterm birth, miscarriage, gestational hypertension, postpartum haemorrhage, placental abruption, and abnormal neonatal weight than the without SCH group, according to a meta-analysis conducted using RevMan5.3. The findings demonstrated that levothyroxine sodium treatment decreased low birth weight, postpartum haemorrhage, miscarriage, and preterm delivery in pregnant women. However, it was unclear if levothyroxine sodium therapy influenced gestational hypertension in SCH patients because of the limited number of studies.

(Freitas et al., 2022) analyzed pregnant women receiving primary health care in Montes Claros, Minas Gerais, Brazil, for physical activity and related variables. This epidemiological, cross-sectional, analytical research included 1,279 pregnant women. A questionnaire measured socioeconomic, occupational, obstetric, behavioural, social, health, and emotional aspects. The Physical Activity Questionnaire for Pregnant Women was used. Hierarchical multinominal logistic regression and descriptive statistical analysis were done. Physical inactivity was confirmed in leisure time and physical exercise. A modest level of physical activity was connected with age 21–30 and up to 20, income over two minimum salaries, paid occupation, and medium/high maternal-fetal attachment. The moderate/vigorous level was connected with one to two minimum earnings and above, paid labor and self-employment, anxiety and stress symptoms, and medium/high maternal-fetal connection. Multifactorial health promotion techniques for pregnant women's physical activity must be explored.

(Elsemary et al., 2025) determined the prevalence of subclinical hypothyroidism (SCH) in women visiting the outpatient obstetrics and gynaecology clinic for their first prenatal care visit in the first trimester. whether standard thyroid-stimulating hormone (TSH) testing during prenatal care booking is necessary. Cross-sectional observational research was done on 104 pregnant women (age ≤12+0 weeks). Participants got a thorough history-taking, physical exam, and ultrasound to determine gestational age. TSH levels were measured in blood. Only patients with aberrant TSH readings (≥2.5 mIU/L) were examined for free serum thyroxin (T4) levels.
Out of 104 individuals, 14.4% had increased TSH levels, 6.7% had low TSH levels, and 78.8% had normal TSH levels. A study of SCH patients found that 92.85% had normal free T4 levels, whereas 7.14% had low levels. No significant correlations were discovered between SCH and demographic characteristics, gestational age, gravidity, parity, iodine consumption, or medical conditions. SCH predictors were found using logistic regression. The frequency of SCH among pregnant women in their first trimester at Sohag University Hospital outpatient clinic is 14.4%, 1.5 to 5 times higher than in other localities. First-trimester SCH screening may be explored.

(Xie et al., 2025) Explored how subclinical hypothyroidism (SCH) during pregnancy affects rat offspring brain mtDNA methylation. Sixteen SD mice were randomly assigned to the SCH and without SCH group. BS-seq sequencing was used to measure mtDNA methylation in the offspring's brain tissues, the 2,7-dichlorofluorescin diacetate (DCFH-DA) probe method was used to measure ROS, and electron microscopy was used to measure mitochondrial structure in the hippocampus. the without SCH group, the SCH group had 23 DMRs on the mitochondrial chromosome. The brain tissues of the SCH group showed significantly higher ROS levels than the without SCH group ($P<0.05$). Hippocampal mitochondrial structure was less conserved in the SCH group than in the CON group. In their offspring's brains, pregnant rats with subclinical hypothyroidism may have altered mtDNA methylation patterns, which may affect mitochondrial structure and function.

(Yang et al., 2023) Subclinical hypothyroidism (SCH) may occur during pregnancy due to thyroid-damaging phthalates. The pilot case-control study included 42 SCH patients and 84 non-SCH controls matched by age and BMI from a cohort of pregnant Beijing women. Serum peroxidase antibody, FT4, TSH, and urine 10 phthalate metabolites were evaluated in early pregnancy. SCH patients' urine MEP levels were substantially higher than controls' ($p = 0.01$). MECPP, MEP, MEOHP, and ΣDEHP were substantially associated with increased risk of SCH in early pregnancy (adjusted odds ratios = 1.89, 1.42, 1.81, and 1.92, respectively) in conditional logistic regression analysis Multiple linear regression analysis showed a positive association between MECPP, MEOHP, ΣDEHP, TSH, and FT4 × TSH in the study population. Bayesian kernel machine regression and BMI-stratified analysis indicated increased TSH and FT4 x TSH. By altering the hypothalamus-pituitary-thyroid axis, phthalates, especially DEHP, may raise early pregnancy SCH risk.

(Sohail et al., 2021) Subclinical hypothyroidism (SCH) during early pregnancy increases miscarriage and preterm delivery risk. Unknown Pakistani pregnant women's SCH prevalence. This multi-centre research examines SCH in pregnant Pakistani women. A 12-month multi-centre cross-sectional study. They recruited first-trimester women from seven

prenatal clinics in six Pakistani cities. SCH frequency and risk factors in pregnant women were examined. They studied 500 pregnant women. Only eight women (1.6%) were newly diagnosed with SCH. Hyperthyroidism was 1.2%, hypothyroidism 6%, and overt hypothyroidism 1% in women. The thyroid replacement of 10 hypothyroid females (33.3%) was insufficient. Not significant BMI-SCH correlation ($p = 0.69$). Age, dyslipidemia, miscarriage history, cycle regularity, and infertility history did not differ between SCH and non-SCH patients ($p > 0.90$). researchers found 1.6% undetected SCH in pregnant women. High rates of uncontrolled hypothyroidism indicate thyroid issues.
(N. Li et al., 2020) studied SCH postpartum outcomes and clinical and biochemical variables affecting long-term hypothyroidism. After birth, 393 women with SCH were prospectively followed, with 216 receiving long-term care. Comparing clinical and biochemical aspects of long-term postpartum hypothyroidism with euthyroidism in women. A linear mixed model (LMM) was used to identify risk variables for longitudinal TSH variations, and logistic regression was utilized to find independent predictors of long-term postpartum hypothyroidism. Both gestational age at SCH diagnosis and thyroid peroxidase antibodies (TPOAb) were substantially linked with longitudinal TSH fluctuations. During pregnancy and six weeks after birth, TPOAb positivity increased the risk of long-term hypothyroidism. Over one-third of pregnant SCH patients experienced postpartum hypothyroidism.

2.3 Maternal and Fetal Outcomes in SCH

According to (Cang et al., 2025) the impact of subchorionic hematoma (SCH) on pregnancy outcomes and the efficacy of anticoagulant therapy in patients with obstetric antiphospholipid syndrome (OAPS) are investigated in this research. It separated 109 OAPS patients into SCH (40) and non-SCH (69) groups after they were treated at the Fourth Hospital of Shijiazhuang between December 2019 and December 2021. Abortion and live birth rates did not significantly vary, according to the data; however, the SCH group was more likely to have a preterm delivery between the ages of 34 and 37. During pregnancy, the SCH group showed reduced levels of ATIII, PS, and PC but greater levels of β2GP I, LA, ACL, D-D, AA, and ADP. Following therapy, β2GP I, LA, ACL, D-D, AA, and ADP levels were reduced in both groups. In contrast to the non-SCH group, the SCH group had higher levels of D-D and PS.
(Hamza et al., 2025) Early pregnancy bleeding may be benign or fatal. It may endanger the mother and fetus if not recognized and treated quickly. the clinical symptoms, cause, and maternal-fetal outcomes of early pregnancy haemorrhage in tertiary care hospitalized women. The Quetta tertiary care hospital's obstetrics and gynaecology department performed this qualitative study from January to May 2025. They randomly chose 170 pregnant women with 20-week vaginal haemorrhage. Semi-structured interviews thematically evaluated clinical trends and conclusions. The most prevalent diagnoses were incomplete miscarriage (17.6%), missed abortion (11.8%), ectopic pregnancy (14.7%), molar pregnancy (11.8%), and threatening miscarriage (44.1%). Tissue passing, stomach pain, and mild bleeding occurred. While 41.2% of pregnancies ended without difficulties, 17.6% experienced preterm delivery, 8.8% had intrauterine growth restriction, 2.9% had stillbirth, and 29.4% had miscarriage. Early bleeding harms mother-fetus. Early diagnosis, ultrasonography, β-hCG monitoring, and treatment may enhance prognosis. Research shows early evaluation and patient counseling reduce anxiety and improve therapy.
(Alsaffar et al., n.d.) Dual pregnancy with a full hydatidiform mole and co-existing fetus (CHMCF) is unusual and may result via assisted reproductive technology. Management of these pregnancies is difficult due to significant maternal and fetal problems. Common diagnostic methods for suspected molar pregnancy include ultrasound (US) and magnetic resonance imaging (MRI). They are not 100% sensitive or specific, thus a healthy baby may result. The gold standard for diagnosing hydatidiform mole is histopathological investigation. CHMCF following an intracytoplasmic sperm injection (ICSI) study is described here. following 14 years of primary subfertility, a 36-year-old primigravida received two embryo transfers following an ICSI study. A healthy intrauterine pregnancy and a co-existing molar pregnancy were suspected based on US and beta-hCG levels. Following counseling, she continued the pregnancy, had high blood pressure, and delivered a healthy baby by elective caesarean section at 37 weeks.
(L. Wang et al., 2025) Subamniotic haemorrhage, an uncommon disorder involving bleeding between the amniotic membrane and fetal chorionic plate, is difficult to diagnose. A 35-year-old woman with lower abdomen pain and diminished fetal movements visited the emergency room at 37 weeks of gestation. The ultrasound showed medium-strong echoes in the amniotic fluid and uneven echoes around the umbilical cord. A Category II FHR tracing with increased MCA-PSV, indicating fetal compromise, indicated continued hypoxia or bleeding and necessitated rapid delivery to reduce the risk of poor consequences. Emergency cesarean delivery showed intraamniotic bleeding and a subamniotic hematoma around the umbilical cord insertion. the need of exploring unusual causes for common symptoms and the necessity of prompt ultrasound and action to avoid negative fetal outcomes.
(Jin et al., 2025) explored at the connection between obstetric APS (OAPS) patients' adverse pregnancy outcomes (APOs) and severe thrombocytopenia. Of the 176 OAPS patients in the research, 49 had thrombocytopenia and 9 had severe thrombocytopenia. the findings, uteroplacental insufficiency, premature labour before 37 weeks, SGA, and preterm birth before 34 weeks were among the higher APOs associated with severe thrombocytopenia. Platelets and APOs did not, however, show a linear relationship. According to the research, thrombocytopenia severity influences poor pregnancy outcomes in OAPS patients, and keeping platelet counts over 50× 109/L is essential for lowering this risk. Pregnancy outcomes may be improved by effective OAPS therapy.
(Akay et al., 2024) Pregnancy-associated plasma protein-A (PAPP-A), free β-hCG, and first-trimester maternal blood indicators were all analyzed in relation to subchorionic hematoma (SH) in early pregnancies with threatened miscarriage (TM). There was no discernible relationship between the hematoma's length, age, gravida, free β-hCG MoM, and PAPP-A MoM, according to a retrospective study of data from 2015–2021. There were 119 cases in the with SCH group and 153 in the without SCH group. Both groups' median ages were similar, and the SH's median longitudinal and vertical

lengths were 16 mm and 31 mm, respectively. In TM instances with SH, PAPP-A and free β-hCG levels were unaffected by the SH, suggesting that these markers may be employed with confidence for the first-trimester fetal aneuploidy screening test.

(Garg, n.d.) investigated pregnancy outcomes and complications in patients who had threatening abortions. a thorough medical and surgical history, participants gave signed informed permission. Weight, general examination, systemic examination, abdominal and per-vaginal examination, and local sources of bleeding were all part of the physical tests. Information was gathered from standard prenatal patient examinations. Six (9.8%) of the 61 instances where the pregnancy lasted over 20 weeks of gestation had premature membrane rupture, three (4.9%) had the placenta removed by hand, and six (9.8%) had intrauterine haemorrhage. Three (4.2%) of the 72 controls had preterm rupture of the membrane, three (4.2%) had IUGR, and one (1.4%) had stillbirth. Although not statistically significant, kids delivered to mothers who had threatened abortions had a higher mean APGAR score. the need of meticulous prenatal care, was that first trimester bleeding may predict late trimester pregnancy outcomes.

According to (Carlson & Hergenrader, 2023) the late-20s pregnant woman with placentomegaly and early-onset, severe fetal growth limitation. Investigations ruled out genetic and viral causes. Abnormal umbilical artery blood flow hampered the pregnancy. The patient and obstetrical team collaborated to deliver the baby by caesarean section at 28 weeks and 4 days. The infant was admitted to the NICU but fared well. A huge subchorionic haematoma was found in the placenta. It emphasizes the necessity of early discovery, examination, and care of severe FGR pregnancies and patient- centered decision-making. MST, along with early and severe FGR, is a bad prognostic factor for the baby, hence they want to raise awareness of it in placentomegaly diagnosis.

(Luo et al., 2023) Rare bleeding from antiphospholipid syndrome may make antithrombotic therapy during pregnancy risky. APS haemorrhage risk factors and their correlations to poor pregnancy outcomes (APOs) are explored. A retrospective cohort study was done at Peking University People's Hospital. Clinical and immunologic features, bleeding, treatment, and pregnancy outcomes were assessed in APS patients. APOs and bleeding using univariate and multivariate logistic regression. It has 176 obstetric APS cases. Blood issues impacted 66 (37.50%) APS and 86 (48.86%) APO patients. Mucocutaneous haemorrhage was linked with APOs such fetal death after 12 weeks (OR = 10.73, 95% CI: 1.61–71.74, p = 0.014), preterm birth before 34 weeks (OR = 8.30, 95% CI: 2.31–29.84, p = 0.001), and Multivariate logistic regression independently predicted preterm birth before 34 weeks (OR = 40.29, 95% CI: 1.45–1121.32, p = 0.030). In ROC analysis, factors impacting preterm delivery before 34 weeks had an AUC of 0.871.

(Gupta et al., 2022) Vaginal bleeding in the first trimester may indicate placental disease and lead to poor perinatal outcomes. Subchorionic haemorrhage is common, although its effects on continuing pregnancies have not been examined. the outcomes of subchorionic haemorrhage in pregnancies with vaginal bleeding up to 20 weeks of pregnancy. This was a one-year observational study. It included 230 individuals who met the inclusion criteria and presented with threatening abortion within 20 weeks of gestation. Regular ultrasounds were conducted to detect subchorionic haemorrhage and study its effects on pregnancies. After ultrasound screening of 230 early pregnancy patients with gestational age <20 weeks, 31 (13.4%) were diagnosed with subchorionic haemorrhage. In this research, women with subchorionic hematoma had a considerably greater incidence of problems. Conclusion: Subchorionic bleeding increases the probability of unfavourable pregnancy outcomes.

(Seyhanli et al., 2024) Subchorionic hematomas and poor pregnancy outcomes in those suffering a threatening miscarriage were not significantly correlated, according to research done between September 2022 and January 2024. Two groups of 200 individuals who were hospitalized for a singleton pregnancy were included in the research: the with SCH group, which had subchorionic hematoma, and the without SCH group, which did not. Maternal, neonatal, and demographic results were comparable for both groups. Growth restriction, placenta previa-accreta spectrum, hypertensive diseases, gestational diabetes mellitus, intrauterine mortality, and gestational age did not significantly vary across the groups, the conclusion that subchorionic hematoma detection of an imminent miscarriage did not raise the risk of miscarriages or cause issues for mothers or newborns.

(Pagan et al., 2022) Pregnancy complications like subchorionic haemorrhage (SCH) may cause morbidity in both the mother and the fetus. It is linked to unfavourable fetal outcomes such preterm delivery, premature prelabour rupture of membranes, fetal growth limitation, fetal death, and newborn pulmonary morbidity. It is often identified by ultrasound imaging. Although there isn't a known cure for SCH, there have been a number of experimental treatments documented. Although there are no care standards or recommendations, prenatal fetal testing, umbilical artery Doppler investigations, and serial growth ultrasounds should be taken into consideration, particularly if the SCH is big or therapy calls for a maternal blood transfusion.

(M. Thakkar et al., 2022) determined if vaginal bleeding enhances the risk of an unfavourable pregnancy outcome when a subchorionic hematoma is present. One hundred pregnant patients with first trimester hematoma diagnosis between August 2015 and May 2020 had their charts reviewed retrospectively. About 37% of individuals had bleeding during the first trimester. In terms of spontaneous abortion, intrauterine fetal mortality, gestational hypertension, preeclampsia, intrauterine growth restriction, oligohydramnios, and premature birth, there was no discernible difference between those who presented with vaginal bleeding and those who did not. A tendency toward a higher risk of spontaneous abortion, pre-eclampsia, and premature birth in individuals with bleeding was seen, but no substantial correlation with unfavourable pregnancy outcomes was discovered. A larger group of patients and the effect of hematoma size on pregnancy outcomes would be the subject of future studies.

(Schneider & Kinzler, 2025) The placenta and uterine decidua may separate completely or partially, a condition known as placental abruption. Abdominal discomfort, uterine contractions, vaginal bleeding, and anomalies in the fetal heart rate

tracing are examples of clinical symptoms. In between 0.4% and 1.0% of pregnancies, placental abruption occurs. The pathophysiology is still not well understood, however. overlapping pathways that lead to premature placental separation in this overview of the pathogenesis, diagnosis, and treatment of placental abruption. The traditional results and limitations of ultrasonography in assessing placental abruption are described. Lastly, treat placental abruption depending on the mother's hemodynamic stability, fetal condition, and gestational age.
(SHEK et al., 2023) examined placental abruption risk variables and mother-fetus outcomes in Hong Kong tertiary hospitals. A retrospective review of medical records from January 2017 to December 2021 examined demographics, obstetric history, antenatal features, BMI, clinical presentation, intrapartum events, complications, maternal and perinatal outcomes, alcohol/substance abuse, and smoking status. Placental abruption occurred 86 times in 22 990 deliveries and 23 230 live births. Antepartum bleeding increases placental abruption risk. Compared to controls, placental abruption patients had greater rates of blood transfusions, DIVC, uterine atony, postpartum haemorrhage, and caesarean sections. Newborns with placental abruption had higher rates of preterm delivery, lower birth weight, and poorer Apgar scores at 1 minute than controls. Clinicians should watch for placental abruption in high-risk patients with pre-eclampsia, hypertension, or both.
(Suzuki et al., 2022) placental abruption (PA) ultrasonography pathological characteristics found using a new Doppler technique: superior microvascular imaging. The pregnant woman developed dark brown vaginal discharge at 32 + 4 weeks. A 3 cm exophytic heterogeneous area between the placenta and myometrium was seen on traditional ultrasound. The SMI did not identify any tiny blood flow. A diagnosis of marginal subchorionic hematoma was made. On the seventh day of hospitalization, SMI showed fetal blood flow and inter-villous blood flow in villous trees. An emergency cesarean section was necessary due to an increase in uterine contractions. Although there were hematomas underneath the decidual tissue, the layer remained intact. an intervillous space. SMI might speed up obstetric intervention and aid in a more precise diagnosis of PA.

(Mallidi & Munikrishna, 2022) examined abruption placentae risk factors and maternal and fetal problems. The Obstetrics and Gynaecology department at a rural tertiary care facility performed record-based research from January 2015 to December 2019. The research included all 72 pregnant women suspected of placental abruption at 28 weeks or more. Maternity registry and patient files provided all data. Mode of birth, blood transfusion, parity, and complications determined mother outcome. Still and live births, neonatal intensive care unit hospitalization, and outcome were examined. Data was input and analyzed using co-Guide. The final analysis comprised 72 participants. They were mostly 21-30 years old (58/81%). Forty-three (59.72%) were preeclamptic. Forty-three (59.72%) delivered vaginally. 66 (91.67%) of 72 individuals had no maternal problems. Most 41 (56.94%) births were stillbirths, and just 7 (9.72%) needed ICU treatment. Placental abruption, which causes 41 (56.94%) stillbirths, is a severe health risk for pregnant women.
(Agarwal et al., 2020) compared feto-maternal and pregnancy outcomes in live pregnancies with first trimester haemorrhage and subchorionic hematoma to those without. Live pregnancies with or without first trimester haemorrhage with subchorionic hematoma were characterized. Abortion, continuation, prenatal problems, birth, intrapartum events, and fetal outcomes were assessed. Both groups had comparable abortion rates, 22.8% with hematoma and 21.5% without. Pregnancies with hematoma had more hypertension, fetal development limitation, and antepartum haemorrhage. In hematoma pregnancies, 20% had preterm births and 4.6% had low birth weight kids. Live pregnancies with first trimester bleeding and subchorionic hematoma had comparable miscarriage and antepartum haemorrhage risks.

(Mohammed, n.d.) investigated of 144 pregnant women indicated that first-trimester subchorionic hematoma increased spontaneous miscarriage risk. Increased maternal age, BMI, gestational age (less than 9 weeks), and hematoma size increase risk. The average age of pregnant women with subchorionic hematoma, body mass index, gestational age of presentation, and hematoma size were associated with pregnancy outcomes. that 5.3% of small subchorionic hematoma patients miscarried and 76.8% survived 24 weeks. Parity was not significantly different between the two groups, with 62.7% in the subchorionic haemorrhage group and 50.7% in the no hematoma group. No statistically significant placental site difference was identified across groups. Subchorionic hematoma in the first trimester increases spontaneous miscarriage risk.
(Namiuchi et al., 2020) Evaluated the prevalence of placental abruption (PA) in nulliparous and multiparous women in Dourados, MS, Brazil, was the aim of this research. cross-sectional investigation conducted retrospectively at a single centre. 240 ultrasonography (USG) tests of individuals with medical grounds for PA investigation were assessed. The age ranged from 15 to 43 years old, with an average of 28.6 ± 6.38. The average number of weeks the patients were pregnant was 7.8 ± 3.1, with a minimum of 4 weeks and a high of 27 weeks. Out of the 240 individuals that were assessed, 66 (27.7%) experienced PA. In the population under study, PA was very prevalent. There was no relationship between the patients' ages and the incidence of PA. Family planning and proper prenatal care are important in identifying risk factors for PA early on since they both lower the likelihood of adverse pregnancy outcomes.

(Carp, 2020) Explored the recurrent pregnancy loss (RPL), when the patient believes another miscarriage is about to happen, bleeding is very concerning. One typical consequence of RPL is vaginal bleeding, which occurred in 50 out of 162 women in Reginald's sample and 50 out of 102 patients in the author's study of RPL women. Prognoses on the course of pregnancy are often made using serum progesterone levels. When compared to the without SCH group, women who faced the prospect of miscarriage had a considerably greater overall poor pregnancy outcome. When using medications during pregnancy, safety and adverse effects should always be considered. To rule out ectopic pregnancy and other extragenital sources of bleeding, a physical examination is necessary. The hematoma group had a considerably higher

incidence of pre-eclampsia and pregnancy-induced hypertension. First, ultrasound can distinguish between an ectopic pregnancy, molar pregnancy, and intrauterine pregnancy.

(DeVilbiss et al., 2020) evaluated early pregnancy sickness and vaginal haemorrhage prognosis. The Effects of Aspirin in Gestation and Reproduction experiment included 701 women with confirmed pregnancies and prior pregnancy losses. Participants recorded daily symptoms from 2 to 8 weeks' gestation and were followed for pregnancy loss. Most bleeding was spotting and one-time, according to the research. Women had vaginal bleeding at 2-4 weeks' gestation, nausea at 22.7%, 65.9%, and 87.0%, respectively. Women bleeding without nausea between 6 and 8 weeks had the highest clinical pregnancy loss risk. Like age, BMI, blood pressure, and waist-to-hip ratio evaluated preconceptionally, nausea and bleeding predict clinical pregnancy loss. bleeding and nausea did not indicate clinical pregnancy loss before 6 weeks.
(Akpan et al., 2022) compared the pregnancy outcomes of women with TM with asymptomatic controls. In that study, 117 women who were tracked for TM between 2010 and 2019 had their results compared to a without SCH group. The spontaneous abortion rate was 3.4% in the without SCH group and 13.7% in the TM group, according to the results. Preterm delivery, postpartum haemorrhage, premature rupture of membranes, and placenta previa were also more common in TM women. Additionally, they were more likely to have a cesarean section. The baby birth weights of the TM and without SCH group did not vary significantly. While alternative treatment regimens did not substantially improve outcomes, admission to bed rest significantly increased fetal survival. Bed rest increases the number of live births, suggesting that women with TM may be at higher risk for both surgical delivery and fetal survival.

2.4 Research Gap

Subchorionic haemorrhage (SCH) is a common sonographic finding in early pregnancy, although its clinical relevance is unknown. Some studies link SCH to miscarriage, premature labour, placental abruption, and intrauterine growth restriction, while others say tiny or self-resolving haematomas may not affect pregnancy outcomes. This disagreement in the literature has left doctors unclear about prognosis and management of impacted pregnancies. Also lacking are established diagnostic and treatment criteria. Ultrasonography is commonly utilized for detection, although studies interpret haematoma size, location, and timing differently. Rest, follow-up imaging, and occasional pharmaceutical assistance are conservative treatments, but no common guideline guides therapeutic choices. This disagreement typically leads to treatment differences and issues advising patients on risks and outcomes.

Most studies have been done in Western or ART populations, limiting its applicability to spontaneously conceived pregnancies in varied locales. There is little study on geographical, demographic, and socio-economic variables that may affect SCH prevalence and consequences. Lifestyle variables and maternal comorbidities including hypertension, diabetes, and thyroid problems are also understudied. Thus, SCH's effects on pregnancy are still poorly understood despite a wealth of studies. require region-specific research on the connection between SCH features such size, location, and gestational timing with mother and fetal outcomes. This research attempts to fill this gap by carefully examining SCH and pregnancy outcomes in a specified group.

3. METHODOLOGY

3.1 Introduction

The research methodology employed to systematically examined the effects of subchorionic haemorrhage (SCH) outcomes in pregnancy through a comparative observational approach. This institutional study was conducted in the Department of Obstetrics and Gynaecology at Sree Balaji Medical College and Hospital, Bharath University, Chennai. Women diagnosed with subchorionic haemorrhage during early pregnancy were included in the with subchorionic haemorrhage (SCH) group. Clinical and demographic data were carefully recorded, including maternal age, gravidity, parity, body mass index (BMI), history of previous pregnancy loss, and gestational age at presentation. Immunological and coagulation characteristics, including Protein S, Protein C, Antithrombin III, Homocysteine, and autoimmune indicators, were evaluated to investigated possible underlying biological factors. Maternal outcomes, including miscarriage, preeclampsia, PROM/PPROM, and preterm delivery, as well as neonatal outcomes such as birth weight, Apgar scores, and NICU admissions, were thoroughly examined. Statistical techniques, such as descriptive statistics, and independent samples t-tests, were utilised to ascertain significant differences between the With SCH group.

3.2 Research design

This research used a quantitative technique and structured as a prospective observational study to examine subchorionic haemorrhage (SCH) and its effects during pregnancy. A total of 248 pregnant women were prospectively enrolled and monitored throughout their pregnancy. Participants were classified into women with subclinical hypothyroidism (SCH) (n = 105) for observational as well as analytical purposes and followed prospectively during pregnancy. The analysis was conducted to evaluate maternal characteristics, pregnancy outcomes, immunological indices, and neonatal outcomes between the two groups. Demographic and clinical data, including maternal age, gravidity, parity, body mass index (BMI), history of previous pregnancy loss, and gestational age, were gathered. Immunological and biochemical measures, including Protein S, Protein C, Antithrombin III, Homocysteine, and autoimmune indicators, were evaluated to ascertain their correlation with SCH. Maternal outcomes, including miscarriage, preeclampsia, PROM/PPROM, and preterm delivery, as well as neonatal outcomes such as birth weight and Apgar scores, were assessed. Statistical analyses were used SPSS, employing descriptive statistics to calculate mean values and independent samples t-tests to identify

significant differences between the groups. This strategy for a systematic evaluation of the impact of SCH on maternal and neonatal health outcomes.

3.3 Aim and objective

To diagnose the ultrasonographically detected subchorionic haemorrhage in pregnancy and to study its outcome in pregnancy.

3.4 Study area, study population and Sample design

The study was to examined the effects of subchorionic haemorrhage (SCH) and its outcomes in pregnancy using a comparative observational approach. It was conducted as institutional research within the Department of Obstetrics and Gynaecology at Sree Balaji Medical College and Hospital, Bharath University, Chennai. The study population consisted of women of reproductive age with confirmed pregnancies who visited the department during the study period. To establish a representative dataset for analysis, including 105 diagnosed with subchorionic haemorrhage allowing a systematic comparison of clinical, maternal, and neonatal outcomes.

3.5 Data collection

The data for this study were gathered from women of reproductive age with confirmed pregnancies who attended the Department of Obstetrics and Gynaecology at Sree Balaji Medical College and Hospital, Bharath University, Chennai. In total, 105 women were diagnosed with subchorionic haemorrhage. Data were collected using structured questionnaires, surveys, and Google Forms to obtain demographic and clinical information, including maternal age, gravidity, parity, body mass index (BMI), history of prior pregnancy loss, and gestational age at presentation. Data concerning maternal outcomes, including miscarriage, preeclampsia, PROM/PPROM, and preterm delivery, alongside neonatal outcomes such as birth weight, Apgar scores, and NICU admissions, were gathered from participants and confirmed with hospital records. Furthermore, laboratory examinations revealed immunological and biochemical parameters, including Protein S, Protein C, Antithrombin III, Homocysteine, and autoimmune markers, which were carefully documented to assess their correlation with SCH. This detailed approach guaranteed that both clinical observations and patient-level responses were carefully recorded, allowing an accurate examination of the influence of SCH on pregnancy outcomes.

3.6 Sampling Technique

Prospective observational research

A prospective study is an experimental design that sees things as they happen and looks forward in time. There is no condition of interest for participants when they start the research. Then, in order to determine the incidence of certain outcomes as well as other data that may be related to them, researchers collect data and make measurements at regular intervals.

Prospective research may, for instance, track a group of individuals and track the beginning of an illness over a certain amount of time (Jim, 2025). The goal of the research is to determine the variables that either raise or reduce the incidence of illness. None of the participants had the illness of interest at the beginning of the trial.

3.7 Inclusion and exclusion criteria

Inclusion criteria

1. Subchorionic haemorrhage confirmed via ultrasound.
2. Reproductive age with confirmed pregnancies.
3. Singleton pregnancies.
4. Patients with detailed medical records and follow-up data to track outcomes such as pregnancy Loss, preterm birth, and neonatal outcomes.
5. Informed consent to participate in the study.

Exclusion criteria

1. Multiple gestations (e.g., twins, triplets).
2. Pregnancies with known fetal abnormalities.
3. Subchorionic haemorrhage is suspected but not confirmed by imaging studies.
4. Unwilling or unable to participate in follow-up assessments or provide consent for their data to be used in research.

3.8 Tools and techniques

Tools:

In this study SPSS (Statistical package for the social sciences) tools will be utilized.

Techniques:

Independent sample T-TEST

A statistical method for determining if there is a significant difference between two groups' means is the T-test. It aids in determining if the observed differences between the groups are probably the result of random variation or a sign of a real underlying difference. In hypothesis testing, the T-test is often used to compare sample data and draw inferences about the population.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

Where:

$\bar{x}_1$, $\bar{x}_2$ = sample means of group 1 and group 2, respectively

s_1^2, s_2^2 = sample variances of group 1 and group 2, respectively

n_1, n_2 = sample sizes of group 1 and group 2, respectively

4. RESULTS

4.1 Introduction

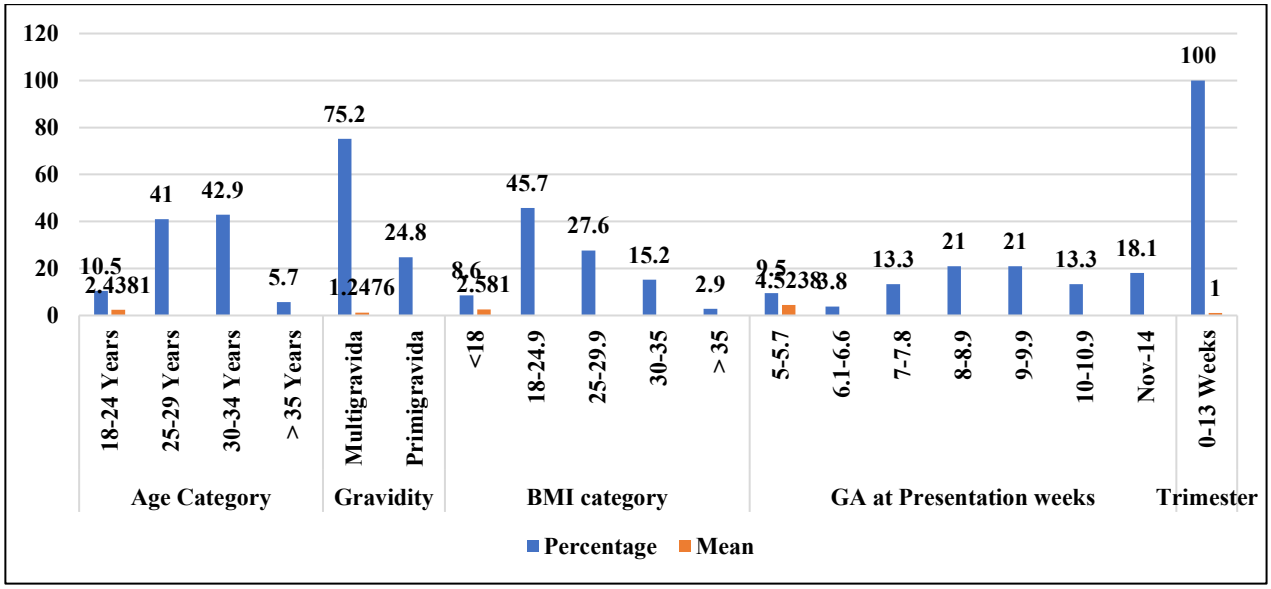
The results section presents the findings derived from the comparative examination of women with and without subchorionic haemorrhage (SCH), emphasising maternal features, immunological indices, pregnancy outcomes, and neonatal health indicators. The data are analyzed using descriptive statistics, group comparisons, and independent samples t-tests to assess the significance of observed differences.

4.2 Characteristics of pregnant women with SCH.

Table 1 Characteristics of Pregnant Women with SCH

		Frequency	Percentage	Mean
Age Category	18-24 Years	11	10.5	2.4381
	25-29 Years	43	41	
	30-34 Years	45	42.9	
	> 35 Years	6	5.7	
	Total	105	100	
Gravidity	Multigravida	79	75.2	1.2476
	Primigravida	26	24.8	
	Total	105	100	
BMI category	<18	9	8.6	2.581
	18-24.9	48	45.7	
	25-29.9	29	27.6	
	30-35	16	15.2	
	> 35	3	2.9	
	Total	105	100	
GA at Presentation weeks	5-5.7	10	9.5	4.5238
	6.1-6.6	4	3.8	
	7-7.8	14	13.3	
	8-8.9	22	21	
	9-9.9	22	21	
	10-10.9	14	13.3	
	Nov-14	19	18.1	
	Total	105	100	
Trimester	0-13 Weeks	105	100	1.0000

The socio-demographic and maternal characteristics of the study participants (N = 105) reveal that the majority of women were aged 30–34 years (42.9%), closely followed by those aged 25–29 years (41%), with a mean age category score of 2.44, indicating the majority of women in their late twenties to early thirties. The majority of participants were multigravida (75.2%), with primigravida comprising 24.8% of the sample, and a mean gravidity score of 1.25, reflecting past pregnancy experience among most individuals. Regarding body mass index (BMI), approximately 45.7% of participants were classified within the normal range of 18–24.9, 27.6% as overweight (25–29.9), and 15.2% as obese (30–35). A lesser percentage were underweight (8.6%) or severely obese (>35; 2.9%), yielding a mean BMI category score of 2.58. The majority of presentations occurred at a gestational age of 8 to 9.9 weeks (42% combined), followed by those from 11 to 14 weeks (18.1%), resulting in a mean gestational age category score of 4.52, indicating early pregnancy presentations in most instances. The trimester-wise distribution revealed nearly equal representation of women in the first (0–13 weeks), the mean trimester score was 1.0000, indicating a slight predominance of early to mid-pregnancy stages among the participants.

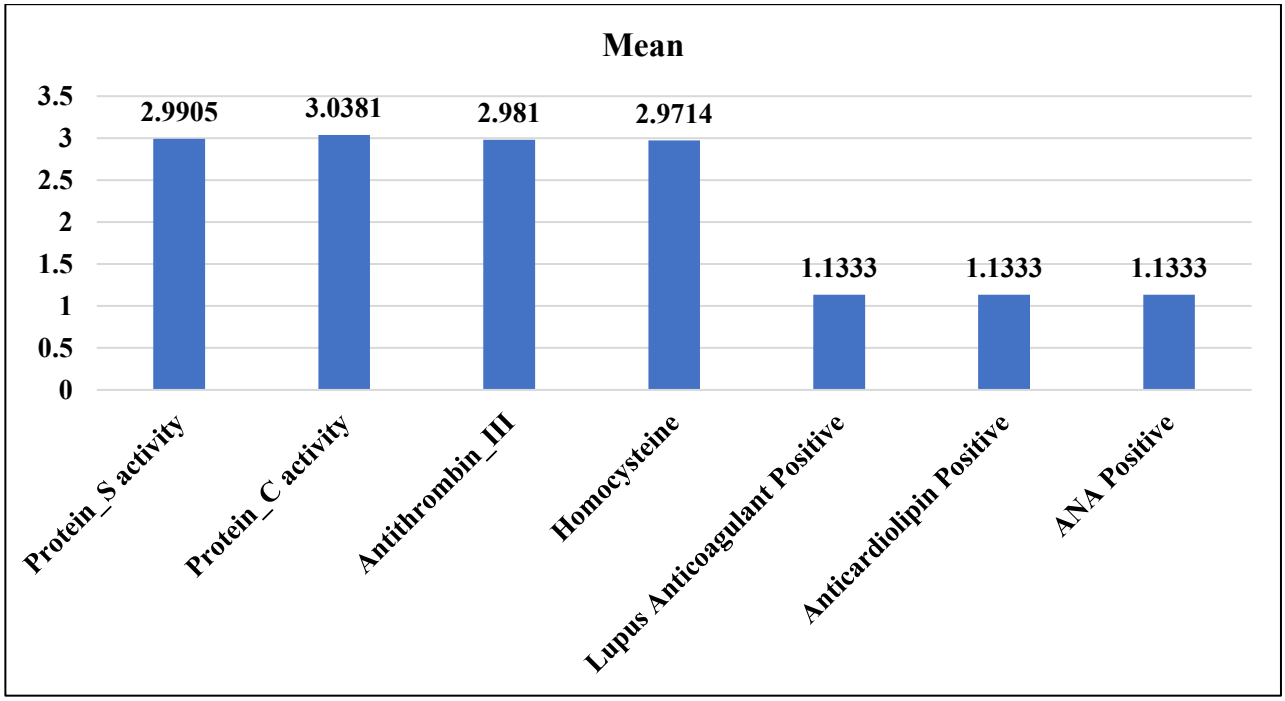


4.3 Comparison of Immune indexes and vaginal bleeding

Table 2 Comparison of Immune Indexes and Vaginal Bleeding

Variables	Mean	Std. Deviation
Protein_S activity	2.9905	1.22863
Protein_C activity	3.0381	1.37927
Antithrombin_III	2.981	1.23242
Homocysteine	2.9714	1.32619
Lupus Anticoagulant Positive	1.1333	0.34157
Anticardiolipin Positive	1.1333	0.34157
ANA Positive	1.1333	0.34157

The comparison of immunological and coagulation-related indices of vaginal haemorrhage reveals similar mean values across major biochemical markers, accompanied by moderate variability. Protein S activity (Mean = 2.99, SD = 1.23), Protein C activity (Mean = 3.04, SD = 1.38), Antithrombin III (Mean = 2.98, SD = 1.23), and Homocysteine levels (Mean = 2.97, SD = 1.33) exhibit closely aligned mean values, indicating a relatively homogenous distribution of these anticoagulant and metabolic parameters among the study cohort. The standard deviations signify moderate variability, indicating individual-level differences that may affect bleeding propensity. Conversely, immune-related positivity markers—Lupus Anticoagulant, Anticardiolipin antibodies, and ANA exhibit lower mean values (Mean = 1.13 for each) with minimal variability (SD = 0.34), suggesting that positivity for these immune indices was relatively rare and uniformly distributed within the sample. The findings indicate that although coagulation and metabolic parameters show moderate variation potentially related to vaginal bleeding, autoimmune antibody positivity seems restricted, suggesting a diminished role of immune-mediated mechanisms in the bleeding patterns observed in this study group.

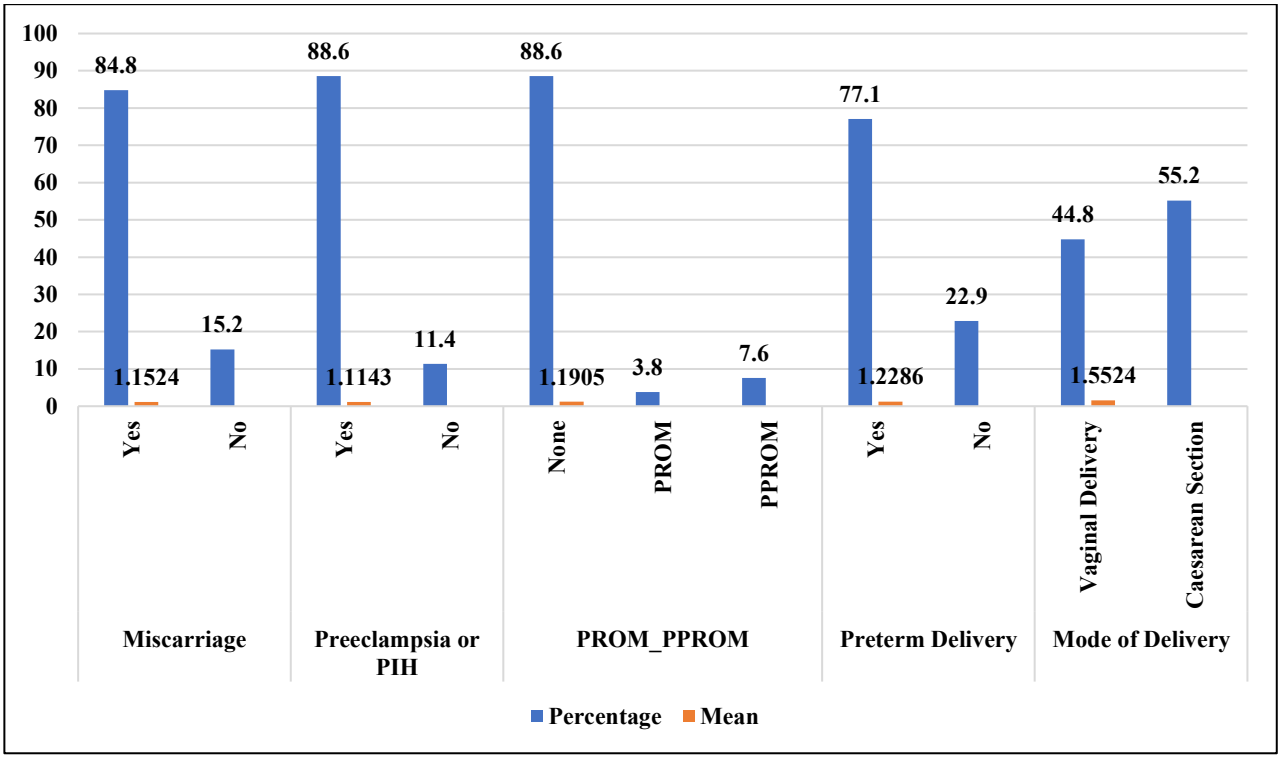


4.4 Maternal outcomes of With SCH group

Table 3 Maternal Outcomes of With SCH group

		Frequency	Percentage	Mean
Miscarriage	Yes	89	84.8	1.1524
	No	16	15.2	
	Total	105	100	
Preeclampsia or PIH	Yes	93	88.6	1.1143
	No	12	11.4	
	Total	105	100	
PROM_PPROM	None	93	88.6	1.1905
	PROM	4	3.8	
	PPROM	8	7.6	
	Total	105	100	
Preterm Delivery	Yes	81	77.1	1.2286
	No	24	22.9	
	Total	105	100	
Mode of Delivery	Vaginal Delivery	47	44.8	1.5524
	Caesarean Section	58	55.2	
	Total	105	100	

The maternal outcome data for the With SCH group (n = 105) indicated a significant prevalence of poor pregnancy outcomes. Miscarriage occurred in 84.8% of cases, signifying a significant pregnancy loss rate among women with SCH. Preeclampsia, or pregnancy-induced hypertension (PIH), was notably widespread, impacting 88.6% of the individuals, indicating a significant correlation between subclinical hypothyroidism (SCH) and hypertensive diseases of pregnancy. Concerning PROM/PPROM, the majority (88.6%) did not encounter difficulties from membrane rupture; nonetheless, 3.8% developed PROM and 7.6% encountered PPROM, highlighting a significant minority with obstetric issues associated with membrane rupture. Preterm delivery transpired in 77.1% of the instances, indicating a significantly elevated probability of early birth within this cohort. Concerning the mode of delivery, 55.2% of women underwent caesarean section, while 44.8% had vaginal deliveries, indicating a higher reliance on surgical intervention, possibly due to associated maternal or fetal complications. The data indicate that pregnancies complicated by subclinical hypothyroidism (SCH) are linked to markedly elevated rates of miscarriage, hypertensive problems, preterm delivery, and caesarean section, underscoring the necessity for vigilant monitoring and proactive obstetric management in this high-risk population.

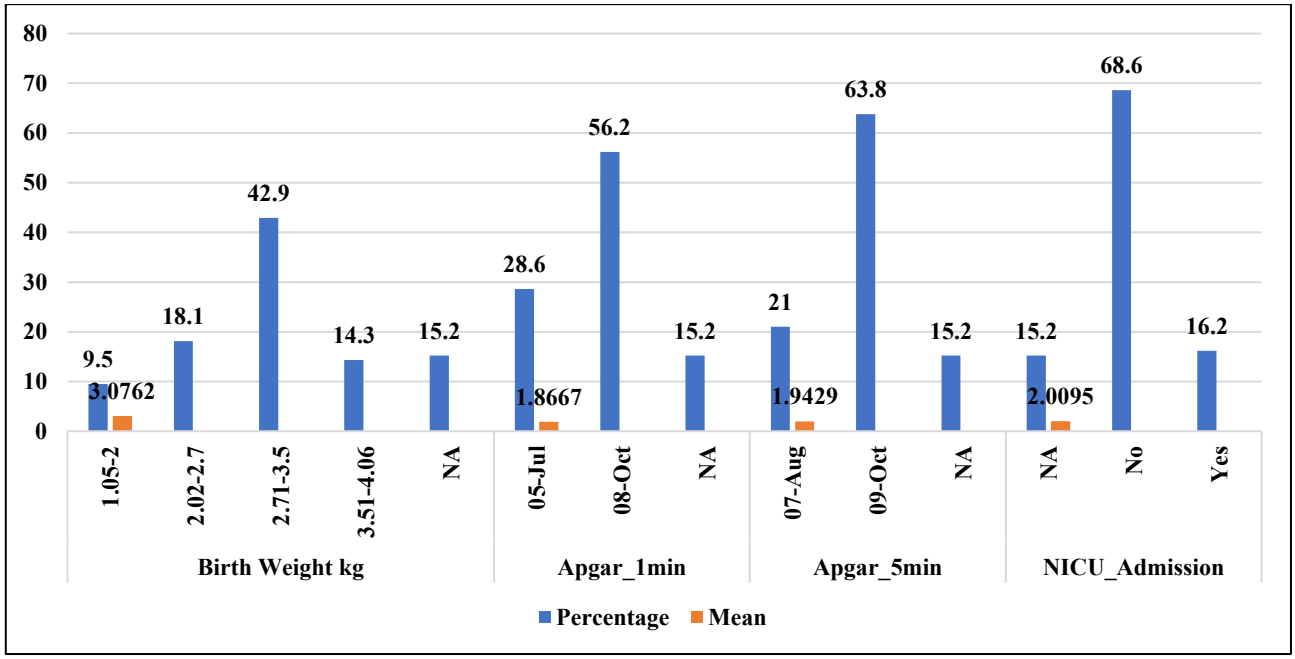


4.5 Neonatal outcomes of With SCH group.

Table 4 Neonatal Outcomes of With SCH group.

		Frequency	Percentage	Mean
Birth Weight kg	1.05-2	10	9.5	3.0762
	2.02-2.7	19	18.1	
	2.71-3.5	45	42.9	
	3.51-4.06	15	14.3	
	NA	16	15.2	
	Total	105	100	
Apgar_1min	05-Jul	30	28.6	1.8667
	08-Oct	59	56.2	
	NA	16	15.2	
	Total	105	100	
Apgar_5min	07-Aug	22	21	1.9429
	09-Oct	67	63.8	
	NA	16	15.2	
	Total	105	100	
NICU_Admission	NA	16	15.2	2.0095
	No	72	68.6	
	Yes	17	16.2	
	Total	105	100	

According to the newborn outcome data of the With SCH group (n = 105), the majority of neonates showed satisfactory delivery and immediate postnatal outcomes. A significant percentage of newborns (42.9%) had a birth weight of 2.71–3.5 kg, indicating normal birth weight, whereas 18.1% were in the 2.02–2.7 kg range. Low birth weight (1.05–2 kg) was noted in merely 9.5% of instances, while 14.3% exhibited a greater birth weight of 3.51–4.06 kg. Data were lacking for 15.2% of newborns. The Apgar score at 1 minute indicated that most neonates (56.2%) scored between 8–10, signifying favourable initial adaptation to extrauterine life, whereas 28.6% exhibited lower scores ranging from 5–7; Apgar data were absent for 15.2% of cases. A comparable pattern was noted in the Apgar score at 5 minutes, with 63.8% of neonates attaining scores between 9 and 10, signifying substantial improvement and efficient neonatal resuscitation when necessary, whereas 21% scored between 7 and 8. Regarding NICU admission, the majority of neonates (68.6%) did not necessitate NICU care, indicating general clinical stability; nevertheless, 16.2% required NICU admission, signifying the occurrence of certain newborn problems within the SCH group. Overall, although a minor percentage necessitates specialised care, the findings indicate generally favourable newborn outcomes among mothers with SCH.



5. DISCUSSION

This study provides a thorough assessment of subchorionic haemorrhage (SCH) and its correlation with maternal attributes, immunological metrics, pregnancy results, and neonatal health indicators. The findings indicate that SCH primarily affects women in their late twenties to early thirties and is more prevalent among multigravida women, suggesting that previous pregnancy exposure may affect susceptibility. The prevalence of early gestational presentation underscores the clinical significance of subclinical hypothyroidism (SCH) as an early pregnancy problem, emphasising the necessity for prompt identification and monitoring during the first. The distribution of maternal BMI indicates the presence of both normal and increased categories, reinforcing the notion that subclinical hypothyroidism (SCH) is a complex illness not limited to a singular nutritional or metabolic profile. The analysis of immunological and coagulation parameters reveals generally uniform distributions for anticoagulant and metabolic indicators, although the prevalence of autoimmune antibody positivity was uncommon. This pattern indicates that, in the current sample, SCH may be more closely linked to haemostatic or vascular mechanisms than to immune-mediated disease. Maternal outcomes indicated a substantial incidence of adverse events, such as pregnancy loss, hypertensive disorders, and preterm birth, highlighting SCH as a critical high-risk obstetric syndrome necessitating enhanced monitoring. The heightened dependence on caesarean birth underscores the intricacies and clinical difficulties faced in managing these pregnancies. Neonatal results, while largely positive for birth weight distribution, Apgar scores, and minimal necessity for intensive care, revealed a subset of neonates necessitating specialist assistance, indicating persistent prenatal risk. Notably, trimester-specific comparisons indicated that the timing of presentation correlated with differences in birth weight and gestational age at delivery. These data indicate that early detection and trimester-specific care techniques may affect pregnancy progression and outcomes. The study underscores the clinical importance of subclinical hypothyroidism (SCH) as a disease with significant maternal and newborn consequences, emphasising the necessity for gestation-specific surveillance and therapeutic options.

6. CONCLUSION

This study shows that subchorionic haemorrhage is a clinically relevant maternal complication that presents considerable maternal and newborn hazards. The findings indicate that SCH typically occurs in early to mid-pregnancy and is more prevalent in multigravida women, underscoring the necessity for increased care in this demographic. Maternal outcomes demonstrate a significant correlation between subclinical hypothyroidism (SCH) and negative pregnancy events, such as pregnancy loss, hypertensive disorders, premature delivery, and heightened surgical interventions, categorising SCH as a high-risk disease that requires proactive obstetric management. The assessment of immunological and coagulation-related parameters indicates a little involvement of autoimmune processes in most instances, instead highlighting vascular or haemostatic factors in the pathophysiology of SCH. Neonatal outcomes were predominantly positive, with the majority of newborns exhibiting adequate birth weights and postnatal adaptability; yet, the incidence of neonatal problems in some cases highlights the necessity for readiness in specialised neonatal care. Furthermore, trimester-based analysis demonstrated that the time of SCH presentation correlates meaningfully with pregnancy outcomes, especially with foetal size and gestational length at delivery. This underscores the prospective advantage of trimester-specific clinical regimens designed for early detection, vigilant monitoring, and prompt intervention. In conclusion, SCH should be considered a condition necessitating meticulous longitudinal monitoring during pregnancy. Timely diagnosis, risk assessment, and collaborative management may significantly enhance maternal and newborn outcomes in pregnancies affected by subchorionic haemorrhage.

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ANNEXURES
ANNEXURE I
PARTICIPANT INFORMATION SHEET

Name of the patient:
Age:

You are requested to participate in the scientific study titled
STUDY OF SUBCHORIONIC HAEMORRHAGE AND ITS OUTCOME IN PREGNANCY". we will do the ultrasonography to detect the subchorionic haemorrhage and observe the outcome. For this study we will be including all antenatal females with sub chorionic haemorrhage diagnosed in routine ultrasound required during pregnancy and will be assessed, The information shared by you is completely confidential and any access we might have to your information can be used only for scientific purposes without your identity being revealed. In no point in the study your identification details or individual details will be shared with third parties, disseminated or published in any manner. You are also free to withdraw from the study or the confidentiality of your data.

. If you are convinced after reading all this information, kindly give your consent in the form below to participate in the study

பங்கேற்பாளர் தகவல் தாள் -

நோயாளியின் பெயர்:

வயது:

"*கர்ப்ப காலத்தில் ஏற்படும் சப்-கோரியானிக் இரத்தப்போக்கு* (Subchorionic Haemorrhage) *மற்றும் அதன் விளைவுகள் குறித்த ஆய்வு" என்ற தலைப்பிலான அறிவியல் ஆய்வில் பங்கேற்குமாறு நீங்கள் கேட்டுக்கொள்ளப்படுகிறீர்கள். சப்-கோரியானிக் இரத்தப்போக்கைக் கண்டறியவும், அதன் விளைவுகளைக் கண்காணிக்கவும் நாங்கள் அல்ட்ராசோனோகிராபி* (Ultrasonography) *பரிசோதனையை மேற்கொள்வோம். இந்த ஆய்விற்காக, கர்ப்ப காலத்தில் வழக்கமாக மேற்கொள்ளப்படும் அல்ட்ராசவுண்ட் பரிசோதனையின்போது 'சப்-கோரியானிக் இரத்தப்போக்கு' இருப்பதாகக் கண்டறியப்பட்ட, கர்ப்பகாலப் பராமரிப்பில் உள்ள அனைத்துப் பெண்களும் சேர்த்துக்கொள்ளப்பட்டு, மதிப்பீடு செய்யப்படுவார்கள். நீங்கள் பகிர்ந்துகொள்ளும் தகவல்கள் முற்றிலும் ரகசியமாகப் பாதுகாக்கப்படும்; உங்கள் தகவல்களை நாங்கள் அணுக நேரிட்டாலும், அவை உங்கள் அடையாளம் வெளிப்படுத்தப்படாமல், அறிவியல் நோக்கங்களுக்காக மட்டுமே பயன்படுத்தப்படும். இந்த ஆய்வின் எந்த நிலையிலும், உங்கள் அடையாள விவரங்களோ அல்லது தனிப்பட்ட விவரங்களோ மூன்றாம் தரப்பினருடன் பகிரப்படவோ, பரப்பப்படவோ அல்லது எந்த வகையிலும் வெளியிடப்படவோ மாட்டாது. இந்த ஆய்விலிருந்து விலகிக்கொள்ளவோ அல்லது உங்கள் தரவுகளின் ரகசியத்தன்மை தொடர்பான உங்கள் விருப்பத்தை மாற்றிக்கொள்ளவோ உங்களுக்கு முழுச் சுதந்திரம் உள்ளது.*

*மேற்கண்ட அனைத்துத் தகவல்களையும் வாசித்த பிறகு, நீங்கள் முழுமையாகத் திருப்தியடைந்தால், இந்த ஆய்வில் பங்கேற்பதற்கான உங்கள் சம்மதத்தை கீழே உள்ள படிவத்தில் வழங்குமாறு கேட்டுக்கொள்கிறோம்.***ANNEXURE II**

CERTIFICATE OF CONSENT

Title of the project: study subchorionic haemorrhage and its outcome in pregnancy.

Name

Sex-

Age-

The details of the study have been provided to me in writing and explained to me in my own language. I confirm that I have understood the above study and had the opportunity to ask questions. I understand that my participation in the study is voluntary and that I am free to withdraw at any time, without giving any reason, without the medical care that will normally be provided by the hospital being affected. I agree not to restrict the use of any data or results that arise from this study provided such a use is only for scientific purposes). I have been given an information sheet giving details of the study.

I fully consent to participate in the above study.

Signature of participant

Signature of investigator

ஒப்புதல் சான்றிதழ்-

திட்டத்தின் தலைப்பு: கர்ப்ப காலத்தில் ஏற்படும் சப்-கோரியானிக் இரத்தப்போக்கு மற்றும் அதன் விளைவுகளைப் பற்றி ஆய்வு செய்தல்.

பெயர்

பாலினம்-

வயது-

ஆய்வின் விவரங்கள் எனக்கு எழுத்துப்பூர்வமாக வழங்கப்பட்டு, எனது சொந்த மொழியில் விளக்கப்பட்டுள்ளன. மேற்கூறிய ஆய்வை நான் புரிந்துகொண்டேன் என்பதையும், கேள்விகள் கேட்க எனக்கு வாய்ப்பு வழங்கப்பட்டது என்பதையும் நான் உறுதிப்படுத்துகிறேன். இந்த ஆய்வில் எனது பங்கேற்பு தன்னார்வமானது என்பதையும், மருத்துவமனையால் வழக்கமாக வழங்கப்படும் மருத்துவ கவனிப்பு பாதிக்கப்படாமல், எந்தக் காரணமும் கூறாமல், எந்த நேரத்திலும் விலகிக்கொள்ள எனக்கு முழு சுதந்திரம் உண்டு என்பதையும் நான் புரிந்துகொள்கிறேன். இந்த ஆய்விலிருந்து பெறப்படும் எந்தவொரு தரவு அல்லது முடிவுகளின் பயன்பாட்டையும் (அத்தகைய பயன்பாடு அறிவியல் நோக்கங்களுக்காக மட்டுமே இருக்கும் பட்சத்தில்) நான் கட்டுப்படுத்த மாட்டேன் என்று ஒப்புக்கொள்கிறேன். ஆய்வின் விவரங்களைக் கொண்ட ஒரு தகவல் தாள் எனக்கு வழங்கப்பட்டுள்ளது.

மேற்கண்ட ஆய்வில் பங்கேற்க நான் முழுமையாக ஒப்புக்கொள்கிறேன்.

பங்கேற்பாளரின் கையொப்பம்

ஆய்வாளரின் கையொப்பம்

ANNEXURE III
STUDY PROFORMA
STUDY TITLE-Study subchorionic haemorrhage and its outcome in pregnancy.

- Name-
- Age-
- Op no-
- Address-
- Socioeconomic status-
- Menstrual history- -
- Regularity of cycle- If irregular explain- LMP-
- Marital history (if applicable)- Married since- years
- Consanguinity-
- Obstetric history-
- History of abortion- No of living children- Last child birth-
- Presenting complaint-
- History of bleeding of-
- Other Past history-
- H/O TB/ epilepsy/bronchial asthma/drug intake, prolonged surgery
- Treatment history-
- Allergy history-
- EXAMINATION:
- Height
- Weight
- BMI
- Blood pressure
- INVESTIGATIONS: Ultrasonography

MASTER CHART

Groups	Age_Category	Gravidity	Parity	BMI_category	Prior_Loss_or_Abortion_histor	GA_at_Presentation_weeks	Protein_S_activity	Protein_C_activity	Antithrombin_III	Homocysteine	Lupus_Anticoagulant_Positive	Anticardiolipin_Positive	ANA_Positive	Miscarriage	Preeclampsia_or_PIH	PROM_PPROM	Preterm_Delivery	Mode_of_Delivery	Birth_Weight_kg	Apgar_1min	Apgar_5min	NICU_Admission	Trimster	Gestational_age_at_delivery
1.00	3.00	1.00	1.00	3.00	1.00	1.00	1.00	3.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	2.00	1.00	1.00
1.00	1.00	1.00	1.00	2.00	1.00	6.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	1.00	1.00
1.00	3.00	1.00	1.00	3.00	1.00	2.00	1.00	4.00	2.00	4.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	3.00	1.00	2.00	2.00	1.00	1.00
1.00	3.00	1.00	2.00	2.00	2.00	3.00	4.00	3.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	3.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	2.00
1.00	1.00	1.00	1.00	3.00	1.00	7.00	2.00	5.00	1.00	5.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	3.00	1.00	2.00
1.00	1.00	1.00	1.00	2.00	1.00	1.00	4.00	3.00	2.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	2.00	2.00	2.00	1.00	3.00
1.00	3.00	1.00	1.00	2.00	1.00	4.00	4.00	1.00	4.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00	4.00	2.00	2.00	2.00	1.00	3.00
1.00	2.00	1.00	1.00	2.00	2.00	3.00	5.00	3.00	3.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	2.00	2.00	2.00	1.00	3.00
1.00	2.00	1.00	1.00	2.00	1.00	5.00	2.00	5.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00
1.00	2.00	1.00	1.00	4.00	1.00	5.00	2.00	5.00	4.00	3.00	2.00	1.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00	2.00	1.00	3.00
1.00	3.00	1.00	1.00	2.00	1.00	5.00	3.00	5.00	2.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	2.00	2.00	2.00	1.00	1.00
1.00	3.00	1.00	2.00	2.00	2.00	5.00	2.00	2.00	5.00	2.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00	1.00
1.00	3.00	1.00	1.00	3.00	1.00	7.00	2.00	3.00	4.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	1.00	2.00	2.00	1.00	2.00
1.00	4.00	1.00	1.00	3.00	1.00	2.00	4.00	5.00	5.00	1.00	1.00	2.00	1.00	1.00	2.00	3.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	2.00
1.00	3.00	1.00	1.00	1.00	2.00	4.00	3.00	3.00	3.00	3.00	1.00	2.00	1.00	2.00	1.00	1.00	1.00	2.00	5.00	3.00	3.00	1.00	1.00	2.00
1.00	2.00	1.00	1.00	2.00	2.00	7.00	3.00	4.00	4.00	3.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	1.00	3.00
1.00	3.00	1.00	2.00	2.00	1.00	7.00	2.00	1.00	3.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	3.00
1.00	2.00	1.00	1.00	3.00	2.00	6.00	5.00	2.00	2.00	5.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	2.00
1.00	3.00	2.00	1.00	2.00	1.00	4.00	5.00	3.00	5.00	4.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	2.00	1.00	2.00	1.00	3.00
1.00	2.00	1.00	1.00	2.00	1.00	7.00	5.00	4.00	3.00	5.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	2.00	5.00	3.00	3.00	1.00	1.00	1.00
1.00	2.00	1.00	1.00	1.00	1.00	5.00	1.00	3.00	4.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	3.00	1.00	2.00
1.00	2.00	2.00	2.00	3.00	1.00	5.00	4.00	1.00	3.00	3.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	4.00	2.00	2.00	2.00	1.00	2.00
1.00	4.00	2.00	2.00	1.00	1.00	4.00	3.00	3.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	2.00	2.00	2.00	1.00	2.00
1.00	2.00	1.00	1.00	4.00	2.00	4.00	5.00	2.00	3.00	3.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	2.00	5.00	3.00	3.00	1.00	1.00	1.00
1.00	2.00	1.00	1.00	2.00	1.00	5.00	3.00	4.00	4.00	2.00	1.00	1.00	1.00	2.00	1.00	3.00	1.00	2.00	5.00	3.00	3.00	1.00	1.00	2.00
1.00	2.00	1.00	1.00	3.00	1.00	4.00	4.00	5.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	1.00
1.00	3.00	1.00	1.00	2.00	2.00	4.00	3.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	4.00	2.00	2.00	2.00	1.00	3.00

Groups	Age_Category	Gravidity	Parity	BMI_category	Prior_Loss_or_Abortion_histor	GA_at_Presentation_weeks	Protein_S_activity	Protein_C_activity	Antithrombin_III	Homocysteine	Lupus_Anticoagulant_Positive	Anticardiolipin_Positive	ANA_Positive	Miscarriage	Preeclampsia_or_PIH	PROM_PPROM	Preterm_Delivery	Mode_of_Delivery	Birth_Weight_kg	Apgar_1min	Apgar_5min	NICU_Admission	Trimster	Gestational_age_at_delivery
1.00	3.00	1.00	1.00	2.00	1.00	5.00	3.00	2.00	3.00	3.00	1.00	2.00	1.00	2.00	1.00	1.00	1.00	2.00	5.00	3.00	3.00	1.00	1.00	2.00
1.00	3.00	1.00	1.00	2.00	1.00	3.00	3.00	1.00	5.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00	5.00	3.00	3.00	1.00	1.00	3.00
1.00	3.00	2.00	2.00	3.00	2.00	6.00	5.00	1.00	4.00	1.00	2.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	3.00	2.00	2.00	2.00	1.00	3.00
1.00	4.00	2.00	2.00	4.00	1.00	7.00	3.00	5.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	3.00	1.00	1.00	5.00	3.00	3.00	1.00	1.00	1.00
1.00	2.00	1.00	1.00	1.00	1.00	6.00	2.00	3.00	5.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	3.00
1.00	2.00	2.00	1.00	2.00	1.00	5.00	1.00	2.00	4.00	5.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	1.00	3.00	1.00	3.00
1.00	2.00	1.00	1.00	4.00	1.00	3.00	4.00	3.00	3.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	2.00	1.00	2.00
1.00	3.00	1.00	1.00	3.00	1.00	6.00	3.00	5.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	2.00	2.00	2.00	1.00	3.00
1.00	4.00	1.00	1.00	2.00	1.00	4.00	1.00	4.00	4.00	2.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	5.00	3.00	3.00	1.00	1.00	3.00
1.00	2.00	1.00	1.00	2.00	2.00	6.00	4.00	2.00	2.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	3.00	1.00	1.00
1.00	2.00	2.00	2.00	3.00	1.00	7.00	5.00	1.00	5.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	2.00	2.00	2.00	1.00	3.00
1.00	2.00	1.00	1.00	3.00	1.00	5.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00	1.00	2.00
1.00	3.00	1.00	1.00	3.00	1.00	7.00	3.00	5.00	3.00	5.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	2.00	2.00	2.00	1.00	2.00
1.00	3.00	1.00	1.00	4.00	1.00	6.00	4.00	3.00	4.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	3.00
1.00	3.00	2.00	2.00	2.00	1.00	7.00	2.00	4.00	3.00	4.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00	4.00	2.00	2.00	2.00	1.00	2.00
1.00	2.00	1.00	2.00	2.00	1.00	5.00	1.00	5.00	4.00	5.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	4.00	2.00	2.00	2.00	1.00	3.00
1.00	3.00	2.00	1.00	2.00	1.00	7.00	3.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	2.00	1.00	2.00
1.00	3.00	1.00	1.00	2.00	1.00	6.00	3.00	4.00	1.00	4.00	1.00	1.00	2.00	1.00	1.00	3.00	2.00	2.00	1.00	1.00	1.00	3.00	1.00	3.00
1.00	3.00	2.00	2.00	2.00	1.00	3.00	2.00	3.00	4.00	4.00	2.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00	5.00	3.00	3.00	1.00	1.00	1.00
1.00	3.00	2.00	2.00	1.00	1.00	5.00	3.00	1.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	2.00	2.00	2.00	1.00	1.00
1.00	3.00	1.00	1.00	2.00	1.00	4.00	5.00	1.00	3.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	2.00	2.00	2.00	1.00	1.00
1.00	3.00	1.00	1.00	3.00	2.00	5.00	1.00	2.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	3.00
1.00	3.00	2.00	1.00	1.00	2.00	7.00	4.00	2.00	3.00	3.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	2.00	1.00	3.00	1.00	1.00
1.00	3.00	1.00	2.00	2.00	1.00	7.00	4.00	5.00	2.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	1.00	2.00	2.00	1.00	1.00
1.00	3.00	2.00	2.00	3.00	1.00	6.00	5.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	4.00	2.00	2.00	2.00	1.00	3.00
1.00	1.00	2.00	2.00	3.00	1.00	4.00	3.00	5.00	3.00	5.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	2.00
1.00	2.00	1.00	2.00	3.00	1.00	4.00	2.00	1.00	3.00	5.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	4.00	1.00	2.00	2.00	1.00	2.00

Groups	Age_Category	Gravidity	Parity	BMI_category	Prior_Loss_or_Abortion_histor	GA_at_Presentation_weeks	Protein_S_activity	Protein_C_activity	Antithrombin_III	Homocysteine	Lupus_Anticoagulant_Positive	Anticardiolipin_Positive	ANA_Positive	Miscarriage	Preeclampsia_or_PIH	PROM_IPROM	Preterm_Delivery	Mode_of_Delivery	Birth_Weight_kg	Apgar_1min	Apgar_5min	NICU_Admission	Trimester	Gestational_age_at_delivery
1.00	2.00	1.00	1.00	3.00	2.00	1.00	3.00	2.00	4.00	4.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	3.00	1.00	3.00
1.00	2.00	2.00	2.00	3.00	2.00	5.00	4.00	3.00	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	2.00
1.00	2.00	1.00	1.00	2.00	2.00	1.00	2.00	2.00	2.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00	3.00
1.00	4.00	1.00	2.00	2.00	1.00	6.00	3.00	3.00	1.00	4.00	1.00	2.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00	1.00	2.00
1.00	2.00	2.00	2.00	3.00	2.00	1.00	2.00	4.00	4.00	4.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	2.00	1.00	3.00	1.00	2.00
1.00	3.00	2.00	2.00	2.00	1.00	4.00	5.00	5.00	3.00	4.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	2.00	2.00	2.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	4.00	4.00	2.00	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	2.00	4.00	2.00	2.00	3.00	1.00	2.00
1.00	2.00	1.00	1.00	2.00	1.00	7.00	2.00	5.00	5.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	4.00	2.00	2.00	3.00	1.00	1.00
1.00	3.00	2.00	1.00	2.00	2.00	4.00	4.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	3.00
1.00	3.00	1.00	2.00	2.00	2.00	3.00	3.00	4.00	1.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	3.00
1.00	3.00	1.00	1.00	2.00	2.00	3.00	3.00	3.00	4.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	1.00
1.00	3.00	2.00	1.00	4.00	2.00	7.00	2.00	3.00	4.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	3.00	1.00	1.00
1.00	2.00	1.00	1.00	4.00	2.00	6.00	1.00	5.00	5.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.00	2.00	2.00	3.00	1.00	1.00
1.00	2.00	1.00	1.00	2.00	1.00	4.00	3.00	1.00	4.00	5.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	2.00	2.00	1.00	3.00
1.00	3.00	2.00	2.00	4.00	1.00	4.00	1.00	3.00	3.00	3.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	2.00	5.00	3.00	3.00	1.00	1.00	3.00
1.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	4.00	5.00	1.00	1.00	1.00	1.00	1.00	3.00	1.00	2.00	3.00	2.00	1.00	2.00	1.00	2.00
1.00	1.00	1.00	1.00	4.00	1.00	5.00	3.00	3.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	1.00
1.00	1.00	2.00	2.00	4.00	2.00	1.00	5.00	2.00	5.00	4.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	2.00
1.00	2.00	1.00	1.00	1.00	1.00	6.00	4.00	5.00	2.00	1.00	2.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	4.00	2.00	1.00	3.00	1.00	3.00
1.00	3.00	2.00	1.00	3.00	1.00	5.00	3.00	1.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	4.00	2.00	1.00	2.00	1.00	1.00
1.00	3.00	1.00	1.00	5.00	1.00	7.00	4.00	3.00	3.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.00	2.00	2.00	2.00	1.00	2.00
1.00	3.00	1.00	2.00	4.00	1.00	2.00	1.00	3.00	1.00	5.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	1.00
1.00	2.00	1.00	1.00	5.00	1.00	4.00	2.00	3.00	3.00	4.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00	5.00	3.00	3.00	1.00	1.00	1.00
1.00	3.00	1.00	2.00	3.00	2.00	7.00	4.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	2.00
1.00	3.00	1.00	1.00	2.00	2.00	7.00	3.00	2.00	4.00	4.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	2.00
1.00	2.00	1.00	1.00	4.00	1.00	3.00	2.00	5.00	5.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00	2.00	1.00	3.00
1.00	3.00	2.00	2.00	3.00	1.00	5.00	4.00	5.00	3.00	5.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	1.00

Groups	Age_Category	Gravidity	Parity	BMI_category	Prior_Loss_or_Abortion_histor	GA_at_Presentation_weeks	Protein_S_activity	Protein_C_activity	Antithrombin_III	Homocysteine	Lupus_Anticoagulant_Positive	Anticardiolipin_Positive	ANA_Positive	Miscarriage	Preeclampsia_or_PIH	PROM_IPROM	Preterm_Delivery	Mode_of_Delivery	Birth_Weight_kg	Apgar_1min	Apgar_5min	NICU_Admission	Trimester	Gestational_age_at_delivery
1.00	2.00	1.00	1.00	3.00	1.00	4.00	5.00	3.00	3.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	2.00
1.00	2.00	1.00	1.00	2.00	1.00	5.00	3.00	5.00	3.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00
1.00	2.00	2.00	2.00	3.00	1.00	3.00	3.00	1.00	2.00	5.00	1.00	2.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00
1.00	1.00	1.00	1.00	2.00	2.00	4.00	5.00	2.00	2.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.00	2.00	2.00	2.00	1.00	2.00
1.00	3.00	1.00	1.00	3.00	1.00	1.00	3.00	3.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00	2.00	1.00	3.00
1.00	2.00	1.00	2.00	2.00	1.00	5.00	1.00	5.00	4.00	3.00	1.00	1.00	1.00	1.00	2.00	3.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	1.00
1.00	2.00	1.00	1.00	3.00	1.00	5.00	4.00	2.00	2.00	5.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	1.00	1.00
1.00	3.00	1.00	2.00	4.00	1.00	4.00	2.00	2.00	4.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	3.00	1.00	1.00
1.00	3.00	1.00	1.00	2.00	2.00	1.00	3.00	1.00	5.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00	2.00	2.00	1.00	3.00
1.00	3.00	1.00	2.00	2.00	1.00	7.00	3.00	5.00	2.00	5.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00	5.00	3.00	3.00	1.00	1.00	3.00
1.00	2.00	1.00	1.00	2.00	2.00	5.00	3.00	4.00	3.00	3.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	2.00	5.00	3.00	3.00	1.00	1.00	2.00
1.00	2.00	1.00	1.00	5.00	1.00	3.00	4.00	5.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	4.00	2.00	2.00	2.00	1.00	2.00
1.00	2.00	1.00	2.00	3.00	2.00	4.00	1.00	4.00	4.00	1.00	2.00	1.00	2.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00	2.00	2.00	1.00	2.00
1.00	1.00	2.00	2.00	2.00	2.00	1.00	2.00	4.00	4.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	3.00	1.00	3.00
1.00	1.00	1.00	2.00	2.00	1.00	2.00	4.00	1.00	3.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	1.00	2.00	2.00	1.00	2.00
1.00	1.00	1.00	2.00	2.00	1.00	3.00	2.00	1.00	2.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	3.00
1.00	2.00	2.00	2.00	2.00	1.00	7.00	1.00	3.00	2.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	1.00	2.00	2.00	1.00	3.00
1.00	3.00	1.00	1.00	4.00	1.00	3.00	4.00	2.00	5.00	4.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	5.00	3.00	3.00	1.00	1.00	3.00
1.00	2.00	1.00	2.00	3.00	1.00	6.00	2.00	1.00	3.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	2.00	2.00	2.00	1.00	3.00
1.00	2.00	1.00	1.00	2.00	1.00	3.00	3.00	3.00	4.00	3.00	2.00	2.00	1.00	1.00	1.00	3.00	1.00	2.00	3.00	2.00	2.00	2.00	1.00	1.00
1.00	4.00	1.00	1.00	4.00	1.00	5.00	1.00	4.00	1.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00	1.00	2.00	2.00	1.00	1.00
1.00	2.00	1.00	1.00	2.00	1.00	4.00	4.00	2.00	2.00	4.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	2.00	5.00	3.00	3.00	1.00	1.00	3.00
1.00	3.00	1.00	1.00	4.00	2.00	6.00	1.00	5.00	4.00	5.00	1.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00	5.00	3.00	3.00	1.00	1.00	3.00
1.00	2.00	1.00	2.00	2.00	1.00	3.00	3.00	3.00	3.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00	3.00	1.00	3.00