Enhancing Fetal Well-Being: Analysis of Antenatal Awareness and Practice of Fetal Movement Monitoring

Col Jeeva George., Lt Col Blaize Johny., Dr Laxmipriya Parida

Department of Gynaecology, College of Nursing, Command Hospital Kolkata

DOI: https://doi.org/10.51244/IJRSI.2026.13020052

Received: 06 February 2026; Accepted: 14 February 2026; Published: 26 February 2026

INTRODUCTION

Maternal perception of fetal movement is recognized as an important indicator of fetal well-being[1].Passive, unstimulated fetal activity begins as early as the seventh week of gestation and becomes progressively more coordinated and purposeful toward the end of pregnancy[2]. Most pregnant women perceive fetal movements between 18 and 20 weeks of gestation, although multiparous women may detect them as early as 16 weeks[3]. Initially, these movements are faint and may be mistaken for intestinal activity, but as neuromuscular development continues, the movements become stronger, more rhythmic, and sustained[2] . Fetal movements are broadly categorized as generalized and small movements. Generalized movements, such as stretching, kicking, and rollovers, are typically perceived by the mother4 .Small movements, including gripping, non-nutritive sucking, tongue protrusion, finger and toe flexion, and fetal breathing movements, are not usually perceived[5] . The frequency and strength of perceived fetal activity in late gestation largely reflect the vigor of generalized body movements involving the trunk and lower limbs[2] ·In response to adverse intrauterine conditions, the fetus exhibits physiological adaptations aimed at conserving energy.[6] These include redistribution of blood flow away from non-vital organs, often resulting in a reduction in overall body movement.[6] Decreased fetal movements (DFM) may therefore signal chronic placental insufficiency and fetal growth restriction.[7] DFM has also been associated with congenital anomalies, chromosomal disorders, intrauterine infections, hypoglycemia, oligohydramnios, neurodevelopmental impairment, threatened preterm labor, umbilical cord complications, emergency delivery, induction of labor, cesarean birth, stillbirth, and neonatal death.[7,8] In many cases of intrauterine fetal demise, a reduction or cessation of movement is reported several days beforehand, supporting the concept that fetal movement monitoring may help detect early deterioration.[1,9]Fetal movement monitoring functions as an indirect assessment of central nervous system integrity.[5] The increasing coordination of fetal body movements reflects neurological maturation similar to that observed in preterm infants.[2]Monitoring is particularly valuable in cases of prolonged placental insufficiency.[6] A sudden reduction in movement is considered a clinically significant finding and has therefore been proposed as a simple screening tool for fetal compromise.[1] Conversely, the presence of vigorous movements is generally reassuring.[1] When perceived fetal activity decreases, further evaluation of underlying maternal or fetal complications is warranted, typically through fetal heart rate monitoring or ultrasonography.[8] Women presenting with DFM face an increased risk of adverse pregnancy outcomes.[7] The American College of Obstetricians and Gynecologists (ACOG) recommend maternal fetal movement counting (“kick counting”) as an effective and non-invasive method for monitoring fetal well-being.[10] However, awareness and practice of kick counting among expectant mothers remains suboptimal.[4] Growing evidence suggests that maternal education on fetal movement monitoring may help reduce adverse outcomes, including stillbirth.[3,9]Kick counting allows women to recognize their baby’s usual movement pattern and detect deviations early.[10] Although not all stillbirths are preventable, research indicates that many cases are preceded by warning signs such as decreased fetal activity, offering a potential opportunity for timely medical intervention.[7,8] This study aims to assess the knowledge and practice of fetal movement monitoring among antenatal women attending the antenatal OPD.

BACKGROUND

Stillbirth refers to the unexpected death of a fetus at or beyond 20 weeks of gestation[8] .According to the National Institutes of Health, stillbirth occurs approximately 10 times more frequently than sudden infant death syndrome[9]

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue II February 2026

.Because loss of fetal movement often precedes the disappearance of fetal heart sounds within 24 hours, stillbirth is rarely a sudden event, suggesting a window of opportunity for prevention[1] Maternal perception of fetal movement is a simple, reliable, and non-invasive screening tool for detecting early fetal compromise during the third trimester in both low- and high-risk pregnancies[5]. Findings from the World Health Organization Antenatal Care Trial (WHO-ACT) indicate an increased risk of fetal death between 32 and 36 weeks' gestation among mothers reporting reduced fetal movement counts[6]

MATERIALS & METHODS

A cross-sectional descriptive study design was adopted to assess the knowledge and practice of fetal movement monitoring and their relationship among antenatal women. The study was conducted in the antenatal outpatient department (OPD) of a tertiary-level government hospital, which provides free healthcare services and medications. The setting was selected due to the high antenatal attendance, ensuring adequate availability of eligible participants. Ethical clearance was obtained from the Institutional Ethical Committee, and formal permission was taken from the hospital authorities prior to data collection. Written informed consent was obtained from all participants after explaining the purpose of the study. Confidentiality and anonymity were maintained throughout the study. The accessible population comprised antenatal women attending the antenatal OPD during the period February to August 2020.The inclusion criteria of the participants were antenatal women with gestational age ≥ 28 weeks, willing to participate in the study, able to understand and respond to the interview schedule. The exclusion criteria were antenatal women with high-risk pregnancies requiring emergency care, women with diagnosed fetal anomalies. A purposive sampling technique was used. The sample size of 149 antenatal women was estimated based on feasibility and patient availability during the data collection period.Data were collected using a structured interview schedule, developed after an extensive review of literature and expert consultation. The tool consisted of three sections:**Section I:** Socio-demographic variables, including age, educational status, type of family, number of antenatal visits, number of previous pregnancies beyond 28 weeks, and source of information regarding fetal movement monitoring.**Section II:** Knowledge questionnaire, consisting of 12 multiple-choice questions with four options each, covering definition, timing, normal patterns, methods, and significance of fetal movement monitoring.**Section III:** Practice questionnaire, comprising 8 items related to fetal movement monitoring practices, rated on a 3-point scale such as always (2), sometimes (1), never (0)

The tool was subjected to content validity by experts in obstetrics, nursing, and research methodology. Reliability of the practice scale was established using appropriate statistical measures (e.g., Cronbach's alpha). Data were collected through face-to-face interviews conducted in the antenatal OPD. Each interview lasted approximately 15–20 minutes. Data were analysed using SPSS version 17.0.

RESULTS

Table 1.1: Knowledge Regarding Fetal Movement Monitoring (n = 149)

Knowledge score	No of cases	Percentage	Mean	SD
Poor (0-4)	0	0	9.31	1.36
Average (5-8)	43	28.9		
Good (9-12)	106	71.1		
Total	149	100		

The table shows that 28.9% of antenatal women had average knowledge, while 71.1% had good knowledge regarding fetal movement monitoring. The mean knowledge score was 9.31 ± 1.36**,** indicating overall good knowledge among the participant.

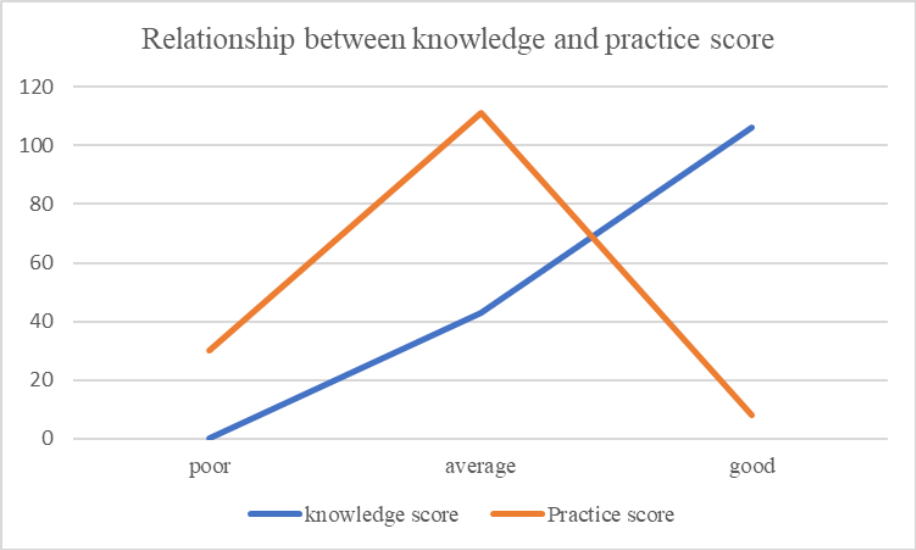
ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue II February 2026

Table 1.2: Practice Regarding Fetal Movement Monitoring (n = 149)

Practice score	No of cases	Percentage	Mean	SD
Poor	30	20.1	6.23	1.99
Average	111	74.5		
Good	8	5.4		
Total	149	100		

The findings reveal that 74.5% of antenatal women had average practice, 20.1% had poor practice, and only 5.4% demonstrated good practice of fetal movement monitoring. The mean practice score was 6.23 ± 1.99, indicating suboptimal practice despite adequate knowledge

Fig 1.1 : Relationship between knowledge and practice score on daily fetal movement monitoring among antenatal women



The graphical representation (Figure 1.1) illustrates the relationship between knowledge and practice scores. While knowledge scores consistently increased from poor to good, practice scores showed a different pattern, peaking at the average level and declining in the good category. This indicates a discrepancy between knowledge and actual practice, where higher knowledge does not necessarily translate to better practice.

DISCUSSION

The findings suggest that although most participants possess a good level of knowledge, this does not automatically result in optimal practice. The majority exhibiting average practice despite high knowledge may reflect barriers such as lack of resources, confidence, motivation, or contextual constraints that prevent translation of knowledge into practice. The high mean knowledge score (9.31) alongside a lower mean practice score (6.23) highlights a knowledge-practice gap, consistent with previous studies in similar healthcare and educational settings. This emphasizes the need for interventions not only aimed at increasing knowledge but also at improving practical application and adherence to recommended practices. The study underlines the importance of training programs, skill-building workshops, and supportive supervision to bridge this gap. Further research could explore the specific factors limiting the translation of knowledge into practice. A study by Chowdhury M[11] assessing self-monitoring of fetal wellbeing among antenatal mothers, the pre-intervention knowledge was moderate to low, and structured teaching significantly increased knowledge scores, illustrating

an initial knowledge deficit that also limited practical self-assessment behaviours before intervention. After training, knowledge improved markedly, but the implication remains that knowledge alone isn't sufficient without practical reinforcement. Aligned with the study findings Bashir Sumaira[12] study also reported that low-resource antenatal settings found that although women and providers had high awareness/knowledge of fetal movement patterns, there was little formalized practice or routine assessment in clinical care due to systemic barriers (e.g., lack of guidelines, resource constraints). This highlights again that high knowledge doesn't automatically translate into practice. Barriers such as lack of structured support, clinical guidance, and hands-on training are repeatedly identified in studies — in line with your conclusion that training programs, skill workshops, and supportive supervision are necessary to bridge the knowledge–practice gap. Training, skill-building, and supervision to improve practice aligns with intervention outcomes in similar research. Educational interventions enhance knowledge, but sustainable practice change usually requires reinforcement through protocols, consistent supervision, and integration into daily clinical routines.

CONCLUSION

This study reveals a clear knowledge–practice gap in fetal wellbeing among antenatal mothers, with high knowledge not consistently translating into optimal practice. Barriers such as limited resources, confidence, and contextual constraints likely hinder application of knowledge. These findings align with previous research, highlighting that awareness alone is insufficient for behavioral change. Structured training, skill-building interventions, and supportive supervision are essential to bridge this gap and improve adherence to recommended fetal wellbeing practices. Future studies should explore the specific factors limiting practical application to inform targeted strategies for enhancing maternal and fetal outcomes.

REFERENCES

1. Froen JF, Tveit JV, Saastad E, Bordahl PE, Stray-Pedersen B, Heazell AEP, Flenady V, Fretts RC. Management of decreased fetal movements. *Semin Perinatol.* 2008;32(4):307–311.
2. Heazell AEP, Stone P, Whitworth M. A systematic review of maternal perception of fetal movements and outcomes. *BMC* Pregnancy Childbirth. 2013;13:32.
3. Stacey T, Thompson JM, Mitchell EA, Ekeroma AJ, Zuccollo JM, McCowan LM. Maternal perception of fetal activity and late stillbirth risk: findings from the Auckland Stillbirth Study. Birth. 2011;38(4):311-6.
4. Nandi N, Agarwal R. Prospective study of maternal perception of decreased fetal movement in third trimester and evaluation of its correlation with perinatal compromise. Int J Reprod Contracept Obstet Gynecol. 2019;8(6):2063–2068.
5. World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: WHO; 2016. (Daily fetal movement counting and clinical enquiry).
6. Cochrane Pregnancy and Childbirth Group. Fetal movement counting for assessment of fetal wellbeing. Cochrane Database Syst Rev. 2015;(CD004909).
7. ACOG Committee Opinion No. 649: Implementing Antenatal Testing — Antepartum Fetal Surveillance. Obstet Gynecol. 2015;126(4):e111–e116.
8. Hirst JE, Thomson R, Latimer J, Morris JM. How pregnant women learn about foetal movements: sources and preferences for information. Aust N Z J Obstet Gynaecol. 2015;55(6):555–560.
9. Lindgren HE, Akselsson A, Rdestad I. Maternal perception of decreased fetal movements and antenatal behavior. Midwifery. 2023;10(6):4822–4828.
10. RCOG Green-top Guideline No. 57: Reduced Fetal Movements. London: Royal College of Obstetricians and Gynaecologists; 2026.
11. Choudhury MM, Baishya K. A study to assess the effectiveness of structured teaching programme on knowledge regarding self-assessment of fetal wellbeing among antenatal mothers in selected hospitals of Guwahati, Assam. Int J Nurs Res Dev. 2020:303 – 310.
12. Bashir S, Ansari AH, Sultana A. Knowledge, attitude, and practice on antenatal care among pregnant women and its association with sociodemographic factors: a hospital-based study. Cureus. 2023;15(6):e40444. doi:10.7759/cureus.40444.