Journal Entries : Ashley Sofia Alfaro

Topic: How Cyberbullying Affects Mental Health

Day 1 — 06/03/2024

Possible Focuses:

- Mental health treatments
  - How accessible are mental health treatment services in Hawai'i?
- Mental Health + Art Therapy
  - **How does art therapy help with depression/anxiety?**
    - Only dataset available is women; the explanation is that women are more likely to experience anxiety symptoms, but that doesn't mean men don't have anxiety. This just means that this area, art therapy, needs to be explored more.
  - **How effective is art therapy in comparison to traditional therapy in treating anxiety?**
  - How can art therapy help dementia patients?
  - What art form is most effective in alleviating stress/anxiety?
  - Sources:
    - The Effectiveness of Art Therapy for Anxiety in Adult Women: A Randomized Controlled Trial - PMC
    - An investigation of treatment return after psychological therapy for depression and anxiety | Behavioural and Cognitive Psychotherapy | Cambridge Core
    - Art Therapy in the Digital World: An Integrative Review of Current Practice and Future Directions - PMC
    - https://www.ebi.ac.uk/biostudies/europepmc/studies/S-EPMC3955604
    - Art Therapy: A Complementary Treatment for Mental Disorders - PMC (Mentions dementia)
- Mental Health + High Blood Pressure
  - What causes high blood pressure?
  - How does mental well-being influence blood pressure?
  - Sources: Data for: Hypertension is Associated with Lower Life Satisfaction

- Effectiveness of Art Therapy With Adult Clients in 2018—What Progress Has Been Made? — They used articles as data (e.g. articles that mention the "effectiveness" of art therapy to compare). Could be an option if datasets are scarce.
  - Possibly focus on neurodivergence (dementia patients)? Or on anxiety/depression.

EDIT 06.05.24 — Changed the focus of my topic. No longer doing art therapy.

Day 3 — 06/05/2024

- New Focus: Correlations w/ Mental Health
  - Association between mental illness with human development, income inequalities and unemployment across OECD countries - Mendeley Data
  - **Data on Cyberbullying Victimization, Depression, Anxiety and Stress - Social Media's effect on Mental Health; a study done w/ university students in Malaysia (561 students)***
  - Financial, Social and Psychological Well-being
  - Anxiety Survey - Mendeley Data
  - Self-reported subjective well-being and mental health of college students - 2022 - Mendeley Data
    - This diagnosis was collected in a college student sample of 3.052 undergrad students in 2022 in a medium-size university in Colombia.

***I have decided to settle on how screen time affects mental health.**

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Day 4 — 06/06/2024

Parts I plan to use from this DATASET **Data on Cyberbullying Victimization, Depression, Anxiety and Stress** (561 university students; Malaysia):

- Age, Gender
- Active on social media? (very/active/less); Time spent on social media? (3-6 hrs/7-10 hrs/whole day)
- Anxiety levels; Stress levels; Depression levels

With this information, I plan to see if there is a correlation with screen time and mental well-being. Does too much screen time have a negative/positive/no impact?

I want to compare 'time spent on social media' with the 'anxiety/stress/depression levels.' Bar charts or scatter plots might be best in visualizing the data.

Another DATASET: **The relationships between screen time and mental health problems among Chinese adults - Mendeley Data** (7121 Chinese adults; 65+)

There aren't any specific reasons that I chose datasets located in Malaysia and China—they just contained the information I needed that wasn't aggregated and what I thought would be best to use for this research. However, I remember reading how mental health is stigmatized in Asian countries, but I am not sure if the concept of mental illness has become more accepted.

This could be used to address that problem.

- Gather data
- Ask research question(s) based on data
- Load data into R Studio

Research Questions:

- What amount of screen time has a negative effect on mental health?

Hypothesis: Excessive screen time has a negative impact on mental well-being.

*Imported DepressionAnxietyStress.sav into RStudio.

- File → Import Statistical Data → SPSS (.sav file) → File/URL; look for 10032 folder (make sure I'm in my work2 depository)

Labeling for DepressionAnxietyStress.sav

- Gender
  - **1** (Male), **2** (Female)
- Age
  - **1** (18-19 y/o), **2** (20-24 y/o), **3** (<25 y/o)
- Active on social media; Are you active on social media?
  - **1** (Not active at all), **2** (Less Active), **3** (Active), **4** (Very Active)
- Time spent on social media; How long do you spend on social media a day?
  - **1** (1-2 hrs), **2** (3-6 hrs), **3** (7-10 hrs), **4** (>11 hrs), **5** (Whole day)
- Depression Levels
  - **1** (Normal), **2** (Mild), **3** (Moderate), **4** (Severe), **5** (Extremely Severe)
- Anxiety Levels
  - **1** (Normal), **2** (Mild), **3** (Moderate), **4** (Severe), **5** (Extremely Severe)
- Stress Levels

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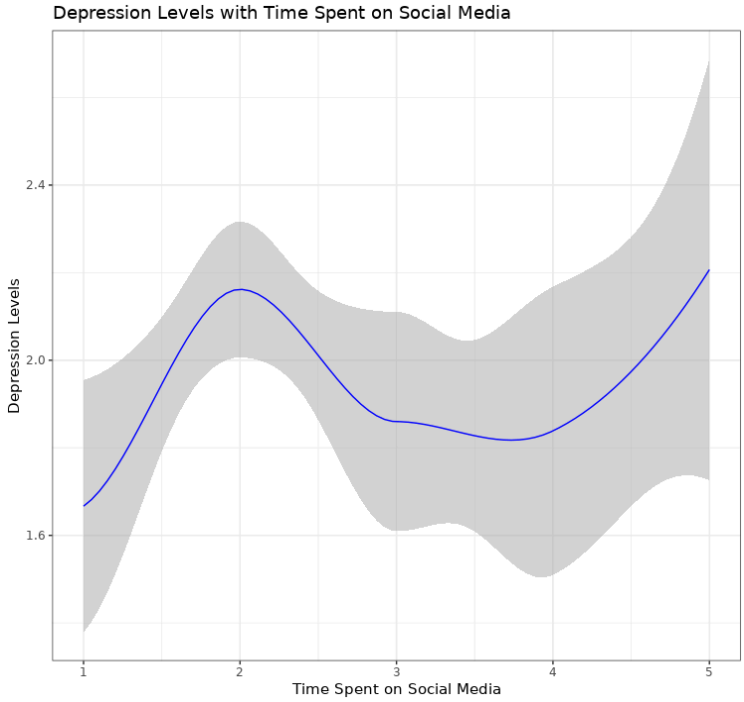
- **1** (Normal), **2** (Mild), **3** (Moderate), **4** (Severe), **5** (Extremely Severe)

Day 5 — 06/07/2024

Today, I am focusing on subsetting my data to see if high hours spent on social media does negatively affect someone's mental well-being.

I'm interested in this topic because we live in a generation that relies heavily on technology and it would be nearly impossible to monitor how much social media one consumes. However, I am aware that the type of content someone consumes could factor into having a positive or negative effect on mental health.

I may have to make another dataset that compiles the total number of people with extremely severe depression.



Day 6 — 06/08/2024

Previously, I mentioned wanting to make a scatter plot, but I realized that with the type of data I have, that won't be possible. A lot of my data is more categorical and qualitative than quantitative!

However, as I work to subset my data, the variables I want to include are:

- TIME_SPENT_SOCIAL_MEDIA
- CVTOTAL - Cyberbullying Victimisation total score (the higher the score, the more instances of cyberbullying the participant has encountered/participated in)
- DEPRESSLEVELS
- ANXIETYLEVELS

Some data visualizations I made today:

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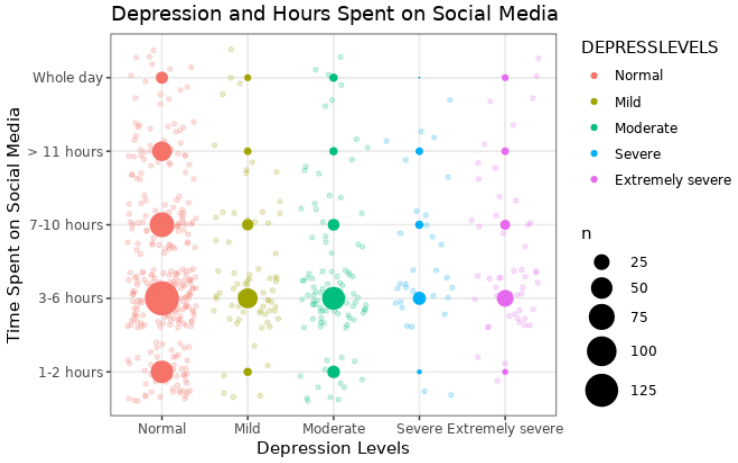
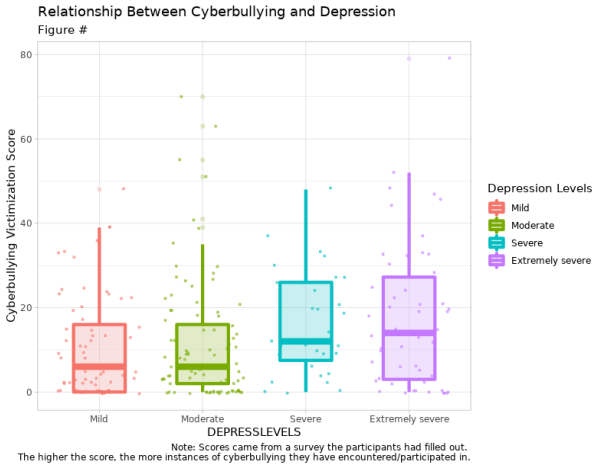




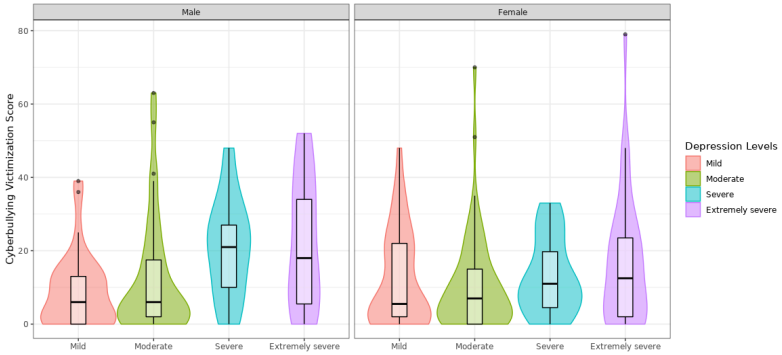
Day 7 — 06/09/2024

- Correlation between cyberbullying and depression/anxiety
- How excessive use of social media can cause **body dysmorphia/body image** issues? (DATASET ~400 responses)

Focus: Originally, I had a broad focus on screen time and mental health, but after looking through the datasets and making different visualizations for it, I thought it would be interesting to see the correlation between cyberbullying and mental health and how it may contribute to body image issues. With both datasets, it could provide a more in-depth insight on social media.

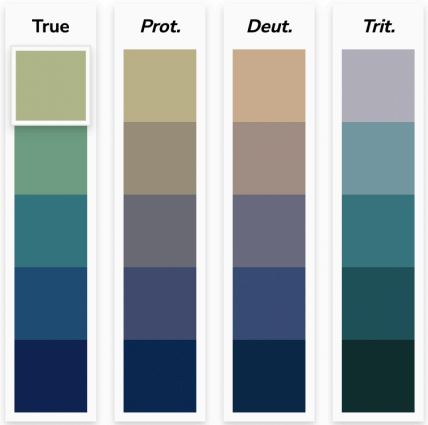
The purpose of this research is to investigate **social media's impact on mental health**. This would include seeing if there is a correlation between cyberbullying and depression/anxiety. Knowing this can help suggest if social media is one of the many factors that contribute to mental health issues. In addition to that, I can also explore how social media influences and develops body image issues as that falls under mental health.

Data visualizations I made today:



**Shows correlation with cyberbullying and depression.*

Color Palette



**Testing if color palette is colorblind friendly*

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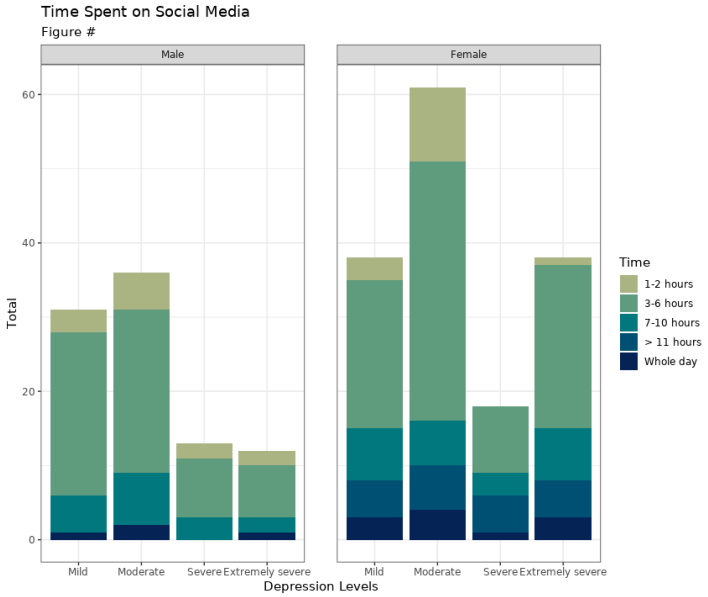
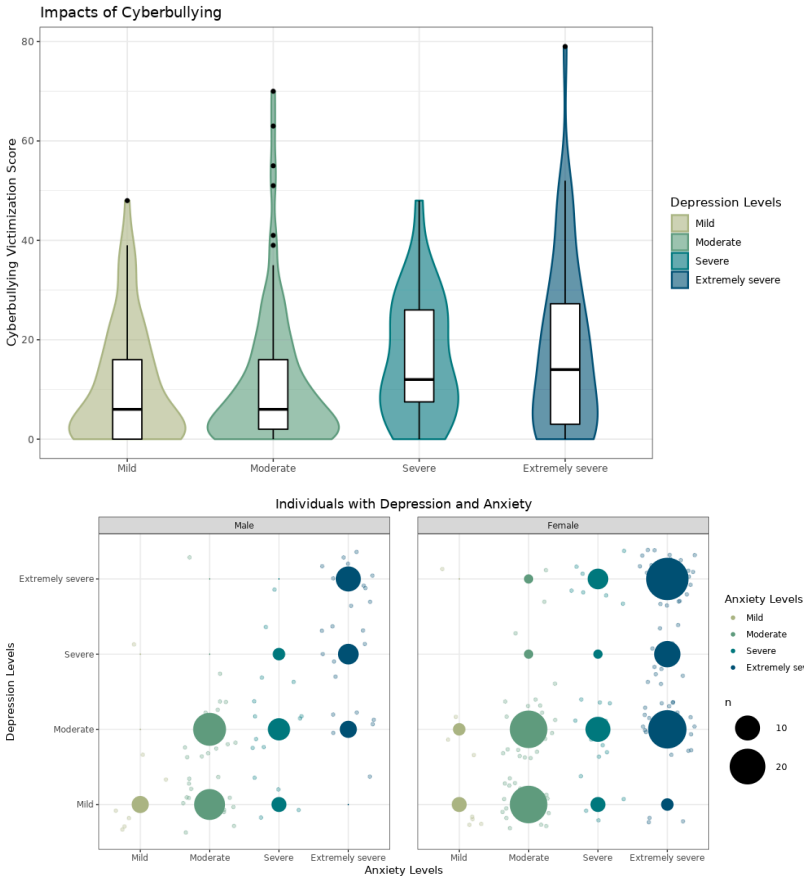
Day 8 — 06/10/2024

Stumbled upon this dataset that could add more information the one I am already using to make my visualizations: https://github.com/zeybus/Social-Media-Usage-and-Mental-Health/blob/main/smmh.csv

Data visualizations I made today:

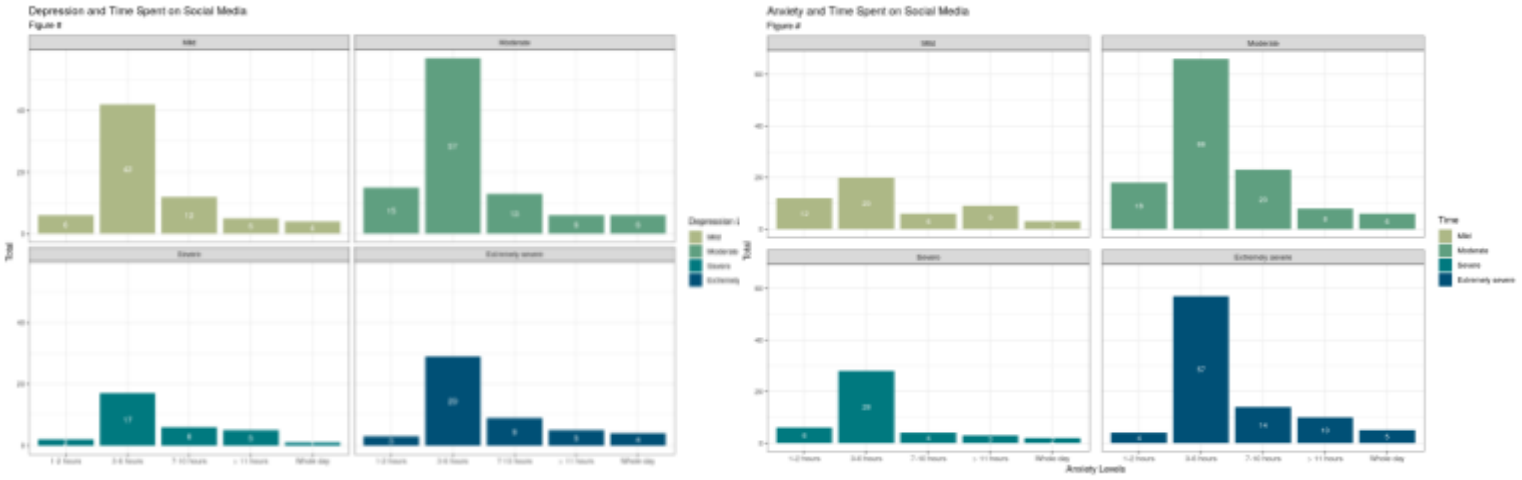


Relationship between time spent on social media and depression levels



Shows individuals who have both anxiety and depression (grouped by gender)

Day 10 — 06/12/2024



Variation of the previous bar plot(s) I made

Include variables of CVPUBLICHUMILIATION, CVMALICE, CVUNWANTEDCONTACT, and CVDECEPTION to see if those groups(?) bullying had any sort of effect on depression levels. The reason to do this is to figure out why those with moderate depression levels seem to have higher encounters with cyberbullying than those with extremely severe levels of depression.

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Day 11 — 06/13/2024

Create bar charts to compare the CV scores and the depression levels. I will find the top 2 highest scores from each group.

Public Humiliation:

- Mild - **16** and **13** are HIGHEST scores / 2 responses; 1 response
- Moderate - **22** and **20** are HIGHEST scores / 2 responses; 1 response
- Severe - **20** and **18** are HIGHEST scores / 1 response; 1 response
- Extremely Severe - **36** and **34** are HIGHEST scores / 1 response; 1 response

Malice:

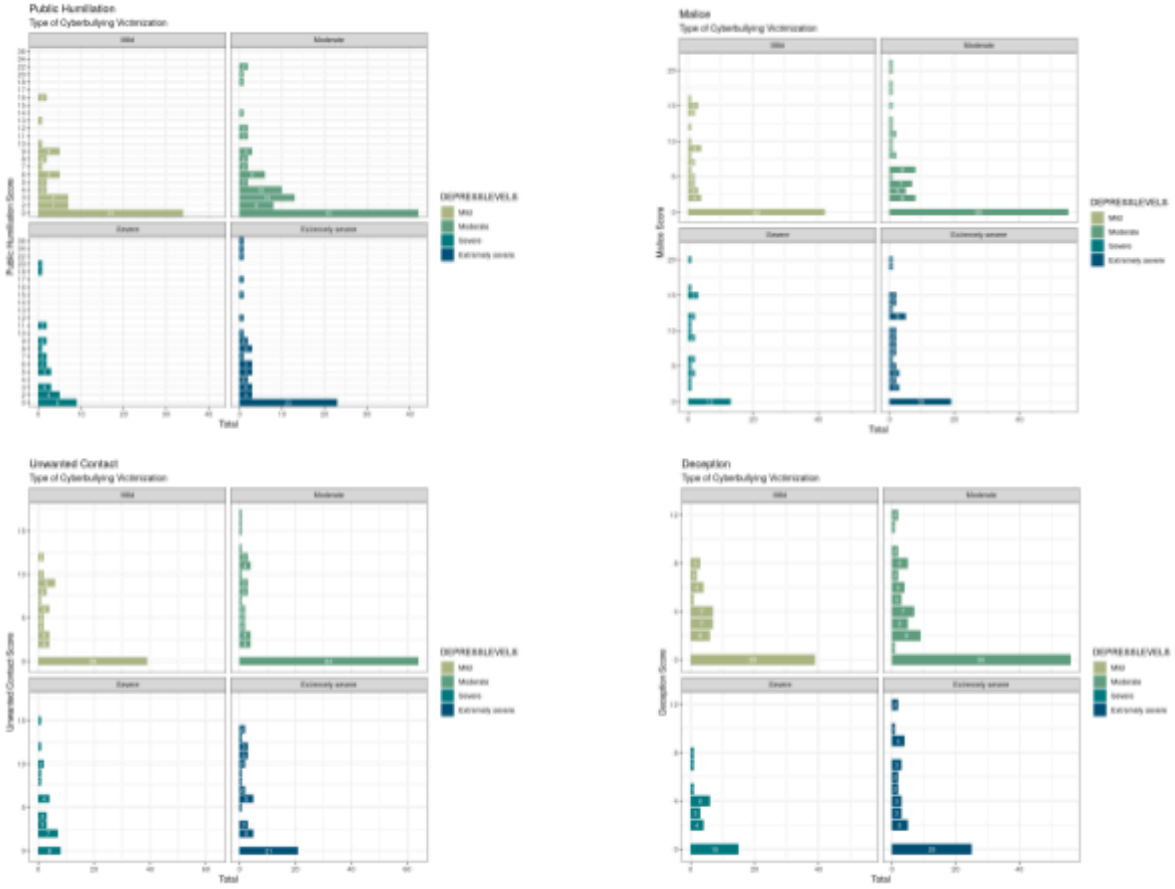
- Mild - **16** and **15** are the HIGHEST scores / 1 responses; 3 responses
- Moderate - **21** and **20** are the HIGHEST scores / 1 response; 1 response
- Severe - **20** and **16** are the HIGHEST scores / 1 response; 1 response
- Extremely Severe - **20** and **19** are the HIGHEST scores / 1 response; 1 response

Unwanted Contact

- Mild - **12** and **10** are HIGHEST scores / 2 responses; 2 responses
- Moderate - **17** and **16** are HIGHEST scores / 1 response; 1 responses
- Severe - **15** and **12** are HIGHEST scores / 1 response; 1 response
- Extremely Severe - **14** and **13** are HIGHEST scores / 2 responses; 1 response

Deception

- Mild - **8** and **7** are HIGHEST scores / 3 responses; 2 responses
- Moderate - **12** and **11** are HIGHEST scores / 2 responses; 1 response
- Severe - **8** and **7** are HIGHEST scores / 1 response; 1 response
- Extremely Severe - **12** and **10** are HIGHEST scores / 2 responses; 1 response



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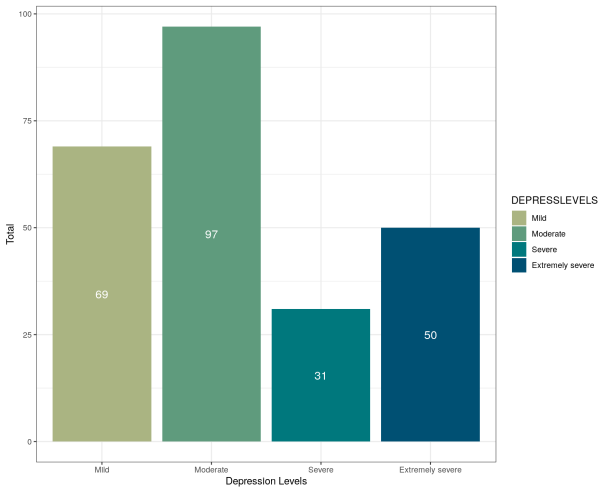

TOTALS: **Mild** - 69; **Moderate** - 97; **Severe** - 31; **Extremely Severe** - 50

Extremely severe levels of depression had the highest scores in PUBLIC HUMILIATION, while those with **moderate** levels of depression had the highest scores in MALICE, UNWANTED CONTACT, and DECEPTION.
This could suggest that cyberbullying isn't the sole factor in worsening one's depression.

However, given that a majority of the participants (97) claimed to have **moderate** levels of depression, it could have influenced the number of responses for each subgroup of cyberbullying victimization, thus increasing the chances of higher scores for **moderate** depression levels. *But in the bar graphs, you can see that the majority of the **moderate** group responses are a score of 0.
Although, it is important to note that the highest scores for those with **extremely severe** depression follow very closely behind, which could also suggest that cyberbullying has a lot of negative impact on one's mental health.

I can also compare depression and anxiety and see if there is any difference with that?

SUGGESTION: Do a facet_wrap(~PUBLICHUMILIATION_2LEVELS~MALICE_2LEVELS…) on the violin and boxplot ("Impact of Cyberbullying on Depression"). I would have less visuals, but it'll be easier to follow.

Day 12 — 06/14/2024

Created violin and box plots to show how each sub-group of cyberbullying (public humiliation, malice, unwanted contact, and deception) affects depression. The reason as to why as each sub-group gets a score, and the higher the score, the more instances of that type of cyberbullying the person had encountered. I decided to make violin and box plots since there is a median line, and I would use that to gauge which group of cyberbullying seems to have the most impact on mental health.

Moderate appears to have a lot of 0 scores for every group according to the violin plot, but it also has one of the highest scores for every group except PUBLIC HUMILIATION. Additionally, **moderate** seem to have the most outliers.

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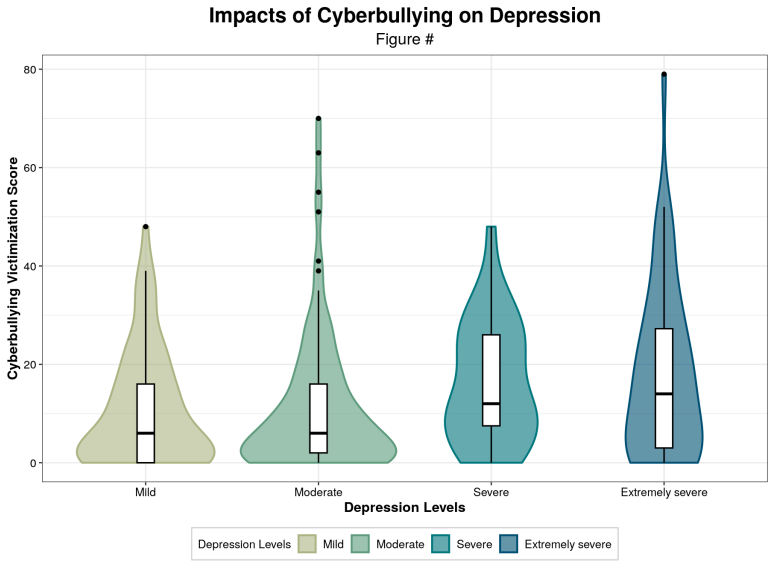

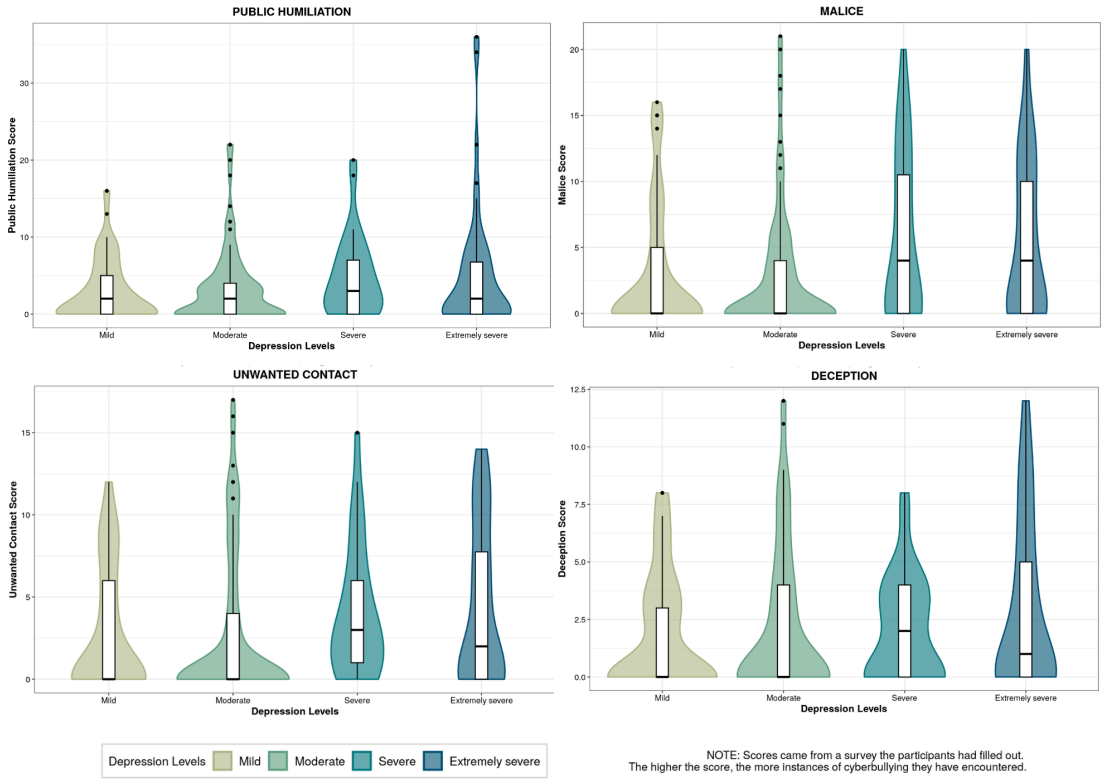

Day 15 — 06/17/2024

Reading I found: [Mental disorders in Malaysia: an increase in lifetime prevalence - PMC](). (Raaj et al., 2021)

Observations based on data visualizations:

- Before seeing the visualizations, I assumed that those with **severe** to **extremely severe** depression levels would have the higher scores
- CVTOTAL scores are broken up into four groups: Public Humiliation, Malice, Unwanted Contact, and Deception. The higher the score, the more instances of cyberbullying the individual has encountered.

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- While the **moderate** group appears to have people with higher scores, it shows that the majority of their responses are 0.
- Violin plots help to visualize density → the amount of samples/responses of said score
- Box plots are good for garnering median and plotting outliers
- Public Humiliation seems to affect those with **extremely severe** depression the most

Clarification for Cyberbullying Groups:

- Public Humiliation: Someone posting an embarrassing photo of you w/o consent, mean messages written about you publicly, someone edited a picture of you in a negative way
- Malice: Called mean names, been mean to you, cursed at you, made fun of you, teased you
- Unwanted Contact: Received an unsolicited (partially) nude photo from someone, received unwanted sexual messages, received an offensive picture
- Deception: Someone lied about themselves to you, pretended to be someone else while talking to you

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Day 16 — 06/18/2024

Reading I found: **Original research: Prevalence of cyberbullying victimisation and its association with family dysfunction, health behaviour and psychological distress among young adults in urban Selangor, Malaysia: a cross-sectional study - PMC**

Topic/Focus: Looking at how the different aspects of cyberbullying (public humiliation, malice, unwanted contact, deception) affects depression in Malaysia and which seems to have the most impact.

- Based on medians of the cyberbullying victimization scores, those with severe and extremely severe depression had been affected by cyberbullying. Public humiliation had the most impact on those with extremely severe depression.

Tree map?
K-means clustering to find people w/ similar information in terms of cyberbullying and depression levels
PCA

Day 18 — 06/20/2024

What my project is about:

- In Malaysia, the shortage of psychiatrists and psychologists and the social stigma surrounding mental health prevents 80% of those with mental health disorders from seeking professional care. Since there are such a wide range of factors, my project focuses on cyberbullying, which is a significant issue impacting mental well-being in Malaysia and globally.
- On Mendeley Data, I found a dataset that had a little over 500 university students from Malaysia complete a scored survey revolving around cyberbullying victimization and their depression levels. In the dataset, they broke cyberbullying into 4 categories which are Public Humiliation, Malice, Unwanted Contact, and Deception.
- After I had analyzed and subsetted the data, I created violin plots to show the relationship between cyberbullying and depression. The violin plots help to show the density in the scores, so we can see that in the Mild and Moderate levels of depression, that while there are some individuals with high scores, a lot of the responses fall at or near 0.

Explanation of visuals:

- Figure 1 displays the total cyberbullying victimization score, which is the sum of scores from four categories: Public Humiliation, Malice, Unwanted Contact, and Deception. A higher score indicates more instances of cyberbullying. Notably, individuals with moderate and extremely severe depression levels have high cyberbullying scores. This is intriguing as it challenges the expectation that those with severe and extremely severe depression would have the highest scores.

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- Figure 2 delves into the four specific categories of cyberbullying. The Public Humiliation plot is particularly striking, showing that individuals with extremely severe depression have the highest scores in this category. This suggests that Public Humiliation might be the most impactful type of cyberbullying in worsening depression.

Do CVPUBLICHUMILIATION as the x-axis and CV[insert] as the y-axis. Using Public Humiliation as the control group to compare the differences between the graphs.

Day 23 — 06/25/2024

Utilized the k-means clustering algorithm to group individuals with similar scores across all the cyberbullying categories.
The clustering pattern for Unwanted Contact and Deception are similar. It appears that those with high Public Humiliation scores either have very high or very low scores in the other category (Unwanted Contact, Deception)

Completed presentation: June 27, 2024