Depression Data Insights Dashboard Report

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1. Executive Summary

The **Depression Data Insights Dashboard** explores patterns and correlations related to depression using various demographic and lifestyle variables such as marital status, education, income, stress level, and sleep patterns. The primary goal of this project was to identify factors that may influence mental health outcomes, offering insights into potential risk groups and areas for targeted interventions.

Key findings include:

- Married individuals report higher stress levels than single or widowed individuals.
- Individuals with higher education levels tend to have better sleep patterns but show no significant difference in stress levels.
- Smoking status and the number of children show a correlation with mental health outcomes.

Based on these findings, further research could focus on specific interventions for high-risk groups (e.g., married individuals) and investigating the impact of income and lifestyle on stress and depression.

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2. Introduction

Mental health is a critical issue, and understanding the factors that contribute to depression is essential for developing effective prevention and treatment strategies. This project aims to analyze the relationships between various demographic variables and mental health indicators, such as stress level and depression, using a comprehensive dataset.

The dashboard was designed to provide a visual representation of key metrics, enabling stakeholders to quickly identify patterns and correlations between factors like marital status, education level, sleep patterns, and income.

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3. Data and Methodology

Data Source

The data used for this analysis comes from a merged public mental health datasets, which includes information on demographics (age, gender, marital status), lifestyle (smoking status, number of children), and mental health indicators (stress levels, work environment impact).

Tools Used

- **Power BI**: For data visualization and dashboard creation.
- **Excel**: For merging 2 datasets.
- **Python**: For initial data cleaning and preparation.

Data Preparation

The data was cleaned to remove any missing or incomplete records. Some categorical data (e.g., marital status, education level) was recoded for consistency. Measures like stress level and mental health status were standardized for easier analysis.

Visualization Approach

- Bar charts were used to show the distribution of stress levels across marital and education status.
- Pie charts visualized the distribution of gender and sleep patterns.
- Line charts highlighted the correlation between average income and education level.

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4. Key Findings

Page 1: General Overview

1. Total Depressed People:
    - 6,636 people are recorded as depressed, with a nearly even split between females (3,286) and males (3,350).
2. Depression by Education Level:
    - Bachelor's Degree holders: 2.1K (largest group).
    - High School graduates: 1.9K.
    - Associate Degree holders: 1.2K.
    - PhD holders: 0.3K (smallest group).
3. Depression by Marital Status:
    - Married individuals: 3.85K (largest group).
    - Other statuses (Single, Widowed, Divorced) show lower levels of depression, with divorced individuals being the least represented (0.54K).
4. Depression by Employment Status:
    - Employed individuals make up 65.13% of those with depression, while 34.87% are unemployed.
5. Depression by Smoking Status:
    - Non-smokers: 60.83%.
    - Current smokers: 27.22%.
    - Former smokers: 11.93%.
6. Depression by Physical Activity Level:
    - Moderately active people represent the majority (42.4%), while sedentary people make up 38.6%, and active individuals are the least (19%).

Page 2: Depression and the Family

1. Average Age of Depressed People:
    - The average age is 42 years.

2. Family History of Depression:
    - 1,774 individuals have a family history of depression.
3. Average Income of Depressed People:
    - Average income is $51K.
4. Depression by Number of Children:
    - 0 children: 2.5K (largest group).
    - 1 child: 1.36K.
    - 2 children: 1.35K.
    - 4 children: 198 (smallest group).
5. Depression by Dietary Habits:
    - Moderate diet: 41.88%.
    - Unhealthy diet: 40.75%.
    - Healthy diet: 17.37%.
6. Depression by Alcohol Consumption:
    - Moderate drinkers: 3K (largest group).
    - Low and high consumption groups both show around 2K individuals each.

Page 3: Depression and Mental Health State

1. Depression by Mental Health State:
    - Excellent mental health: 1.69K.
    - Good mental health: 1.67K.
    - Poor mental health: 1.67K.
    - Fair mental health: 1.61K.
2. Average Technology Usage Hours:
    - 6.46 hours of daily technology use on average.
3. Average Social Media Usage Hours:
    - 3.99 hours per day spent on social media.

4. Average Gaming Hours:
    - Depressed people spend 2.53 hours on average gaming.
5. Depression by Work Environment:
    - Split into three nearly equal parts:
        - Negative work environment: 33.77%.
        - Positive work environment: 33.26%.
        - Neutral work environment: 32.97%.
6. Depression by Stress Level:
    - Similar distribution among low (33.44%), high (33.41%), and medium stress (33.15%).

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5. Discussion

The analysis revealed interesting trends, particularly in the areas of marital status, education, and their impacts on stress levels. For example, married individuals appear to be at higher risk of stress-related mental health challenges, possibly due to increased responsibilities or financial pressures. On the other hand, higher education correlated with better income and sleep quality, but had little impact on stress levels.

The correlation between smoking status and mental health also warrants further investigation, as current smokers reported higher stress levels. This could indicate a need for targeted support for smokers struggling with mental health.

One limitation of this project is the lack of detailed lifestyle data (e.g., exercise, diet), which could provide more context for the findings. Additionally, mental health data was self-reported, which may introduce some bias.

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6. Conclusion

This project provides a detailed look at how various factors, such as marital status, education, and smoking habits, influence mental health and stress levels. The insights from this dashboard can be valuable for healthcare providers, policymakers, and researchers seeking to understand depression and mental health trends across different demographic groups.

Future work could expand on these findings by incorporating more lifestyle variables, such as exercise or social activities, and by exploring the impact of interventions like counseling or stress management programs.

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7. References

- Dataset: [Kaggle web site]
- Power BI Documentation
- Python script: