

PROJECT RAAM



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RESEARCH QUESTION

How did anxiety increase during the COVID-19 pandemic, and how did the increase vary across different groups?

AIM

Explore how the sentiments of users in the subreddits R/Teachers, R/Nurses, and R/HealthAnxiety compares to the global anxiety rates reported before, during, and after the pandemic.

DATA COLLECTION

Reddit: (Feb 2019–Dec 2022)

- r/Nursing
- r/Teachers
- r/HealthAnxiety

WHO: (Apr 2020–Apr 2022)

- 109 countries

CDC: (May 2020–September 2024)

- State and nationwide



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	post_id	timestamp	username	post_title	post_body	score	comments_count		post_url
0	1	2021-09-24T21:54:20+00:00	aroc91	Nurses, what's your best/worst vagina story?	Mine: An immobile and incontinent but otherwise...	11.9k	458 comments		https://old.reddit.com/r/nursing/comments/putf...
1	2	2022-01-07T13:25:23+00:00	erinpdx7777xdpnr	Who is going to be the one to tell everyone el...	I've read the threads, spoken with friends and...	11.8k	458 comments		https://old.reddit.com/r/nursing/comments/ry7b...
2	3	2021-10-25T11:42:50+00:00	nomad_9988	Patient made me reconsider being an organ donor	Not really, but almost.\nI had an (unvaccinate...	11.5k	458 comments		https://old.reddit.com/r/nursing/comments/qfex...
3	4	2021-10-02T11:26:57+00:00	igordogssockpuppet	To all you eat-your-young nurses out there, ju...	Feeling understaffed and overworked? You've j...	10.6k	458 comments		https://old.reddit.com/r/nursing/comments/pzte...
4	5	2021-11-23T19:16:50+00:00	Aloha_Snackbar357	Struggling to Not Care about my Antivax	On paper, it's not a problem. Fuck Around	10.2k	458 comments		https://old.reddit.com/r/nursing/comments/r0kt...

DATA CLEANING: Scrapped Data

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Delete empty posts:

- Many comments were empty, deleted, or from community bots
- Delete all records that do not reflect the sentiments of the communities

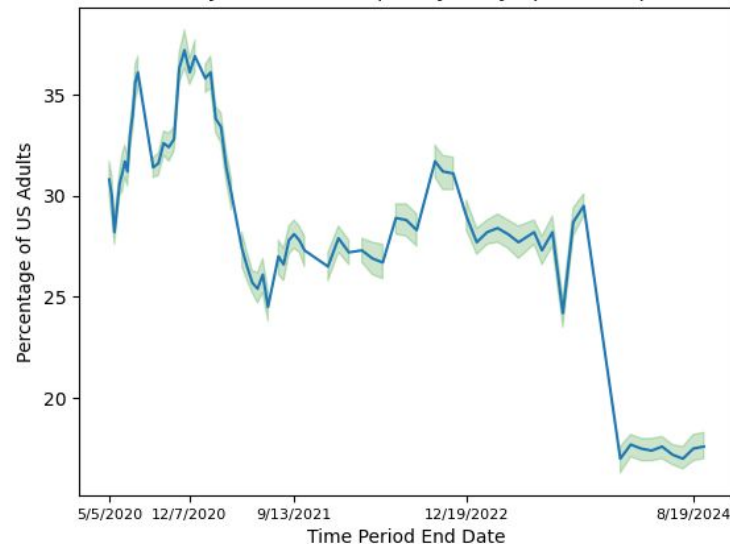
Raw Data Table (Teaching)

	post_title	comment_username	comment_body	comment_score
0	My school has paid for a huge abstract art ins...	AutoModerator	Welcome to /r/teaching. Please remember the ru...	Unknown
1	Why is it the teacher's responsibility to call...	AutoModerator	Welcome to /r/teaching. Please remember the ru...	Unknown
2	Dear students	AutoModerator	Welcome to /r/teaching. Please remember the ru...	Unknown
3	Science class: 'What can we infer about Mrs. T...	AutoModerator	Welcome to /r/teaching. Please remember the ru...	Unknown
4	"These 13 year olds were their own bosses for ...	AutoModerator	Welcome to /r/teaching. Please remember the ru...	Unknown
5	It begins	Anonymous	[deleted]	Unknown
6	It begins	Anonymous	[deleted]	Unknown
7	Some News!	Anonymous	[deleted]	Unknown
8	Some News!	AutoModerator	Welcome to /r/teaching. Please remember the ru...	Unknown
9	Today I was assaulted	AutoModerator	Welcome to /r/teaching. Please remember the ru...	Unknown
10	Today I was assaulted	Anonymous	[deleted]	Unknown
11	Today I was assaulted	Anonymous	[deleted]	Unknown
12	Today I was assaulted	Anonymous	No Comment	Unknown
13	Thank you to all the sweet older brothers and ...	AutoModerator	Welcome to /r/teaching. Please remember the ru...	Unknown
14	TIME TO STAND WITH TEACHERS	Anonymous	[deleted]	Unknown
15	TIME TO STAND WITH TEACHERS	AutoModerator	Welcome to /r/teaching. Please remember the ru...	Unknown
16	I saw one of my favorite kindergarteners (now ...	Anonymous	[deleted]	Unknown
17	I saw one of my favorite kindergarteners (now ...	Anonymous	[deleted]	Unknown
18	I saw one of my favorite kindergarteners (now ...	AutoModerator	Welcome to /r/teaching. Please remember the ru...	Unknown

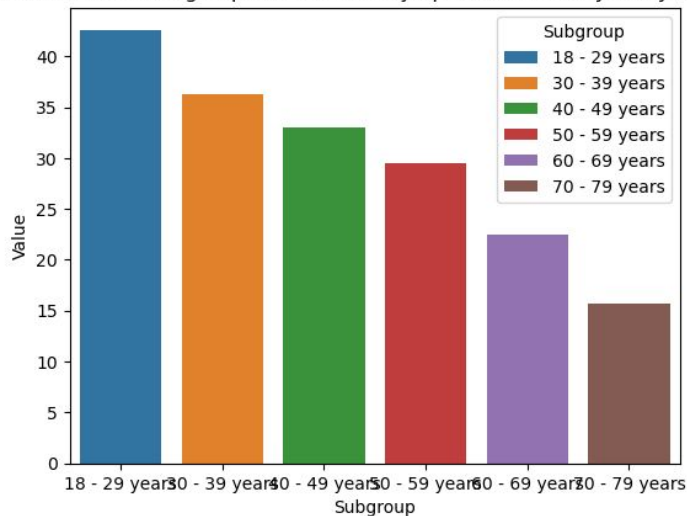
EDA: CDC Survey Data

- Decreasing survey frequency over time
- Spike at December 2020
- Spike at December 2022
- Drop at July 2024

CDC Indicators of Anxiety Based on Frequency of Symptoms - Apr 2020 to Sept 2024



Average Percent of Each Subgroup that Exhibits Symptoms of Anxiety - May 2020 to Dec 2022

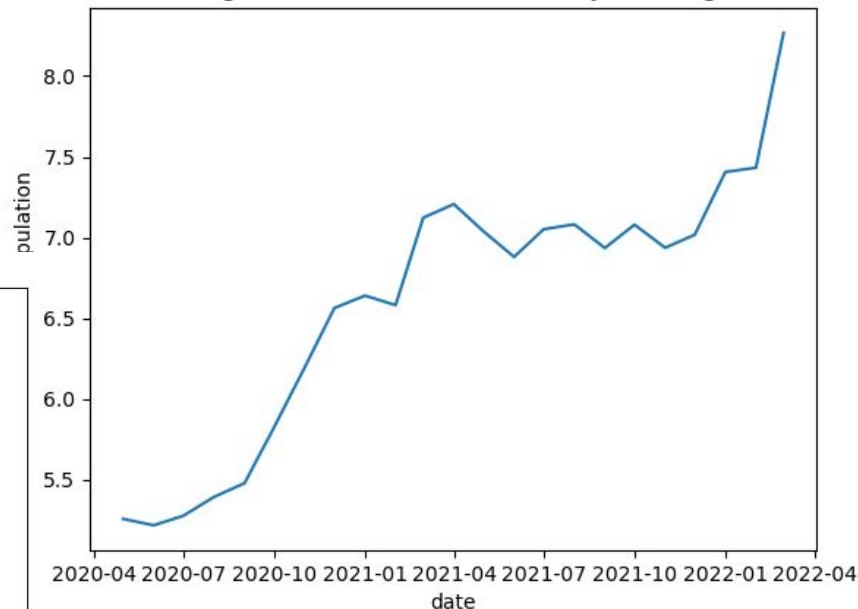


EDA: WHO Survey Data

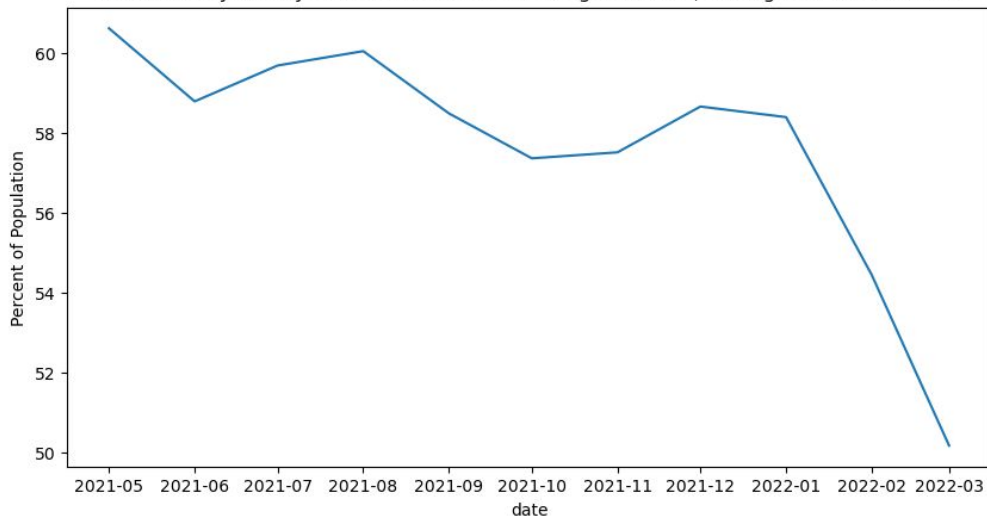
7

- Gradual increase over time
- Most Anxious Countries: Lebanon, Tunisia, Türkiye, Algeria, Jordan, Yemen, Egypt, Iraq, Azerbaijan, United Republic of Tanzania

WHO Worldwide Average - Felt Anxious for Past 7 Days, Averaged across Countries



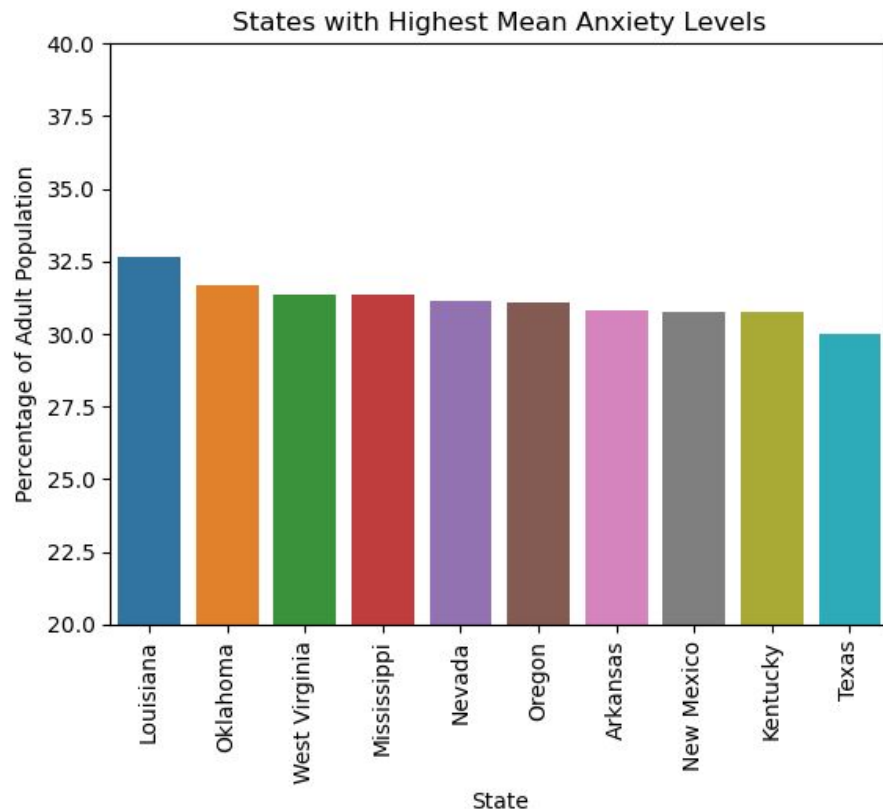
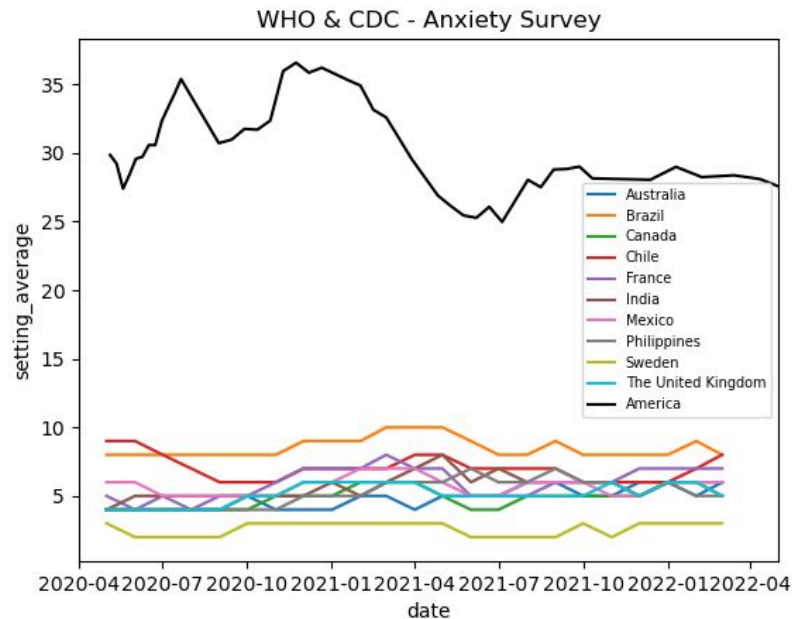
WHO Anxiety Survey - Anxious about Contracting COVID-19, Average across Countries



EDA: Cont.

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Note: the WHO survey asks if the respondent felt anxious for most or all of the past 7 days.
The CDC survey is more broad and asks about various symptoms of anxiety



Data Analysis: VADER

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Statistics – Mean Vader Compound Score (–1.00 to 1.00)

Teaching Posts

0.217

Nursing Posts

–0.122

Health Anxiety Posts

–0.095

Teaching Comments

0.198

Nursing Comments

0.033

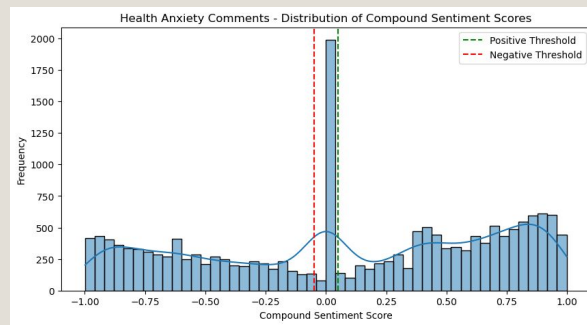
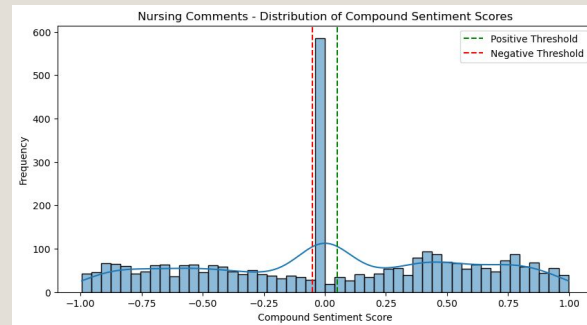
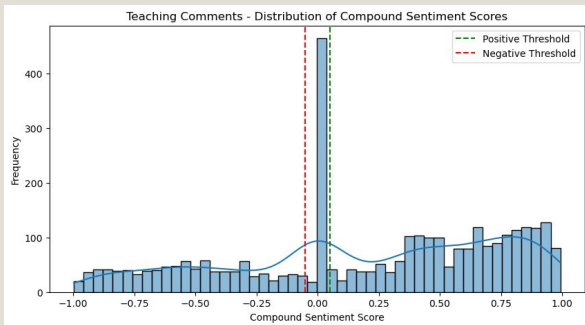
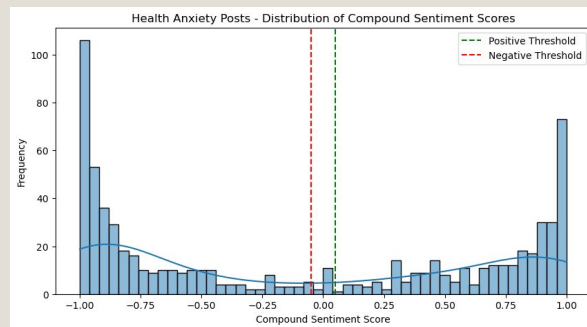
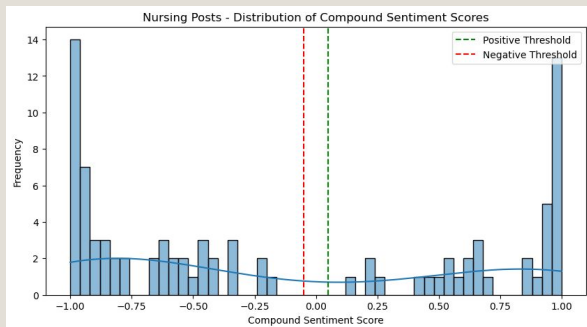
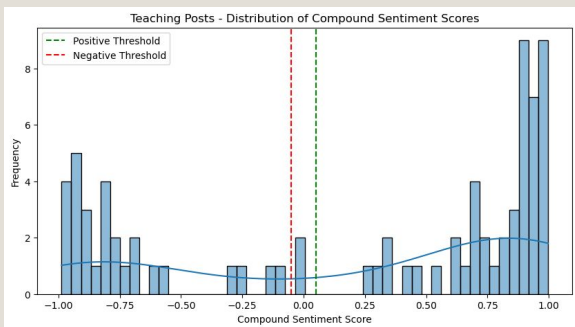
Health Anxiety Comments

0.094

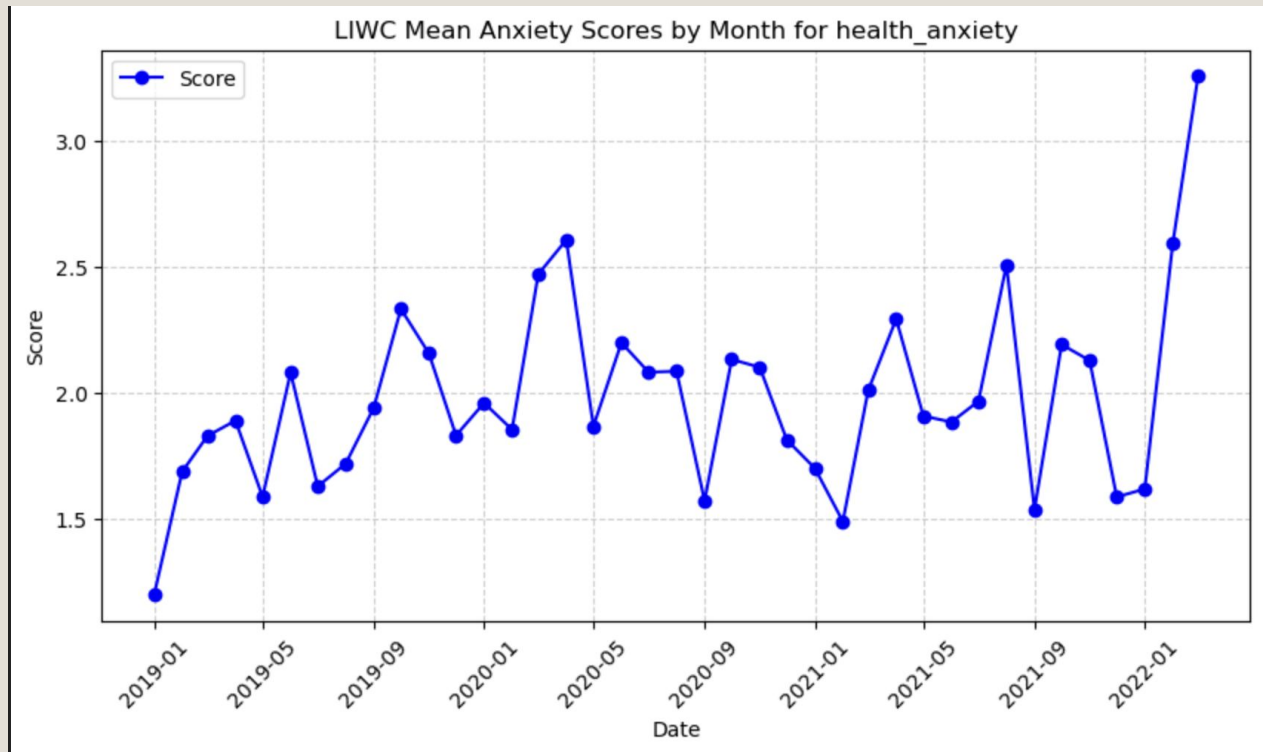
Data Analysis: VADER

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Graphs - Vader Histograms

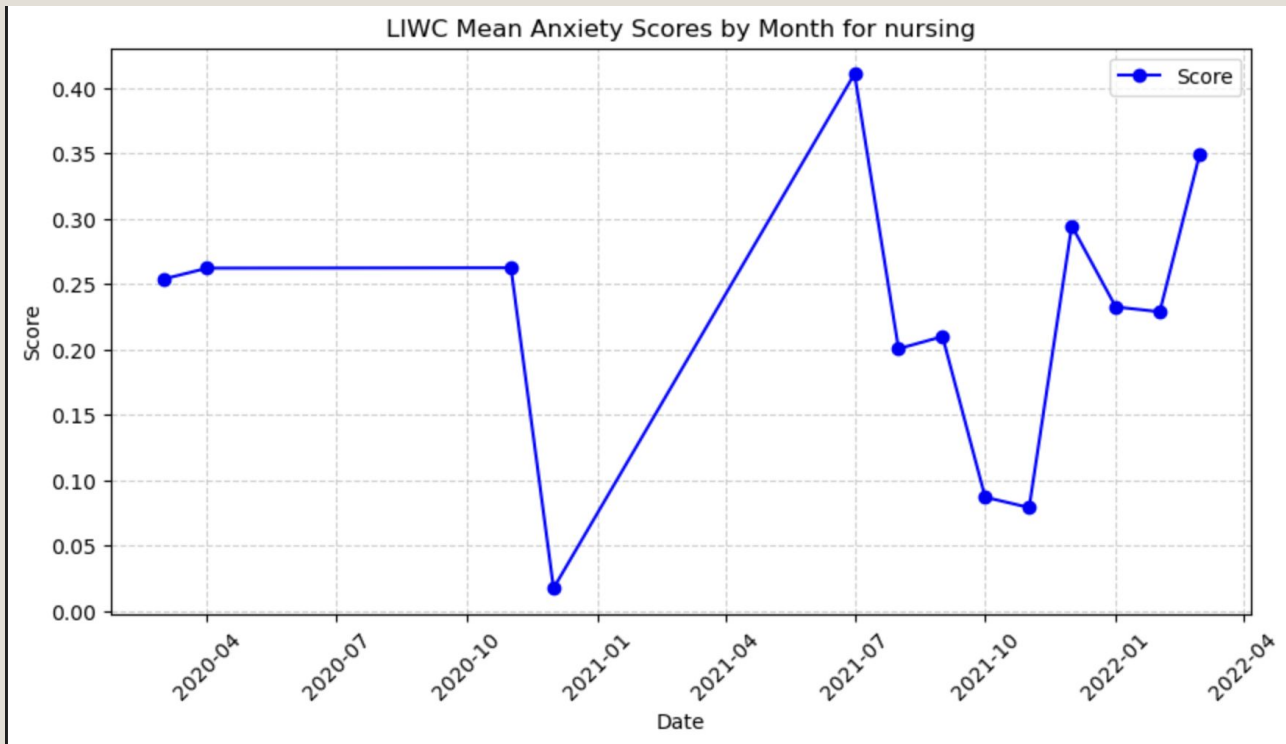


Data Analysis: LIWC



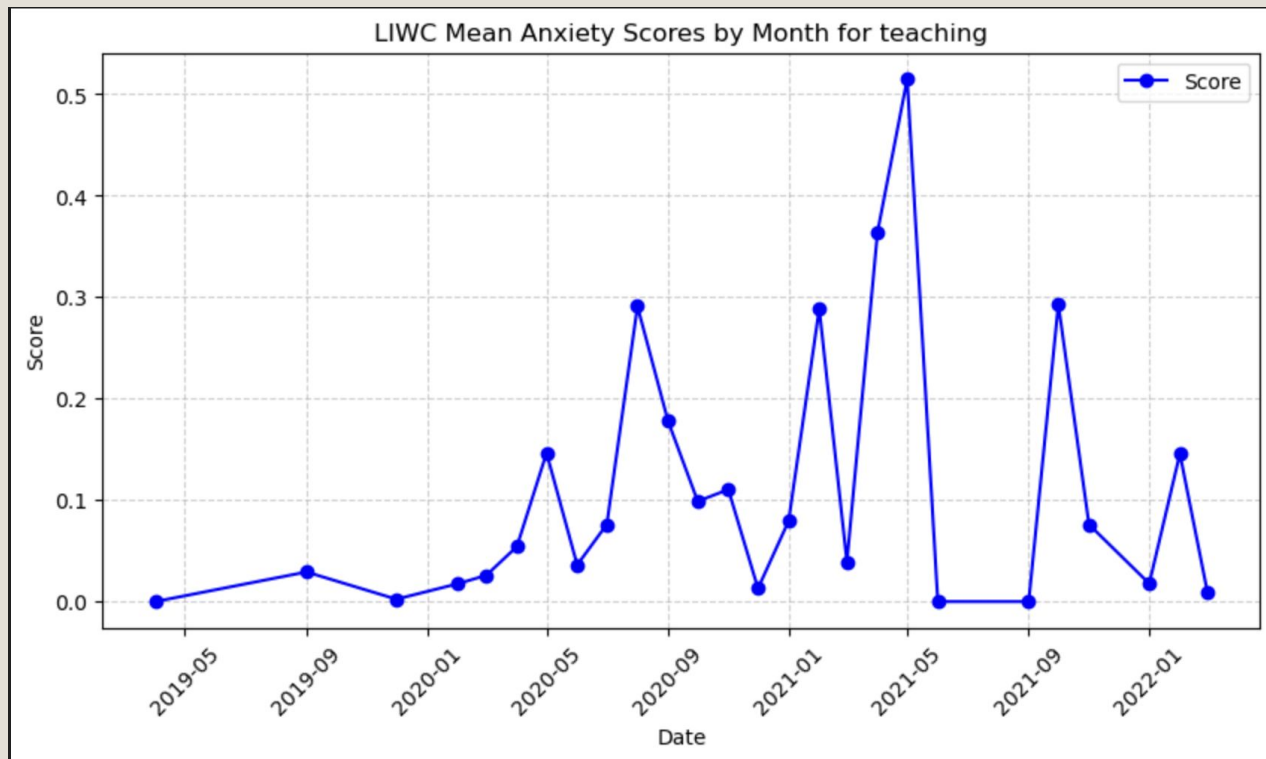
- A large increase in anxiety in early 2020
- COVID might lead to growing concerns about health

Data Analysis: LIWC



- Anxiety scores were high for 2020
- Anxious sentiment peaked in July 2021
- Generally consistent with the health anxiety subreddit

Data Analysis: LIWC



- Anxiety started to increase in 2020
- A surge in anxiety scores around May 2021

Take Home Points

Research Question:

- Observable increase in anxiety in the first half of 2020
- Anxiety reached a high point in the middle of 2021 across all 3 subreddits
- During the first half of 2021, while anxiety rates declined in the general American population, they increased for teachers and nurses

Workflow/Code:

Workflow: The team worked well at each contributing to different aspects of the project/research.

Suggestions:

Data Collection: Reddit scraping was not able to gather all intended dates.

Visualizations/Analysis: The scraped data limitations meant it would be less beneficial to combine comments with their posts – something we would aim for in future research.

Thank You

