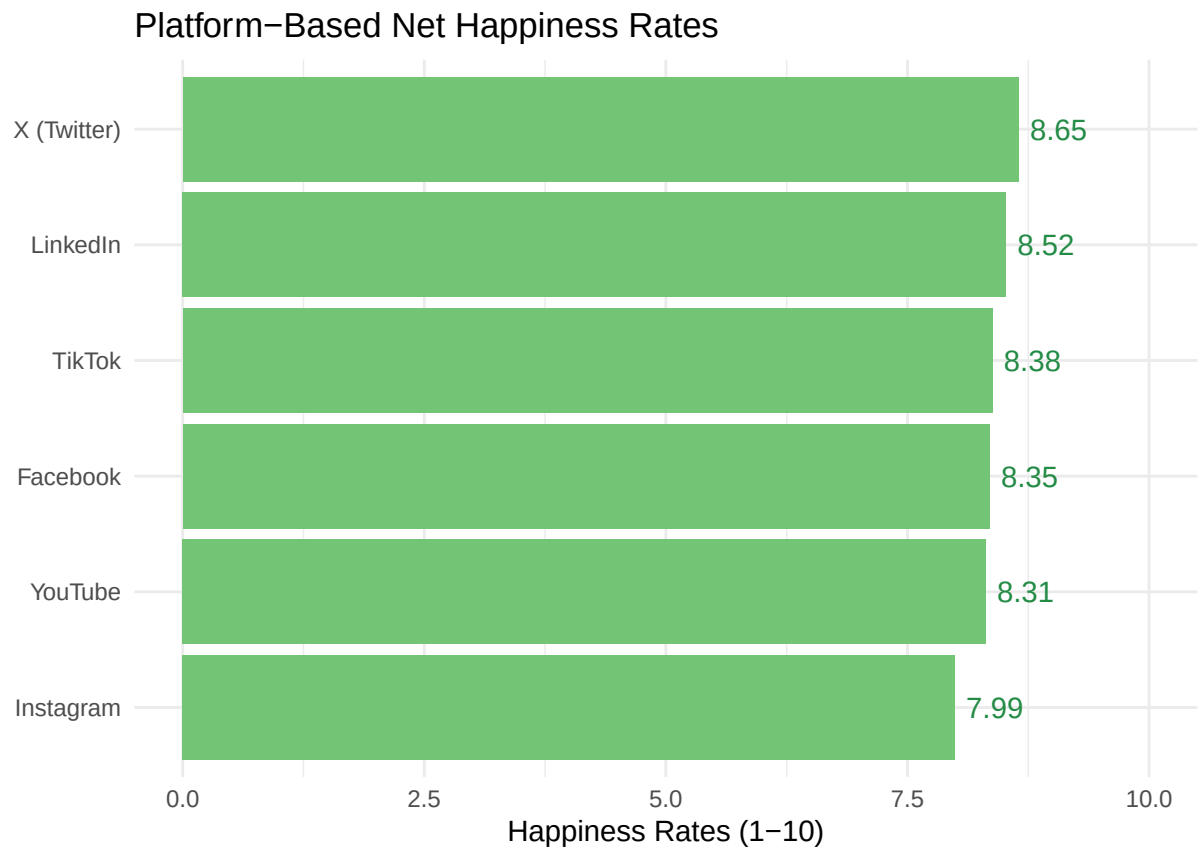
The Impact of Lifestyle Factors on Mental Well-being

2025-12-21

1. Executive Summary This report investigates how various lifestyle factors—including physical activity, sleep quality, and digital habits—collectively influence an individual's stress levels and overall happiness. By analyzing the provided dataset, we aim to understand the correlations between sedentary digital behavior and psychological health. The findings suggest that mental well-being is a multi-faceted outcome where regular exercise and high-quality sleep act as buffers against the stressors of high digital consumption.

```
#install.packages("readr")
#install.packages("ggplot2")
#install.packages("dplyr")
#install.packages("corrplot")
library(readr)
library(ggplot2)
library(dplyr)
library(corrplot)
df <- read_csv("Mental_Health_and_Social_Media_Balance_Dataset.csv")
```

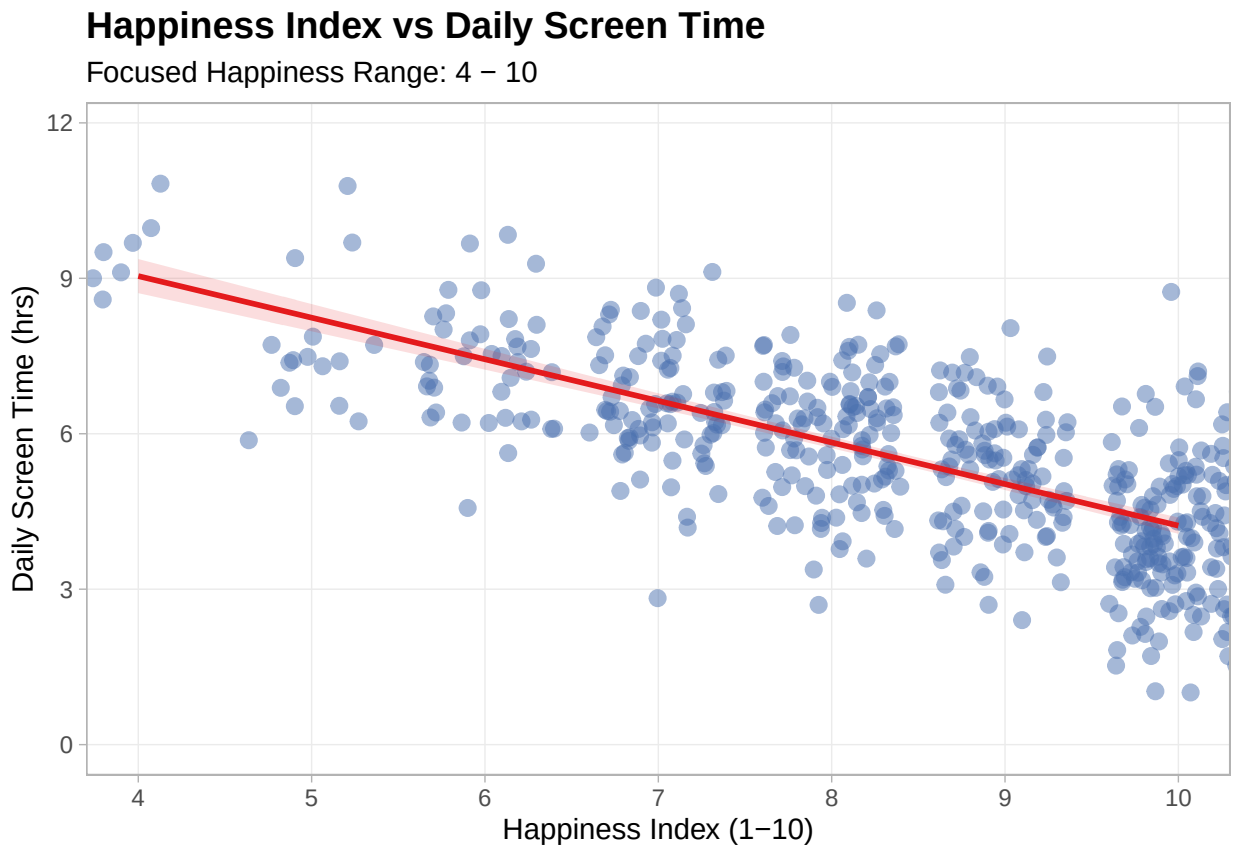
```
library(ggplot2)

df1 <- data.frame(
  Platform = c('X (Twitter)', 'LinkedIn', 'TikTok', 'Facebook', 'YouTube', 'Instagram'),
  Score = c(8.65, 8.52, 8.38, 8.35, 8.31, 7.99)
)


ggplot(df1, aes(x = reorder(Platform, Score), y = Score)) +
  geom_bar(stat = "identity", fill = "#74c476") +
  geom_text(aes(label = Score), hjust = -0.2, color = "#238b45", size = 4) +
  coord_flip() +
  ylim(0, 10) +
  labs(title = "Platform-Based Net Happiness Rates", x = "", y = "Happiness Rates (1-10)") +
  theme_minimal()
```



Key Finding: There is a notable variation in user well-being across platforms. Text-centric and professional networks like X and LinkedIn correlate with higher happiness scores (above 8.5), while image-heavy platforms like Instagram show the lowest satisfaction levels (7.99).

```
library(ggplot2)

df <- read.csv("Mental_Health_and_Social_Media_Balance_Dataset.csv", check.names = TRUE)

x_min <- floor(min(df$Happiness_Index.1.10., na.rm = TRUE))
y_max <- max(df$Daily_Screen_Time.hrs., na.rm = TRUE)

ggplot(df, aes(x = Happiness_Index.1.10., y = Daily_Screen_Time.hrs.)) +

  geom_point(alpha = 0.5, color = "#4c72b0", size = 2.5, position = "jitter") +


  geom_smooth(method = "lm", color = "#e41a1c", fill = "#e41a1c", alpha = 0.15) +

  scale_x_continuous(breaks = seq(0, 10, by = 1)) +

  coord_cartesian(xlim = c(x_min, 10), ylim = c(0, y_max + 1)) +

  labs(
    title = "Happiness Index vs Daily Screen Time",
    subtitle = paste("Focused Happiness Range:", x_min, "-", 10),
    x = "Happiness Index (1-10)",
    y = "Daily Screen Time (hrs)"
```

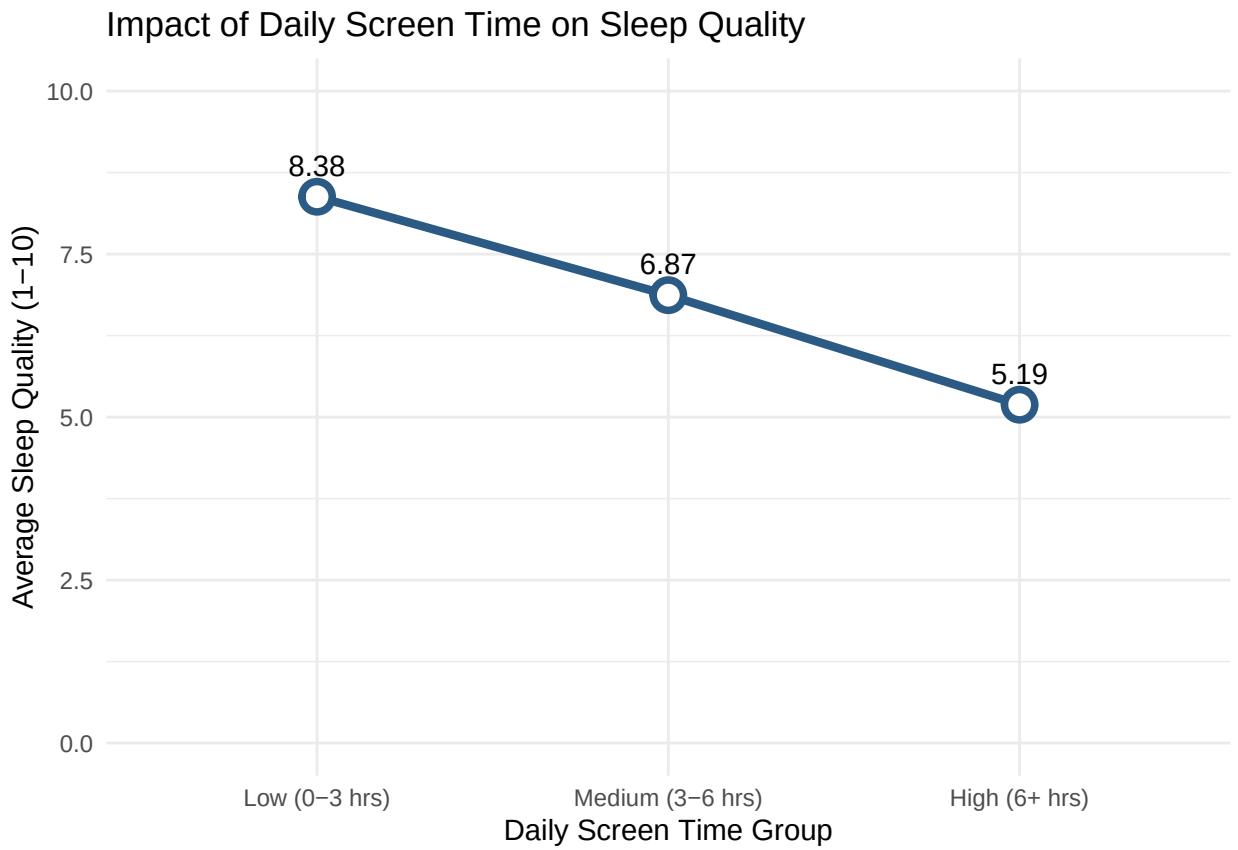
```
  ) +
  theme_light() +
  theme(
    panel.grid.minor = element_blank(),
    panel.grid.major = element_line(color = "gray92"),
    plot.title = element_text(face = "bold", size = 14)
  )
```



Key Finding: The scatter plot reveals a strong inverse relationship between digital consumption and mental health. As daily screen time increases, the happiness index significantly trends downward, suggesting that excessive usage is a risk factor for diminished well-being.

```
library(ggplot2)

df4 <- data.frame(
  Group = factor(c('Low (0-3 hrs)', 'Medium (3-6 hrs)', 'High (6+ hrs)'),
                 levels = c('Low (0-3 hrs)', 'Medium (3-6 hrs)', 'High (6+ hrs)')),
  Sleep_Quality = c(8.38, 6.87, 5.19)
)

ggplot(df4, aes(x = Group, y = Sleep_Quality, group = 1)) +
  geom_line(color = "#2b5b84", size = 1.5) +
  geom_point(color = "#2b5b84", size = 4, shape = 21, fill = "white", stroke = 2) +
  geom_text(aes(label = Sleep_Quality), vjust = -1) +
  ylim(0, 10) +
  labs(title = "Impact of Daily Screen Time on Sleep Quality",
```

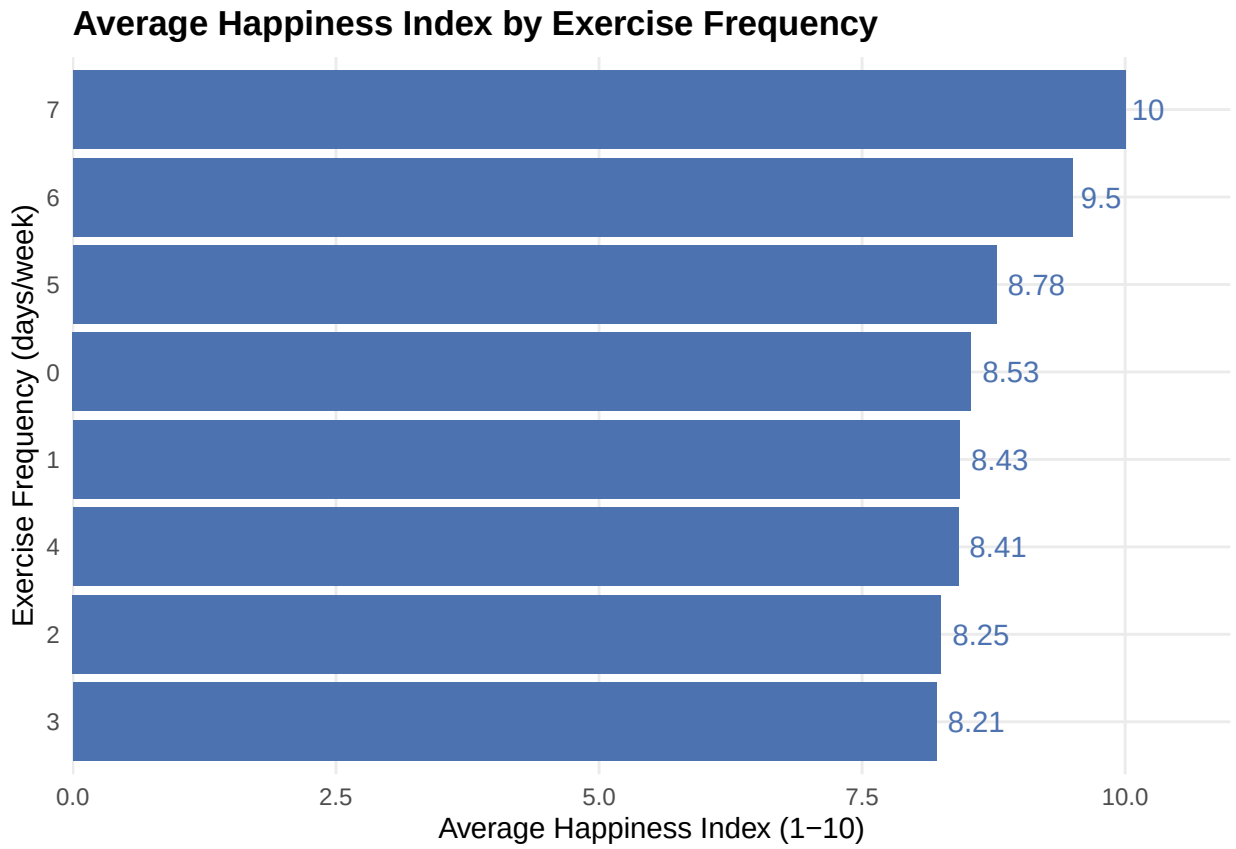
```
      x = "Daily Screen Time Group", y = "Average Sleep Quality (1-10)") +
  theme_minimal()
```



Key Finding: A drastic decline in sleep quality is observed as screen time moves from "Low" to "High" categories. High users (6+ hours) report a sleep quality score of only 5.19, which is a 38% decrease compared to low users.

```
library(ggplot2)
library(dplyr)

df <- read.csv("Mental_Health_and_Social_Media_Balance_Dataset.csv")

df_exercise <- df %>%
  group_by(Exercise_Frequency.week.) %>%
  summarise(Average_Happiness = mean(Happiness_Index.1.10., na.rm = TRUE))

ggplot(df_exercise, aes(y = reorder(factor(Exercise_Frequency.week.), Average_Happiness),
                        x = Average_Happiness)) +

  geom_bar(stat = "identity", fill = "#4c72b0") +

  geom_text(aes(label = round(Average_Happiness, 2)), hjust = -0.2, color = "#4c72b0") +
  scale_x_continuous(limits = c(0, 11), expand = c(0, 0)) +
  labs(
    title = "Average Happiness Index by Exercise Frequency",
    x = "Average Happiness Index (1-10)",
```

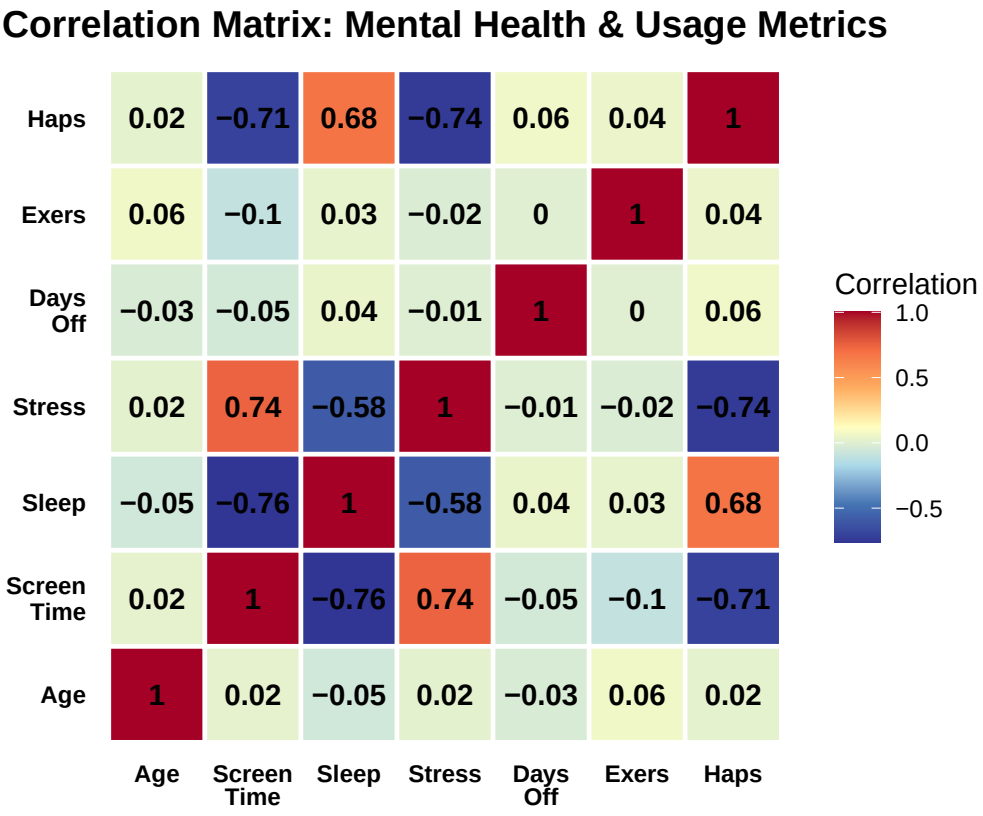
```
    y = "Exercise Frequency (days/week)"
  ) +
  theme_minimal() +
  theme(
    panel.grid.minor = element_blank(),
    plot.title = element_text(face = "bold")
  )
```



Key Finding: Physical activity acts as a significant "Happiness Booster." Data shows a linear growth in well-being scores as exercise frequency increases, reaching peak happiness levels for those who engage in physical activity 7 days a week.

```
# Gerekli kütüphaneleri yükle
if (!require("ggplot2")) install.packages("ggplot2")
if (!require("reshape2")) install.packages("reshape2")
if (!require("dplyr")) install.packages("dplyr")

library(ggplot2)
library(reshape2)
library(dplyr)


df <- read.csv("Mental_Health_and_Social_Media_Balance_Dataset.csv")


df_metrics <- df %>%
```

```
  select(where(is.numeric)) %>%
  rename(
    "Screen\nTime" = Daily_Screen_Time.hrs.,
    "Sleep" = Sleep_Quality.1.10.,
    "Stress" = Stress_Level.1.10.,
    "Days\nOff" = Days_Without_Social_Media,
    "Exers" = Exercise_Frequency.week.,
    "Haps" = Happiness_Index.1.10.
  )

cor_data <- cor(df_metrics, use = "complete.obs")
melted_cor <- melt(cor_data)

ggplot(melted_cor, aes(x = Var1, y = Var2, fill = value)) +
  geom_tile(color = "white", linewidth = 0.8) +
  scale_fill_gradientn(
    colors = c("#313695", "#4575b4", "#abd9e9", "#ffffbf", "#fdae61", "#f46d43", "#a50026"),
    limit = c(min(melted_cor$value), max(melted_cor$value)),
    name = "Correlation"
  ) +
  geom_text(aes(label = round(value, 2)), size = 4, fontface = "bold", color = "black") +
  labs(title =  "Correlation Matrix: Mental Health & Usage Metrics", x = "", y = "") +
  theme_minimal() +
  theme(
    axis.text.x = element_text(angle = 0, color = "black", face = "bold", size = 9, lineheight = 0.8),
    axis.text.y = element_text(color = "black", face = "bold", size = 9),
    panel.grid.major = element_blank(),
    plot.title = element_text(hjust = 0.5, face = "bold", size = 14)
  ) +
  coord_fixed()
```



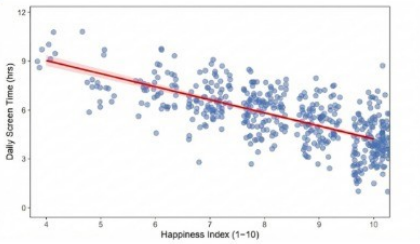
Key Finding: The heatmap confirms that Screen Time has a high negative correlation with Sleep Quality (-0.76). This suggests that the decline in happiness is not just direct, but also mediated through the degradation of sleep hygiene.

The Happiness Equation:

How Our Daily Habits Affect Our Quality of Life?

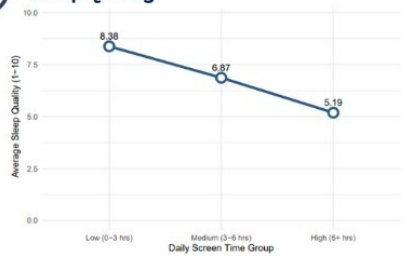
Is happiness a coincidence, or a result of our habits? This analysis, based on data from 500 individuals, reveals the direct impact of our daily choices on our mood.

1 Happiness Index vs Daily Screen Time



Uncontrolled hours spent in front of screens not only disrupt your sleep; data proves that declining sleep quality directly lowers your happiness index. For higher life energy and happiness scores, end the night with a restful sleep that refreshes your mind, not with screens.

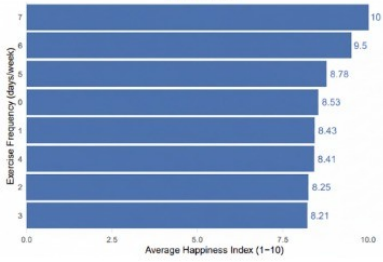
2 Impact of Daily Screen Time on Sleep Quality



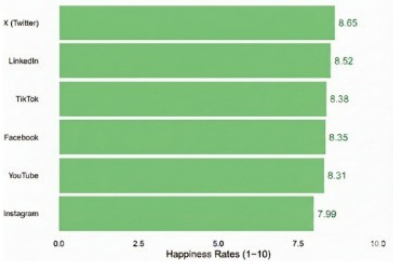
Constant notifications and digital consumption are silently increasing your stress levels. The graph clearly shows how stress rises as screen time increases. Remember; the lower your stress level, the higher your happiness index. Take digital breaks to let your mind breathe.

3 Average Happiness Index by Exercise Frequency

Happiness is not just a mental state, but the result of physical effort. The graph shows how the happiness index steadily increases as the frequency of weekly exercise increases.

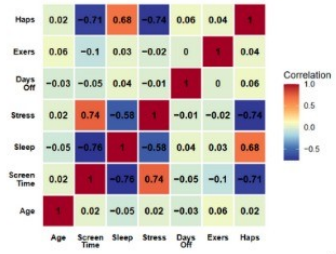


4 Platform-Based Net Happiness Rates



It's not just about how much time you spend, but also when you arrive. Data shows that different platforms have different effects on users' happiness index.

Correlation Matrix: Mental Health & Usage Metrics



5 Conclusions and Recommendations

- Our data analysis of 500 people shows that happiness is not a coincidence, but a matter of balance. Increased daily screen time directly disrupts our sleep and stress levels, leading to a significant drop in our happiness index
- Daha yüksek bir mutluluk indeksi için ekranı vaktinde kapatın, uykunuza ve hareketinize değer verin, size iyi gelen dijital dünyalarda kalarak stresi yönetin..

communication:batuhandenizli@ogr.eskisehir.edu.tr
source:https://www.kaggle.com

BATUHAN DENİZLİ

Figure 1: Poster