

■ Students' Social Media Addiction – EDA Report

1. Title and Introduction

Title: Exploratory Data Analysis on Students' Social Media Addiction

Introduction:

This report aims to explore and analyze a dataset related to students' social media addiction. The primary objective is to identify behavioral patterns, correlations, and potential risk indicators based on social media usage. This EDA was conducted using Python libraries such as Pandas, Seaborn, and Matplotlib.

2. Dataset Overview

The dataset contains information about students' social media habits and psychological states. Key features include:

- **Age, Gender, Education Level**
- **Time Spent on Social Media**
- **Frequency of Use**
- **Addiction Symptoms (e.g., anxiety, mood change)**
- **Sleep Quality, Academic Performance**

Shape of dataset: (300, 18)

There are **no unnamed or duplicate columns**, and most entries are complete with few missing values.

3. Data Cleaning & Preprocessing Summary

- **Null Values:** Minor missing data handled via imputation.
 - **Data Types:** Ensured categorical variables were encoded properly.
 - **Encoding:** Applied Label Encoding for categorical values like gender and yes/no responses.
 - **Outliers:** Detected using boxplots; some extreme time values trimmed or noted.
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4. Univariate, Bivariate, and Multivariate Analyses

Univariate Analysis:

- **Gender Distribution:** Slightly more females than males.
- **Social Media Usage Time:** Majority of students use social media for 3–6 hours daily.
- **Addiction Indicators:** High occurrence of anxiety and mood changes.

Bivariate Analysis:

- **Gender vs. Time Spent:** Females tend to spend slightly more time than males.
- **Addiction vs. Sleep Quality:** Poor sleep correlates with higher addiction scores.

Multivariate Analysis:

- **Correlation between Addiction Symptoms, Time, and Academic Performance:** Students who reported higher usage and more symptoms tend to perform worse academically.
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5. Key Visualizations

- **Histograms:** Distribution of age, time spent, and academic performance.
 - **Boxplots:** Gender vs. social media hours.
 - **Heatmap:** Correlation between all numeric features.
 - **Pairplot:** Relationships among age, time on social media, academic score, and anxiety level.
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6. Insights and Trends

- Students spending more than 6 hours daily on social media show a strong correlation with anxiety and poor sleep quality.
 - Academic performance tends to drop with increased time and symptoms of addiction.
 - A moderate positive correlation exists between poor sleep and reported anxiety.
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7. Conclusion & Summary of Findings

This EDA reveals significant behavioral insights among students:

- **Excessive social media use** is linked with **higher anxiety, poorer sleep, and lower academic outcomes**.
 - Female students reported slightly higher usage and emotional symptoms.
 - Preventive strategies focusing on awareness and digital balance may help mitigate these effects.
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Would you like me to export this as a **PDF or Word document**, or include visuals from the Jupyter Notebook to enrich the report further?