Babu Banarasi Das University

CASE STUDY ON

An Analytical Approach to Understanding Doctor Profiles Using IBM SPSS Modeler

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Agenda / Definition:

This case study focuses on analyzing doctor profiles using IBM SPSS Modeler. The main goal is to gain insights into doctors' demographics, experience, specialization, and hospital distribution through descriptive analytics and visualization. The analysis helps understand trends in the healthcare workforce and supports data-driven decision-making.

Outcomes / Learning:

- Learned how to use IBM SPSS Modeler for descriptive data analysis.
- Understood how to visualize and interpret healthcare data statistically.
- Gained hands-on experience in building and evaluating analytical workflows.

Required Tool:

IBM SPSS Modeler 18.0
Used for data cleaning, descriptive analysis, visualization, and generating analytical insights.

Working:

The dataset, named hospital_dataset.xlsx, was imported into IBM SPSS Modeler.
Data preprocessing steps were applied to remove missing values and standardize fields.
Descriptive statistics and visual graphs were generated to understand patterns in doctor demographics and hospital details.

Step 1: Import Dataset

The dataset hospital_dataset.xlsx was imported into IBM SPSS Modeler using the Var. File Node. Fields like Doctor_ID, Age, Gender, Specialization, Experience, Patients_per_Day, and Rating_Category were defined.

Step 2: Data Preparation

Used Type Node to assign correct measurement levels (nominal, ordinal, scale). Cleaned missing or inconsistent data using Select Node.

Step 3: Descriptive Analysis

Applied Table Node and Distribution Node to analyze data frequency and central tendency.
Explored relationships between experience, specialization, and patient load.

Step 4: Visualization

Used Graph Node to create bar charts and pie charts showing gender ratio, specialization distribution, and satisfaction scores.

Step 5: Insights

Most doctors with 10+ years of experience are concentrated in urban hospitals.
Cardiologists and Neurologists have the highest patient loads.
Female doctors are more represented in pediatrics and dermatology.
Higher satisfaction and ratings correlate with greater experience.

Step 6: Conclusion

This project demonstrates how IBM SPSS Modeler can be used to extract meaningful insights from structured healthcare data. By applying data preparation, analysis, and visualization techniques, this study shows how hospitals can better understand their workforce and improve decision-making.

Future Scope:

- Apply machine learning models like Decision Tree or K-Means for deeper insights.
- Expand dataset with more hospital and doctor attributes.
- Deploy findings through an interactive dashboard or web app.