Original Article

Frequency of Stillbirth Among Women with Regular and Irregular Antenatal Visits Presenting in the Third Trimester of Pregnancy

Neelum Aziz, Sumera, Samreen Hasan and Arsh

ABSTRACT

Objective: To determine the frequency of stillbirth among women with regular and irregular antenatal visits presenting in the third trimester of pregnancy.
Study Design: Comparative cross-sectional study
Place and Duration of Study: This study was conducted at the Department of Obstetrics and Gynecology, Lady Reading Hospital, Peshawar, over a period of six months from 8 October 2021 to 8 April 2022.
Methods: A total of 160 pregnant women aged 18–35 years presenting in the third trimester were included through non-probability consecutive sampling. Data regarding age, body mass index, parity, residence, occupation, socioeconomic status, education, antenatal visit status, and pregnancy outcome were recorded on a structured proforma. Participants were categorized into regular and irregular antenatal visit groups.
Results: The mean maternal age was 28.0 ± 5.03 years, and the mean body mass index was 27.0 ± 2.59 kg/m². Of the 160 participants, 72 (45.0%) had regular antenatal visits and 88 (55.0%) had irregular antenatal visits. The overall frequency of stillbirth was 13 (8.1%). Stillbirth occurred in 3 (4.2%) women with regular antenatal visits and in 10 (11.4%) women with irregular antenatal visits. Although stillbirth was more frequent among women with irregular antenatal attendance, the difference was not statistically significant (p=0.097).
Conclusion: Stillbirth was more frequent among women with irregular antenatal visits than among those with regular antenatal visits, although the observed difference was not statistically significant. Regular and timely antenatal follow-up during the third trimester may still have important clinical value in reducing preventable fetal loss.

Key Words: Stillbirth, antenatal visits, antenatal care, third trimester, pregnancy outcome, maternal health

Citation of article: Aziz N, Sumera, Hasan S, Arsh. Frequency of Stillbirth Among Women with Regular and Irregular Antenatal Visits Presenting in the Third Trimester of Pregnancy. Med Forum 2026;37(5):67-71. doi:10.60110/medforum.370513.

INTRODUCTION

Stillbirth is a significant yet neglected adverse pregnancy outcome and still has an impact on depicting maternal and fetal health care inequalities across the globe. According to recent estimates in the world, the burden has been particularly high in low- and middle-income nations, with South Asia being one of the most affected regions[1]. The lack of timely detection of risks, the continuity of care provided to a mother, and the quality of obstetric services remain the persistent factors that cause the death of fetuses due to the lack of preventive measures[2].

Department of Gynaecology & Obstetrics, Lady Reading Hospital Peshawar.

Correspondence: Dr. Neelum Aziz, FCPS Gynaecology & Obstetrics Lady Reading Hospital Peshawar,
Contact No: 03358317768
Email: drneelumaziz@gmail.com

Received: January, 2026
Reviewed: February-March, 2026
Accepted: April, 2026

ANC represents the main platform on which maternal complications, fetal compromise, and modifiable risks in pregnancy could be detected before causing negative perinatal outcomes. ANC can also provide access to monitoring of blood pressure, screening of anemia, diabetes, fetal growth, warning signs counseling, and timely referral in addition to connecting them to the health system[3,4]. Existing evidence indicates that ANC advantage does not only depend on the number of visits, but also on the timing of visits, their frequency and quality. Prophylactic, diagnostic, and curative measures applied in pregnancy can decrease the risk of stillbirth, but poor-quality ANC is prevalent in most low-resource environments despite presumed access to services[5,6].

ANC attendance is essential in particular as inconsistent or insufficient follow-up can postpone the identification of conditions that have a strong relationship with stillbirth, such as hypertensive disorders, fetal growth restriction, placental dysfunction, maternal infection, and metabolic complications[7]. Research in low-resource environments has demonstrated that the use of ANC in addition to the quality thereof are both linked to the risk of stillbirth, whereas substandard prenatal care and

subpar adherence to recommended visit timetables are associated with increased odds of fetal mortality[8]. Women in most of these environments can enroll in ANC, but they do not attend regularly, are given partial evaluations, and show up late during pregnancy, thus depriving themselves of all important prevention and intervention chances.

This is particularly susceptible in the third trimester in which fetal growth abnormalities, placental inadequacy, hypertensive disease, oligohydramnios, and decreased fetal movements tend to be most evident in late pregnancy[9]. Recent research has focused on the significance of reduced fetal movements as an indicator of fetal compromise, and fetal growth restriction and placental pathology has been found to be always linked with higher risk of stillbirth[10]. Such results substantiate the importance of regular ANC contacts in the third trimester and close monitoring of high-risk pregnancies. Stillbirth is still a significant health issue in Pakistan. Despite the increased ANC coverage, there is little local evidence on the effect of the frequency of antenatal visits during the third trimester in terms of its impact on stillbirth prevalence. Thus, the research was performed to identify the prevalence of stillbirth in women who have routine and abnormal antenatal check-ups during the third trimester of pregnancy.

METHODS

This is a comparative cross-sectional study that was conducted in the Department of Obstetrics and Gynecology, Lady Reading Hospital, Peshawar, between 8 October 2021 and 8 April 2022. The aim was to establish the rate of stillbirth in women who had regular and irregular antenatal visits in third trimester of pregnancy.

The sample consisted of 160 pregnant women between the ages of 18-35 years and who reported to outpatient department of Obs & Gyne during the third trimester. The calculation of sample size was based on the WHO formula of comparison of two proportions at a 95% confidence level and 80% power of the study based on the anticipated stillbirth frequencies of those that had been observed in earlier studies [11]. The respondents were categorized into two groups of 80 women who had regular antenatal visits (group A) and 80 women who had irregular antenatal visits (group B).

Women with singleton pregnancies in the third trimester (≥28 gestation weeks) were included in the study. Women with multiple pregnancy, congenital anomalies of the fetus, no idea of the date, previous trauma, incomplete antenatal record, and major coexisting medical disease were excluded. Individuals who failed to give consent to participate were also excluded.

Non-probability consecutive sampling technique was used to recruit the study participants in the obstetric unit. Informed written consent was received after which data were collected on a predesigned proforma. Data on maternal age, parity, gestational age, pattern of antenatal visits and pregnancy outcome were recorded. The status of antenatal visits was based on patient history and available antenatal documentation. Women who visited the antenatal care on the recommended schedule were defined as having regular antenatal visits and those with no or poor antenatal follow-up visits were defined as having irregular antenatal visits.

The major outcome was stillbirth, which was defined as giving birth to a fetus, which did not have any signs of life at the age of viability or later. Delivery records were used to establish pregnancy outcome. Categorical variables were computed using frequencies and percentages whereas continuous variables were computed using means and standard deviation. The chi-square test was used to compare the number of stillbirths in the two groups. Age, parity, and gestational age were stratified and a p-value ≤0.05 was considered statistically significant. Data analysis was done on SPSS version 26.0. The study received ethical approval of the institutional review board, and patient data confidentiality was maintained.

RESULTS

A total of 160 women presenting in the third trimester of pregnancy were enrolled. The mean maternal age was 28.0 ± 5.03 years, and most participants (66.3%) were aged 18–28 years. The mean BMI was 27.0 ± 2.59 kg/m², with 58.8% women having BMI >27 kg/m². Primiparous women constituted 61.3% of the study population. Most women were from rural areas (65.0%), were housewives (71.9%), belonged to poor socioeconomic class (48.8%), and were illiterate (66.9%). Table-1

Table No. 1: Baseline demographic, obstetric, and socioeconomic characteristics of the study population (n = 160)

Variable	Category	n (%)
Age (years)	18–28	106 (66.3)
	29–35	54 (33.8)
BMI (kg/m²)	≤27	66 (41.3)
	>27	94 (58.8)
Parity	Primipara	98 (61.3)
	Multipara	62 (38.8)
Residence	Rural	104 (65.0)
	Urban	56 (35.0)
Occupation	Working woman	45 (28.1)
	Housewife	115 (71.9)
Socioeconomic status	Poor	78 (48.8)
	Middle class	69 (43.1)
	Rich	13 (8.1)
Education	Illiterate	107 (66.9)
	Literate	53 (33.1)

Mean age: 28.0 ± 5.03 years
Mean BMI: 27.0 ± 2.59 kg/m²

Regarding antenatal care utilization, 45% women had regular antenatal visits, whereas 55.0% had irregular antenatal visits. Table-2

Table No. 2: Antenatal visit status and pregnancy outcome (n = 160)

Variable	Category	n (%)
Antenatal visits	Regular	72 (45.0)
	Irregular	88 (55.0)
Stillbirth	Yes	13 (8.1)
	No	147 (91.9)

The overall frequency of stillbirth was 8.1%. Stillbirth occurred in 4.2% of women with regular antenatal visits and in 11.4% of women with irregular antenatal visits. Although stillbirth was more frequent among women with irregular antenatal attendance, the difference was not statistically significant (p = 0.097). Table-3

Table No. 3: Association between antenatal visit status and stillbirth (n = 160)

Antenatal visits	Stillbirth Yes n (%)	Stillbirth No n (%)	Total	p-value
Regular	3 (4.2)	69 (95.8)	72	0.097
Irregular	10 (11.4)	78 (88.6)	88	
Total	**13 (8.1)**	**147 (91.9)**	**160**	

Chi-square test applied

Table No. 4: Stratification of stillbirth with respect to study variables (n = 160)

Variable	Category	Stillbirth Yes n (%)	Stillbirth No n (%)	p-value
Age	18–28 years	9 (8.5)	97 (91.5)	0.813
	29–35 years	4 (7.4)	50 (92.6)	
BMI	≤27 kg/m²	6 (9.1)	60 (90.9)	0.708
	>27 kg/m²	7 (7.4)	87 (92.6)	
Parity	Primipara	8 (8.2)	90 (91.8)	0.982
	Multipara	5 (8.1)	57 (91.9)	
Residence	Rural	7 (6.7)	97 (93.3)	0.379
	Urban	6 (10.7)	50 (89.3)	
Occupation	Working woman	5 (11.1)	40 (88.9)	0.387
	Housewife	8 (7.0)	107 (93.0)	
Socioeconomic status	Poor	6 (7.7)	72 (92.3)	0.974
	Middle class	6 (8.7)	63 (91.3)	
	Rich	1 (7.7)	12 (92.3)	
Education	Illiterate	10 (9.3)	97 (90.7)	0.422
	Literate	3 (5.7)	50 (94.3)	

Chi-square test applied

Stratified analysis showed no statistically significant association of stillbirth with age, BMI, parity, residence, occupation, socioeconomic status, or education level (p > 0.05). Table-4.

DISCUSSION

The current study determined the prevalence of stillbirth in regular and irregular antenatal visitation women who presented during the third trimester of pregnancy. The general rate of stillbirth was 8.1% and the rate was found to be higher among women with irregular antenatal visits than it was among women who had regular antenatal visits (11.4% vs 4.2%), although the relationship was not statistically significant (p=0.097). This difference is (although statistically insignificant) still clinically significant and indicates that poor follow-up of antenatal care could be one of the factors of poor fetal outcomes. More recent data in Pakistan and other contexts has also demonstrated that incomplete or less than optimal antenatal care is linked to the increased risk of still birth and avoidable fetal death[12,13].

Our findings are consistent in direction with recent literature. A longitudinal cohort study in Karachi showed that poor use of antenatal care was correlated with stillbirth, with the importance of regular maternal follow-up in the area[14]. Similarly, failure to comply with guideline-based prenatal visits schedules has been associated with greater risk of stillbirth especially when the pregnancy is characterized by hypertensive diseases. It was also shown by a multi centre observational study that the benefit of antenatal care is not only determined by attendance, but also by the quality and completeness of services provided at each visit, including screening, counseling, and timely detection of risk[15]. This could be the reason why there are groups of women that have adverse results even when they are classified as having received antenatal care.

Since most of the women in the current study lived in rural areas, were housewives, had low or moderate socioeconomic level, and lacked literacy, they fell into socially vulnerable categories. These traits are important because they often influence health-seeking behavior, awareness of warning signs, and access to skilled obstetric services. Even though the analysis in our study did not reveal a statistically significant correlation, we find the same pattern that social determinants of maternal factors are noteworthy in the outcome of pregnancy. However, recent studies have consistently linked stillbirth to social disadvantage, such as poverty, low educational attainment, and low access to maternal healthcare[16,17].

Our study did not reveal a substantial correlation between stillbirth and maternal age, BMI or parity. Perhaps this is partly because the sample size is relatively small and the incidences of stillbirth are few. Moreover, 18-35 years age range was used to exclude other women at the more extreme maternal ages, where

the association with stillbirth is frequently more pronounced, but these relationships may not necessarily be visible in smaller hospital-based studies with broad BMI categories[18,19].

Our findings have particular clinical value because each participant was reported in the third trimester. Fetal growth restriction, placental insufficiency, hypertensive illness, and reduced mobility can all be seen in the latter stages of pregnancy. Thus, regular monitoring of pregnant women at this time may provide an opportunity to intervene and avoid fetal death[20,21]. Missed opportunities for late-pregnancy checkups and risk management may have contributed to the higher percentage of stillbirths among women with irregular prenatal visits in our study.

This study offers a valuable local data in the form of a tertiary care hospital in Peshawar and highlights the necessity of enhancing the continuity and quality of antenatal care in the area in which the connection of the regularity of an antenatal care and stillbirth remain under-studied. The comparative design made it possible to directly compare the stillbirth rate between women with regular and irregular antenatal visits and demographic, socioeconomic, and obstetric variables were measured in a standardized way, which enhanced the internal consistency of the results. Also, the emphasis on women who deliver during the third trimester is medically significant since it is during this time frame that most of the avoidable reasons why babies become stillborn are identified, and early monitoring can potentially affect the results. Nevertheless, the research also possesses limitations. Since it is a non-probability consecutive sampling, non-probability, and single-center hospital study, it might not be completely applicable to the rest of the population. The small sample size and the few incidences of stillbirths might have contributed to the low statistical power and this fact could have led to the absence of statistical significance even though an observed difference arose between the groups. Moreover, the status of the antenatal visits was evaluated based on the patient history and the records provided, which can have brought forth the biases of recollection and documentation. The content, quality, and timing of antenatal care were not also thoroughly assessed in the study; neither did it thoroughly address all obstetric and medical confounding factors, which could have been important contributors to the risk of stillbirth.

CONCLUSION

The incidence of stillbirth was higher in women with irregular antenatal visits as compared to women with regular antenatal follow-up during the third trimester though the difference between the two was not statistically significant. These results indicate that the continuity of the antenatal care can be of significant clinical value in the context of both the early prediction of maternal and fetal complications and in the elimination of the preventable fetal loss. Amplifying routine antenatal care especially in late pregnancy combined with a focus on the quality and the completeness of the care in each antenatal visit could change the fetus outcomes of such low-resource settings. Additional multicenter studies should be carried out in large scale to determine the independent contribution of inconsistent antenatal attendance to the risks of still birth among Pakistani women.

Recommendations: Further randomized, multi-center studies with extended follow-up are recommended to validate and generalize these findings.

Author's Contribution:

Concept & Design or acquisition of analysis or interpretation of data:	Neelum Aziz, Sumera
Drafting or Revising Critically:	Samreen Hasan, Arsh
Final Approval of version:	All the above authors
Agreement to accountable for all aspects of work:	All the above authors

Conflict of Interest: The study has no conflict of interest to declare by any author.

Source of Funding: None

Ethical Approval: No.139/LRH/MTI Dated 02.10.2021

REFERENCES

1. GBD 2021 Global Stillbirths Collaborators. Global, regional, and national stillbirths at 20 weeks' gestation or longer in 204 countries and territories, 1990-2021: findings from the Global Burden of Disease Study 2021. Lancet 2024;404(10466): 1955-1988. doi:10.1016/S0140-6736(24)01925-1.
2. Poudel S, Ghimire PR, Upadhaya N, Rawal L. Factors associated with stillbirth in selected countries of South Asia: a systematic review of observational studies. PLoS One 2020;15(9): e0238938. doi:10.1371/journal.pone.0238938.
3. Ota E, Ganchimeg T, Morisaki N, Vogel JP, Pileggi-Castro C, Ortiz-Panozo E, et al. Antenatal interventions for preventing stillbirth, fetal loss and perinatal death: an overview of Cochrane systematic reviews. Cochrane Database Syst Re. 2020;12(12):CD009599. doi:10.1002/14651858. CD009599.pub2.
4. Gwako GN, Were FN, Obimbo MM. Association between utilization and quality of antenatal care with stillbirths in four tertiary hospitals in a low-income urban setting. Acta Obstet Gynecol Scand 2021;100(4):676-683. doi:10.1111/aogs.13956.

5. Arsenault C, Ngoh E, Penfold S, Winter R, Babalola O, Antwi GD, et al. Antenatal care quality and detection of risk among pregnant women: an observational study in Ethiopia, India, Kenya, and South Africa. PLoS Med 2024;21(8): e1004446. doi:10.1371/journal.pmed.1004446.
6. Dandona R, Kumar GA, Majumder M, Akbar M, Dora SSP, Dandona L, et al. Poor coverage of quality-adjusted antenatal care services: a population-level assessment by visit and source of antenatal care services in Bihar state of India. Lancet Reg Health Southeast Asia 2023;25: 100332. doi:10.1016/j.lansea.2023.100332.
7. Dayal S, Fogel J, Griggs R. Adequacy of prenatal care and stillbirth. Minerva Obstet Gynecol 2022; 74(1):68-74.doi:10.23736/S2724-606X.21. 04769-2.
8. Siddiqi DA, Muneer A, Shah MT, Qazi SA, Raza SA, Hussain I, et al. Prevalence and risk factors of stillbirths among pregnant women from twelve high-volume birthing facilities of Karachi, Pakistan: a longitudinal cohort study. BMC Pregnancy Childbirth 2025;26(1):53. doi:10.1186/ s12884-025-08288-3.
9. Bradford BF, Hayes DJL, Damhuis SE, Shub A, Akselsson A, Rådestad I, et al. Decreased fetal movements: report from the International Stillbirth Alliance conference workshop. Int J Gynaecol Obstet 2024;165(2):579-585. doi:10.1002/ijgo. 15242.
10. Narice BF, Byrne V, Labib M, Cohen MC, Anumba DO. Placental lesions in stillbirth following the Amsterdam consensus: a systematic review and meta-analysis. Placenta 2024;158:23-37. doi:10.1016/j.placenta.2024.09.015.
11. Martínez-Varea A, Prasad S, Domenech J, Kalafat E, Morales-Roselló J, Khalil A. Association between fetal growth restriction and stillbirth in twin compared with singleton pregnancies. Ultrasound Obstet Gynecol 2024;64(4):513-520. doi:10.1002/uog.27661.
12. Siddiqi DA, Muneer A, Shah MT, Qazi SA, Raza SA, Hussain I, et al. Prevalence and risk factors of stillbirths among pregnant women from twelve high-volume birthing facilities of Karachi, Pakistan: a longitudinal cohort study. BMC Pregnancy Childbirth 2025;25:53. doi:10.1186/ s12884-025-08288-3.
13. Cersonsky TEK, Ayala NK, Johnson J, et al. Adherence to recommended prenatal visit schedules and risk for stillbirth, according to probable cause of death. Eur J Obstet Gynecol Reprod Biol 2024;303:159-164. doi:10.1016/j. ejogrb.2024.10.037.
14. Bowman A, Sullivan T, Makrides M, Flenady V, Shepherd E, Hawke K, et al. Lifestyle and sociodemographic risk factors for stillbirth by region of residence in South Australia: a retrospective cohort study. BMC Pregnancy Childbirth 2024;24(1):368. doi:10.1186/s12884-024-06553-5.
15. Ghidini A, et al. Efficacy of antepartum fetal surveillance for stillbirth prevention. J Matern Fetal Neonatal Med 2024;37(1):2397538. doi:10.1080/ 14767058.2024.2397538.
16. Arsenault C, Ngoh E, Penfold S, Winter R, Babalola O, Antwi GD, et al. Antenatal care quality and detection of risk among pregnant women: an observational study in Ethiopia, India, Kenya, and South Africa. PLoS Med 2024; 21(8): e1004446. doi:10.1371/journal.pmed.1004446.
17. Fenta ET, Endeshaw D, Adal O, Tareke AA, et al. Determinants of antenatal care dropout among pregnant women in Africa: a systematic review and meta-analysis. Syst Rev 2025;14(1):186. doi:10.1186/s13643-025-02906-z.
18. Asif M, Khan M, Tariq S. Modeling and Exploring Stillbirth Risks in Northern Pakistan. Healthcare (Basel) 2025;13(12):1436. doi:10.3390/healthcare 13121436.
19. Shakeel A, Kamal A, Ijaz M, Siddiqa M, Tesema GA, Abushal T, et al. Trends and risk factors of stillbirth among women of reproductive age in Pakistan: a multivariate decomposition analysis. Front Public Health 2023;11:1050136. doi:10. 3389/fpubh.2023.1050136.
20. Wang X, Feng Y, Wang Y, et al. Analysis of the causes and influencing factors of fetal loss in advanced maternal age: a nested case-control study. BMC Pregnancy Childbirth 2021;21:581. doi:10.1186/s12884-021-04024-0.
21. Ramji N, Muraca GM, Synnes A, et al. The impact of isolated obesity compared with obesity and other risk factors on risk of stillbirth: a retrospective cohort study. CMAJ 2024;196(8):E250-E259. doi:10.1503/cmaj.221450.