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Synopsis Report And PPT

On

Intoxicating Substance Consumption Analysis using Power BI

Submitted to

Lovely Professional University

in partial fulfillment of the requirements for the CA3 of

Advanced Data Visualization – Laboratory

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Abstract

Substance abuse poses significant risks to physical, mental, and societal well-being. This project, **Intoxicating Substance Consumption Analysis using Power BI**, aims to visualize and analyze the patterns of substance use by individuals using interactive dashboards. By leveraging user-submitted form data and powerful visualization tools in Power BI, this project helps identify usage trends, demographic insights, and behavioral patterns. The goal is to provide actionable insights for awareness campaigns, policy formulation, and preventive measures.

Google Forms Link: <https://forms.gle/DMcchCkQ2JgGzuLs6>

Introduction

This project, titled “**Intoxicating Substance Consumption Analysis using Power BI**,” aims to address these gaps by adopting a modern, technology-driven approach to data collection and visualization. The initiative utilizes an **interactive Google Form** designed with emoji-based options and simplified questions to make respondents feel more comfortable sharing honest answers. This form is crafted in such a way that it can distinguish between substance users and non-users, handle multi-select responses, and ensure all required fields are completed—resulting in a rich and structured dataset.

Substance use, whether occasional or habitual, has far-reaching consequences on individuals, families, and society. In recent years, the consumption of intoxicating substances such as alcohol, tobacco, marijuana, and synthetic drugs has been on the rise—particularly among adolescents, college students, and working professionals. This rising trend is often fuelled by peer pressure, stress, curiosity, easy availability, and a lack of awareness about long-term consequences.

Despite various public awareness campaigns and interventions, a major challenge in tackling substance use is the lack of real-time, accessible, and relatable data that captures current usage patterns. Most existing surveys are either outdated, lack personalization, or fail to engage younger audiences who might be at the highest risk. Moreover, substance use is often underreported due to the stigma associated with it, which makes it difficult to design effective policies or prevention strategies.

Background:

Substance use has long been a concern for public health systems around the world. From alcohol and tobacco to emerging synthetic drugs, the consumption of intoxicating substances continues to affect both physical and mental well-being. According to various studies, early initiation into substance use—particularly during adolescence or early adulthood—can lead to addiction, academic decline, loss of productivity, strained relationships, and in severe cases, legal issues or health crises.

In countries like India, where the youth population constitutes a major demographic, rising cases of drug and alcohol abuse among students and young professionals raise serious alarms. Educational institutions, families, and government bodies often struggle to understand the depth and spread of this issue due to limited data, social taboos, and the hesitancy of individuals to openly talk about substance use.

Significance of the Study:

This project, titled “**Intoxicating Substance Consumption Analysis using Power BI,**” seeks to bridge this informational gap through a structured, digital, and user-friendly approach. The significance of this study lies in its **ability to transform behavioural data into actionable insights**. By using modern data tools like Google Forms and Power BI, the project enables real-time, privacy-respecting, and scalable data collection and visualization.

The use of **emoji-enhanced, interactive surveys** lowers the psychological barriers associated with disclosing personal habits. This approach helps gather more honest and accurate responses, particularly from younger individuals who are more comfortable with digital and visual interactions. Additionally, Power BI empowers users to derive insights through graphs, charts, and filters—making the data accessible not only to researchers but also to non-technical stakeholders like educators, counselors, NGOs, and parents.

Methodology:

Once the data is collected, it is analysed using **Microsoft Power BI**, a powerful data analytics and business intelligence platform. Power BI enables the transformation of raw survey data into dynamic and visually appealing dashboards. These dashboards present key insights such as:

- Age group-wise consumption trends
- Types of substances used
- Frequency of usage
- Peer influence and social setting triggers
- Preferred time or situations for consumption

The visualizations are not just informative—they are designed to be **interactive**, allowing users to filter and explore the data from multiple perspectives. This helps researchers, educators, public health officials, and even students to understand the behavioural dimensions of substance use in a tangible way.

By focusing on **data-driven awareness**, this project hopes to contribute to early detection, targeted prevention programs, and responsible policymaking. The report also discusses the **societal advantages and disadvantages** observed during the study, **limitations** encountered in data collection and analysis, and outlines **future possibilities** such as integrating predictive analytics, sentiment analysis, or geographic mapping.

In essence, the project is a fusion of **technology, behavioural science, and public health advocacy**, demonstrating how tools like Power BI can go beyond corporate analytics to serve critical societal needs. The ultimate vision is to foster a more informed and resilient society, where substance use is understood through the lens of empathy, evidence, and action.

The resulting dashboards present a holistic picture of substance use trends—identifying **which groups are at greater risk, what substances are commonly consumed, what factors influence consumption, and how informed individuals are about their choices**.

Gaps Addressed by This Project:

This initiative addresses multiple gaps in traditional substance use research and analysis:

1. **Lack of Real-Time Data:**
Most studies rely on outdated datasets. By using live Google Forms and real-time Power BI dashboards, this project presents updated and current insights.
2. **Limited Engagement in Surveys:**
Many traditional forms are lengthy, text-heavy, and intrusive. This project uses an interactive, emoji-driven design that feels casual and friendly to respondents, encouraging higher participation.
3. **Underrepresentation of Youth Perspectives:**
Substance use data often lacks youth-specific insights. This study specifically targets and includes the voice of young adults—one of the most affected and vulnerable groups.
4. **Absence of Data Visualization in Social Health Studies:**
Academic and governmental reports are often static and difficult to interpret. This project brings **data storytelling** into the public health domain, using visuals to enhance understanding and engagement.
5. **Stigma Around Disclosure:**
The anonymized nature of this project and the use of relatable symbols help in reducing the stigma, leading to more genuine answers.
6. **Minimal Integration with Tech Tools:**
Traditional research rarely incorporates platforms like Power BI or Google Apps Script. This project shows how **business intelligence tools can be repurposed** for societal benefit.

Objective Summary:

- To **collect behavioural data** regarding substance, use in a friendly, non-invasive format.
- To **analyse and visualize** the collected data using Power BI.
- To **identify trends and patterns** that can inform future awareness programs and policy planning.
- To promote **data-driven public health advocacy** through interactive visual tools.

Keywords

- Substance Use
- Power BI
- Data Visualization
- Interactive Dashboard
- Behavioural Analysis
- Consumption Patterns
- Public Health
- Google Forms
- Data Analytics
- Addiction Insight

H/w and s/w requirement

1. **Hardware Requirements:**

- Intel i3/i5 or higher Processor
- Minimum 4 GB RAM (8 GB recommended)
- Internet Connectivity
- Storage: Minimum 500 MB free space

2. **Software Requirements:**

- Microsoft Power BI (Desktop version)
- Microsoft Excel or Google Sheets
- Google Forms
- Web Browser (for accessing online tools)

Related Work

Several public health institutions and research organizations have studied substance use through surveys and statistical models. For example:

- **National Family Health Survey (NFHS)** provides demographic-level insights into tobacco and alcohol use.
- **WHO Reports** document global substance abuse statistics.
- **Academic research papers** have used machine learning and visual analytics to predict substance abuse and analyse behaviour.

This project differentiates itself by focusing on interactive data collection and visual storytelling using Power BI, emphasizing accessibility and clarity.

Advantages and Disadvantages for Society

Advantages:

- Raises awareness of substance usage patterns.
- Helps institutions target prevention programs effectively.
- Empowers decision-makers with data-backed insights.
- Encourages non-judgmental self-reporting through emojis and visual forms.

Disadvantages:

- Data might be self-reported and subject to bias or dishonesty.
- Analysis is limited by the diversity and size of the dataset.
- Over-dependence on visual data might oversimplify complex behavioral issues.

Conclusion

Summary of Key Findings

The project effectively demonstrates how data visualization tools like Power BI can be used to understand and analyse intoxicating substance consumption. By transforming user responses into insightful dashboards, it supports data-driven interventions and educational outreach. Although the dataset may have limitations, the approach proves valuable for public health awareness, policy support, and academic exploration.

Limitations

1. **Self-Reported Data Bias:**
Responses collected via Google Forms rely on honesty and self-awareness, which may result in underreporting or exaggerated inputs, especially on sensitive topics like substance use.
2. **Limited Sample Size:**
The scope and insights of the analysis are constrained by the number of participants. A larger, more diverse dataset is needed for broader generalization.
3. **Demographic Imbalance:**
If the survey respondents are skewed towards a particular age group, region, or background, the results may not represent the population.
4. **Data Granularity:**
The use of emojis and simplified questions may result in reduced depth and accuracy of responses, limiting detailed behavioural analysis.
5. **Tool Constraints:**
Power BI, while powerful for visualization, is not designed for advanced statistical modelling or predictive analytics unless integrated with external tools like R or Python.

Future Research Directions

1. **Dataset Expansion:**
Broaden data collection efforts across more regions, age groups, and social settings to improve the validity and diversity of insights.
2. **Predictive Modelling Integration:**
Integrate machine learning techniques using Python/R with Power BI to predict risk patterns and potential substance abuse escalation.
3. **Time-Series Analysis:**
Add a temporal dimension to study consumption trends over weeks or months for seasonal or situational patterns (e.g., during exams or festivals).
4. **Geo-Spatial Mapping:**
Introduce location-based visualization to identify high-risk zones and allocate resources accordingly.
5. **Gamified or Anonymous Surveys:**
Develop more engaging and private survey methods to encourage truthful participation, especially among youth.

References

- National Family Health Survey (NFHS-5), Ministry of Health and Family Welfare, India
- World Health Organization (WHO) Reports on Substance Abuse
- Microsoft Power BI Documentation – <https://docs.microsoft.com/power-bi>
- Journal of Substance Abuse Treatment, Elsevier
- “Data Visualization Techniques for Behavioural Analysis” – Springer
- Google Forms

PPT Slides



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Intoxicating Substance Consumption Analysis using Power BI



Power BI

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Project Overview and Objectives

Data Collection

Interactive Google Form for real-time responses

Data Transformation

Power BI dashboards to visualize key behaviors

Goal

Patterns in the use of intoxicating substances



Understanding Substance Use Patterns

Growing Concern

Substance use impacts individuals and communities

Need for accessible data insights

Digital Approach

Real-time interactive data collection

Power BI boosts dashboard accessibility

Key Concepts to Know

- Substance Use**
Consumption patterns and effects
- Power BI**
Data visualization tool
- Behavioral Analysis**
Identifying trends from data
- Interactive Surveys**
Engaging data collection method



Hardware and Software Setup

Hardware

- Intel i3/i5 or higher Processor
- Minimum 4 GB RAM (8 GB recommended)
- Internet Connectivity
- Storage: Minimum 500 MB free space

Software

- Google Forms for data input
- Power BI for visualization
- Web Browser (for accessing online tools)
- Microsoft Excel or Google Sheets



Inspiration



Inspired by

WHO and National Family Health
Survey



Difference

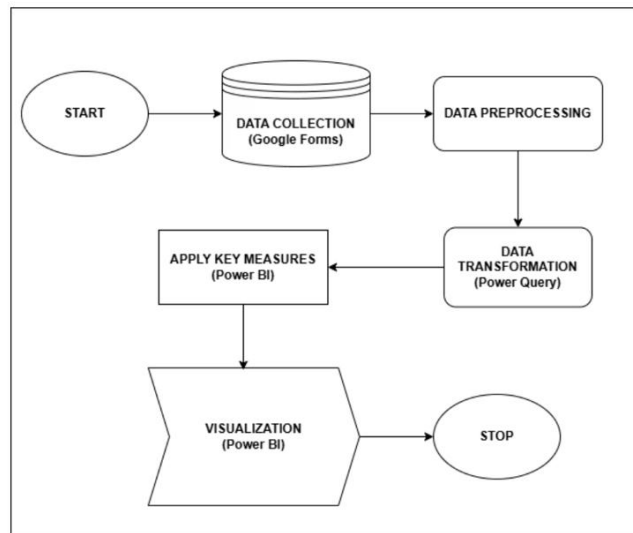
Real-time data and interactive
dashboards



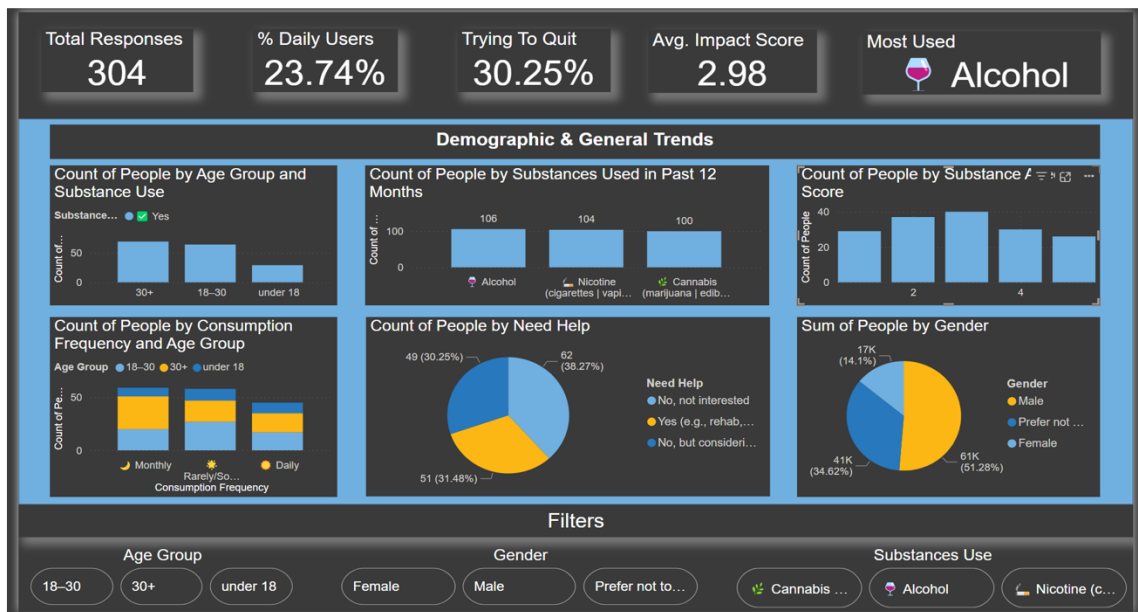
Audience

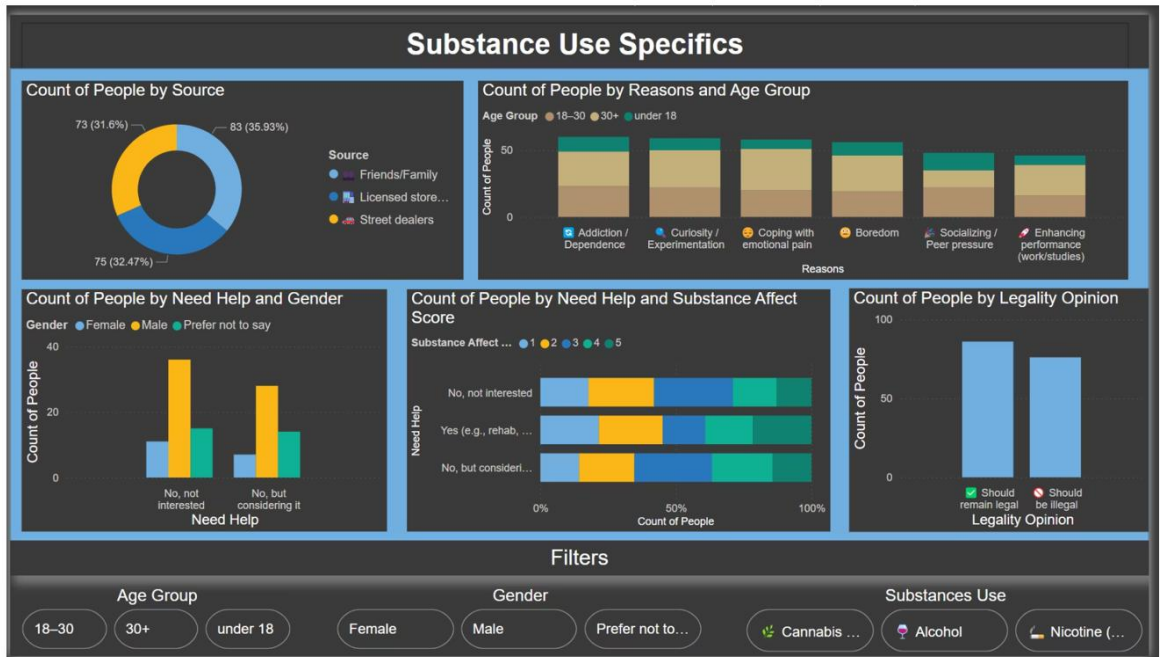
Broader reach beyond academic papers

Flow Chart



Power BI Dashboard





Pros and Cons of the Project

Advantages

- Raises awareness of substance usage patterns.
- Helps institutions target prevention programs effectively.
- Empowers decision-makers with data-backed insights.

Disadvantages

- Potential self-reporting bias
- Limited sample diversity
- Over-dependence on visual data might oversimplify complex behavioral issues.

Challenges & Future Directions

1

Current Limitations

Sample size and accuracy challenges

2

Next Steps

Expand dataset and improve quality

3

Enhancements

Predictive modeling and geospatial mapping

4




Engagement

Gamified surveys for better participation





Final Insights and Impact

-  Substance use is common among youth, **often influenced by peers, stress, and curiosity**
-  **Alcohol and Tobacco** emerged as the most consumed substances, followed by Cannabis
-  **Social change**
Data drives awareness and intervention.



Sources and Credibility

- World Health Organization (WHO) reports
- National Family Health Survey (NFHS) data
- Power BI technical documentation
- Google Forms

