Analysis Report : Mental Health & Social Media Behavior Dashboard

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1. Project Overview

- **Project Name:**
  Mental Health & Social Media Behavior Analysis Dashboard
- **Objective:**
  To analyze mental health indicators and lifestyle behaviors using social media usage data and build a **4-page interactive Power BI dashboard**.
  The dashboard aims to uncover relationships between **screen time, platform usage, sleep, physical activity, stress, anxiety, and mood**, enabling clear insights for data-driven decision-making.
- **Scope:**
  The analysis focuses on identifying:
  - How lifestyle habits affect mental health
  - Platform-wise impact of social media usage
  - Behavioral patterns associated with stress, anxiety, and mood levels
- **Dataset:**
  Mental Health & Social Media Usage Dataset sourced from **Kaggle**, containing participant-level behavioral and psychological indicators.

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2. Dataset Summary

- **Rows / Columns:**
  - Single consolidated CSV file
  - ~4,000+ participant records
  - ~20+ columns covering mental health, lifestyle, and digital behavior metrics
- **Key Characteristics:**
  - Survey-based / synthetic behavioral dataset
  - Combines **mental health indicators**, **lifestyle habits**, and **platform usage data**

    - Suitable for descriptive, comparative, and correlation analysis
    - Ideal for Power BI aggregation and visual storytelling
- **Key Entities Covered:**
    - Participants (Person_ID)
    - Mental health indicators (Stress, Anxiety, Mood)
    - Lifestyle factors (Sleep, Physical Activity)
    - Social media behavior (Screen Time, Platform, Interaction Type)

Cleaning Steps Performed

- **Data Type Conversion:**
    - Date fields converted to proper **Date / Month / Year** format
    - Numeric fields (stress, anxiety, screen time, sleep hours) validated for consistency
- **Missing Value Handling:**
    - Rows with missing **critical identifiers** (Person_ID, Mental_State, Platform) were removed
    - Non-critical missing values were imputed or categorized logically

3. Column Wise Assessment Summary

- **PERSON_ID**:
  Identified as the **primary key** for participant-level analysis. Used to calculate total participants and ensure no duplication across records.
- **MENTAL_STATE**:
  This is the most critical analytical column. It classifies participants into **Healthy, At Risk, and Stressed**, and is used as the main segmentation dimension across all dashboard pages.
- **STRESS_LEVEL**:
  All values were stored as numeric and required no datatype correction. This column is the core metric for trend analysis, lifestyle impact evaluation, and platform comparison.

- **SLEEP_HOURS**:
  Initially available as a continuous numeric variable. This column was later used to derive a categorical variable to enable clearer interpretation of sleep-related stress patterns.
- **PHYSICAL_ACTIVITY_MIN**:
  Numeric column measuring daily physical activity. Used to analyze its relationship with stress levels across mental states. No significant data quality issues were observed.
- **DAILY_SCREEN_TIME_MIN**:
  One of the most important behavioral metrics. Used across all pages to evaluate digital exposure and its relationship with mental health indicators.
- **PLATFORM**:
  Categorical column identifying social media platforms. Required standardization to avoid duplicate labels. Used extensively in Page 3 for platform-wise stress and usage comparison.

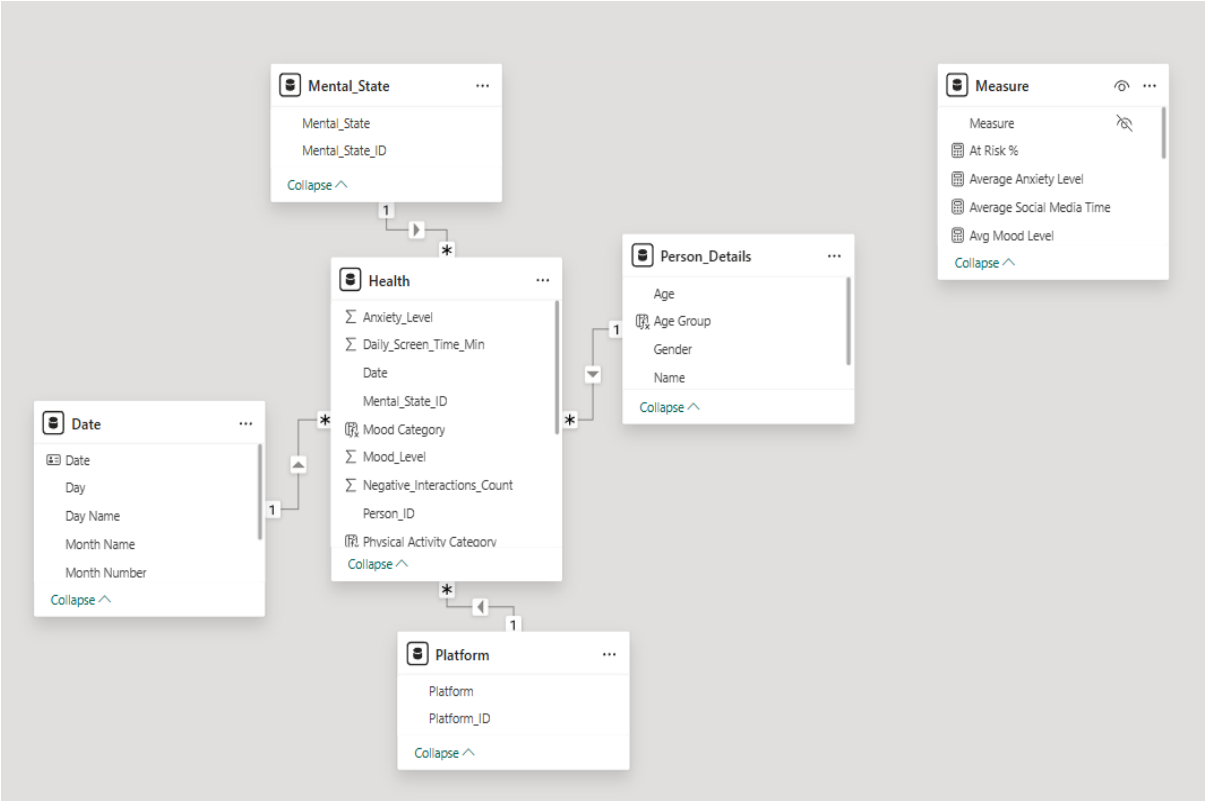
4. Data Model Overview

- **Schema Type:**
  The data was modeled using a **Star Schema** with a central fact table and supporting dimension tables to enable efficient analytical reporting.

Tables

- **Fact Table:**
  HEALTH – Contains core mental health and behavioral metrics such as stress level, anxiety level, mood level, screen time, social media time, and physical activity.
- **Dimension Tables:**
  PERSON_DETAILS, **MENTAL_STATE**, **PLATFORM**, **DATE**, and a **MEASURE table** for calculated DAX metrics.
- **Relationships:**
  One-to-many relationships were established from each dimension table to the HEALTH fact table.

- **Diagram:**



- **Key Calculations**

  Measures:
  A set of DAX measures was created, including Average Stress Level, Average Anxiety Level, Average Mood Level, Average Sleep Hours, Average Screen Time, Average Social Media Time, Positive Interaction %, Negative Interaction %, At Risk %, and Total Participants.

  Calculated Columns:
  Derived columns were created for analytical segmentation such as Age Group, Sleep Category, Physical Activity Category, and Mood Category to support behavioral and demographic analysis.

5. Analysis & Insights

- High Stress Prevalence:
  The analysis shows that a significant majority of participants fall under the *Stressed* mental state (over 90%), indicating widespread mental health strain among users.

- **Screen Time vs Mental Health Correlation:**
  Users classified as Stressed exhibit the highest average screen time, while Healthy users show comparatively lower screen exposure, suggesting a strong relationship between excessive screen time and increased stress levels.

- **Lifestyle Impact on Mental Well-being:**
  Sleep duration and physical activity have a measurable impact on mental health. Participants with 9+ hours of sleep and higher physical activity levels report lower stress and anxiety and better mood levels.

- **Platform Influence on Stress and Anxiety:**
  Certain platforms (e.g., TikTok and Instagram) are associated with higher stress and anxiety levels, while messaging-based platforms such as WhatsApp show relatively lower mental health impact.

- **Interaction Quality & Mental Health Risk:**
  Negative social media interactions are more prevalent among stressed users and are strongly linked with increased mental health risk, whereas healthy users experience a higher proportion of positive interactions.

6. Conclusions

The dashboard successfully converts complex behavioral and social media data into meaningful insights on mental health patterns.
The analysis concludes that:

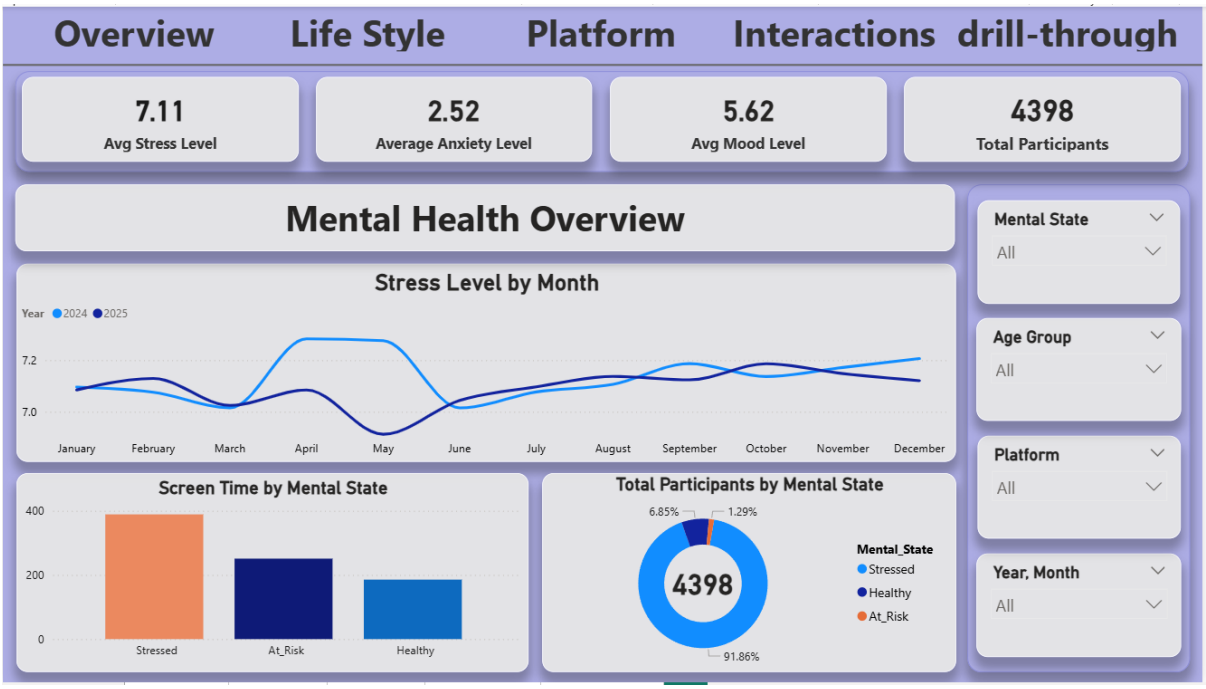
- **Digital Behavior Risk:** Excessive screen time and negative social interactions significantly contribute to elevated stress and anxiety levels.
- **Lifestyle as a Protective Factor:** Adequate sleep and regular physical activity reduce mental health risk and improve overall well-being.
- **Platform-Specific Impact:** Mental health outcomes vary significantly by platform, highlighting the need for platform-aware interventions.

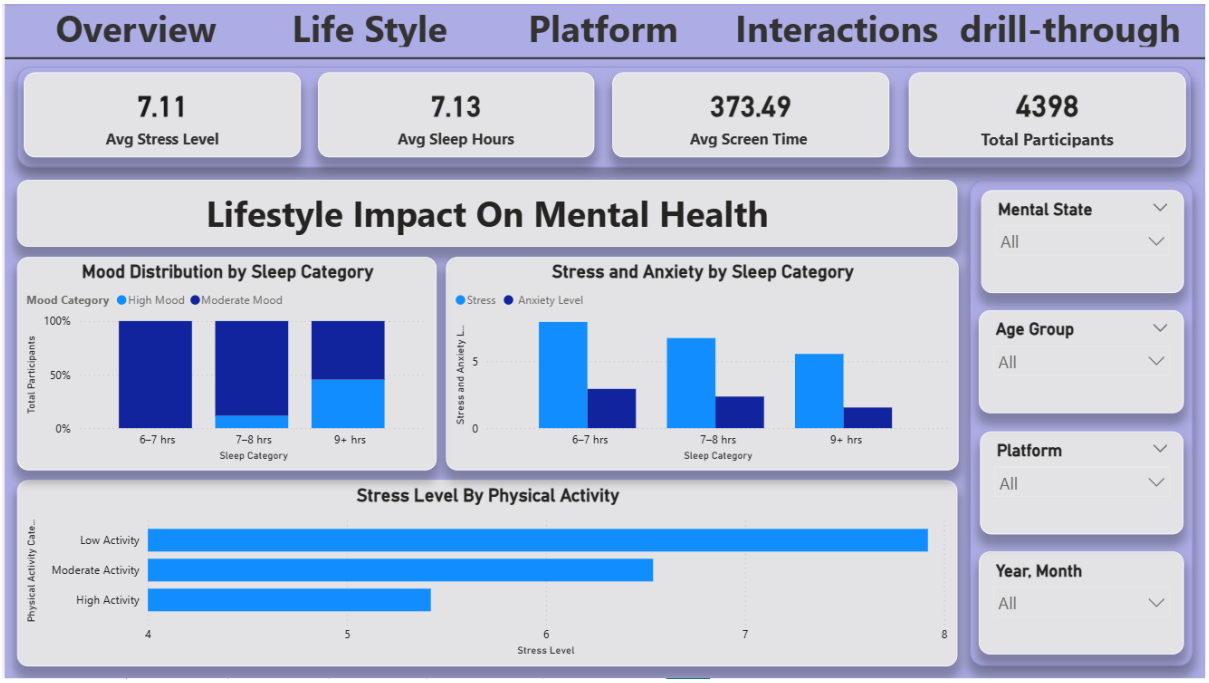
7. Recommendations

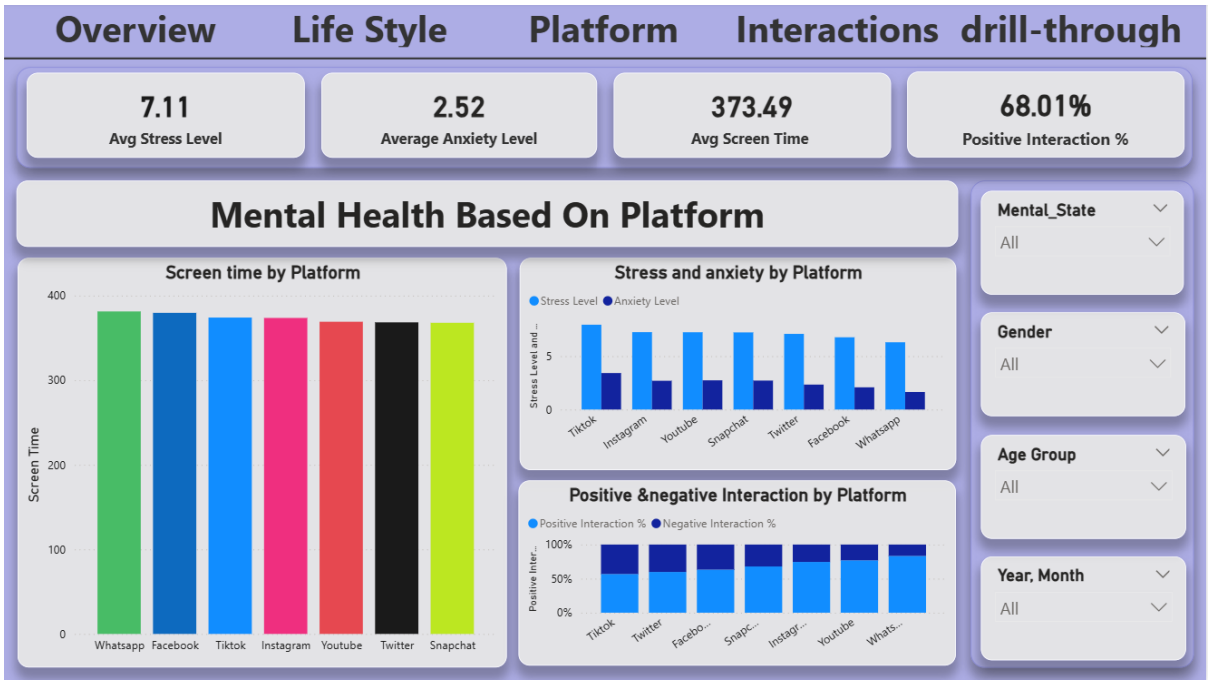
- **FOR DIGITAL WELL-BEING:**
  Encourage screen time moderation and promote digital detox initiatives, especially for high-risk user groups.

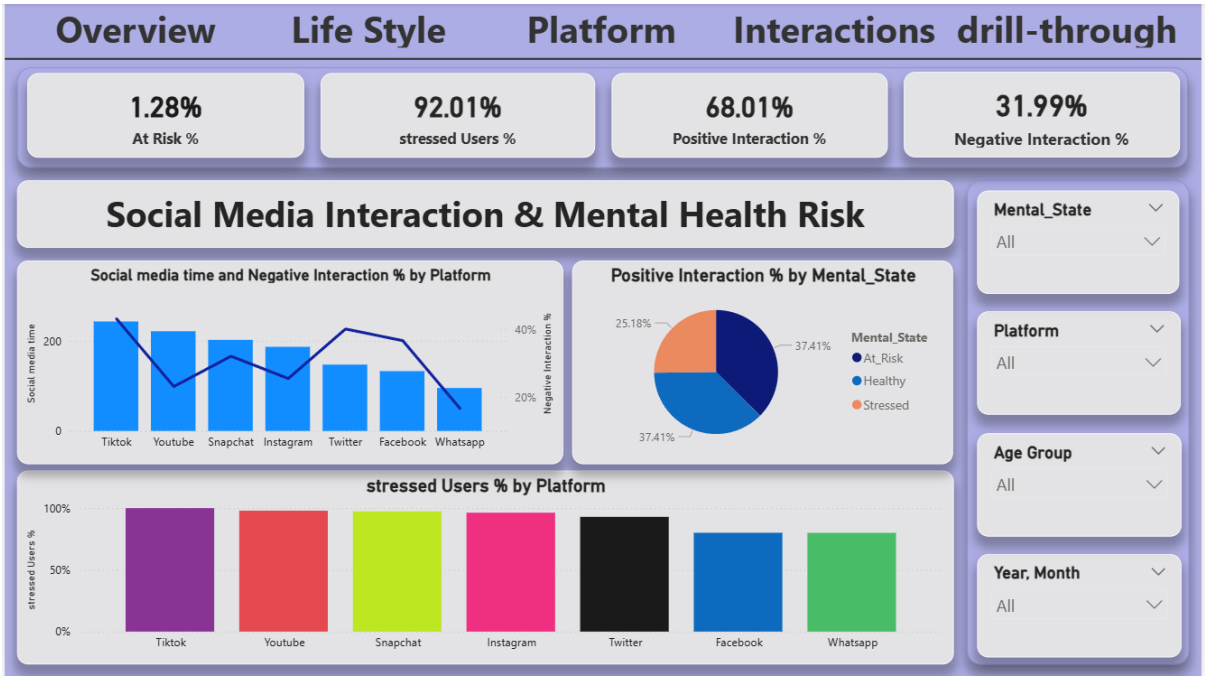
- **FOR PLATFORM MANAGEMENT:**
  Implement content moderation and algorithm adjustments on high-impact platforms to reduce exposure to stressful or negative content.
- **FOR USER AWARENESS:**
  Promote awareness campaigns emphasizing the importance of sleep, physical activity, and healthy digital habits.
- **FOR MENTAL HEALTH MONITORING:**
  Use dashboard insights to identify at-risk users early and recommend preventive mental health interventions.
- **FOR DATA-DRIVEN DECISIONS:**
  Leverage interaction and platform-level insights to design targeted mental health support strategies.

8. Dashboard




Overview
Life Style
Platform
Interactions
drill-through
7.11
Avg Stress Level
7.13
Avg Sleep Hours
373.49
Avg Screen Time
4398
Total Participants
Lifestyle Impact On Mental Health
Mood Distribution by Sleep Category
Mood Category
High Mood
Moderate Mood
Total Participants
100%
50%
0%
6–7 hrs
7–8 hrs
9+ hrs
Sleep Category
Stress and Anxiety by Sleep Category
Stress
Anxiety Level
Stress and Anxiety L...
5
0
6–7 hrs
7–8 hrs
9+ hrs
Sleep Category
Stress Level By Physical Activity
Physical Activity Cate...
Low Activity
Moderate Activity
High Activity
4
5
6
7
8
Stress Level
Mental State
All
Age Group
All
Platform
All
Year, Month
All


Overview
Life Style
Platform
Interactions
drill-through
7.11
Avg Stress Level
2.52
Average Anxiety Level
373.49
Avg Screen Time
68.01%
Positive Interaction %
Mental Health Based On Platform
Screen time by Platform
Screen Time
400
300
200
100
0
Whatsapp
Facebook
Tiktok
Instagram
Youtube
Twitter
Snapchat
Stress and anxiety by Platform
Stress Level
Anxiety Level
Stress Level and ...
5
0
Tiktok
Instagram
Youtube
Snapchat
Twitter
Facebook
Whatsapp
Positive &negative Interaction by Platform
Positive Interaction %
Negative Interaction %
Positive Inter...
100%
50%
0%
Tiktok
Twitter
Facebo...
Snapc...
Instagr...
Youtube
Whats...
Mental_State
All
Gender
All
Age Group
All
Year, Month
All


Overview
Life Style
Platform
Interactions
drill-through
1.28%
At Risk %
92.01%
stressed Users %
68.01%
Positive Interaction %
31.99%
Negative Interaction %
Social Media Interaction & Mental Health Risk
Social media time and Negative Interaction % by Platform
Social media time
200
0
40%
20%
Negative Interaction %
Tiktok
Youtube
Snapchat
Instagram
Twitter
Facebook
Whatsapp
Positive Interaction % by Mental_State
25.18%
37.41%
37.41%
Mental_State
At_Risk
Healthy
Stressed
stressed Users % by Platform
stressed Users %
100%
50%
0%
Tiktok
Youtube
Snapchat
Instagram
Twitter
Facebook
Whatsapp
Mental_State
All
Platform
All
Age Group
All
Year, Month
All