

# Association between sexual activity during pregnancy and emergency ambulance utilization: A retrospective observational study

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## Abstract

**Objective:** This study explores the correlation between sexual activity during pregnancy and emergency ambulance utilization.

**Methods:** A retrospective analysis was conducted using data from the prehospital emergency database of Tongji Hospital.

**Results:** A strong positive correlation was identified between sexual activity within the preceding week and the onset of symptoms including abdominal pain, vaginal bleeding, and abnormal vaginal discharge—all of which were associated with significantly higher ambulance call rates. This study elaborates on the impact of sexual intercourse during pregnancy, examines potential clinical complications, and proposes practical recommendations to reduce unnecessary ambulance calls related to pregnancy-related sexual activity, with a primary focus on safeguarding the safety and well-being of pregnant women.

**Conclusion:** Sexual activity during pregnancy is linked to an increased risk of emergency ambulance calls. Therefore, caution is advised and individualized clinical consultation should be encouraged in the first and third trimesters. Even in the second trimester, the use of condoms is advised to avoid direct ejaculation of semen into the vagina; couples should also refrain from nipple stimulation and vigorous movements to prevent uterine contractions and orgasm, which may lead to adverse pregnancy outcomes.

## Introduction

With societal progress, improved living standards, and enhanced education levels, there is growing attention to the quality of life during pregnancy [1]. While sexual activity is generally considered safe in uncomplicated pregnancies, some studies suggest it may trigger complications affecting pregnancy outcomes. This topic has garnered interest from obstetricians and sexologists, yet existing research findings remain inconsistent. This study analyzes the relationship between sexual activity during pregnancy and ambulance call rates, aiming to provide evidence-based recommendations for improving maternal safety and health.

## Background

Kavanagh, et al. argue that sexual activity during pregnancy is not associated with preterm birth or neonatal mortality, suggesting it does not trigger preterm labor [2]. However, they acknowledge its link to vaginal and urinary tract infections. In contrast, other researchers propose that sexual activity may contribute to preterm labor or premature rupture of membranes through three key mechanisms [3]: (1) direct mechanical stimulation of the cervix and uterine contractions induced by sexual arousal; (2) prostaglandins and other bioactive substances in semen that soften the cervix and stimulate uterine contractions; and (3) stimulation of erogenous zones (e.g., breasts and nipples) that may trigger uterine contractions. This study statistically analyzes clinical data on ambulance calls by pregnant women across different trimesters, aiming to provide evidence-based guidance on sexual activity during pregnancy and ensure maternal safety.

## Materials and methods

### General information

This study used the ambulance dispatch database of the Emergency Center at Tongji Hospital, Wuhan. A retrospective analysis was performed on 309 pregnant women who called for ambulances due to abdominal pain, vaginal bleeding, or abnormal vaginal discharge between January 2020 and October 2024 (Table 1).

### Statistical methods

Data were analyzed using SPSS statistical software. Categorical data were compared *via* the chi-square test, and single-factor logistic regression was used to identify independent risk factors. A p-value < 0.05 was considered statistically significant.

## Results

A significant correlation was found between sexual activity during pregnancy and ambulance utilization. Ambulance call rates were

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**Key words:** sexual activity, pregnancy, ambulance, emergency, adverse pregnancy outcomes

**Received:** September 08, 2025; **Accepted:** September 29, 2025; **Published:** October 06, 2025

**Table 1.** Statistical characteristics of pregnant women who called for ambulances (2020–2024)

Items		Number of cases	Percentage
Age	20-30(years)	213	68.9%
	30-40(years)	96	31.1%
Pregnancy trimester	early(<12Weeks)	102	33%
	Middle(12-24Weeks)	153	49.45%
	Late (24-40Weeks)	54	17.55%
Reason for ambulance call	Abdominal pain	67	21.6%
	Vaginal bleeding	202	65.4%
	vaginal discharge	40	13%
Sexual activity (Past week)	No condom	275	89%
	With condom	18	6%
No intercourse		16	5%

markedly higher among women who had engaged in sexual activity, with a more pronounced increase in the second and third trimesters. Symptoms including abdominal pain, vaginal bleeding, and abnormal vaginal discharge were significantly more common after sexual activity, leading to a much higher proportion of ambulance calls compared to women who had not engaged in sexual activity. Based on these findings, pregnant women are advised to consult their obstetrician before engaging in sexual activity—this consultation can help assess their physical condition, clarify the feasibility of sexual activity, and provide specific guidance, thereby reducing the risk of pregnancy-related complications caused by incomplete or inaccurate knowledge.

## Discussion

This study found that women aged 20–30 engaged in more sexual activity during the first and second trimesters than those aged 30–40, with the lowest frequency observed in the third trimester. Vaginal bleeding was the primary reason for ambulance calls (65.4%), followed by abdominal pain (21.6%) and abnormal vaginal discharge (13.0%).

A domestic study reported that 67.3% of postpartum women had engaged in sexual activity during pregnancy, and many did so primarily to meet their partner's physical needs [4]. A large proportion of these women participated passively rather than seeking sexual satisfaction actively. Multiple domestic and international surveys have confirmed that most women experience a decline in sexual desire and activity during pregnancy, a trend closely associated with hormonal changes—elevated progesterone levels, in particular, have been shown to suppress female libido [5]. Additionally, fear of adverse pregnancy outcomes (shared by both pregnant women and their partners) further reduces sexual activity.

Sexual activity during pregnancy can trigger physiological responses and clinical complications. Intercourse may cause minor cervical trauma, leading to vaginal bleeding. Sexual stimulation (including nipple stimulation) can induce the release of oxytocin, which promotes uterine smooth muscle contraction [6]. Prostaglandins in semen are also thought to contribute to uterine contractions. During orgasm, pregnant women experience uterine contractions; frequent contractions may cause pregnancy-related pain and increase the risk of miscarriage or preterm birth. Postcoital abnormal vaginal discharge—especially in the third trimester—may raise the risk of placenta previa, premature rupture of membranes, and preterm birth [7].

Our findings show that 95% of pregnant women who sought emergency care had engaged in vaginal intercourse in the past week,

and 89% of these cases involved unprotected intercourse. This suggests that semen may play a role in adverse pregnancy outcomes. The low rate of condom use among pregnant women (who no longer need contraception) may contribute to these complications. Since sexual activity during pregnancy cannot be completely avoided, it is critical to provide pregnant women with scientific, professional, and accurate guidance on safe sexual behavior. Clinicians should recommend appropriate practices, such as: Positions (i) woman on top (facing partner's head or feet): allows woman control of depth of penetration/pace, while avoiding abdominal pressure; (ii) the side-lying position (face to face or “spooning”): Reduces physical strain, is particularly suitable for the third trimester, and enables shallow penetration to minimize cervical stimulation; and (iii) kneeling or on all fours (“doggie style” may be comfortable to lie on edge of bed while kneeling on ground with woman's belly resting comfortably off the bed): keeps pressure off uterus. It is also important to emphasize that sexual intimacy during pregnancy is not limited to intercourse. Creating a warm and comfortable environment, engaging in gentle physical affection, and using non-penetrative stimulation (e.g., manual or oral) can enhance communication between couples and meet their sexual needs safely.

## Conclusion

Sexual activity during pregnancy is associated with an increased risk of emergency ambulance calls. Therefore, caution is advised and individualized clinical consultation should be encouraged in the first and third trimesters. Even in the second trimester, condoms should be used to prevent direct ejaculation of semen into the vagina; couples should also avoid nipple stimulation and vigorous movements to prevent uterine contractions and orgasm, which may lead to adverse pregnancy outcomes. Medical professionals should prioritize providing clear, evidence-based guidance on this topic. Public health education on pregnancy-related sexual hygiene is also essential—focused on informing partners of these risks and encouraging their support for pregnant women throughout this period—to safeguard maternal health and safety.

## Conflicts of interest

The author declares no conflict of interest.

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