Section: Obstetrics and Gynaecology

Original Research Article

A HOSPITAL BASED CROSS SECTIONAL STUDY ON KNOWLEDGE, ATTITUDE AND PRACTICES OF PHYSICAL EXERCISE AMONG PREGNANT WOMEN ATTENDING OUTPATIENT DEPARTMENT OF A TERTIARY CARE CENTRE

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Received : 05/04/2026
Received in revised form : 12/05/2026
Accepted : 30/05/2026

Keywords:
Antenatal exercise, Pregnancy, Knowledge, Attitude, Practice, Maternal health, Physical activity, Tertiary care, India.

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DOI: 10.47009/jamp.2026.8.3.241

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2026; 8 (3); 1360-1365

ABSTRACT

Background: Physical exercise during pregnancy is a vital component of antenatal care, contributing to maternal fitness, psychological well-being, and favorable obstetric outcomes. Despite its proven benefits, many pregnant women remain unaware or hesitant to engage in regular exercise due to cultural beliefs and inadequate counseling. This study aimed to assess the knowledge, attitude, and practices (KAP) regarding antenatal exercises among pregnant women attending the outpatient department of a tertiary care centre. **Materials and Methods:** A hospital-based cross-sectional study was conducted among 420 pregnant women attending the antenatal OPD at the Institute of Obstetrics and Gynaecology, Madras Medical College, Chennai, over six months. Data were collected using a pre-tested structured questionnaire assessing knowledge, attitude, and practice related to antenatal exercises. Data were analyzed using SPSS version 25, and results were expressed as frequencies and percentages. **Results:** About 66.2% had heard of antenatal exercises; awareness was higher for back (59.5%) and breathing exercises (54.8%) but low for swimming (35.7%) and aerobics (35.2%). More than half recognized benefits such as reducing back pain (56.2%) and preventing excessive weight gain (52.4%), while over 90% correctly identified contraindications like vaginal bleeding, uterine contractions, and premature labor. Although 53.3% believed exercise during pregnancy is necessary, only 19.5% reported practicing it. Lack of information (73.5%), fatigue (71.4%), and fear of fetal harm (66.3%) were key barriers. **Conclusion:** Our findings emphasize the need for targeted antenatal education, structured counseling, and awareness initiatives to bridge the gap between knowledge and practice for better maternal health outcomes.

INTRODUCTION

Physical exercise during pregnancy has been recognized as an essential component of antenatal care, contributing significantly to both maternal and fetal well-being. Regular physical activity in pregnancy enhances cardiovascular health, prevents excessive gestational weight gain, improves posture, reduces lower back pain, and facilitates labor and postnatal recovery. Moreover, it positively influences psychological health, helping to alleviate anxiety, depression, and sleep disturbances.[1-3]

Despite these well-established benefits, several studies, particularly in developing countries, have highlighted poor awareness and limited practice of antenatal exercise among pregnant women. Cultural factors, lack of education, inadequate counseling by healthcare providers, and fear of harming the fetus often deter women from engaging in safe physical activity.[4,5] According to guidelines by the American College of Obstetricians and Gynecologists (ACOG) and NICE, moderate exercise for at least 150 minutes per week is recommended, with necessary modifications based on individual maternal and fetal conditions.[6,7]

However, in India, limited research has been conducted to assess the level of knowledge, attitude, and practice (KAP) of antenatal exercises among pregnant women. Hence, this study aims to evaluate the knowledge, attitude, and practices of physical exercise among pregnant women attending the antenatal outpatient department of the Institute of

Obstetrics and Gynaecology, Madras Medical College, Chennai.

MATERIALS AND METHODS

Study Design and Setting: This was a hospital-based cross-sectional study conducted at the Institute of Obstetrics and Gynaecology, Madras Medical College, Chennai, over a period of six months (September 2024 to February 2025).

Study Population: The study population included pregnant women attending the antenatal outpatient department (OPD).

Inclusion Criteria

All pregnant women visiting the antenatal OPD who provided informed consent were included.

Exclusion Criteria

Women with the following conditions were excluded:

- Heart disease
- Restrictive lung disease
- Incompetent cervix
- Multiple gestation at risk for preterm labor
- Persistent second or third-trimester bleeding
- Placenta previa after 26 weeks
- Premature labor, ruptured membranes, pre-eclampsia, uncontrolled diabetes, gait disturbances, or severe anemia.

Sample Size and Sampling Technique: Using a prevalence (p) of 42.4% (from a previous Ethiopian study), an absolute precision (d) of 5%, and a 10% non-response rate, the final calculated sample size was 420 participants. Consecutive sampling was used to recruit eligible participants.

Data Collection Tool

Data were collected using a structured, pre-tested questionnaire comprising four sections:

1. Socio-demographic data (age, education, religion, occupation)
2. Knowledge about benefits, contraindications, and types of antenatal exercises
3. Attitude towards exercise during pregnancy
4. Practice patterns and perceived barriers.

Data Analysis

Data were entered into Microsoft Excel and analyzed using SPSS version 25. Continuous variables were expressed as mean ± SD, while categorical data were presented as frequencies and percentages. The Chi-square test was used to assess associations between variables, and a p-value < 0.05 was considered statistically significant.

RESULTS

Sociodemographic Profile: Out of 420 participants, the majority were Hindu (79%), followed by Christians (13.3%) and Muslims (7.7%). Most women had primary education (60.7%) and were homemakers (73.3%).

Table 1: Sociodemographic Characteristics

Variable	Participant's n (%)
Religion	
Hindu	332 (79.0)
Christian	56 (13.3)
Muslim	32 (7.7)
Education	
Primary	255 (60.7)
Secondary	122 (29.0)
Tertiary	43 (10.3)
Occupation	
Homemaker	308 (73.3)
Schooling	34 (8.1)
Self-employed	18 (4.3)
Others	60 (14.3)

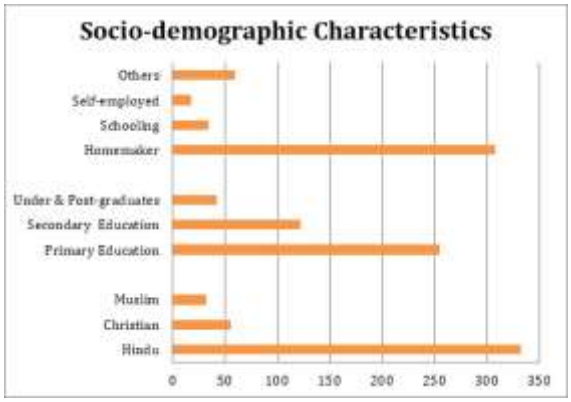

Figure 1: Sociodemographic Characteristics

Knowledge about Antenatal Exercises: In this study, 66.2% of participants had heard about antenatal exercises, with 59.5% aware of back exercises and 54.8% of breathing exercises. Awareness was lowest for aerobics (35.2%) and swimming (35.7%). Regarding benefits, 56.2% believed exercise reduces back pain, 52.4% felt it prevents excessive weight gain, and 50.5% stated it aids in coping with labor. Over 90% correctly identified contraindications such as vaginal bleeding, uterine contractions, and premature labor.

ISSN (O): 2687-5365; ISSN (P): 2753-6556

Table 2: Knowledge of Respondents on Different Types of Antenatal Exercises

Variable	Yes n (%)	I don't know n (%)	No n (%)
Have you heard of antenatal exercise	278 (66.2)	88 (21.0)	54 (12.8)
Breathing exercise	230 (54.8)	82 (19.5)	108 (25.7)
Back exercise	250 (59.5)	66 (15.7)	104 (24.8)
Swimming	150 (35.7)	94 (22.4)	176 (41.9)
Abdominal exercise	176 (41.9)	92 (21.9)	152 (36.2)
Cycling	156 (37.1)	84 (20.0)	180 (42.9)
Aerobics	148 (35.2)	92 (21.9)	180 (42.9)

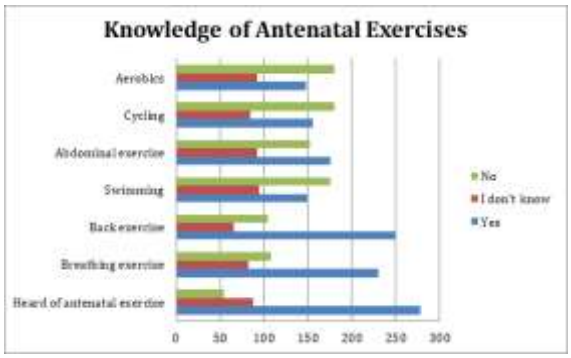

Figure 2: Knowledge of Respondents on Different Types of Antenatal Exercises

Knowledge of Respondents on Benefits and Contraindications of Antenatal Exercises

More than half of the participants were aware of the key benefits of antenatal exercise, with 56.2% recognizing its role in reducing back pain, 52.4% acknowledging its role in preventing excessive weight gain, and around half noting its benefits in improving labor outcomes and postnatal recovery. Knowledge of contraindications was notably higher, as over 90% correctly identified conditions such as vaginal bleeding, uterine contractions, and premature labor as warning signs to avoid exercise, while 70–80% recognized symptoms like chest pain, back pain, and abdominal pain as contraindications. Overall, the participants demonstrated better awareness of contraindications than of the specific benefits of antenatal exercise.

Table 3: Knowledge of Respondents on Benefits and Contraindications of Antenatal Exercises (n = 420)

Variable	Yes n (%)	I don't know n (%)	No n (%)
Benefits			
Exercise reduces risk of back pain during pregnancy	236 (56.2)	70 (16.7)	114 (27.1)
Prevents excessive weight gain in pregnancy	220 (52.4)	80 (19.0)	120 (28.6)
Strengthens pelvic floor muscles in pregnancy	206 (49.0)	74 (17.6)	140 (33.4)
Increases energy and stamina during pregnancy	188 (44.8)	68 (16.2)	164 (39.0)
Better ability to cope with labor and delivery	212 (50.5)	60 (14.3)	148 (35.2)
More rapid postnatal recovery	218 (51.9)	84 (20.0)	118 (28.1)
Contraindications			
Chest pain during pregnancy	298 (71.0)	26 (6.2)	96 (22.8)
Difficulty in breathing during pregnancy	284 (67.6)	34 (8.1)	102 (24.3)
Abdominal pain during pregnancy	344 (81.9)	18 (4.3)	58 (13.8)
Back pain during pregnancy	306 (72.9)	40 (9.5)	74 (17.6)
Diabetes during pregnancy	284 (67.6)	50 (11.9)	86 (20.5)
Uterine contractions during pregnancy	374 (89.0)	10 (2.4)	36 (8.6)
Vaginal bleeding during pregnancy	384 (91.4)	22 (5.2)	14 (3.4)
Premature labor during pregnancy	392 (93.3)	16 (3.8)	12 (2.9)

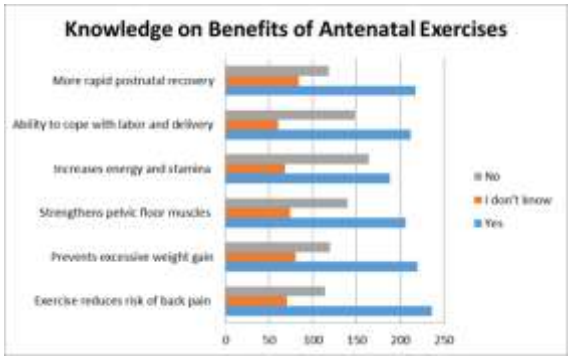

Figure 3: Knowledge of Respondents on Benefits of Antenatal Exercises

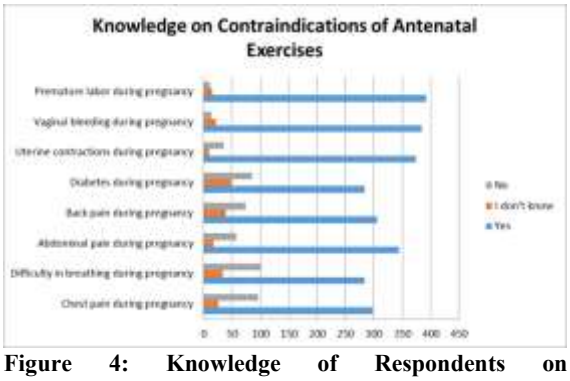

Figure 4: Knowledge of Respondents on Contraindications of Antenatal Exercises

Table 4: Attitude of Respondents toward Antenatal Exercises

Variable	Participant's n (%)
Exercise during pregnancy is necessary	224 (53.3)
If yes, why?	

ISSN (O): 2687-5365; ISSN (P): 2753-6556

Reduces ailments during pregnancy	174 (77.7)
Facilitates normal delivery	146 (65.2)
Rapid postnatal recovery	132 (58.9)
If no, why?	
I feel tired to exercise	140 (71.4)
I do not feel like exercising	68 (34.7)
I have a busy schedule	70 (35.7)
I am afraid of exercise	130 (66.3)
I do not have sufficient information on exercise	144 (73.5)
I have a lot of childcare activities	64 (32.7)
Have you practiced exercise in pregnancy	82 (19.5)

Attitude of Respondents toward Antenatal Exercises

In this study, 53.3% of respondents believed that exercise during pregnancy is necessary. Among them, 77.7% felt it helps reduce pregnancy-related ailments, 65.2% believed it facilitates normal delivery, and 58.9% agreed it promotes rapid postnatal recovery. Conversely, among those who did not consider exercise necessary, the main reasons cited were lack of information (73.5%), tiredness (71.4%), fear of exercise (66.3%), and busy schedules (35.7%). Overall, only 19.5% of the participants reported actually practicing antenatal exercises during pregnancy.

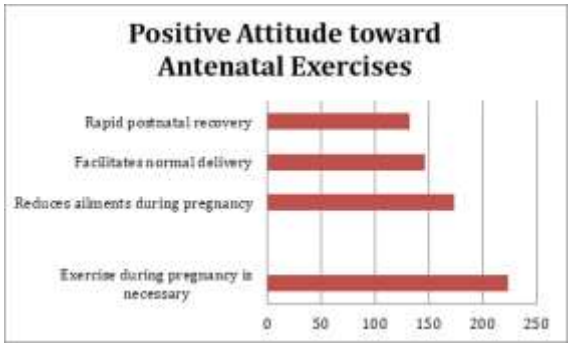

Figure 5: Positive Attitude of Respondents towards Antenatal Exercises

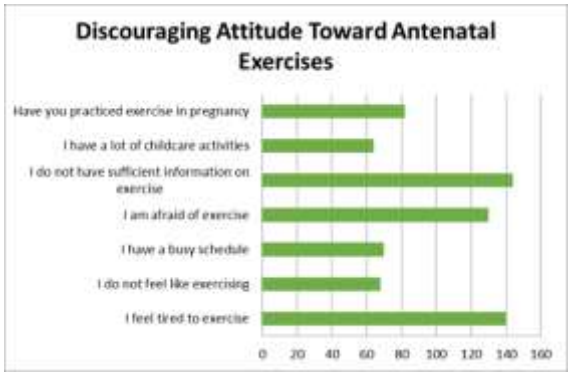

Figure 6: Discouraging Attitude of Respondents toward Antenatal Exercises

DISCUSSION

This hospital-based cross-sectional study evaluated the knowledge, attitude, and practices regarding physical exercise among pregnant women attending the antenatal outpatient department of a tertiary care centre in Chennai. The findings revealed moderate knowledge, a generally positive attitude, but poor practice of antenatal exercises—trends consistent with both national and international studies.

In the present study, 66.2% of participants had heard about antenatal exercises, which aligns closely with findings from Sujindra et al, who reported 66% awareness.[8] Similarly, Gari et al. found that 86.4% of participants were aware of antenatal exercises, indicating slightly higher awareness in Middle Eastern populations with greater digital access.[9] In the study by Alnaeem et al., 87.6% of participants had heard of antenatal exercises, reflecting that awareness levels are higher in populations with broader social media exposure.[10] In contrast, study done in Ethiopia by Janakiraman et al. reported only 39.5% of women had adequate knowledge, indicating a persistent gap in low- and middle-income regions.[11]

In terms of specific exercise knowledge, awareness of back and breathing exercises in the current study (59.5% and 54.8%) was comparable to Gari et al., where 65.7% and 77.1% of participants, respectively, were familiar with these exercises. However, awareness of swimming and aerobics was lower (35.7% and 35.2%) in our study done in Chennai compared to 65.9% in the Saudi study, highlighting cultural and accessibility differences influencing exercise choice.[9]

Regarding the benefits of antenatal exercise, more than half of the respondents recognized its role in reducing back pain (56.2%), preventing excessive weight gain (52.4%), and aiding in labor (50.5%). These findings are lower compared to Gari et al. where 73–78% of women identified similar benefits [9], and Alnaeem et al. who reported that 65–75% of participants acknowledged benefits such as improved energy levels (74.2%) and reduced back pain (65.4%).[10] This difference may be attributed to the higher education levels and internet exposure of participants in the Gulf region.

The current study also showed excellent awareness regarding contraindications, with over 90% correctly identifying vaginal bleeding, uterine contractions, and premature labor as warning signs. This finding is consistent with Sujindra et al,[8] who reported over 90% awareness, and higher than the Ethiopian study by Janakiraman et al., where only 55% could identify major contraindications.[11] This reflects a cautious attitude among Indian women toward antenatal exercise, possibly influenced by traditional beliefs and advice from elders or healthcare providers.

ISSN (O): 2687-5365; ISSN (P): 2753-6556

The attitudinal pattern in this study was moderately positive, with 53.3% of respondents believing that exercise during pregnancy is necessary, similar to 51% in Sujindra et al,[8] but lower than 68.3% in Al-Ahsa and 70.7% in the Saudi national survey by Gari et al,[9] The reasons cited—reduction of ailments (77.7%), facilitation of normal delivery (65.2%), and rapid postnatal recovery (58.9%)—mirror findings from other regions, where 70–80% of women reported similar beliefs. However, barriers such as lack of information (73.5%), tiredness (71.4%), and fear of harm (66.3%) were predominant in our study, matching the Janakiraman et al., findings, where fatigue (64–70%) and time constraints (34–45%) were the most reported obstacles.[11]

Despite moderate knowledge and positive attitudes, the actual practice of antenatal exercises in this study was poor (19.5%), similar to 18% in Puducherry,[8] and much lower than 35.8% in Ethiopia,[11] and 42% in Saudi Arabia.[9] In Al-Ahsa, although awareness was high (87.6%), only 77.1% engaged in walking and 34% practiced breathing exercises, showing that even with higher awareness, structured physical activity remains underperformed.[10] Similarly, Al-Youbi and Elsaid (2020, Riyadh) reported that only 41.6% of women had a high level of awareness and practice, and the majority preferred walking, while swimming and aerobic exercises were least practiced due to cultural and environmental limitations.[12]

Educational attainment strongly influenced knowledge and practice. In Chennai, most participants had only primary education (60.7%), whereas Alnaeem et al,[10] reported 79.7% with a college degree, explaining the higher awareness and participation in antenatal exercises in Saudi Arabia. Similar findings were echoed in Ethiopian,[11] and Saudi,[9] studies, where higher education and employment were significant predictors of better knowledge and exercise engagement.

Overall, the results from this study reaffirm a global pattern: pregnant women demonstrate moderate knowledge and favorable attitudes toward antenatal exercise but low compliance in practice. Factors such as limited health education, socio-cultural beliefs, and lack of healthcare professional guidance persist as major barriers. The findings from India are consistent with regional studies in the Middle East and Africa, suggesting that even in diverse cultural contexts, the knowledge–practice gap remains universal.

To bridge this gap, there is an urgent need to integrate structured antenatal exercise counseling into routine obstetric visits, supported by visual demonstrations, culturally sensitive education, and the use of digital platforms—as demonstrated in Al-Ahsa study,[10] —to enhance accessibility and motivation. Such interventions, guided by ACOG and WHO recommendations, can significantly improve maternal health outcomes and empower women to safely incorporate physical activity throughout pregnancy.

CONCLUSION

The study reveals that pregnant women possess moderate knowledge and positive attitudes but demonstrate poor practice toward antenatal exercise, mirroring findings from India, Ethiopia, and Saudi Arabia. The high awareness of contraindications reflects caution rather than confidence in exercise safety. Therefore, targeted antenatal education programs, structured counseling by healthcare professionals, and community-based awareness campaigns are essential to dispel myths, enhance practical knowledge, and promote safe exercise adherence during pregnancy for improved maternal and fetal health outcomes.

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ISSN (O): 2687-5365; ISSN (P): 2753-6556

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ISSN (O): 2687-5365; ISSN (P): 2753-6556