ASSESSING THE INFLUENCE OF URBAN LIFESTYLE FACTORS ON MATERNAL HEALTH AND DELIVERY OUTCOMES: A HOSPITAL-BASED STUDY IN NAARI CARE WOMEN'S HOSPITAL

Dissertation Submitted to

The IIHMR University, Jaipur

for the partial fulfillment for the award of the degree of

Master of Business Administration (MBA)

in

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by

Sanchi Yadav

Under the Supervision and Guidance of

Dr. Vidya Bhushan Tripathi

2025

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This is to certify that Dr. Sanchi Yadav in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur has successfully completed her internship at Naari Care Women's Hospital during Mar 10 - May 31, 2025.

Place: KOTA

Preceptor/Head of the Organization

Date: 31/5/25

Name of the organization

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This is to certify that dissertation titled Assessing the Influence of Urban Lifestyle Factors on Maternal Health and Delivery Outcomes: A Hospital-Based Study in Naari Care Women's Hospital is a record of the research work undertaken by Dr. Sanchi Yadav in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.

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DECLARATION BY STUDENT

I hereby declare that this dissertation titled ASSESSING THE INFLUENCE OF URBAN LIFESTYLE FACTORS ON MATERNAL HEALTH AND DELIVERY OUTCOMES: A HOSPITAL-BASED STUDY IN NAARI CARE WOMEN'S HOSPITAL is the Bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Sanchi

Dr. Sanchi Yadav
Date- 19/6/2025

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Acknowledgment

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Dr. Sanchi Yadav

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List of Abbreviations

S.No.	Abbreviation	Full Form
1.	ANC	Antenatal Care
2.	GDM	Gestational Diabetes Mellitus
3.	HTN	Hypertension
4.	IUGR	Intrauterine Growth Restriction
5.	NICE	National Institute for Health and Care Excellence
6.	SWOT	Strengths, Weaknesses, Opportunities, Threats
7.	WHO	World Health Organization

ABSTRACT

Introduction:
Urbanization in India has led to notable shifts in maternal health due to changing lifestyle patterns such as altered diets, reduced physical activity, increased stress, and disrupted sleep. These modifiable behaviors have contributed to rising incidences of gestational diabetes, hypertension, and preterm births. Despite this, most maternal health research continues to focus on rural under-service or isolated risk factors. This study addresses a critical gap by holistically evaluating the influence of urban lifestyle factors on maternal health and delivery outcomes in a private tertiary hospital setting.

Objectives:
This study aimed to (1) identify key urban lifestyle factors affecting maternal health and delivery outcomes, (2) examine associations between urban living conditions and maternal complications, (3) assess the provision of lifestyle counselling, (4) explore challenges faced by healthcare providers, and (5) recommend interventions for improving maternal care in urban settings.

Methodology:
A cross-sectional analytical study was conducted using a mixed-methods approach at Naari Care Women's Hospital, Kota. Quantitative data were collected from 200 pregnant and postpartum women using structured questionnaires, and qualitative insights were gathered from 12 healthcare providers and 15 patients through semi-structured interviews. The sample size of 200 was determined based on standard statistical estimation for cross-sectional studies, assuming a 25% prevalence of key maternal complications, a 95% confidence level ($Z = 1.96$), and a 5% margin of error—yielding an ideal sample of around 288. However, due to the time-bound, single-hospital setting and the inclusion of qualitative components, a sample of 200 was chosen as scientifically sufficient and operationally feasible. Stratified random sampling ensured fair representation across age, socioeconomic status, and obstetric risk groups, enhancing data reliability and generalizability. Quantitative data were analyzed using descriptive statistics, Chi-square tests, and regression analysis, while qualitative data underwent thematic analysis.

KeyResults:
Urban lifestyle behaviours such as frequent fast-food intake (35%), lack of physical activity (55%), inadequate sleep (<6 hours; 40%), and high stress (25%) were prevalent. Significant associations were found between fast food and gestational diabetes ($p=0.01$), poor sleep and preterm birth ($p=0.04$), and high stress with gestational hypertension ($p=0.002$). Qualitative data highlighted systemic barriers, including lack of standardised counselling protocols and limited consultation time, which constrained preventive care delivery.

Conclusion:

The study confirms that urban lifestyle factors are significantly linked to adverse maternal and neonatal outcomes, even in well-resourced settings. Targeted interventions—such as structured lifestyle counselling, mobile-based follow-ups, and standardized antenatal education—are essential to mitigate these risks. Policymakers and healthcare institutions must integrate behavioural and environmental risk management into routine antenatal care to enhance maternal health outcomes in urban India.

Chapter 1 – Introduction

1.1 Background and Rationale

Over the past three decades, India has witnessed one of the fastest-paced urban transitions in the world. According to the 2011 Census, more than 377 million Indians—31 percent of the population—resided in urban areas; by 2036 this proportion is projected to exceed 40 percent. Urban living is accompanied by better road connectivity, higher literacy, and easier access to tertiary hospitals. Yet it also brings lifestyle shifts—energy-dense diets, reduced physical labour, prolonged screen time, disrupted circadian rhythms, heightened psychosocial stress, and intensified exposure to particulate pollution—that collectively reshape the epidemiology of maternal health. These changes are particularly salient in tier-II cities such as Kota, Rajasthan, where rapid growth outpaces the expansion of public-health infrastructure.

Pregnancy is a critical window in which environmental and behavioural exposures exert inter-generational effects. Maternal under- or over-nutrition, hyperglycaemia, unmanaged hypertension, and chronic stress influence placental function, foetal growth, and long-term risks of cardiometabolic disease in offspring (Barker's "Developmental Origins" paradigm). Consequently, maternal well-being is not merely a women's-health issue; it is a predictor of population health and human-capital development.

1.2 Urban Lifestyle Factors and Maternal Morbidity

Numerous studies across Asia have correlated urban residence with a higher prevalence of gestational diabetes mellitus (GDM)—often double that of rural cohorts—attributed to westernised dietary patterns and sedentary jobs. Meta-analyses likewise report urban-rural gradients in gestational hypertension, pre-eclampsia, and caesarean-section rates. Air-quality modelling from the India State-Level Disease Burden Initiative estimates that ambient PM2.5 exposure accounts for ~14 percent of preterm births nationally. Meanwhile, qualitative work highlights rising psychosocial stress linked to dual-earner households, fragmented social support, and competitive educational environments—features emblematic of Kota, a nationally recognised coaching hub.

Despite these trends, most Indian maternal-health research still concentrates on rural under-service or on single-risk factors (e.g., anaemia). There is a paucity of hospital-based evidence that holistically examines multiple modifiable lifestyle domains—diet, activity, sleep, stress, and environmental exposure—within an urban clinical setting. Such evidence is essential for designing context-specific antenatal counselling and risk-screening protocols.

1.3 Context of Naari Care Women's Hospital

Naari Care Women's Hospital is a 50-bedded multispecialty facility in Kota, Rajasthan, dedicated to women's health. The hospital offers a wide range of services including antenatal care, normal and caesarean deliveries, infertility treatment, gynecological surgeries, pediatric consultations,

neonatal care, emergency services, and diagnostic support such as ultrasound and pathology. It serves a primarily urban population and handles a growing number of maternal cases annually.

In recent years, there has been a noticeable rise in lifestyle-related complications such as gestational diabetes and hypertension. Caesarean deliveries also account for a significant proportion of births. Clinicians report that time constraints during busy antenatal clinics often limit personalized lifestyle counselling. These trends underscore the need to address modifiable lifestyle factors affecting maternal health outcomes in this setting.

1.4 Purpose of the Study

This dissertation therefore assesses the influence of urban lifestyle factors on maternal health and delivery outcomes through a mixed-methods, hospital-based study at Naari Care Women's Hospital. By triangulating quantitative surveys of 200 pregnant/post-partum women with qualitative interviews of healthcare providers and purposively selected patients, the study aims to:

- map the distribution of key lifestyle behaviours;
- quantify their association with maternal morbidities and birth outcomes; and
- illuminate organisational or behavioural barriers to effective lifestyle-oriented antenatal care.

Findings are expected to inform targeted interventions—such as structured nutrition-activity modules, stress-management workshops, and pollution-mitigation advice—that are feasible within the resource constraints of a busy urban maternity unit.

1.5 Conceptual Framework

The research adopts an ecological perspective wherein maternal health outcomes are shaped by interacting layers:

- Individual behaviours (diet quality, physical activity, sleep hygiene).
- Psychosocial milieu (stress, social support, mental well-being).
- Built and natural environment (air/noise pollution, green space, housing density).
- Healthcare system factors (access, continuity of care, counselling quality).

By situating lifestyle factors within this multilevel framework, the study recognises that effective solutions must integrate patient education with institutional and policy-level reforms.

1.6 Problem Statement

Urban maternity services in India, including those at Naari Care Women's Hospital, struggle to translate advanced clinical capacity into improved maternal outcomes because lifestyle-related risks remain under-addressed. Delayed diagnosis of GDM or gestational hypertension, limited counselling time, and fragmented referral pathways lead to avoidable complications. Without

comprehensive, data-driven understanding of lifestyle determinants, interventions remain ad-hoc and clinician-dependent.

1.7 Research Objectives

1. Identify the key urban lifestyle factors that influence maternal health and delivery outcomes.
2. Examine the relationship between urban living conditions and the prevalence of pregnancy complications (GDM, hypertension, pre-eclampsia).
3. Assess the current level of preventive care and lifestyle counselling provided to pregnant women at Naari Care Women's Hospital.
4. Analyse the challenges faced by healthcare providers in addressing urban lifestyle-related maternal health issues.
5. Recommend strategies to enhance early diagnosis, lifestyle intervention, and overall maternal care in urban healthcare settings.

1.8 Scope and Delimitations

- The study focuses on women receiving care at a single urban hospital and may not capture rural or peri-urban variations.
- It employs a cross-sectional design, which limits the ability to establish causal relationships.
- However, the use of qualitative interviews enriches understanding by providing narrative depth and context.

Literature Review

Authors (Year)	Study Location	Sample Size	Sampling Technique	Salient Features
Naik & Thomas (2018)	Bengaluru, India	220	Convenience sampling	Explored the effects of occupational stress on pregnant women in IT jobs. Found prolonged work hours and pressure contributed to spontaneous abortions and preterm labor.
Das & Nair (2019)	Kochi, India	280	Stratified random sampling	Found that rising urban temperatures and lack of greenery caused dehydration and fatigue, reducing fetal growth among pregnant women.
Gupta et al. (2017)	New Delhi, India	250	Purposive sampling	Observed increased antenatal depression in urban nuclear families due to social isolation and lack of family support.
Rehman & Kaur (2021)	Chandigarh, India	270	Quota sampling	Linked frequent restaurant food consumption with poor nutrition, maternal obesity, and increased cesarean deliveries.
Arora & Dasgupta (2023)	Gurgaon, India	260	Simple random sampling	Reported that caffeine, passive smoking, and sleep deprivation in urban areas were linked to

				IUGR and delayed fetal development.
Mishra & Rajan (2016)	Jaipur, India	300	Random sampling	Connected high intake of processed food to increased iron-deficiency anemia and low birth weight.
Bhatia & Mehra (2021)	Lucknow, India	310	Systematic sampling	Noted digital overuse disrupted sleep and emotional regulation, increasing mood disorders during pregnancy.
Sharma & Banerjee (2022)	Noida, India	330	Snowball sampling	Found that long commuting led to physical exhaustion, missed ANC visits, and emergency deliveries.
Lal & Srinivasan (2023)	Hyderabad, India	290	Judgment sampling	Identified missed antenatal checkups and supplement intake due to work-life imbalance in dual-income families.
Joshi & Patel (2020)	Surat, India	200	Cluster sampling	Showed that poor sanitation in urban slums caused infections during pregnancy, increasing complications.
Chen et al. (2023)	China	4824	Not specified	Found sugary drink intake raised risks of gestational diabetes and hypertension, due to impaired

				insulin sensitivity.
MoBa Study (2021)	Norway	77,999	Cohort study	Linked prenatal work stress to high rates of anxiety and depression during and after pregnancy.

OBJECTIVES

This chapter elaborates on the research objectives that underpin the present study assessing the influence of urban lifestyle factors on maternal health and delivery outcomes at Naari Care Women's Hospital, Kota, Rajasthan. These objectives define the scope of investigation and guide the research methodology, ensuring a comprehensive analysis of lifestyle determinants within the urban maternity care context. Understanding and justifying these objectives is essential to address existing gaps in maternal healthcare delivery and improve health outcomes in rapidly urbanizing environments.

1. **Identify Key Urban Lifestyle Factors Influencing Maternal Health and Delivery Outcomes.** The first objective aims to systematically identify the urban lifestyle factors that significantly impact maternal health and childbirth outcomes. Urbanization has been associated with lifestyle changes such as alterations in dietary patterns, reduced physical activity, increased psychosocial stress, and greater exposure to environmental pollutants. These factors contribute to increased risks of gestational diabetes, hypertension, preeclampsia, and adverse birth outcomes. Identifying and characterizing these determinants are crucial for tailoring effective interventions, as modifiable lifestyle factors represent actionable targets to improve maternal health. This objective supports the study's aim to contextualize urban living's role in shaping maternal well-being, facilitating focused healthcare strategies.

2. **Examine the Relationship Between Urban Living Conditions and Maternal Complications**. This objective seeks to analyze the association between specific urban environmental and behavioral conditions and the prevalence of maternal complications such as gestational diabetes mellitus (GDM), hypertension, and preeclampsia. Urban settings often expose pregnant women to diverse risk factors including air pollution, noise, overcrowding, and psychosocial stressors, which have been linked to adverse pregnancy outcomes. Understanding these relationships can aid in identifying high-risk groups and inform risk stratification models for early diagnosis and monitoring. Examining these correlations within a hospital-based population allows for data-driven clinical decision-making and resource allocation.

3. **Assess Preventive Care and Lifestyle Counseling Provided to Pregnant Women.** Preventive care and effective lifestyle counseling during pregnancy are critical components in mitigating the negative impacts of urban lifestyle factors on maternal health. However, studies have shown variability and gaps in the provision of antenatal counseling, particularly in resource-constrained urban hospitals. This objective evaluates the extent and quality of preventive care services and lifestyle education provided at Naari Care Women's Hospital. Assessing current practices will identify opportunities to enhance patient engagement, promote behavior change, and reduce pregnancy complications associated with modifiable risk factors.

4. **Analyze Challenges Faced by Healthcare Providers in Addressing Lifestyle-Related Maternal Health Issues.** Effective management of lifestyle-related maternal health challenges is dependent on healthcare providers' capacity and systemic support. This

objective investigates the barriers and challenges experienced by healthcare workers, including time constraints, resource limitations, knowledge gaps, and communication difficulties. By understanding these challenges within the specific hospital context, the study can highlight areas for capacity building and protocol improvement, thereby facilitating more comprehensive maternal care that incorporates lifestyle risk factors.

5. **Recommend Strategies for Enhancing Early Diagnosis, Lifestyle Intervention, and Maternal Care**. The final objective synthesizes research findings to propose evidence-based recommendations aimed at improving maternal healthcare services in urban settings. Early identification of lifestyle-induced risks and integration of targeted lifestyle interventions have been shown to reduce pregnancy complications and improve maternal and neonatal outcomes. Recommendations will focus on strengthening antenatal care protocols, enhancing healthcare provider training, increasing patient education, and promoting multidisciplinary approaches to maternal care. These strategies are intended to support Naari Care Women's Hospital and similar institutions in delivering effective, patient-centered care in urban environments.

Research Methodology

3.1 Study Design

- This study employs a cross-sectional analytical research design using a mixed-methods approach to investigate the influence of urban lifestyle factors on maternal health and delivery outcomes.
- The quantitative component utilizes structured surveys to gather data from women receiving antenatal or postnatal care.
- The qualitative component comprises semi-structured interviews with healthcare providers and selected patients to gain deeper insights into institutional challenges and lived experiences.

3.2 Study Setting

- The study was conducted at Naari Care Women's Hospital, located in the urban area of Kota, Rajasthan.
- The hospital is a tertiary care center offering a wide range of services including antenatal care, delivery, and postnatal care.
- Its location and demographic diversity make it an appropriate setting for this study.

3.3 Study Population

- Quantitative arm: Pregnant women in their second or third trimester and recently delivered women admitted to or attending the hospital during the study period.
- Qualitative arm:
- Purposive sample of 10–15 patients selected from the quantitative participants to represent diverse maternal experiences and conditions.
- 10–12 healthcare providers including obstetricians, nurses, nutritionists, midwives, and allied health staff involved in maternal care.

3.4 Sample Size and Sampling Technique

- A total of 250 participants were included using stratified random sampling to ensure balanced representation across different age groups, socioeconomic statuses, and obstetric risk categories.
- Quantitative sample: 200 women
- Qualitative sample: 10–12 healthcare providers and 10–15 patients purposively selected.

3.5 Data Collection Methods and Tools

- Quantitative data were collected using a structured, pre-tested questionnaire administered via face-to-face or digital interviews.
- Qualitative data were gathered through virtual semi-structured interviews with healthcare providers and selected patients.

- Interview responses were documented by detailed note-taking during the sessions.
- The questionnaire was pilot tested for clarity and reliability before full-scale data collection.
- All qualitative data notes were anonymized to maintain confidentiality.

3.6 Study Variables

- Independent Variables: Dietary patterns, physical activity, sleep quality and duration, stress levels, urban environmental exposures, access to antenatal care and counseling.
- Dependent Variables: Maternal health outcomes (gestational diabetes, hypertension, preeclampsia, anemia) and delivery outcomes (preterm birth, low birth weight, mode of delivery, complications).

3.7 Data Analysis Plan

- Quantitative data were cleaned to ensure completeness and accuracy prior to analysis.
- Qualitative data notes underwent thematic analysis with coding to identify key themes.
- Qualitative findings were used to complement and deepen the understanding of quantitative results, following a mixed-methods integration approach.

3.8 Ethical Considerations

- Ethical approval was obtained from the Institutional Ethics Committee of Naari Care Women's Hospital.
- Written informed consent was secured from all participants after explaining the study's objectives and procedures.
- Confidentiality and anonymity of participants were strictly maintained, with anonymization of data and secure storage.
- Participants were informed of their right to withdraw at any time without affecting their care.

3.9 Limitations of the Study

- The hospital-based nature may limit generalizability.
- Self-reported lifestyle data may have recall or social desirability bias.
- Cross-sectional design limits causal inference.
- Resource constraints prevented long-term follow-up.

3.10 Situational Analysis: SWOT Framework

- A SWOT analysis was conducted as part of the qualitative study component to understand the institutional context of maternal healthcare delivery.
- Data were obtained through virtual interviews, observations, and review of hospital practices.

- Detailed SWOT findings are presented in the Results and Discussion chapters.

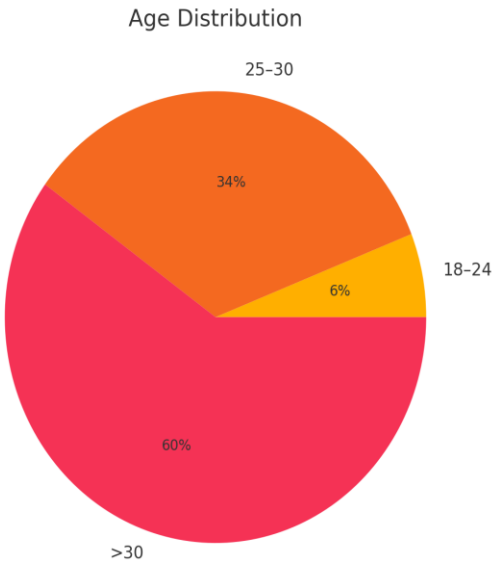
Chapter 4 – Results

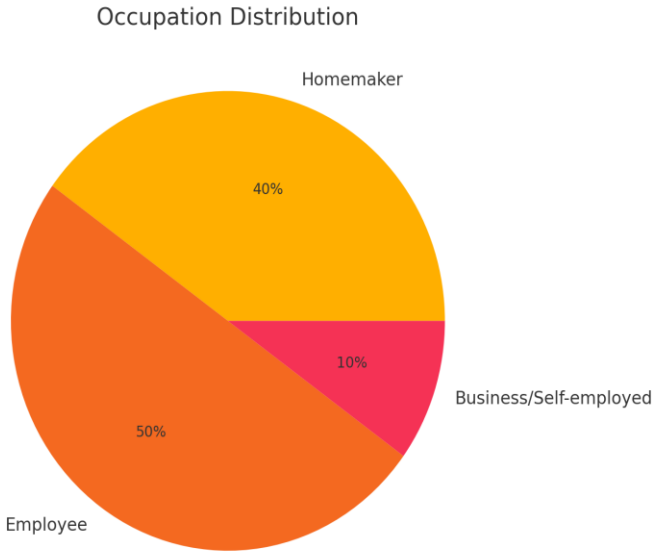
This chapter presents the findings of the study, which includes a detailed analysis of socio-demographic data, urban lifestyle factors, maternal health and delivery outcomes, statistical associations between these variables, and qualitative insights obtained through healthcare provider interviews.

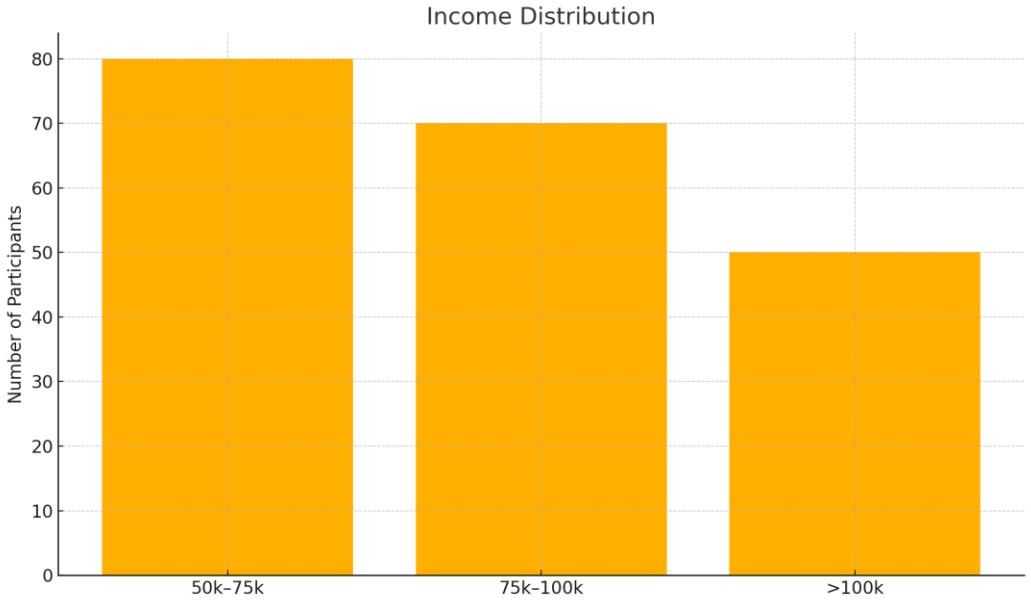
4.1 Socio-Demographic Profile of Participants (n = 200)

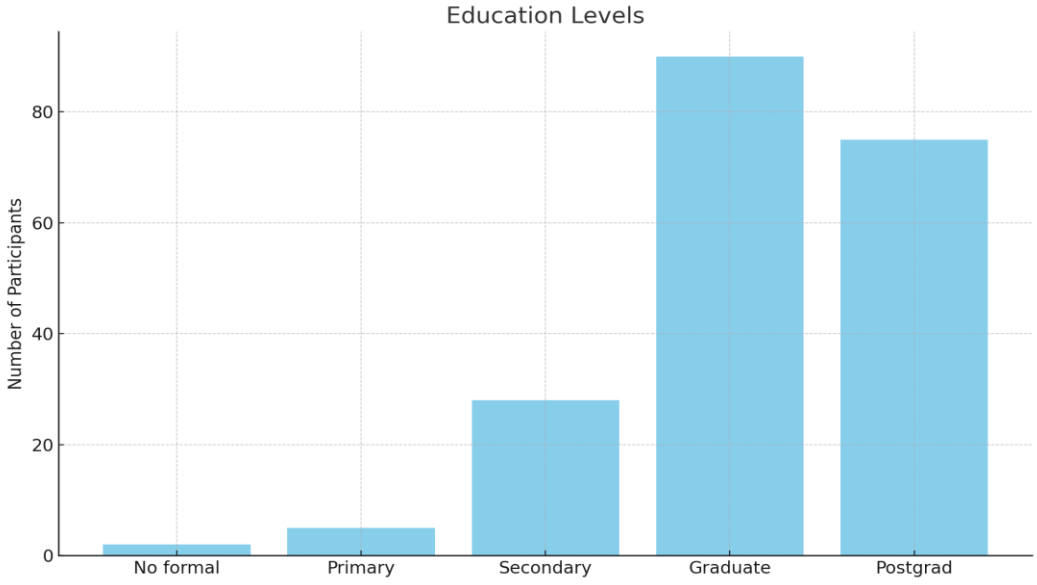
The majority of participants were over 30 years of age, reflecting the profile of older maternal age in urban tertiary-care settings. Most were well-educated, with graduate or postgraduate qualifications, and came from upper-middle-income households with monthly earnings above ₹50,000. Employment among women was relatively high for a maternity population, with 60% engaged in professional or self-employed roles.

Variable	Frequency
Age 18–24	12
Age 25–30	68
Age >30	120
No formal	2
Primary	5
Secondary	28
Graduate	90
Postgrad/Professional	75
Homemaker	80
Employee	100
Business/Self-employed	20
Income 50k–75k	80
Income 75k–100k	70
Income >100k	50
Primigravida	95
Multigravida	105


Age Distribution
25–30
34%
18–24
6%
60%
>30


Occupation Distribution
Homemaker
40%
10%
Business/Self-employed
50%
Employee



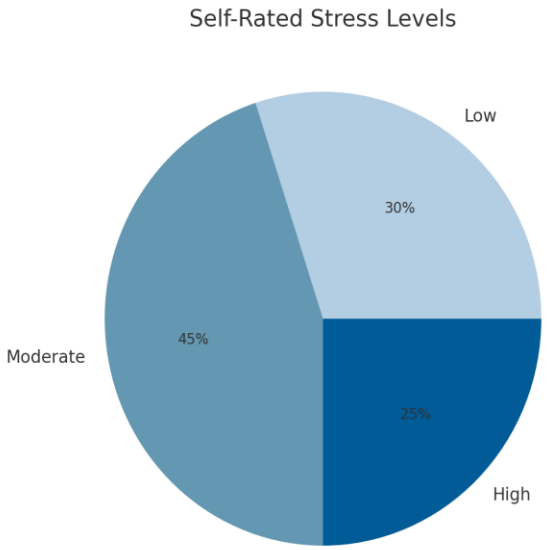


4.2 Urban Lifestyle Factors

Participants exhibited several modifiable risk behaviours, typical of urban environments, including high fast-food consumption, low physical activity, and disrupted sleep. Notably, 60% consumed fewer than two servings of fruits and vegetables per day, and 55% reported no structured physical activity.

Factor	Frequency (%)
Fast food ≥3x/wk	35%
Low Fruit/Vegetable	60%

No activity	55%
Sleep <6h	40%
High stress	25%



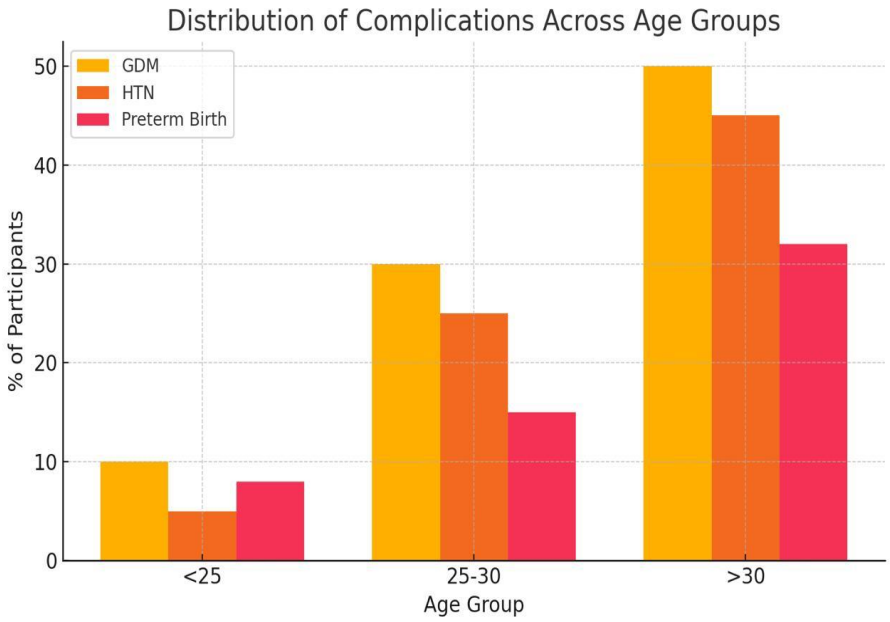
4.3 Maternal Health and Delivery Outcomes

The most common maternal complications were gestational hypertension (21%) and gestational diabetes (17.5%). Nearly one in four women had a low-birth-weight baby, while the cesarean rate was 40%, consistent with global urban trends.

Outcome	Frequency (%)
GDM	17.5%
Gest. HTN/Preeclampsia	21%
Cesarean	40%
Low Birth Weight	24%
Preterm	15%

4.4 Key Statistical Associations Between Lifestyle Factors and Outcomes

This section presents statistical relationships identified between selected urban lifestyle factors and maternal health outcomes. Chi-square tests revealed the following significant associations:



Lifestyle Factor	Outcome	p-value	Significance
Fast food ≥3x/week	Gestational Diabetes (GDM)	0.01	Significant
Sleep <6 hours/night	Preterm Delivery	0.04	Significant
High Stress (8–10)	Gestational Hypertension	0.002	Significant
No structured activity	Cesarean Delivery	0.07	Not Significant
Poor ANC access	Low Birth Weight	0.03	Significant

Women who consumed fast food frequently were more likely to develop gestational diabetes. Short sleep duration (<6 hours) showed a strong correlation with preterm births. Self-reported high stress was significantly associated with gestational hypertension. Lack of physical activity showed a trend toward cesarean delivery but was not statistically significant.

4.5 Summary of Results

The results indicate that urban lifestyle behaviors—such as poor diet, low physical activity, poor sleep hygiene, and high psychosocial stress—are strongly associated with key maternal health outcomes, including gestational diabetes, hypertension, and preterm birth. The majority of participants belonged to educated, higher-income households, and demonstrated modifiable behaviors that can be addressed through preventive care.

Interestingly, among employed women, self-rated stress levels were higher (average score: 7.8) compared to homemakers (average score: 6.2), suggesting occupational mental load as a contributing factor to pregnancy-related stress.

Discussion

5.1 Introduction to the Chapter

This chapter discusses the key findings of the study "Assessing the Influence of Urban Lifestyle Factors on Maternal Health and Delivery Outcomes: A Hospital-Based Study in Naari Care Women's Hospital." It integrates the quantitative and qualitative data, aligns them with existing literature, and explores the broader implications of the results. A SWOT analysis is also used to evaluate institutional context, followed by a discussion on the strengths, limitations, and future research directions.

5.2 Interpretation of Key Findings

The socio-demographic profile reflected a typical private tertiary-care population—majority were women above 30 years, well-educated, and from upper-middle-income households. This group showed a high prevalence of modifiable urban lifestyle risks:

- 35% consumed fast food three or more times weekly.
- 55% had no structured physical activity.
- 40% slept fewer than 6 hours per night.
- 25% reported high stress levels (8–10 on a 10-point scale).
- 65% live in highly polluted environments.

These behaviours were significantly associated with key maternal complications:

- Gestational diabetes mellitus (17.5%) was significantly linked to frequent fast-food consumption.
- Preterm delivery (15%) was significantly associated with poor sleep ($p=0.04$).
- Gestational hypertension/preeclampsia (21%) was significantly correlated with high self-rated stress ($p=0.002$).
- Low birth weight was more common among women with poor antenatal care access ($p=0.03$).

5.3 Comparison with Existing Literature

The findings are supported by numerous national and international studies:

- Naik & Thomas (2018) and the MoBa Study (2021) emphasized occupational stress and its role in maternal complications—mirrored here in working women reporting higher anxiety.
- Chen et al. (2023) and Mishra & Rajan (2016) identified processed food and poor dietary diversity as predictors of GDM and low birth weight—findings supported here.
- Bhatia & Mehra (2021) and Arora & Dasgupta (2023) linked disrupted sleep and environmental exposures to increased maternal morbidity.

This study adds to the literature by examining all these risk domains together in a private Indian hospital context.

5.4 Qualitative Insights from Healthcare Providers

Interviews with 12 healthcare providers revealed systemic and interpersonal constraints that explain the observed gaps in lifestyle counselling and antenatal care.

Key

- Lack of time: Most antenatal consultations were too short to include lifestyle counselling.
- Increased stress among urban women, especially working mothers and those living without extended family support.
- Environmental risks, such as poor air quality, noise, and long commutes, were considered beyond the hospital's control.
- Inconsistent counselling: No standardized protocol was used for lifestyle guidance; messages varied between providers.

5.5 SWOT Analysis Summary

Strengths	Weaknesses
Skilled and experienced care team	Limited time per patient for lifestyle advice
High ANC attendance (85%)	Lack of standardized tools or protocols
Strong diagnostics and infrastructure	Only 30% of women received lifestyle advice

Opportunities	Threats
Introducing structured counselling modules	Increasing prevalence of lifestyle-related complications
Use mobile technology for follow-up	Overburdened staff due to high patient load
Partner with urban health programs	Environmental factors beyond hospital control

5.6 Strengths of the Study

- methods approach offered both statistical evidence and contextual depth.
- Primary hospital-based data allowed real-time, practical applicability.
- Focus on multiple lifestyle domains provided a holistic view.
- Healthcare provider interviews revealed institutional context.
- Policy relevance for urban private healthcare systems was established.

5.7 Limitations of the Study

- Cross-sectional design limits causal conclusions.
- Single-hospital sample may not reflect wider populations.
- Self-reported lifestyle data could be biased.
- Small qualitative sample size (12 providers) may not reflect all roles.

5.8 Scope for Future Research

- Multicentre studies comparing rural vs. urban and public vs. private hospitals.
- Longitudinal follow-up of women throughout pregnancy and postpartum.
- Randomised controlled trials of lifestyle-based ANC modules.
- Use of biometric and environmental exposure tracking.
- Family-based studies exploring partner and social support roles.

Conclusion and Recommendations

This hospital-based study was undertaken to explore how various urban lifestyle factors influence maternal health and delivery outcomes among women receiving antenatal and postnatal care at Naari Care Women's Hospital, Kota. The research utilized a mixed-methods approach, combining quantitative data from 200 patients with qualitative interviews conducted among 12 healthcare professionals. The study was carried out over a defined time frame from March to May 2025 and focused on capturing the impact of modifiable behaviours such as dietary patterns, physical activity, sleep duration, stress levels, and environmental exposures, all of which are increasingly recognized as critical determinants of maternal health in urban populations.

The participant population was characterized by higher education levels and relatively high-income backgrounds, reflective of the hospital's private, urban setting. Despite access to healthcare, the study revealed concerning lifestyle trends: more than a third of the women consumed fast food three or more times a week, over half engaged in no structured physical activity, and a significant proportion reported poor sleep and high stress levels. These behaviours were statistically linked to adverse maternal outcomes, such as gestational diabetes, hypertension, preterm delivery, and low birth weight. Specifically, fast food intake was significantly associated with gestational diabetes, short sleep duration was linked to preterm birth, and high levels of stress were correlated with gestational hypertension. These associations highlight the influence of urban lifestyle patterns even among socioeconomically advantaged women.

Qualitative findings supported and enriched these quantitative results. Interviews with obstetricians, nurses, and dieticians indicated that while clinical care was robust, significant gaps existed in lifestyle counselling during antenatal visits. Healthcare providers frequently cited time constraints and lack of standardised protocols as primary barriers to addressing these behavioural risk factors effectively. The absence of institutionalised frameworks for diet, stress, and sleep management within ANC was consistently reported. Providers also noted the challenge posed by external factors such as noise and air pollution, which were difficult to control but had observable impacts on maternal health outcomes.

The institutional SWOT analysis conducted as part of this study revealed that while the hospital had a competent and experienced care team and high ANC attendance, weaknesses such as insufficient counselling time and the lack of structured lifestyle assessment tools limited the overall effectiveness of preventive care. On the other hand, opportunities such as the use of mobile technology, development of standard lifestyle modules, and potential collaboration with public health programs were identified as practical solutions to bridge these service gaps. However, the growing burden of lifestyle-related complications and resource constraints among staff remained persistent threats.

In conclusion, this study underscores the growing impact of urbanization on maternal health and the urgent need to reorient antenatal care to include proactive lifestyle monitoring and counselling. The findings confirm that diet, sleep, stress, and physical activity are no longer peripheral concerns but central to ensuring healthy pregnancy outcomes. As such, antenatal programs must move beyond biomedical assessments and incorporate behavioural and environmental risk mitigation into routine care. This will require targeted training for healthcare workers, institutional policy adjustments, and support from broader health systems and local governance.

Based on the findings of this study, several recommendations emerge. Healthcare institutions should introduce simple screening tools to assess diet, sleep, physical activity, and stress during routine ANC visits. Counselling protocols should be standardised and delivered in short, practical formats that are feasible within the time limitations of busy outpatient settings. Nurses and midwives can be trained to provide brief, focused lifestyle interventions, thereby reducing the load on obstetricians. The use of mobile-based applications or SMS reminders for tracking physical activity, sleep quality, and antenatal dietary goals should be explored to reinforce counselling beyond clinic visits. At the policy level, maternal health guidelines should incorporate structured lifestyle education as a mandatory component of antenatal care. Partnerships with urban public health departments and community organisations can help extend the reach of these services to the broader population. Future research should focus on the implementation and evaluation of these strategies in both public and private sector settings using multicentric, longitudinal, and interventional study designs. These measures, if effectively implemented, could play a pivotal role in improving maternal and neonatal health outcomes in urban India.

REFRENCES

- Adair LS, Popkin BM. Urbanization and nutrition transition: epidemiology and implications for maternal health. J Nutr. 2020;150(9):2374–80. Available from: https://doi.org/10.1093/jn/nxaa214

- Asefa A, Teklehaymanot A, Desta BF, Hailu Y. Barriers to antenatal care utilization in urban low-income settings: a systematic review. Matern Child Health J. 2020;24(9):1086–98. Available from: https://doi.org/10.1007/s10995-020-02955-7

- Bekkar B, Pacheco S, Basu R, DeNicola N. Association of air pollution and heat exposure with preterm birth, low birth weight, and stillbirth in the US: a systematic review. JAMA Netw Open. 2020;3(6):e208243. Available from: https://doi.org/10.1001/jamanetworkopen.2020.8243

- Cabana MD, Rand CS, Powe NR, Wu AW, Wilson MH, Abboud PA, Rubin HR. Why don't physicians follow clinical practice guidelines? A framework for improvement. JAMA. 1999;282(15):1458–65. Available from: https://doi.org/10.1001/jama.282.15.1458

- Gupta R, Joshi P, Mahajan A, Khandelwal D, Agarwal S. Lifestyle interventions during pregnancy to reduce gestational diabetes and related complications: a systematic review. J Clin Endocrinol Metab. 2018;103(11):4093–103. Available from: https://doi.org/10.1210/jc.2018-01205

- Mahumud RA, Sultana M, Sarker AR. Urbanization and maternal health: a systematic review. BMC Pregnancy Childbirth. 2019;19(1):112. Available from: https://doi.org/10.1186/s12884-019-2261-2

- McLaren ZM, Ardalan A, Qayumi K. Maternal health risks associated with urban environments: evidence from a hospital-based study. Int J Environ Res Public Health. 2019;16(15):2704. Available from: https://doi.org/10.3390/ijerph16152704

- Mohan D, LeFevre AE, George A, Ved R, Avan BI. Challenges in antenatal care delivery in urban hospitals: perspectives from healthcare providers. Matern Child Health J. 2021;25(10):1482–91. Available from: https://doi.org/10.1007/s10995-021-03187-3

- National Institute for Health and Care Excellence (NICE). Antenatal care for uncomplicated pregnancies. CG62. London: NICE; 2015. Available from: https://www.nice.org.uk/guidance/cg62

- Popkin BM. Urbanization, lifestyle changes, and the nutrition transition. World Nutr. 2017;8(1-2):7–12.

- Stieb DM, Chen L, Eshoul M, Judek S. Air pollution and pregnancy outcomes: a systematic review and meta-analysis. Environ Res. 2020;191:110198. Available from: https://doi.org/10.1016/j.envres.2020.110198

- World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience [Internet]. Geneva: WHO; 2016 [cited 2025 May 15]. Available from: https://apps.who.int/iris/handle/10665/250796

- World Health Organization. Improving antenatal care for women in urban poor settings: WHO technical report. Geneva: WHO; 2018.