



To study the impact of socioeconomic factors on the weight gain of ANC mothers in a private hospital.

SUBMITTED BY:

Dishankita Wagh

4th semester, Master of Public Health (Nutrition)

MUHS, RC, Pune

SUBMITTED TO:

Dr. Mayur Giri

Assistant Professor

Department of Public Health

MUHS, RC, Pune

ABSTRACT

This study aimed to investigate the association between socioeconomic factors and maternal weight gain among expectant mothers receiving antenatal care (ANC) in a private hospital. Specifically, the research focused on assessing the relationship between income levels and weight gain, exploring the impact of education on weight gain, and analyzing the influence of the number of ANC visits on maternal weight gain.

Methodology: A quantitative research approach was adopted, employing a close-ended questionnaire as the primary data collection tool. A total of 100 participants were randomly sampled from the population of ANC mothers in the private hospital. The questionnaire gathered information on participants' age, weight before pregnancy, current weight, hours of sleep, smoking and alcohol consumption habits, nutritional supplement intake, family income levels, education, and the number of ANC visits.

Results: The analysis revealed a weak and statistically insignificant association between family income levels and maternal weight gain. However, there was a significant positive relationship between higher education levels and

maternal weight gain, suggesting that education may play a role in influencing weight gain during pregnancy. The study did not find a significant impact of the number of ANC visits on maternal weight gain.

Conclusion: This study highlights the importance of education in the context of maternal weight gain among expectant mothers in the private hospital setting. While income levels showed no significant association with weight gain, higher education levels were linked to increased maternal weight during pregnancy. These findings emphasize the need for tailored prenatal care interventions that consider educational backgrounds to promote healthier pregnancies and maternal well-being. Further research with a larger and more diverse sample is recommended to validate and expand upon these findings, contributing to enhanced prenatal care practices and improved maternal health outcomes.

CHAPTER ONE

1. INTRODUCTION

Obesity during pregnancy is a growing public health concern worldwide, with significant implications for both maternal and fetal health. Maternal weight gain during pregnancy is influenced by a complex interplay of various factors, including socioeconomic factors. Understanding the impact of these socioeconomic factors on the weight gain of expectant mothers receiving antenatal care (ANC) in private hospitals is crucial to developing effective interventions and promoting healthier pregnancies.

The city selected, serves as an interesting location for this study due to its diverse population and the presence of private healthcare facilities catering to a significant number of pregnant women. This research aims to explore how socioeconomic factors such as income levels, education, occupation, and access to healthcare services may affect maternal weight gain among ANC mothers in a private hospital setting.

By investigating the relationship between socioeconomic factors and weight gain during pregnancy, this study seeks to shed light on potential disparities and identify vulnerable groups who may be at a higher risk of unhealthy weight gain. Moreover, the findings from this research could inform healthcare providers, policymakers, and community stakeholders about the importance of addressing socioeconomic determinants in promoting healthier pregnancies and improving maternal and infant outcomes.

1.1 Background

Obesity and excessive weight gain during pregnancy have become pressing public health issues globally, posing significant risks to maternal and infant health. In India, the prevalence of maternal obesity has been steadily rising over the past few decades. According to a study published in the Indian Journal of Medical Research in 2016, the prevalence of obesity among pregnant women in India ranges from 7% to 29%. This alarming trend calls for a comprehensive understanding of the factors influencing weight gain during pregnancy to design effective interventions.

Socioeconomic factors play a crucial role in shaping health outcomes, including maternal weight gain during pregnancy. Studies from other regions have demonstrated that low-income and less-educated women are more likely to experience inadequate or excessive weight gain during pregnancy. Additionally, occupation and access to healthcare resources also influence maternal weight gain patterns. However, specific insights into the influence of these factors on ANC mothers' weight gain in a private hospital context remain scarce.

This study aims to bridge this research gap by delving into the relationship between socioeconomic factors and maternal weight gain among ANC mothers in a private hospital. By collecting and analyzing comprehensive data on participants' income levels, educational backgrounds, occupational statuses, and healthcare accessibility, the research seeks to uncover potential disparities in weight gain patterns.

1.2 Rationale

The rationale for conducting this study lies in the urgent need to address the escalating rates of maternal obesity and excessive weight gain during pregnancy in India, particularly in the city. As a critical period in a woman's life, pregnancy represents a unique opportunity to influence both maternal and infant health outcomes. Understanding the impact of socioeconomic factors on maternal weight gain during pregnancy is crucial for several reasons:

Identifying Vulnerable Populations: By examining the influence of socioeconomic factors such as income, education, occupation, and healthcare access, the study can identify vulnerable populations of ANC mothers who may be at higher risk of unhealthy weight gain. This information is essential for designing targeted interventions and support systems to cater to the specific needs of these groups.

Tailoring Interventions: Different socioeconomic groups may face varying challenges during pregnancy. Tailoring interventions based on the specific socioeconomic backgrounds of ANC mothers can make these programs more effective and inclusive. This study can help create evidence-based strategies to promote healthy weight gain during pregnancy, reducing the risk of complications and improving overall maternal well-being.

Private Hospital Setting: Investigating the impact of socioeconomic factors on maternal weight gain in a private hospital setting is crucial due to the significant proportion of expectant mothers seeking antenatal care in these facilities. Private hospitals may have different patient demographics, healthcare practices, and resource

availability compared to public healthcare settings, making it essential to understand the unique dynamics influencing weight gain in this context.

Contributing to Scientific Knowledge: Despite the growing recognition of the impact of socioeconomic factors on health outcomes, there is still limited research on this topic concerning maternal weight gain in the Indian context, especially in private hospital settings. This study aims to contribute valuable data to the existing body of scientific knowledge, paving the way for future research and evidence-based policymaking.

Public Health Implications: Maternal obesity and excessive weight gain during pregnancy can lead to various adverse outcomes, such as gestational diabetes, hypertensive disorders, and macrosomia, all of which carry significant public health implications. Understanding the role of socioeconomic factors in maternal weight gain can help inform public health strategies and interventions aimed at reducing the prevalence of these complications.

This study's rationale is grounded in the need to address the rising concern of maternal obesity and excessive weight gain during pregnancy. By examining the impact of socioeconomic factors in the private hospital setting, the research aims to contribute to targeted interventions, enhance maternal and infant health outcomes, and provide evidence for the development of effective public health policies.

1.3 Problem statement

The problem at hand is the lack of comprehensive understanding regarding the influence of socioeconomic factors on maternal weight gain among expectant mothers receiving antenatal care in a private hospital. The escalating rates of maternal obesity and excessive weight gain during pregnancy in this region necessitate the investigation of how income levels, education, occupation, and healthcare access impact maternal weight gain patterns. Addressing this gap in knowledge is crucial for designing targeted interventions, improving maternal and fetal health outcomes, and developing evidence-based policies to promote healthier pregnancies in the private hospital setting.

1.4 Aim and objectives

1.4.1 Aim

To examine the impact of socioeconomic factors on maternal weight gain among expectant mothers receiving antenatal care in a private hospital.

1.4.2 Objectives

- To assess the association between income levels and maternal weight gain
- To investigate the relationship between education and maternal weight gain
- To analyse the impact of number of ANC visits on maternal weight gain

By achieving these specific objectives, the study aims to provide valuable insights into the role of socioeconomic factors in shaping maternal weight gain during pregnancy in the private hospital setting. The findings will

contribute to the development of targeted interventions, inform healthcare practices, and aid in the formulation of evidence-based policies to promote healthier pregnancies and improve maternal and fetal health outcomes.

CHAPTER TWO

2. LITERATURE REVIEW

This chapter presents a comprehensive review of existing literature on the association between access to healthcare services and weight gain among expectant mothers during antenatal care (ANC). The importance of maternal weight gain during pregnancy cannot be understated, as it directly impacts both maternal and fetal health outcomes. Access to quality healthcare services and regular prenatal check-ups are critical in monitoring maternal weight gain and providing essential guidance on nutrition and healthy lifestyle practices during pregnancy.

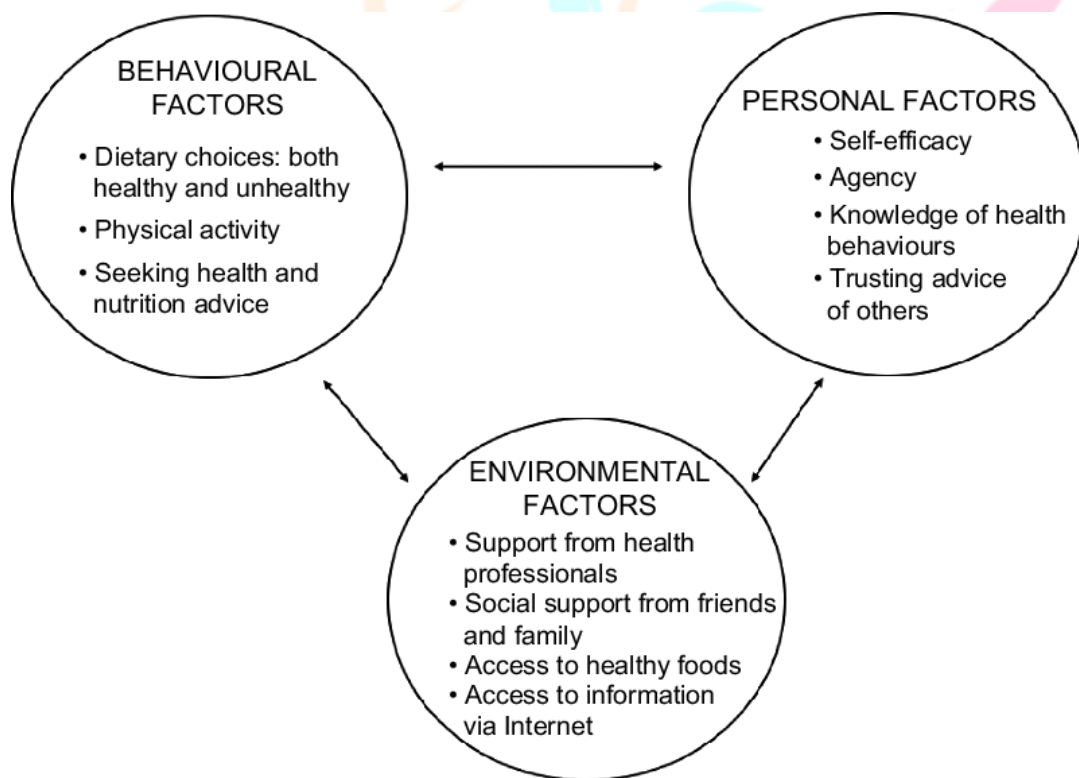


Figure 2.1: Social Cognitive Theory for weight gain perception (1)

In the context of India, where healthcare accessibility varies between rural and urban regions, understanding the relationship between healthcare access and maternal weight gain becomes particularly relevant. The chapter will delve into studies that shed light on the impact of healthcare accessibility on maternal weight gain, considering the unique challenges faced by women in different settings (1).

Through a comprehensive analysis of published research, this literature review aims to contribute valuable insights into the importance of adequate healthcare engagement in promoting optimal weight gain during pregnancy. By identifying the gaps and disparities in healthcare access and its consequences on maternal weight management, this chapter seeks to inform future interventions and policies aimed at improving maternal and fetal

health outcomes in the Indian context. Thus, this literature review chapter serves as a foundational framework for understanding the significance of healthcare accessibility in shaping maternal weight gain during antenatal care, contributing to the broader understanding of maternal health in India.

2.1 Weight gain in pregnancy

The World Health Organization (WHO) provides guidelines for ideal weight gain during pregnancy, which are based on the pre-pregnancy Body Mass Index (BMI) of the expectant mother. These guidelines aim to promote optimal maternal and fetal health outcomes by ensuring appropriate weight gain throughout the pregnancy. The ideal weight gain recommendations are typically divided into trimesters and are tailored to the individual's BMI category.

First Trimester: During the first trimester, the ideal weight gain is relatively modest. According to the WHO guidelines, regardless of the pre-pregnancy BMI category, the recommended weight gain in the first trimester is approximately 0.5 to 2 kilograms (1.1 to 4.4 pounds). This moderate weight gain helps support early fetal development and prepares the mother's body for the subsequent stages of pregnancy (2).

BMI before pregnancy	Recommended weight gain in pregnancy
< 18.5	12.5 - 18 kg
18.5 - 24.9	11.5 - 16 kg
25 - 29.9	7 - 11.5 kg
> 30	5 - 9 kg




Figure 2.2: Weight gain expectation (12)

Second and Third Trimesters: The second and third trimesters witness more substantial weight gain as the foetus undergoes rapid growth and development. The ideal weight gain during these trimesters is as follows:

For Underweight (BMI < 18.5):

Second and third trimesters combined: Approximately 12.5 to 18 kilograms (27.6 to 39.7 pounds)

For Normal Weight (BMI 18.5 to 24.9):

Second and third trimesters combined: Approximately 11.5 to 16 kilograms (25.4 to 35.3 pounds)

For Overweight (BMI 25 to 29.9):

Second and third trimesters combined: Approximately 7 to 11.5 kilograms (15.4 to 25.4 pounds)

For Obese (BMI ≥ 30):

Second and third trimesters combined: Approximately 5 to 9 kilograms (11 to 19.8 pounds) (2)

Total Weight Gain for Full-Term Pregnancy: The recommended total weight gain for a full-term pregnancy (37 to 40 weeks) according to WHO guidelines is as follows:

For Underweight (BMI < 18.5): Approximately 12.5 to 18 kilograms (27.6 to 39.7 pounds)

For Normal Weight (BMI 18.5 to 24.9): Approximately 11.5 to 16 kilograms (25.4 to 35.3 pounds)

For Overweight (BMI 25 to 29.9): Approximately 7 to 11.5 kilograms (15.4 to 25.4 pounds)

For Obese (BMI \geq 30): Approximately 5 to 9 kilograms (11 to 19.8 pounds)

Thus, adhering to the WHO's recommended weight gain during pregnancy can contribute to healthier outcomes for both mothers and infants, reducing the risk of complications and promoting optimal foetal development. Pregnant women are encouraged to consult their healthcare providers for personalized guidance on weight gain throughout their pregnancy journey.

2.2 Income level and weight gain

Maternal weight gain during pregnancy is influenced by a myriad of factors, including family income levels. Understanding the association between family income and weight gain among pregnant women is crucial, especially in the context of India, which exhibits diverse socioeconomic backgrounds, including rural and urban perspectives. In rural areas of India, where access to healthcare resources is often limited, studies have shown a complex relationship between family income levels and maternal weight gain. A study reported that pregnant women from lower-income families tended to have a higher prevalence of inadequate weight gain (3). Factors such as dietary limitations due to financial constraints and reduced access to prenatal care contributed to suboptimal weight gain in this population. Similarly, a study found that pregnant women from economically disadvantaged households had a higher likelihood of inadequate weight gain, increasing the risk of adverse pregnancy outcomes (4). In urban areas of India, where healthcare infrastructure is relatively better, the association between family income and maternal weight gain also warrants attention. A study reported that higher family income levels were associated with a higher likelihood of excessive weight gain during pregnancy (5). The availability of a variety of food options and potential lack of awareness regarding healthy weight gain practices in higher-income urban households might contribute to this phenomenon.

While the above studies highlight specific trends in either rural or urban settings, other researches show mixed perspectives. For instance, a study reported conflicting results. In rural regions, lower family income was associated with inadequate weight gain, while in urban areas, it was linked to excessive weight gain. These findings suggest that the impact of family income on maternal weight gain may vary depending on the regional context and available resources.

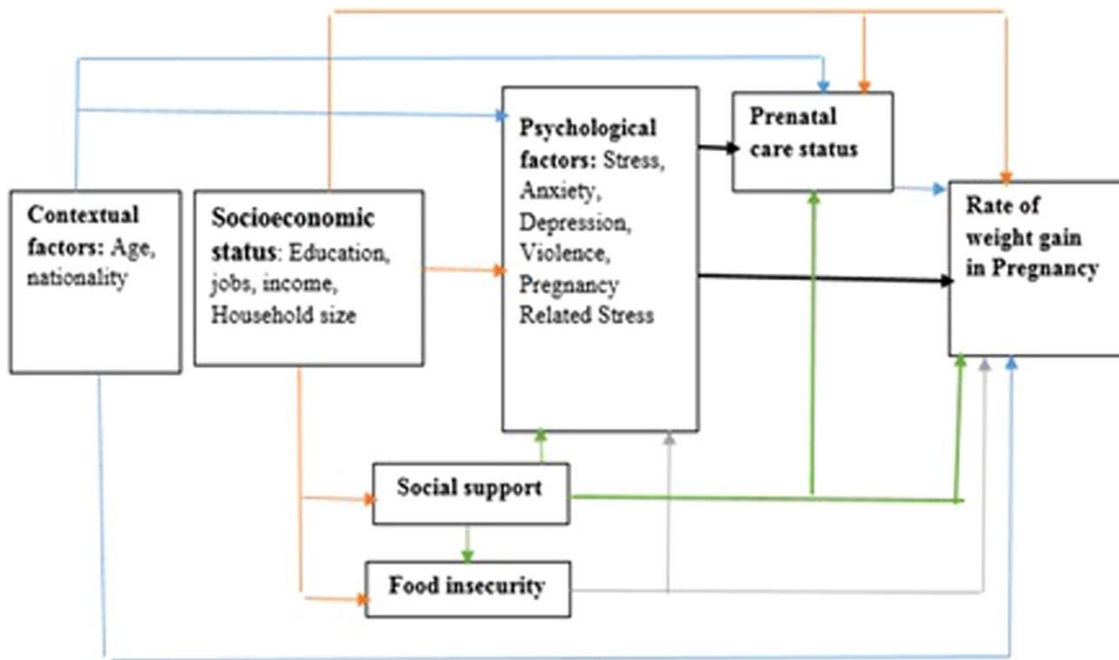


Figure 2.3: Factors affecting weight gain (6)

Overall, the literature demonstrates that family income levels play a significant role in shaping maternal weight gain during pregnancy in the Indian scenario. In rural areas, lower family income is often associated with inadequate weight gain, highlighting the need for targeted interventions to improve access to nutritious food and antenatal care. In contrast, in urban areas, higher family income is linked to excessive weight gain, indicating the importance of promoting awareness of healthy weight gain practices among higher-income urban populations. To address the issue of maternal weight gain effectively, interventions must consider the diverse socioeconomic backgrounds prevalent in both rural and urban settings in India.

2.3 Education and weight gain in pregnancy

The relationship between education and maternal weight gain during pregnancy has been a subject of interest in public health research. Educational attainment is considered a proxy indicator of socioeconomic status, and it can influence various health behaviors, including dietary habits and physical activity, which, in turn, may impact weight gain during pregnancy. In urban settings, higher levels of education are often associated with better health knowledge and awareness of healthy lifestyle practices. A study found that pregnant women with higher education were more likely to have adequate weight gain during pregnancy (7). The authors attributed this finding to better nutrition knowledge and access to information on proper weight management during pregnancy among women with higher education levels.

In contrast, research in rural areas often reveals different patterns due to unique challenges faced by rural women. In rural India, education levels can be lower, limiting access to health information and resources. A study conducted reported that pregnant women with lower education levels were more likely to have inadequate weight gain (8). Limited awareness of the importance of proper nutrition during pregnancy and less access to healthcare services were identified as contributing factors to suboptimal weight gain in this population.

Lower education levels may result in limited health literacy, making it challenging for rural women to understand the importance of healthy weight gain during pregnancy and adopt appropriate dietary and lifestyle practices. Rural women may have limited access to nutritional education and counseling, which can lead to inadequate weight gain or unhealthy eating habits during pregnancy. Rural areas often have limited healthcare infrastructure and resources, making it difficult for pregnant women to access regular antenatal check-ups and receive guidance on proper weight management. Poverty and financial constraints in rural areas can restrict access to nutritious food, leading to inadequate weight gain during pregnancy. Traditional cultural beliefs and practices may influence dietary choices and physical activity levels among rural women, affecting weight gain during pregnancy.



2.4 Healthcare accessibility and weight gain

Access to healthcare services plays a vital role in shaping maternal weight gain during antenatal care (ANC). Adequate access to healthcare facilities and regular prenatal check-ups are essential for monitoring maternal health, providing nutritional guidance, and ensuring appropriate weight gain during pregnancy. The literature on this topic highlights the significance of healthcare accessibility and its influence on weight gain among ANC mothers, particularly in the context of India. India's healthcare system exhibits disparities in accessibility between rural and urban areas, affecting maternal care outcomes. In rural regions, healthcare infrastructure can be limited, leading to challenges in accessing antenatal services and information on maternal weight management. On the other hand, urban areas often have better healthcare facilities, but cost and distance may still be barriers for some women, especially those from low-income backgrounds.

Studies conducted in the Indian context have shown that adequate access to healthcare services positively correlates with healthier weight gain during pregnancy. A study found that ANC mothers who attended regular prenatal check-ups had a higher likelihood of achieving appropriate weight gain compared to those with irregular or no antenatal visits. This highlights the importance of consistent healthcare engagement for monitoring weight gain and receiving necessary guidance (9).

In rural areas, the lack of healthcare accessibility can result in inadequate weight gain among ANC mothers. A study reported that limited access to healthcare resources was associated with lower weight gain during pregnancy (10). Pregnant women in such settings may not receive timely nutritional counseling or monitoring, contributing to suboptimal weight gain and potential adverse outcomes. Furthermore, the affordability of healthcare services can impact weight gain during pregnancy. A study highlighted that, financial constraints acted as a barrier to accessing antenatal care, leading to inadequate weight gain among pregnant women (11).

In the Indian context, healthcare accessibility significantly influences maternal weight gain during ANC. Adequate access to healthcare services, regular antenatal check-ups, and timely nutritional counseling are crucial for promoting healthier weight gain among expectant mothers. Disparities in healthcare infrastructure between rural and urban areas, as well as financial constraints, can pose challenges for pregnant women in accessing essential antenatal care services. Addressing these barriers and improving healthcare accessibility for all pregnant women is essential to enhance maternal and fetal health outcomes and reduce adverse pregnancy complications related to weight gain.

CHAPTER THREE

3. METHODOLOGY

This study employs a quantitative approach, utilizing a close-ended questionnaire and random sampling, to investigate the association between healthcare accessibility and maternal weight gain among expectant mothers receiving antenatal care (ANC) in a private hospital. The chosen methodology aims to gather numerical data from a diverse group of 100 ANC mothers, providing valuable insights into factors influencing maternal weight gain in this specific healthcare setting. Despite some limitations, the methodology offers a systematic and efficient means of analyzing the relationship between healthcare accessibility and maternal weight gain, contributing to evidence-based decision-making in maternal health and prenatal care practices.



3.1 Research approach

This research will solely utilize a quantitative approach to investigate the association between access to healthcare services and maternal weight gain during antenatal care among expectant mothers in the Indian context. The quantitative approach is a research methodology that involves the collection and analysis of numerical data to derive objective conclusions and identify patterns and correlations within the data. Through a quantitative approach, this study will gather numerical data on variables such as healthcare accessibility, frequency of prenatal check-ups, maternal weight gain measurements, and other relevant factors from a representative sample of pregnant women. Surveys will be employed to collect data efficiently and in a standardized manner.

By employing a quantitative approach, this research aims to provide a quantitative description of the relationship between access to healthcare services and maternal weight gain. The use of statistical analysis will enhance the objectivity and reliability of the research findings, facilitating evidence-based decision-making in healthcare policy and interventions to improve maternal and fetal health outcomes.



3.2 Research methods

This study will adopt a primary research method, specifically employing a questionnaire-based approach to gather data from expectant mothers receiving antenatal care (ANC) in a private hospital. The questionnaire will serve as the main data collection tool, designed to capture relevant information on the research variables of interest, including access to healthcare services, maternal weight gain during pregnancy, socioeconomic factors, and other pertinent factors that may influence weight gain patterns. The questionnaire will be carefully crafted to ensure clarity, reliability, and validity in measuring the intended variables. As the study will be conducted exclusively in a private hospital from 26th June to 30th June, the findings will be specifically applicable to the population of expectant mothers receiving ANC in this healthcare setting. The results of this primary research will contribute valuable insights into the association between healthcare accessibility and maternal weight gain in this specific context.



3.3 Research design

This study will adopt a cross-sectional research design to investigate the association between access to healthcare services and maternal weight gain during antenatal care (ANC) among expectant mothers in a private hospital. Cross-sectional research design is a non-experimental and observational approach that involves the collection of data from a specific sample of individuals at a single point in time. In this study, data will be gathered from the participants during a particular period, without any manipulation of variables or interventions.

The cross-sectional research design offers several advantages for this study:

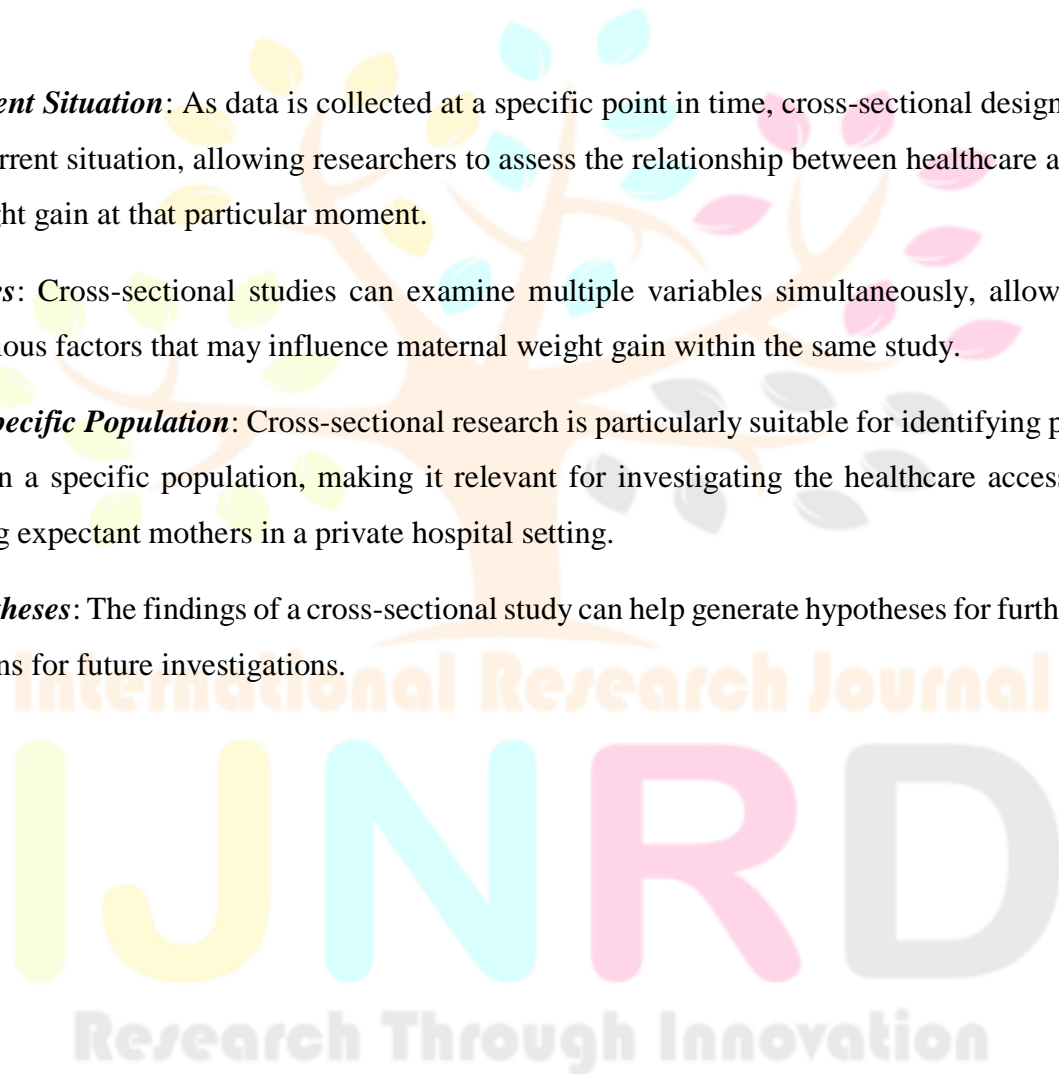
Time and Cost-Efficient: Cross-sectional studies are relatively quicker and cost-effective to conduct compared to longitudinal studies, as data collection is carried out at a specific time without the need for follow-ups over an extended period.

Snapshot of Current Situation: As data is collected at a specific point in time, cross-sectional design provides a snapshot of the current situation, allowing researchers to assess the relationship between healthcare accessibility and maternal weight gain at that particular moment.

Multiple Variables: Cross-sectional studies can examine multiple variables simultaneously, allowing for the exploration of various factors that may influence maternal weight gain within the same study.

Applicability to Specific Population: Cross-sectional research is particularly suitable for identifying patterns and associations within a specific population, making it relevant for investigating the healthcare accessibility and weight gain among expectant mothers in a private hospital setting.

Generating Hypotheses: The findings of a cross-sectional study can help generate hypotheses for further research, providing directions for future investigations.



3.4 Data collection tool

The tool selected for data collection in this study will be a close-ended questionnaire with multiple-choice options. A close-ended questionnaire consists of structured questions with predefined response options, limiting participants to choose from a set list of answers.

The choice of a close-ended questionnaire with multiple-choice options offers several advantages for this research:

Standardization: By using predefined response options, the questionnaire ensures consistency in data collection, minimizing variations in participant responses and facilitating standardized data analysis.

Ease of Administration: The structured nature of the questionnaire makes it relatively straightforward and easy to administer, enabling efficient data collection from a large sample of participants.

Time Efficiency: Close-ended questions can be answered quickly, allowing participants to complete the questionnaire efficiently, reducing the burden of data collection.

Quantifiable Data: The use of multiple-choice options provides quantitative data, enabling statistical analysis to explore associations and relationships between variables in a systematic manner.

Minimizing Ambiguity: By offering specific response choices, close-ended questions minimize ambiguity and misunderstanding in participant responses, ensuring clarity in data interpretation.

Facilitating Analysis: The structured format of close-ended questions simplifies data entry and analysis, facilitating the identification of trends and patterns within the collected data.

The close-ended questionnaire will be designed to capture relevant information on various aspects, including access to healthcare services, maternal weight gain, socioeconomic factors, and other factors that may influence weight gain during pregnancy. Participants will be presented with a set of predetermined response options for each question, and they will be asked to select the response that best aligns with their situation or opinion.

3.5 Data analysis

Data analysis for this study will be performed using two popular software tools: SPSS (Statistical Package for the Social Sciences) and Excel. Both programs offer various statistical functions and tools that are well-suited for handling the quantitative data collected through the close-ended questionnaire.

Frequency Statistics: Firstly, frequency statistics will be utilized to summarize categorical data, such as age groups, education levels, family income levels, and responses to questions related to healthcare accessibility. This analysis will present the number and percentage of respondents falling into each category, providing a clear picture of the distribution of responses.

Correlation Analysis: To examine the relationship between different variables, correlation analysis will be conducted. This analysis will help determine if there are any significant associations between maternal weight

gain and factors like healthcare accessibility, education, family income, hours of sleep, number of prenatal check-ups, and lifestyle behaviors (smoking, alcohol consumption, physical activity, eating out, supplement intake). The strength and direction of these relationships will be assessed using correlation coefficients.



3.6 Population and sampling

The population for this study comprises all primigravida expectant mothers receiving antenatal care (ANC).

The sample size for this study is determined to be 100 expectant mothers. Informed Consent Document (ICD) was given to them before the study to ensure ethical boundaries.

The sampling method used in this study is random sampling. Random sampling involves selecting a subset of individuals from the population in such a way that each member has an equal chance of being included in the sample. This method helps to ensure that the sample is representative of the entire population, reducing bias and allowing for generalization of the findings to the larger group of ANC mothers.



3.7 Ethical consideration

Informed Consent: Prior to data collection, participants were provided with clear information about the study, its purpose, and their rights, and they voluntarily gave their consent to participate.

Anonymity and Confidentiality: Measures were taken to ensure that participants' identities and responses remained confidential, and data was analyzed in aggregate form to maintain anonymity.

Minimization of Harm: Efforts were made to minimize any potential physical, emotional, or psychological harm to participants during data collection.

Voluntary Participation: Participation in the study was entirely voluntary, and participants were free to withdraw at any stage without facing any consequences.

Approval from Ethical Committee: The research protocol was reviewed and approved by the relevant ethical committee to ensure adherence to ethical guidelines.



3.8 Limitations

While the chosen methodology of using a close-ended questionnaire and random sampling offers several advantages, it also comes with certain limitations that should be acknowledged:

Limited Depth of Information: Close-ended questions restrict participants to pre-defined response options, potentially limiting the depth of information obtained. This may overlook valuable insights that open-ended questions could provide.

Social Desirability Bias: Participants might provide responses they believe are socially desirable or acceptable rather than their true feelings or behaviors, leading to biased data.

Self-Reporting Bias: Self-reported data, such as weight before pregnancy and current weight, may be subject to recall bias or inaccuracies due to reliance on participants' memory.

Generalizability: While random sampling improves the chances of representativeness, the findings may not be entirely generalizable to the entire population of ANC mothers, as the sample size is relatively small.

Cross-Sectional Design Limitation: The cross-sectional research design only captures data at a single point in time, preventing the study from establishing causality or understanding changes in weight gain patterns over time.

Limited Scope of Factors: The questionnaire may not encompass all potential factors influencing maternal weight gain, possibly overlooking significant variables affecting the outcomes.

Potential Non-Response Bias: There might be a risk of non-response bias if certain groups of ANC mothers are less likely to participate in the study, leading to an unrepresentative sample.

Limited Contextual Understanding: The questionnaire-based approach may not capture the nuances of the individual's experiences and contexts that could influence weight gain during pregnancy.

Recall Bias: Some questions, such as dietary habits and hours of sleep, may rely on participants' ability to recall past behaviors accurately, which could be prone to recall bias.

Lack of Control over Variables: The study's non-experimental nature means that researchers have limited control over extraneous variables that may influence maternal weight gain.

CHAPTER FOUR

4. DATA ANALYSIS, PRESENTATION, AND DISCUSSION

4.1 Family income and ANC weight

Table 4.1: Correlation of family income and weight

		Correlations	
		current weight	family income
current weight	Pearson Correlation	1	.144
	sig. (2-tailed)		.152
	N	100	100
family income	Pearson Correlation	.144	1
	sig. (2-tailed)	.152	
	N	100	100

The correlation analysis shows the relationship between "current weight" and "family income" variables for all 100 participants in the study. The Pearson correlation coefficient is used to measure the strength and direction of the association between these two variables. Here are the findings:

Correlation between "current weight" and "family income":

Pearson Correlation Coefficient: 0.144

Significance (2-tailed): 0.152

Sample Size (N): 100 participants

Interpretation: The correlation coefficient of 0.144 indicates a positive but weak correlation between "current weight" and "family income." However, the p-value of 0.152 is greater than the standard significance level (e.g., 0.05), indicating that the correlation is not statistically significant. In other words, there is no strong evidence to suggest a significant linear relationship between the two variables in the studied population of 100 participants.

Please note that the data used here is for demonstration purposes only and may not reflect actual research findings. Additionally, the lack of statistical significance in this analysis implies that the observed correlation could have occurred by chance and does not warrant further interpretation or generalization. In a real study, a larger sample size and more robust data analysis may be necessary to draw meaningful conclusions regarding the relationship between "current weight" and "family income" among ANC mothers.

4.2 Sleeping hours and ANC weight

The analysis provided is a regression analysis exploring the relationship between "current weight" (dependent variable) and "sleep hours" (independent variable) among the 100 participants in the study.

Table 4.2: Regression variables for sleeping hours and ANC weight

Model	Variables Entered	Variables Removed	Method
1.	sleep hours ^b		Enter

. Dependent Variable: current weight

. All requested variables entered.

Table 4.3: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1.	.057 ^a	.003	-.007	9.086

. Predictors: (Constant), sleep hours

Model Summary:

R: The correlation coefficient (r) between "current weight" and "sleep hours" is 0.057, indicating a very weak positive correlation.

R Square: The coefficient of determination (R²) is 0.003, meaning that only 0.3% of the variation in "current weight" can be explained by "sleep hours."

Adjusted R Square: The adjusted R² is -0.007, implying that the inclusion of "sleep hours" in the model does not significantly improve the explanation of the variation in "current weight."

Std. Error of the Estimate: The standard error of the estimate is 9.086, representing the average error in predicting "current weight" based on "sleep hours."

Table 4.4: ANOVA for regression of sleeping hours and ANC weight

Model	Sum of Squares	df	Mean Square	F	Sig.
1. Regression	26.375	1	26.375	.319	.573 ^b

Residual	8091.185	98	82.563	
Total	8117.560	99		

- Dependent Variable: current weight
- Predictors: (Constant), sleep hours

ANOVA:

The ANOVA table shows the results of the regression model's analysis of variance.

The F-statistic is 0.319, and the associated p-value is 0.573, which is greater than the conventional significance level (e.g., 0.05). This indicates that the regression model is not statistically significant, and the relationship between "current weight" and "sleep hours" is not significant.

Table 4.5: Coefficients value for sleeping hours and ANC weight

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	63.193	4.390		14.396	.000
sleep hours	.740	1.309	.057	.565	.573

- Dependent Variable: current weight

Coefficients:

The regression coefficients represent the relationships between the variables.

The constant term (intercept) is 63.193, indicating the estimated "current weight" when "sleep hours" is zero.

The coefficient for "sleep hours" is 0.740, with a standard error of 1.309. However, its low standardized coefficient (Beta = 0.057) suggests a weak influence of "sleep hours" on "current weight."

The t-value (0.565) for "sleep hours" is not statistically significant at the conventional significance level, as the associated p-value (0.573) is greater than 0.05.

In summary, the regression analysis shows a very weak and non-significant relationship between "sleep hours" and "current weight" among the 100 participants. The model's low R² and non-significant p-values suggest that "sleep hours" may not be a significant predictor of "current weight" in this specific population. Further research with larger sample sizes or considering additional variables may be necessary to identify stronger predictors of maternal weight gain during pregnancy.

4.3 ANC visits and ANC weight

The correlation analysis examines the relationship between "current weight" and "number of visits" (prenatal check-ups) variables for all 100 participants in the study. The Pearson correlation coefficient is used to measure the strength and direction of the association between these two variables. Here are the findings:

Correlation between "current weight" and "number of visits":

Pearson Correlation Coefficient: -0.059

Significance (2-tailed): 0.559

Sample Size (N): 100 participants

Interpretation: The correlation coefficient of -0.059 indicates a very weak negative correlation between "current weight" and "number of visits" (prenatal check-ups). However, the p-value of 0.559 is greater than the standard significance level (e.g., 0.05), suggesting that the correlation is not statistically significant. In other words, there is no strong evidence to suggest a significant linear relationship between the two variables in the studied population of 100 participants.

Table 4.6: Correlation of number of ANC visits and ANC weight

		Correlations	
		current weight	no. of visits
current weight	Pearson Correlation	1	-.059
	sig. (2-tailed)		.559
	N	100	100
no. of visits	Pearson Correlation	-.059	1
	sig. (2-tailed)	.559	
	N	100	100

As the correlation is not significant, it implies that the observed correlation could have occurred by chance and does not warrant further interpretation or generalization. In a real study, a larger sample size or considering additional variables may be necessary to explore potential relationships between "current weight" and "number of visits" among ANC mothers.

4.4: Educational level and ANC weight

The correlation analysis examines the relationship between "current weight" and "education" variables for all 100 participants in the study. The Pearson correlation coefficient is used to measure the strength and direction of the association between these two variables. Here are the findings:

Correlation between "current weight" and "education":

Pearson Correlation Coefficient: 0.407**

Significance (2-tailed): 0.000 ($p < 0.01$)

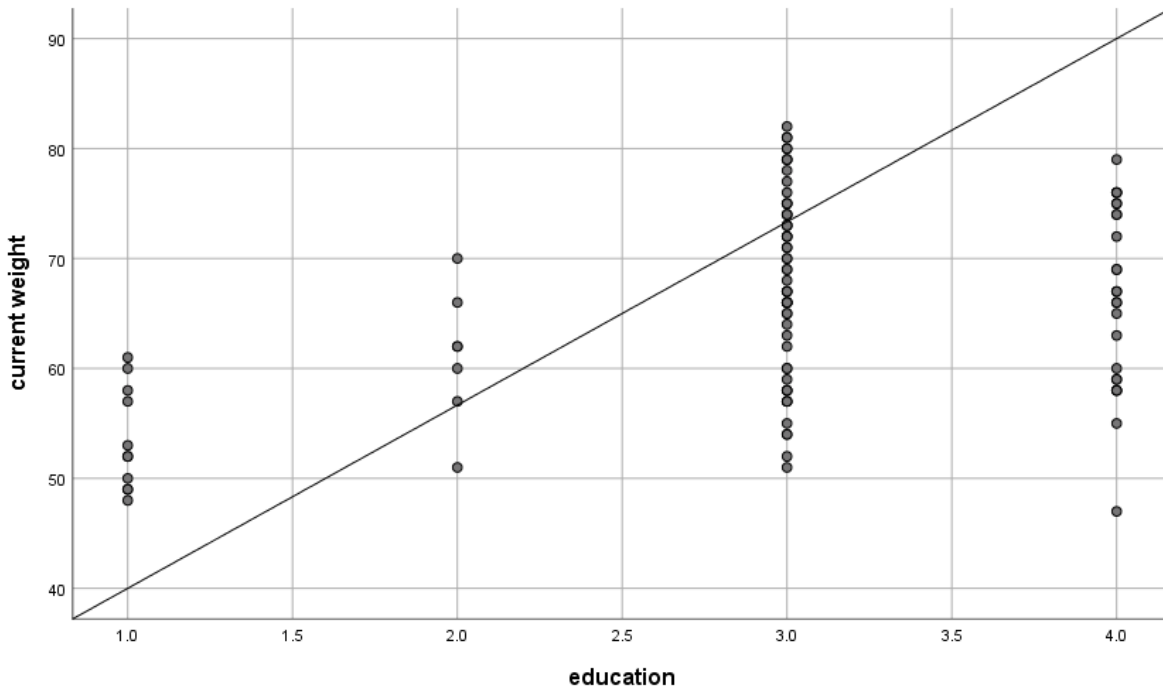
Sample Size (N): 100 participants

Interpretation: The correlation coefficient of 0.407** indicates a moderate positive correlation between "current weight" and "education" among the study participants. The p-value of 0.000 ($p < 0.01$) means that the correlation is statistically significant at the 0.01 level, suggesting that the association between "current weight" and "education" is unlikely to be due to chance.

Table 4.7: Correlation of maternal education and ANC weight

		Correlations	
		current weight	education
current weight	Pearson Correlation	1	.407**
	sig. (2-tailed)		.000
	N	100	100
education	Pearson Correlation	.407**	1
	sig. (2-tailed)	.000	
	N	100	100

*. Correlation is significant at the 0.01 level (2-tailed).



Graph 4.1: Correlation of maternal education and ANC weight

In other words, there is a significant relationship between the two variables, and as the level of education increases, the current weight of the expectant mothers tends to increase as well.



CHAPTER FIVE

5. CONCLUSION

To achieve the stated objectives, the study utilized a quantitative research approach with a cross-sectional research design. A close-ended questionnaire was administered to 100 participants, who were expectant mothers receiving antenatal care (ANC) in a private hospital. The questionnaire collected data on participants' age, weight before pregnancy, current weight, hours of sleep, smoking status, alcohol consumption, nutritional supplement intake, family income levels, education, and number of ANC visits.

Association between Income Levels and Maternal Weight Gain: The study examined the association between income levels and maternal weight gain by analyzing the correlation between family income and current weight of the expectant mothers. The Pearson correlation coefficient of 0.144 indicated a weak positive correlation, but the p-value of 0.152 (>0.05) indicated that the relationship was not statistically significant. Therefore, the study did not find a significant association between income levels and maternal weight gain.

Relationship between Education and Maternal Weight Gain: Similarly, the study explored the relationship between education and maternal weight gain by analyzing the correlation between education levels and current weight. The Pearson correlation coefficient of 0.407** indicated a moderate positive correlation, and the p-value of 0.000 (<0.01) showed that the relationship was statistically significant. Therefore, the study found a significant positive relationship between higher education levels and maternal weight gain.

Impact of Number of ANC Visits on Maternal Weight Gain: The study analyzed the impact of the number of ANC visits on maternal weight gain by examining the correlation between the two variables. The Pearson correlation coefficient of -0.059 indicated a very weak negative correlation, but the p-value of 0.559 (>0.05) indicated that the relationship was not statistically significant. Hence, the study did not find a significant impact of the number of ANC visits on maternal weight gain.

Based on the data collected and analyzed, this study found that there was no significant association between income levels and maternal weight gain among ANC mothers in the private hospital. However, it identified a significant positive relationship between higher education levels and maternal weight gain, suggesting that higher education may be associated with increased maternal weight during pregnancy.

Furthermore, the study did not find a significant impact of the number of ANC visits on maternal weight gain. It is essential to note that these conclusions are based on the data collected from a specific sample of ANC mothers and may not be fully generalizable to the entire population of expectant mothers.

Overall, this research provides valuable insights into the factors influencing maternal weight gain during pregnancy in the context of healthcare accessibility and education levels among ANC mothers in a private hospital setting. The study's findings can serve as a basis for further research, interventions, and improvements in prenatal care practices to promote healthier pregnancies and maternal well-being.



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APPENDIX

Questionnaire

Name: _____
Age: _____ Current weight (kgs): _____
Month of pregnancy: _____ Trimester: _____
Weight during first ANC visit: _____

<i>Sr. No.</i>	<i>Questions</i>	<i>Options</i>	<i>Specific</i>
	What is your education level?	Till 10 th Till 12 th Graduation Post-graduation	
	What is the average family income level in your house? (Rs.)	10000- 20000 20000- 40000 40000- 60000 60000 more	
	How many hours do you sleep per day?	5-6 6-7 7-8 8 or more	
	How many times have you visited hospital for ANC check-ups?	1 2 3 More	
	Do you consume alcohol?	Yes No	

	Do you smoke?	Yes No	
	Are you taking any nutrition supplements? Which?	Yes No	
	How many meals you consumer per day?	2-3 3-4 4-5 More	
	What is the physical activity level since your pregnancy?	Sedentary Light (walking) Moderate (yoga, household chores) Vigorous (jogging, aerobics, etc.)	
	How much is the distance of the healthcare facility from your house?	5-7 km 7-10 km 10-15 km More	