

A Cross-Sectional Survey of Antenatal Care, Nutritional and Lifestyle Practices among Pregnant Women in Udaipur, Rajasthan.

Abstract

Introduction

Pregnancy brings substantial changes in nutritional requirements, physical activity, sleep, emotional wellbeing, and healthcare needs. Antenatal care aims to identify maternal and fetal risks early and promote healthy pregnancy practices. In Ayurveda, *Garbhini Paricharya* describes appropriate *Ahara* and *Vihara* during pregnancy. Despite the availability of antenatal services, gaps may remain in preconception care, dietary practices, and adherence to recommended supplementation.

Aim

To assess selected antenatal care, nutritional, lifestyle, and psychosocial practices among pregnant women in Udaipur.

Methods

A cross-sectional survey was planned among 100 pregnant women in Udaipur. Data were collected using a structured survey covering sociodemographic characteristics, menstrual and obstetric history, clinical parameters, pregnancy-related symptoms, preconception care, antenatal visits, supplementation, dietary practices, physical activity, rest, and stress.

Results

The mean age of participants was 25.9 ± 3.7 years. Most women were aged 21–30 years (81%), and 78% had completed at least secondary education. Sixty-two percent were primigravidae, and 74% reported that the current pregnancy was planned. Regular antenatal care was reported by 88%, while 62% had received an adequate number of antenatal contacts for their gestational age. 94% reported iron-folic acid supplementation, and 79% reported calcium supplementation. Adequate dietary diversity was observed in 67% of participants. Regular physical activity was reported by 70%, whereas yoga was practiced by 32%. 38% reported stress or worry. Planned pregnancy was significantly associated with preconception consultation and regular antenatal care.

Discussion

The survey showed generally good utilization of antenatal services and nutritional supplementation, but preconception care, dietary diversity, lifestyle practices, and psychological wellbeing remained areas needing greater attention. A structured approach that combines

evidence-based antenatal care with appropriate Ayurveda principles of *Ahara*, *Vihara*, and maternal wellbeing may be useful in routine pregnancy counseling.

Keywords: pregnancy, antenatal care, nutrition, lifestyle, Garbhini Paricharya, Ayurveda, cross-sectional survey

1. Introduction

Pregnancy is a period of progressive physiological adaptation that requires appropriate nutrition, regular health assessment, and lifestyle modifications. Antenatal care provides an opportunity to monitor maternal health, assess fetal well-being, identify complications, and counsel women on nutrition, supplementation, physical activity, and warning signsⁱ. The World Health Organization recommends eight antenatal contacts during pregnancy and emphasizes nutrition counseling, iron-folic acid supplementation, physical activity, preventive care, and timely screeningⁱⁱ. [1]

Ayurveda places considerable importance on maternal care during pregnancy through the concept of *Garbhini Paricharya*. Classical descriptions emphasize suitable food, routine, rest, mental well-being, and trimester-specific care. Contemporary reviews have attempted to interpret these principles alongside modern antenatal practicesⁱⁱⁱ, ^{iv}. [2,3]

Previous studies assessing knowledge and practices among pregnant women have shown that although awareness and utilization of antenatal services may be satisfactory, important gaps remain in actual health practices and adherence^v, ^{vi}. [4,5] Studies have also shown variation in dietary practices and maternal health behaviors by education, socioeconomic status, and other sociodemographic factors^{vii}. [6]

This survey aimed to provide a concise picture of pregnancy-related health practices among women in Udaipur. The study focused on practical domains assessable during routine antenatal encounters, including preconception care, antenatal follow-up, supplementation, dietary habits, physical activity, rest, and psychological well-being.

2. Materials and Methods

Study design and setting

A cross-sectional survey was designed for pregnant women in Udaipur, Rajasthan.

Study population and sample

The proposed sample included 100 pregnant women attending antenatal services. Women willing to participate and able to provide the required information were eligible. Women unwilling to participate or having incomplete survey records were excluded.

Data collection

A structured questionnaire was used. The survey form included demographic details, menstrual and obstetric history, hemoglobin, blood pressure, pulse rate, blood sugar, weight, family type, contraceptive history, eating frequency, dietary changes during pregnancy, previous miscarriage, and systemic disease.

The pregnancy-specific section included gestational age, planned or unplanned pregnancy, preconception treatment, common pregnancy symptoms, regularity of antenatal visits, iron and other nutritional supplementation, physical activity, rest, and stress or worry.

For this publication, additional variables were added to the analytical framework, including education, socioeconomic status, adequacy of antenatal contacts, dietary diversity, supplement adherence, yoga/meditation, and passive tobacco exposure.

Statistical analysis

Categorical variables as frequencies and percentages, and summarised continuous variables as mean $\pm$ standard deviation. Associations between categorical variables using the chi-square test or Fisher's exact test, where appropriate. P-value of <0.05 was considered statistically significant.

Ethical considerations

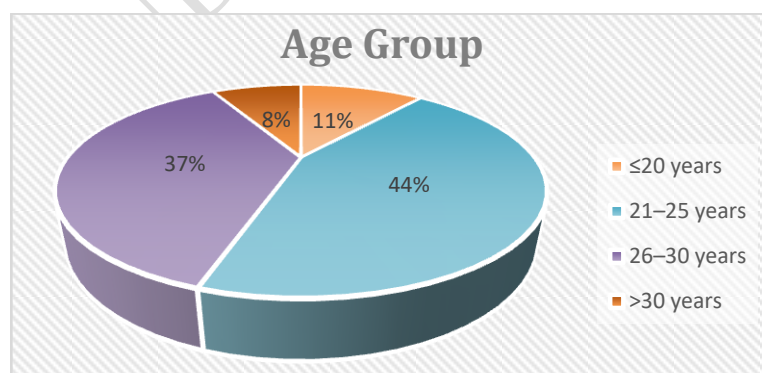
We documented ethical approval, written informed consent, and institutional permissions in accordance with the study protocol before submission.

3. Results

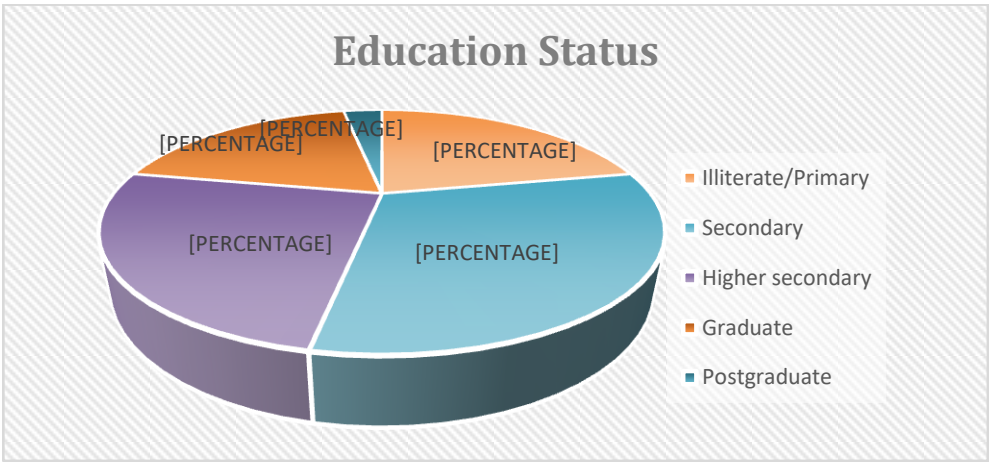
This dataset included 100 pregnant women. The mean age was 25.9 ± 3.7 years, and 81% were aged 21–30 years. Most participants had completed secondary education or higher.

Sixty-two percent were primigravidae, and 64% belonged to nuclear families. The current pregnancy was planned in 74% of women, while only 29% had received preconception consultation.

Table 1. Sociodemographic and obstetric characteristics of participants (n=100)

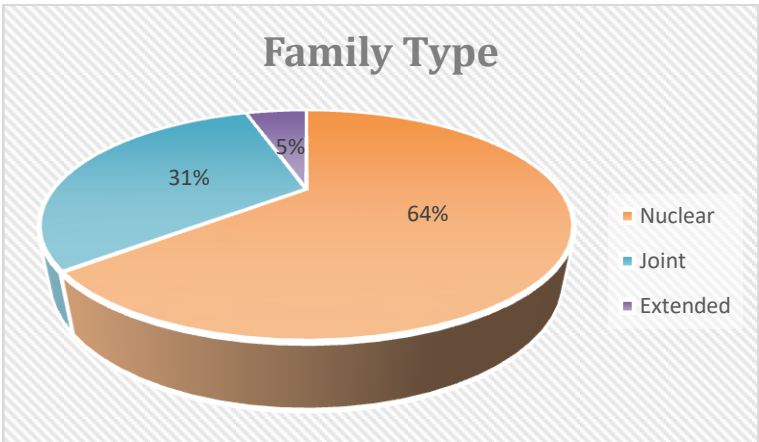


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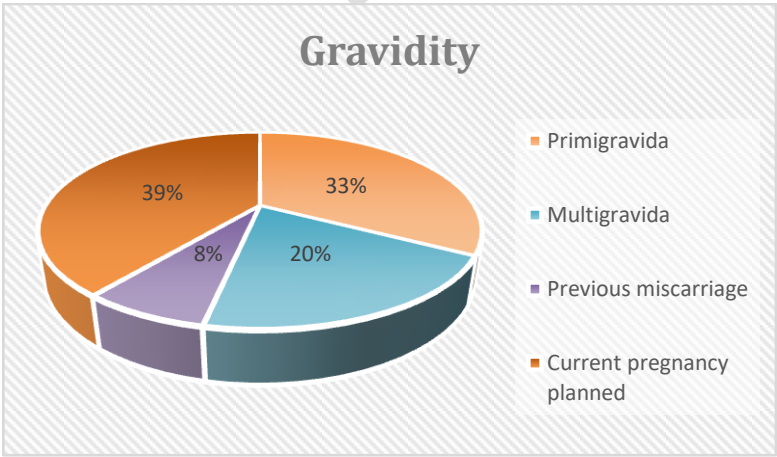
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98 **Table 2. Selected clinical and antenatal characteristics**

Parameter	n (%) / Mean $\pm$ SD
Weight (kg)	61.2 $\pm$ 8.4
BMI (kg/m ²)	23.9 $\pm$ 3.2
Hb (g/dL)	10.9 $\pm$ 1.1
Hb <10 g/dL	29
First ANC visit in 1st trimester	69
Regular ANC	88
Adequate ANC contacts for gestational age	62
BP monitored during ANC	91
Hb assessed	94
Blood glucose assessed	89
At least one ultrasound	96
Danger-sign counselling received	73

99 The mean hemoglobin concentration was 10.9 $\pm$ 1.1 g/dL. Twenty-nine percent of women had
100 hemoglobin below 10 g/dL, while 22% had hemoglobin $\geq$ 11 g/dL. Mean BMI was 23.9 $\pm$ 3.2
101 kg/m².

102 Although 88% reported regular antenatal attendance, only 62% had received an adequate number
103 of contacts for their gestational age. 94% reported iron-folic acid supplementation, and 79%
104 reported calcium supplementation.

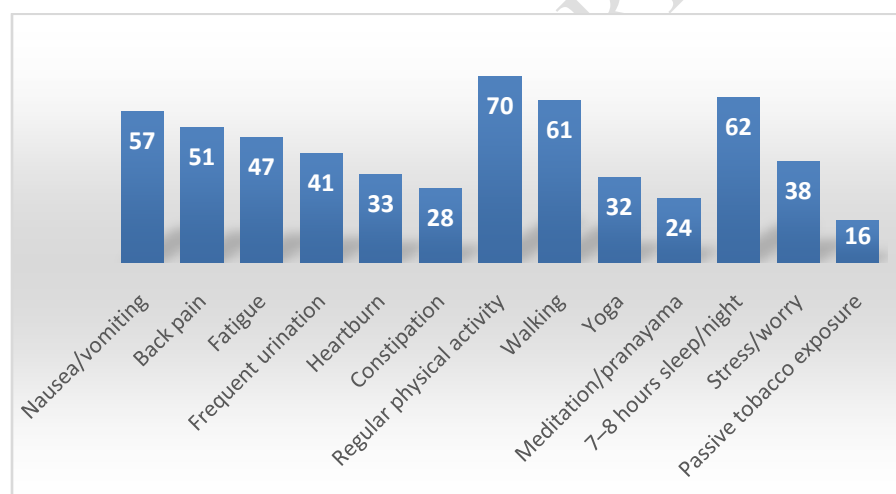
105 **Table 3. Preconception, supplementation and dietary practices**

Practice	n (%)
Preconception consultation	29
Folic acid before conception/early pregnancy	54
Preconception nutritional counselling	21

Preconception screening	34
Iron-folic acid supplementation	94
Calcium supplementation	79
Vitamin D supplementation	42
Good supplement adherence	71
Adequate dietary diversity	67
Three meals/day	67
≥4 meals/day	24
Reduced food intake during pregnancy	15

106 The most frequently reported pregnancy-related symptoms were nausea/vomiting (57%), back
107 pain (51%), and fatigue (47%).

108 **Table 4. Common symptoms and lifestyle practices**



109
110 A comparison between women with planned and unplanned pregnancies showed higher
111 utilization of preconception care and antenatal services among women with planned pregnancies.

112 **Table 5. Association of planned pregnancy with selected practices**

Practice	Planned n=74	Unplanned n=26	p-value
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Preconception consultation	27 (36.5%)	2 (7.7%)	<0.001
Folic acid use	45 (60.8%)	9 (34.6%)	0.025
Regular ANC	69 (93.2%)	19 (73.1%)	0.011
Adequate ANC contacts	50 (67.6%)	12 (46.2%)	0.049
Good supplement adherence	55 (74.3%)	16 (61.5%)	0.222
Adequate dietary diversity	52 (70.3%)	15 (57.7%)	0.239
Regular physical activity	54 (73.0%)	16 (61.5%)	0.282
Moderate/high stress	26 (35.1%)	12 (46.2%)	0.315

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114 4. Discussion

115 The present survey provides a brief overview of maternal health practices among pregnant
116 women of Udaipur. Most participants were young adults, and most had at least secondary
117 education. This demographic profile is comparable with the age distribution commonly reported
118 in hospital-based antenatal surveys from India. Studies assessing antenatal knowledge and
119 practice have also shown generally favorable awareness but variable implementation of
120 recommended practices^{viii ix}, . [4,5]

121 A notable finding was the difference between regular antenatal attendance and the adequacy of
122 antenatal contacts. Although 88% of women reported regular ANC, only 62% had an adequate
123 number of contacts for their gestational age. This distinction matters because asking only
124 whether a woman attends ANC may overestimate the quality and continuity of care. WHO
125 recommendations emphasize scheduled antenatal contacts throughout pregnancy rather than
126 attendance only when symptoms occur^x. [1]

127 Preconception care was comparatively limited. Only 29% had received preconception
128 consultation, and 54% reported folic acid use before conception or during early pregnancy. The
129 significantly higher frequency of preconception consultation and folic acid use among women
130 with planned pregnancies suggests that pregnancy planning may provide an important
131 opportunity for preventive intervention.

132 Iron-folic acid supplementation was reported by 94%, although good adherence was lower at
133 71%. This difference between prescription/use and adherence is clinically relevant. Antenatal
134 counseling should therefore address not only whether supplements have been prescribed but also
135 whether they are taken regularly and reasons for missed doses.

Dietary diversity was adequate in 67% of women, leaving approximately one-third with inadequate diversity. This finding supports including a simple dietary assessment during antenatal visits. Rather than focusing only on the number of meals, counseling should consider the variety of food groups consumed. WHO antenatal guidance similarly emphasizes healthy eating and appropriate nutritional support during pregnancy^{xi}. [1]

70% of participants reported physical activity, but structured exercise and yoga were less common. Yoga was practiced by 32% and meditation or pranayama by 24%. These practices may provide an opportunity for structured antenatal health education. However, they should be recommended according to gestational age, maternal health and obstetric risk, and should complement rather than replace standard antenatal care.

38% of participants reported stress or worry. Psychological wellbeing is an important but frequently under-assessed component of antenatal care. A brief validated instrument may provide more reliable assessment than a simple yes/no question in future studies.

The presence of passive tobacco exposure in 16% of women also indicates the need for household-level counseling. Maternal health education should therefore extend beyond the pregnant woman to family members where appropriate.

From an Ayurveda perspective, the findings support the practical relevance of *Garbhini Paricharya*, particularly the principles of appropriate Ahara, Vihara, rest, and maintenance of mental wellbeing^{xii}. Classical Ayurvedic recommendations should, however, be interpreted responsibly alongside contemporary evidence-based antenatal screening, supplementation, and obstetric care. Reviews of *Garbhini Paricharya* have highlighted its potential relevance to preventive pregnancy care, although stronger clinical evidence is still required for many specific interventions^{xiii, xiv}. [2,3]

The major strength of the proposed survey is its broad but simple assessment of domains that can be incorporated into routine antenatal counseling. Its main limitation is the cross-sectional design, which prevents assessment of causality or pregnancy outcomes. The small sample and hospital-based recruitment may also limit generalisability. Dietary and lifestyle information is partly self-reported and may be affected by recall and social desirability bias.

5. Conclusion

The survey framework identified important aspects of antenatal health behavior beyond routine clinical assessment. While ANC utilization and nutritional supplementation were relatively high, gaps were observed in preconception care, dietary diversity, supplement adherence, structured physical activity, and psychological wellbeing. Planned pregnancy was associated with better utilization of selected preventive services. Incorporating concise assessments of nutrition, lifestyle, mental wellbeing, and preventive practices into routine antenatal visits may strengthen maternal health counseling. In an Ayurveda setting, these measures can be integrated with appropriate principles of *Garbhini Paricharya* while maintaining standard evidence-based antenatal care.

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