Addressing Maternal Health Disparities with Data

A Data-Driven Solution for SDG 3: Good Health

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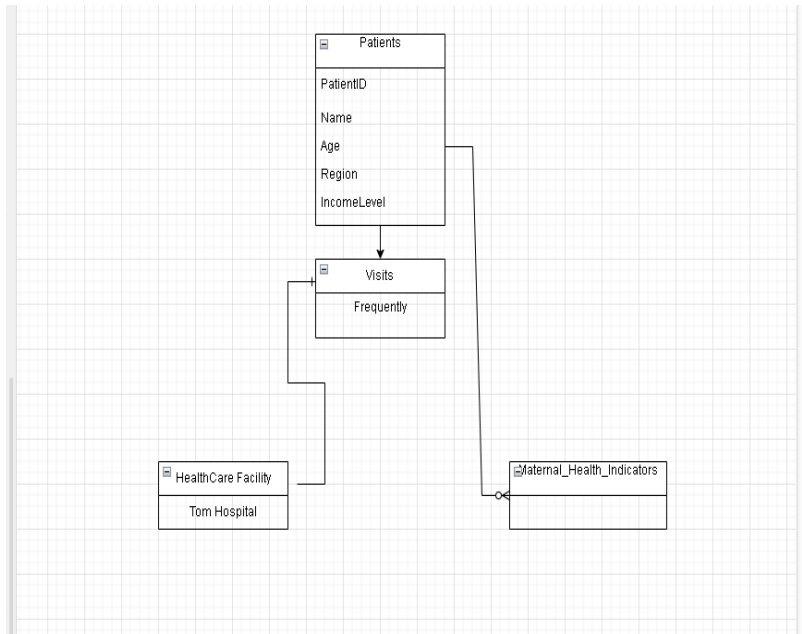13 August 2024

Project Overview and SDG Alignment

Content

-Objective: Address disparities in maternal health outcomes across regions and income levels.

- SDG Focus:SDG 3 - Good Health and Well-being.

- Goal: Improve maternal healthcare access and outcomes through data-driven insights.

Problem Definition and Significance

Content:
- Problem:Inequitable access to and quality of maternal healthcare services.
- Significance Disparities in maternal health outcomes can lead to higher rates of complications and lower overall health for mothers and babies.
- Fictional Data Highlight: Significant differences in prenatal visits and birth outcomes by region and income level.

Database Design and Schema

Patients

PatientID

Name

Age

Region

IncomeLevel

Visits

Frequently

HealthCare Facility

Tom Hospital

Maternal_Health_Indicators

Sample Data Overview

Content:

-Patients Table Example
  - Jane Doe, Age 28, Urban_A, High Income
  - Mary Smith, Age 22, Rural_B, Low Income

-Healthcare Facilities Table Example:
  - City Hospital, Urban_A, Services: Prenatal, Delivery, Postnatal
  - Community Clinic, Rural_B, Services: Prenatal, Postnatal

- Visits Table Example:
  - Jane Doe, City Hospital, 2023-04-10, Prenatal
  - Mary Smith, Community Clinic, 2023-05-15, Prenatal

- Maternal Health Indicators Table Example
  - Jane Doe, 5 Prenatal Visits, Healthy Outcome
  - Mary Smith, 2 Prenatal Visits, Complicated Outcome

Data Retrieval Insights

Content:
- Prenatal Visits by Region:
  - Urban_A: 150 visits
  - Rural_B: 80 visits
  - Urban_C: 120 visits

Birth Outcomes by Income Level:
  - High Income: 95% Healthy
  - Medium Income: 85% Healthy
  - Low Income: 70% Healthy

```
SELECT
    IncomeLevel,
    (SUM(CASE WHEN Outcome = 'Healthy' THEN 1 ELSE
0 END) * 100.0 / COUNT(*)) AS Healthy_Percentage
FROM
    Maternal_Health_Indicators
JOIN
    Patients ON Maternal_Health_Indicators.PatientID =
Patients.PatientID
GROUP BY
    IncomeLevel;
```
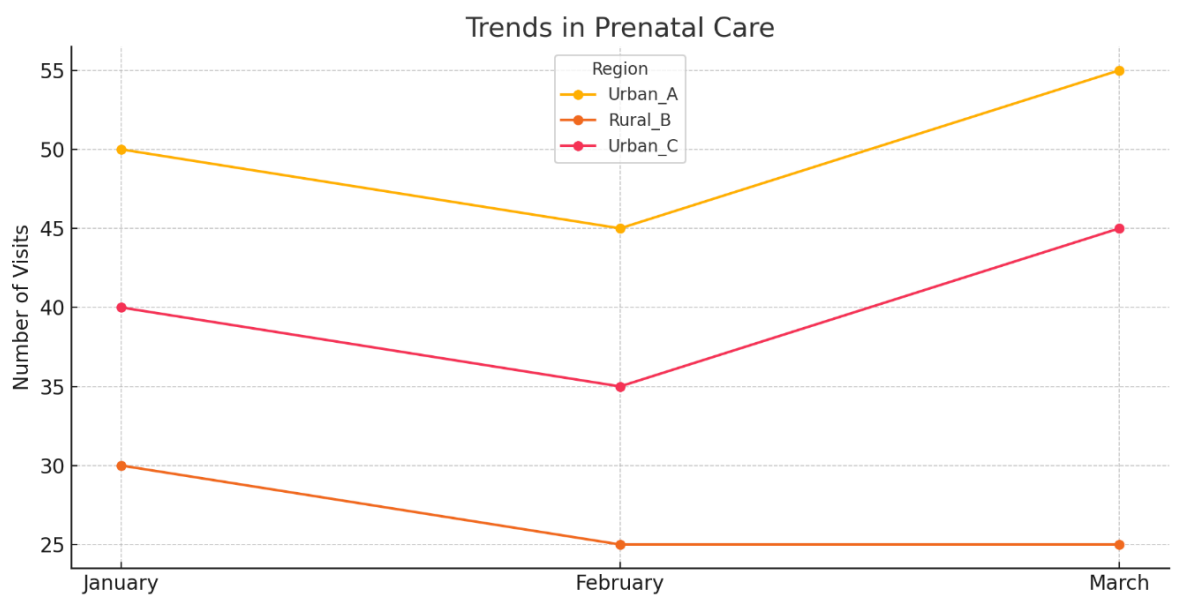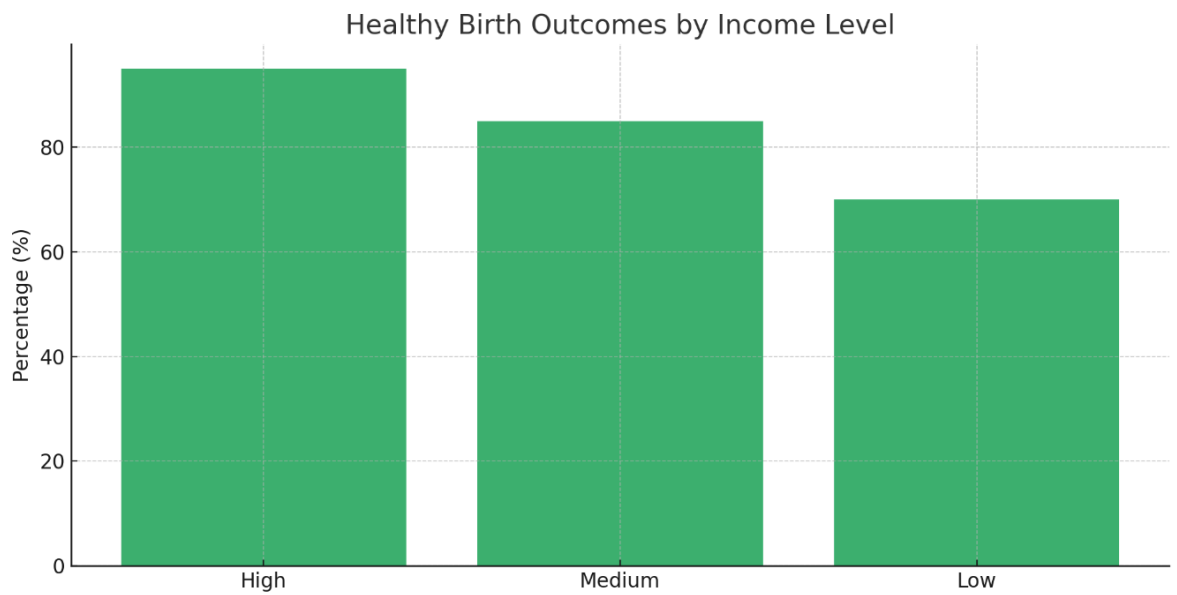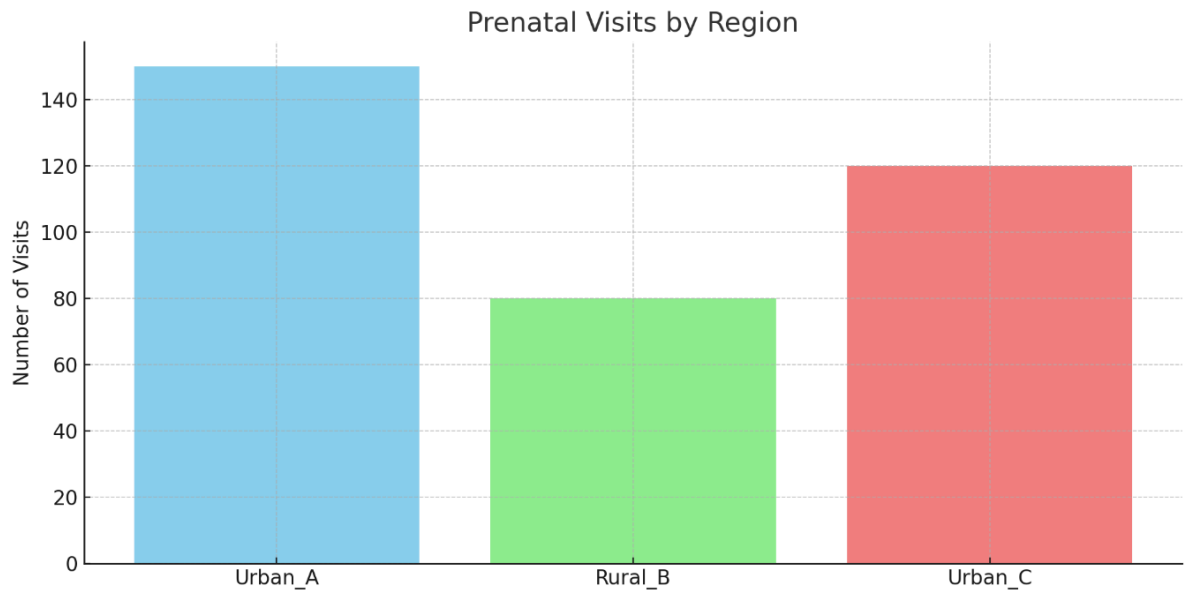
Data Analysis Insights

Content
- Regional Disparities
  - Regions with fewer prenatal visits show higher rates of complicated outcomes.
  - Urban_A has the highest number of visits and better health outcomes compared to Rural_B.

-Income Level Impact:
  - Higher income levels correlate with better maternal health outcomes.
  - Low-income regions have fewer prenatal visits and higher rates of complications.

```sql
SELECT
    Region,
    COUNT(*) AS Prenatal_Visits
FROM
    Visits
JOIN
    Patients ON Visits.PatientID = Patients.PatientID
WHERE
    VisitType = 'Prenatal'
GROUP BY
    Region;
```

Excel Dashboard Demonstration

Content
- Dashboard Components
  - Map Visualization: Regions by prenatal visit frequency.
  -ChartsComparison of birth outcomes by income level, trends in prenatal care.

Prenatal Visits by Region

Healthy Birth Outcomes by Income Level

Trends in Prenatal Care

1.Prenatal Visits by Region:A bar chart showing the number of prenatal visits in Urban_A, Rural_B, and Urban_C.

2. Healthy Birth Outcomes by Income Level: A bar chart comparing the percentage of healthy birth outcomes across different income levels (High, Medium, Low).

3. Trends in Prenatal Care: A line chart depicting trends in prenatal visits over three months for Urban_A, Rural_B, and Urban_C.

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Implementation Plan

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- Action Steps:
  - Increase healthcare facility access in low-income regions.
  - Enhance prenatal care programs in areas with high complication rates.

-Timeline: Outline a proposed timeline for implementing improvements based on findings.

- Resources Needed: Outline the resources required for implementation (e.g., funding, staff).

Key Takeaways and Recommendations

Content
-Key Insights
  - Disparities in prenatal care access affect maternal health outcomes.
  - Income level significantly impacts maternal health.

-Recommendations:
  - Targeted interventions in high-need regions.
  - Enhanced support for low-income families to improve prenatal care.

Conclusion and Next Steps

Content:

-Summary: Recap the problem, analysis, and key insights.

-Future Work: Suggest areas for further study or additional data to explore.

Questions and Answers

Content:
- Invitation to Ask Questions Open the floor for questions and discussion.