



# 'SCREEN DREAMS?'



## A statistical investigation into the lifestyle effects of excessive screen time among adolescents

### 1. Introduction

The topic of this project was chosen to be how screen time affects the lifestyle of secondary school students, considering sleep patterns, physical activity and daily diets. Inspiration grew within our group for this topic based on the experience of one member who experienced unbroken sleep following late screen time usage, which he believed wasn't normal for him. This drew our attention to the fact that teenagers engage in huge amounts of screen time at all hours of the day. This observation posed the question 'does this affect teenager's sleep and lifestyle in general?' From this, we decided to try and answer it for ourselves through the surveying of students from each year group in our school, focussing on aspects of teenager's daily lives like sleep, physical activity and diet, which we suspect may be affected in a negative way from excessive screen time. Similarly, we were also driven by the notion that the excessive use of screens among current young generations could cause major health epidemics in years to come with the rising uptake of electronic devices to complete daily tasks.

### 2. Aim of Study

The aim of this research is to find the modal number of hours that young people between the ages of 12 to 19 spend behind screens and to assess unhealthy lifestyle trends arising as a result.

### 3. Hypothesis

We predict that our survey will find the following results:

- That a similar number of respondents who are behind screens in the **latter part of the day** will experience broken sleep and restlessness at regular intervals.
- That at least half of respondents will spend most of their screen time after 18.00.
- That the modal amount of physical activity undertaken by students will be inversely linked to the modal length of daily screen time. If the modal length of daily screen time is low, physical activity will be high and *vice versa*.
- That high levels of screen time will see unhealthy daily diets.

### 4. Experimental Methods

#### Why a survey?

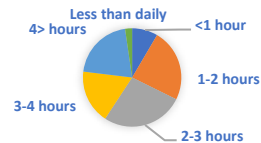
It was decided that a survey carried out on a sample of the entire school population would be the best means of finding information about screen time and sleeping habits as a survey would allow teenagers to disclose personal information like screen time and sleep to help us in our research.

#### What did we include in the survey?

We asked a range of questions in the survey to try and pinpoint the effects of excessive screen time on young people's lifestyle. This involved us taking a number of factors into account, these being average daily screen time, number of devices, times in the day spent in front of screens, physical activity, sleeping patterns, anxiousness and restlessness and diet. We felt that these are all contributing factors to poor mental health which we believed could correlate with people's average daily screen time usage.

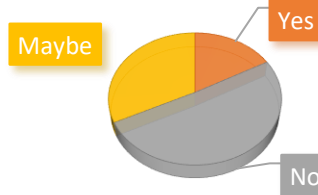
### 5. Data Correlations

#### DAILY TIME SPENT ON SMARTPHONE



From this, a similar statistic of **67.25%** of the sample surveyed uses their devices mainly **after 18.00 in the evening** and a further statistic of **15.52%** after 22.00 in the night. The **modal point** of this data lies **between 20.00 and 22.00 hours** with 84 out of 290 responses.

#### STUDENTS WHO BLAME SCREEN TIME FOR POOR SLEEP



It is recommended by the HSE that each person completes up to **60 minutes** of exercise each day. We see that only **21.62%** of the people surveyed engage in such exercise every day. However, we also see that **26.92%** of the people surveyed spent **2-3 hours** on electronic devices. This excessive amount of screen usage may be a contributing factor to the low level of physical activity among our respondents.

**These statistics all present a strong correlation that more than two thirds of young people have an excessive screen time and use screens late prior to sleeping. The effect of this can be read as at least half of these respondents having poor sleeping habits and blaming their screen time use as the cause of this problem.**

### 7. Hypothesis Test

To test our hypothesis, we used our prediction that at least 50% of respondents would be behind screens most after 18.00. Having completed a hypothesis test on this prediction and identifying our  $\hat{p}$  as 9 out of a random sample of 25, we found this hypothesis to have passed the test, falling between the ranges of 16% and 56%. Thus, we can conclude that our hypothesis is valid.

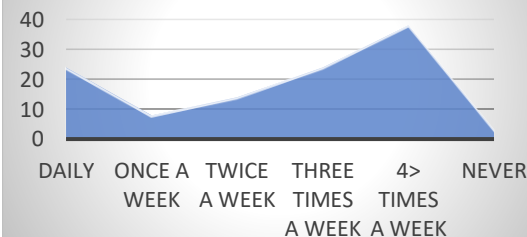
We found a number of correlations in our data linking screen time usage to unhealthy lifestyles. One major point to note is that **65.38%** of our population surveyed were found to spend in excess of two hours per day in front of smartphone screens alone. The **mode** of this is **2-3 hours** while the range of the data spread from less than daily to 4> hours. This number is considered to be **unhealthy and excessive**, according to a number of leading psychologists, including Dr. Mike Brooks.

#### Most often Times When Devices are Used



This late exposure to screens is likely to have led to **52%** of our sample feeling restless prior to sleeping, varying from often to sometimes to rarely. This is compounded by the fact that **49.19%** of our respondents believe that their experience of broken or poor sleep may be caused by their use of electronic devices.

#### How Often Students Engage in Physical Activity



### 8. Conclusion

To conclude, our survey has given us mixed results to our question 'Does excessive screen time usage have an effect on our lifestyle?' In terms of sleeping habits, we can safely confirm that there is a strong correlation between screen usage and poor sleep and anxiety. Regarding physical activity, we can also link the student's common excessive screen exposure to their low levels of physical activity.

However, regarding the effects on diets, we conclude that further research needs to be carried out to verify if there is a true link between excessive screen time and unhealthy diets.

Finally, we believe our research can safely say that excessive screen time has an effect on our daily lifestyles, affecting our sleep and reducing our physical activity.

### 6. Discussion

Our results showed that parts of our hypothesis can be believed to be true, while others proving inaccurate or only partially true.

- ✓ Our prediction that the results would show a similar statistic of screen time use late in the day (**67.25%** of respondents) and the number of respondents who experience broken sleep of restlessness is true to our results (**52%** of respondents).
- ✓ Our prediction that high levels of screen time would lead to high levels of unhealthy diets is partly true. **43.55%** of respondents eat unhealthy food in excess of what's considered to be an acceptable number of times per week (most days to daily). Our figure of 65.38% of respondents having an unhealthy screen time of two hours or more may be linked to this figure, however, further research would have to be carried out and other factors would have to be taken into consideration before this correlation could be confirmed as true.

However

- Our prediction that high levels of screen time would correlate to a similar number of unhealthy daily diets is only partly true in our results. While 65.38% of respondents were recorded to have unhealthy levels of daily screen exposure, **only 43.55%** of respondents are considered to have unhealthy diets (according to the HSE) eating unhealthy food from most days to every day. However, the most popular option chosen on the survey by students was most days, with **36 out of 124 respondents**, which still shows that this is the most accepted diet. However, in reality a lot more further research would have to be carried out to know if there is a true correlation between excessive screen time and unhealthy diets.