# Visualization Narrative

My data visualization motivates young Australians, aged 16 to 24, to develop a healthier lifestyle and relationship to social media. This age group was chosen because they are the most likely to experience an anxiety disorder (Australian Bureau of Statistics, 2023).

Development on the data visualization began with secondary research. I collected journal papers about the link between social media and anxiety. One of the most influential papers in this project was by O'Day & Heimberg (2021) which concluded that socially anxious and lonely individuals may isolate and replace real life relationships with passive social media use.

Once I had amassed enough factual evidence on the topic area, I outlined several key insights that I wanted to communicate with the data on my webpage. These insights (below) form a coherent story, a cautionary tale against becoming too engrossed by social media. It has four main parts. I wanted my audience to appreciate:

1. The **pervasiveness** of social media in Australia, especially amongst 16 to 24 year olds
2. What **problematic** social media use looks like, and how it is linked to anxiety disorders
    a. How younger people are especially at risk of developing anxiety and problematic social media use
3. How good wellbeing comes primarily from **quality relationships**
4. How somebody can effectively take care of themselves
    a. This includes how to maintain a healthy relationship with social media and seeking **mental health support** where necessary

Using this narrative as a guide, I began sourcing, filtering and combining data from various organizations. I explored mappings of different variables, with averages, mediums and basic graphs being compiled to identify strong trends and possible correlations.
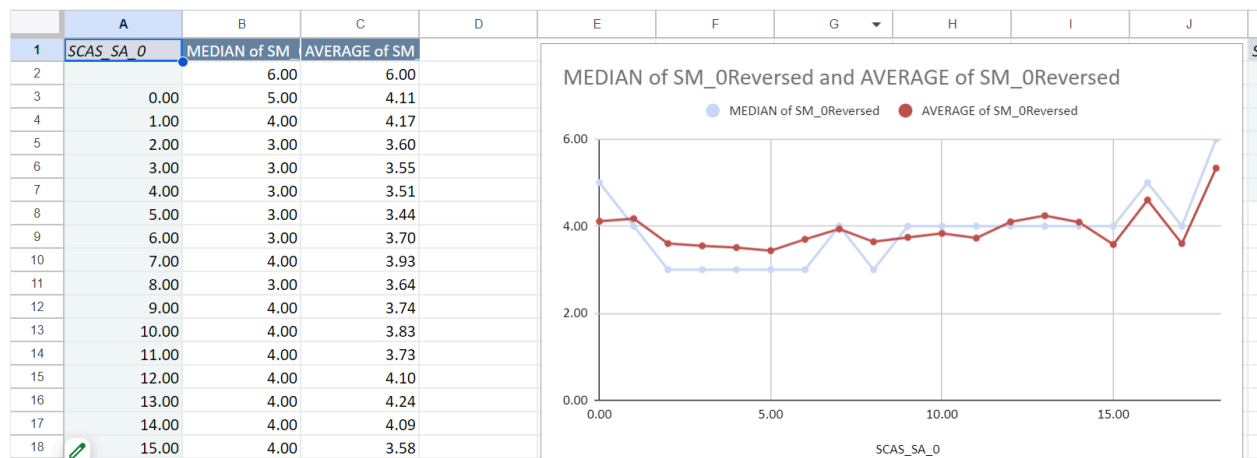

Above: Exploration of how social anxiety levels affect how long people use social media for

I then began forming the data visualizations for each part.

In part 1, I mapped the average daily amount of time people spend on social media against time passing. This highlights how the daily time has remained above 2 hours consistently, indicating that social media has cemented its place in the lives of most people. In the second graph, I mapped the adoption rate of various social media apps across age groups, to highlight how the issues being discussed are especially relevant to 16-24 year olds.

In part 2, the first graph mapped the intensity of various anxiety types against the amount of time spent using social media problematically. The upward trend reinforces how harmful social media can be. In the second graph, I mapped 3 statistics against age groups (see below). This reinforces the point that younger people are most likely to experience anxiety and to develop unhealthy social media habits. The graph implies that these two points are related and feed off each other.
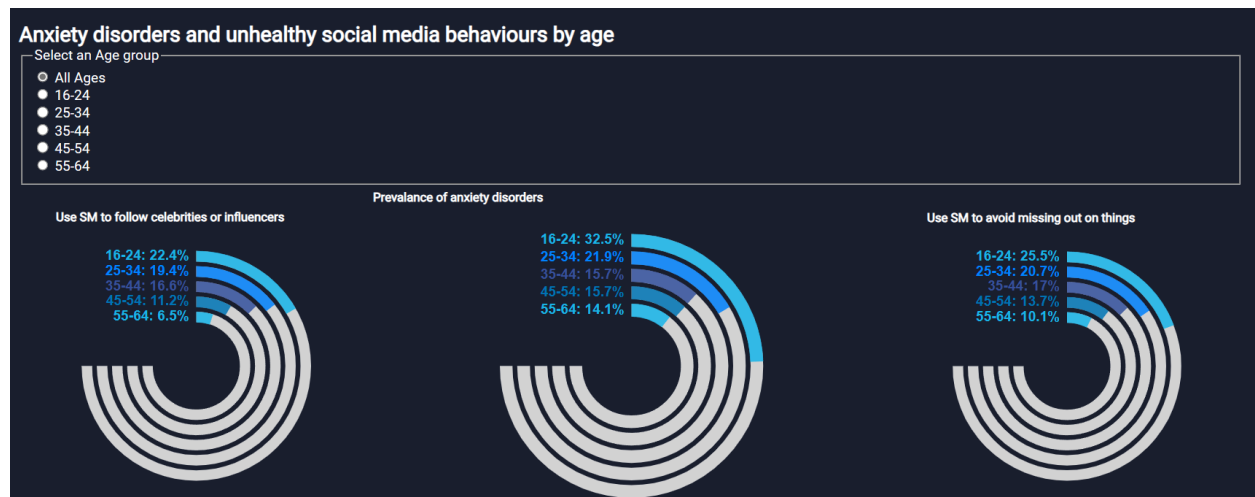
The radial graph in part 2

In part 3, I mapped the importance of friends and family against life satisfaction, to provide an alternative to the unhealthy social media behaviors discussed above.

The design changed drastically from the initial concept, which lacked a coherent story with a clear call to action for the viewer. My final version contains much more content to create a stronger message.
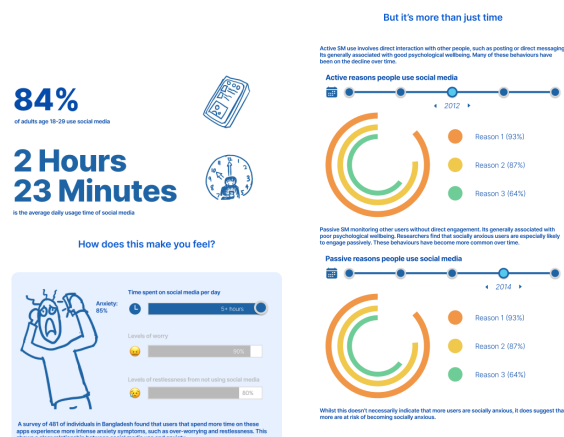
The original design concept

Usability Testing

Near the end of the development process, usability testing was conducted to validate three hypotheses about the visualization:

1. Are viewers **convinced** of the link between social media and mental health?
2. Are viewers **compelled** to improve their social media habits?
3. Can users **easily interact** with the graphs to find information?

A few young Australians participated in the test, which consisted of 3 different sections. The first section was a short questionnaire which asked about the participant's social media habits and anxiety levels. This questionnaire helped illuminate how people's "previous experiences and cultural background" (Tomisch et al., 2021) affected their perspective on the topic.

The middle section of the test focused on the visualization itself. The participant was given free reign to explore the page, as they would if they were not in a testing environment, whilst verbalizing their thought process. After exploring, the participant was asked to find specific data values from two of the graphs of the page, whilst thinking aloud.

Finally, the test ended with a short interview with two open-ended questions, based on hypotheses 1 and 2.

After collecting and synthesizing notes taken during the testing sessions, a few consistent patterns emerged from the feedback I received:

**1. The pacing and layout of the article could be improved**

Whilst participants were generally engaged by the graphs, text and images on the page, nearly all of them felt that the article would benefit from more intentional use of whitespace (empty space). Whitespace helps give viewers a mental break whilst reading, reinforces the visual hierarchy of the website and gives a page good visual flow (Accion Design Thinkers, 2020). These were all areas for improvement that were mentioned in the feedback.

Participants felt that the visual hierarchy and spacing of elements could be refined

2. The graphs could be made more accessible

All participants interacted with the graphs, and were convinced of the article's message. However, often extraneous or poorly-explained graphical elements detracted from the overall data narrative of the page. For example, when interacting with the usage graph (mirrored below), participants did not know which of the regions Australia was in and focused on regions other than Australia, which distracted from the point of the article.
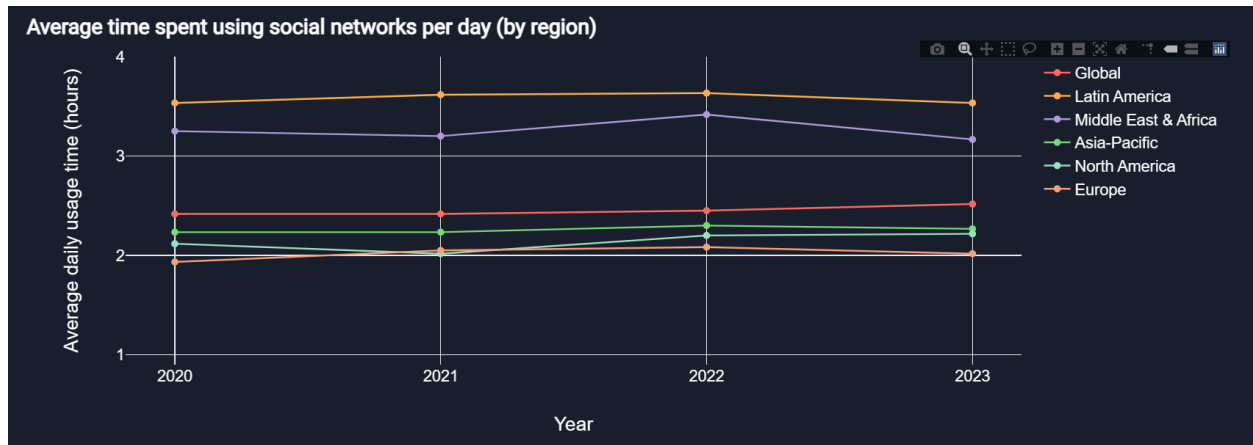
Many elements in the usage graph above were not necessary

Some participants considered re-examining their relationship with social media, and wanted to use it more thoughtfully. However, they also highlighted how difficult it can be to unlearn their social media habits.

Based on the above sentiments, the visualization was updated to be more minimalist and comprehensible. Aesthetic elements, such as a more streamlined color palette of muted blues and whites, draw attention to the key points and evoke the calm atmosphere one might expect from a wellbeing article. Some graphs also feature less data, so that they can be read quickly at a glance.
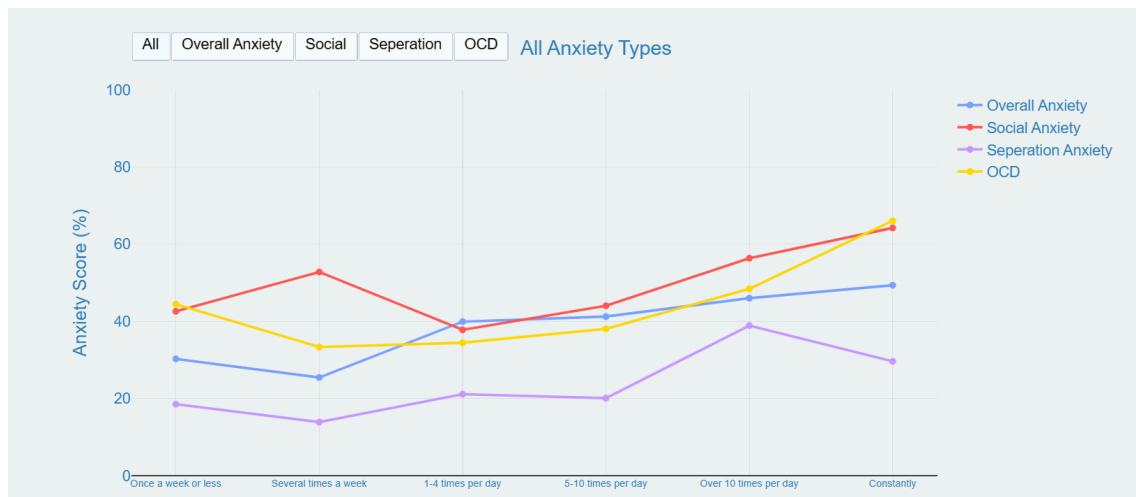
The aesthetics were overhauled in the final iteration

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Appendix 1: Test Protocol

Target Problem

How might we support young Australians in making healthy decisions around social media usage that will improve their overall wellbeing?

User testing goals:

- Are viewers convinced of the link between SM and mental health?
- Are viewers compelled to improve their social media habits?
- Can users easily interact with the graphs to find information?

Main interactions we want to test:

- Overall view of the page
- Reading specific data on the graphs

Target user group/Participants:

- Young Australians aged below 25

Script and Instructions

Follow this script during the testing session. Each section below follows on from the previous one.

Introduction

"Hi! Thanks for coming. I'm David.

We'd love to get some feedback on a webpage that I'm working on. Basically, the webpage is designed for young Australians and it's about raising awareness around the link between anxiety and social media.

For the testing, there will be a few questions and tasks for you to do, with everything being voluntary. It should take no more than 10 minutes. Is that okay?

Great and just letting you know, there are not right or wrong answers, we're just looking for honest feedback to improve our design. So we'll be video recording the session. Would you be able to agree to the consent form here?"

(Start Recording)

Pre-test questions

"Please fill out [this form](#) and say your responses out loud."

On a scale of 1 to 5 please rate your level of anxiety in the past 3 months	How frequently do you use social media?	Why do you use social media? (Select all reasons that apply)

Usability Test

(Present the participant with the below website and run through each task with them one by one)
https://david-liu-again.github.io/DECO3100/

P#	Goals *Describe what the user wants to do and what they want to achieve.*	Tasks *Tasks help guide the user toward achieving their goal*
1	The user wants to learn more	Read through the whole page, as if I'm not here.
2	The user wants to explore more about exactly how problematic social media use affects us	Find the expected social anxiety score for someone who uses social media for 5-10 times per day (44.02%)
3	The user wants to learn more about anxiety in Australia	Find the percentage of 25 to 34 year olds who have an anxiety disorder in Australia (21.9%)

Post-test Questions

Ask the participant the following questions

1. After reading that, do you believe that there is a link between social media and anxiety?
   a. Why do you think this?
2. Would you consider changing how you use social media in your day-to-day life?
   a. If so, how?