

# Networks of Affect in the COVID19positive Subreddit

Final Project for Digital Humanities class

Maryam Khalili

Professor Boudourides

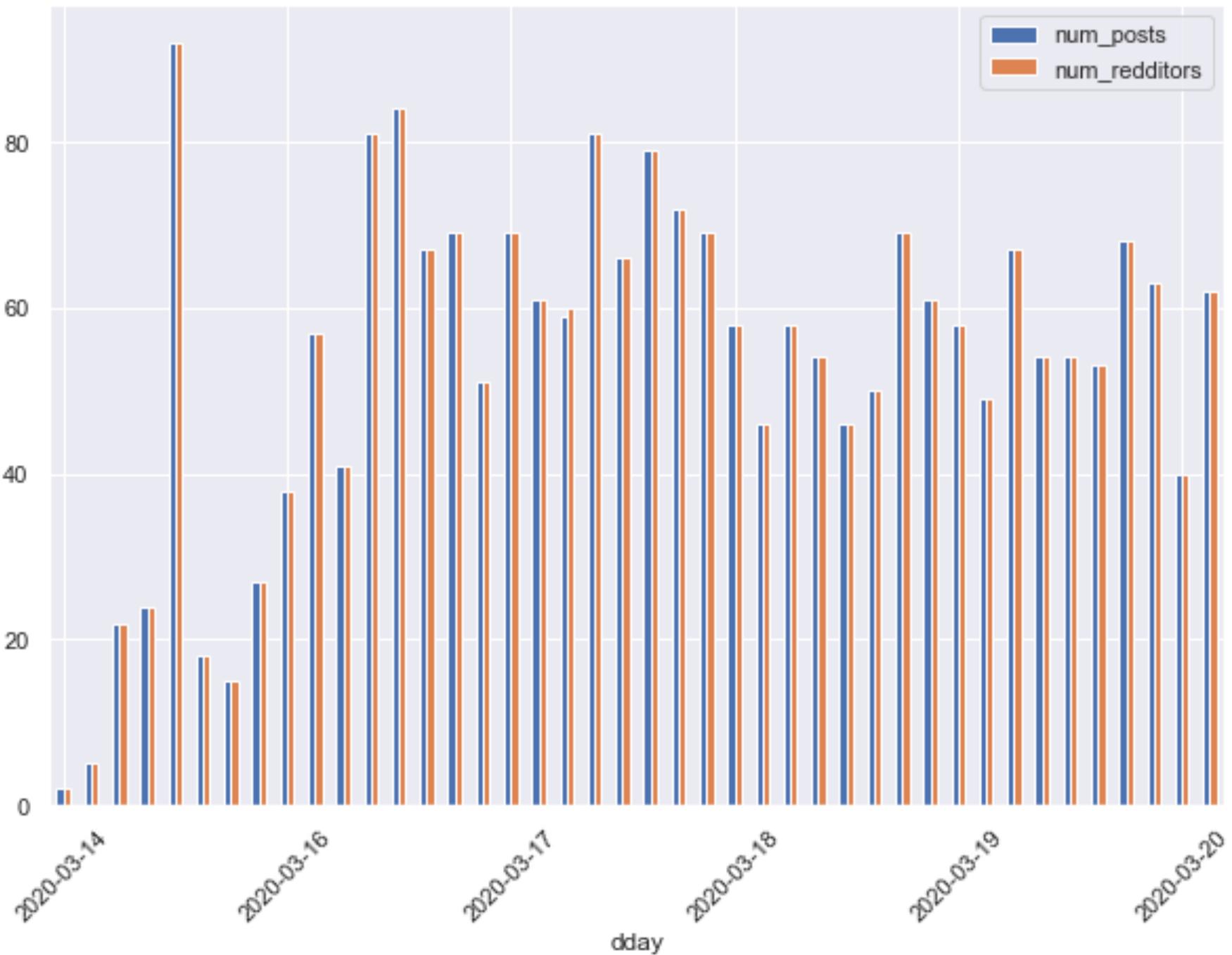
# About this project

In this project we are collecting subreddits related to Covid-19 Positive between March 14th and April 25th. The important outputs of the notebook like number of posts, number of redditors, and categorization of verbs are in the following slides. We have been extracting verbs in stemmed form using standard techniques of NLP of POS tagging and then cleaning these verbs, and then seeing how they are linked together. For the cleaning process we remove the words that are not verbs or the verbs that are very common e.g. to do verbs, to be verbs, get, etc. After cleaning the verbs we classified them into 6 categories of action, doxastic, epistemic, emotive, bouletic emotive, fear emotive, sensory, and saying. Later we decided to compact the verbs into only four categories of action, doxastic, emotive and sensory verbs.

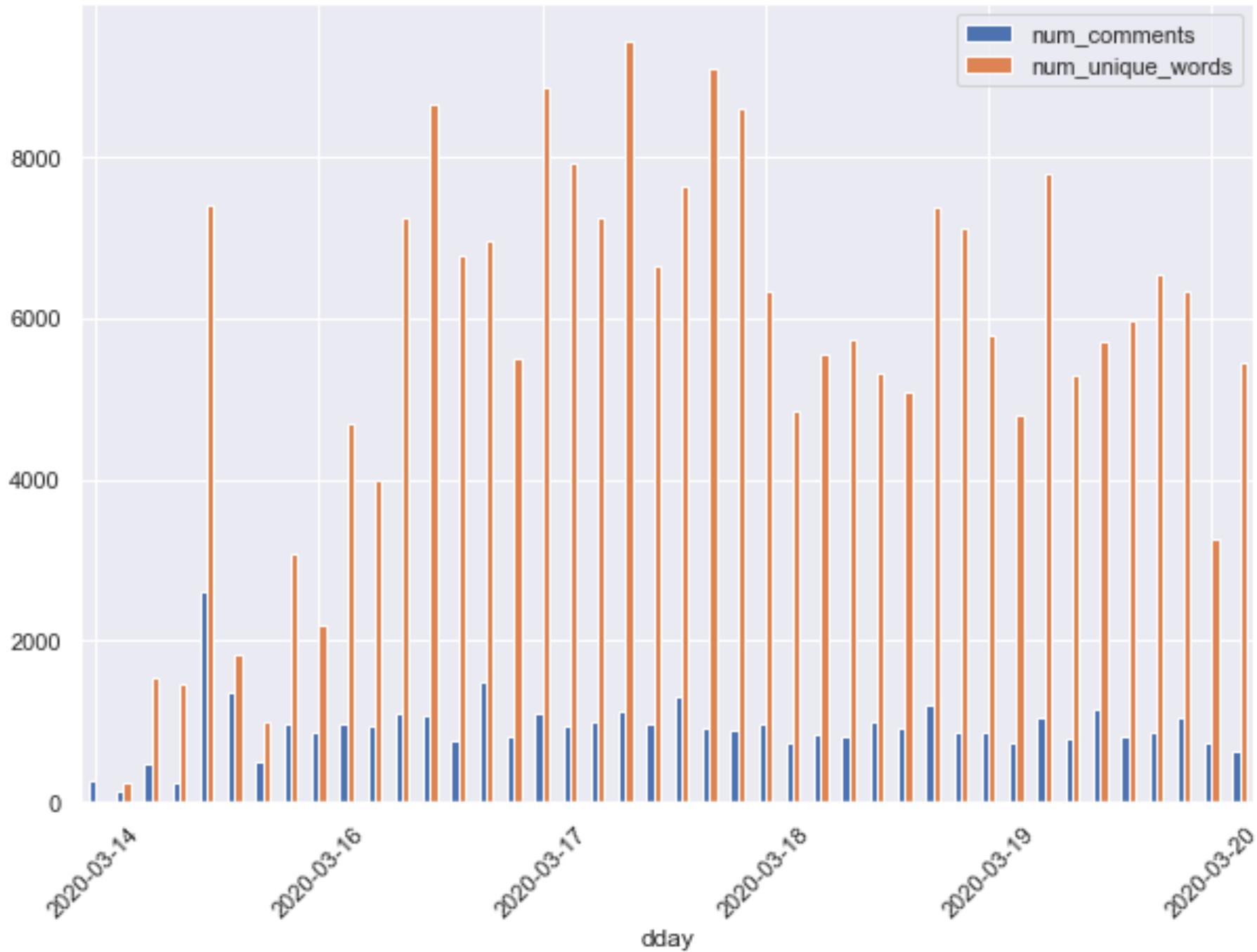
# Basic Statistics

- The COVID19positive subreddit contains 2259 posts
- From March 03, 2020, to April 25, 2020
- Number of redditors is 2260
- Number of comments is 38802

Number of posts and redditors per day



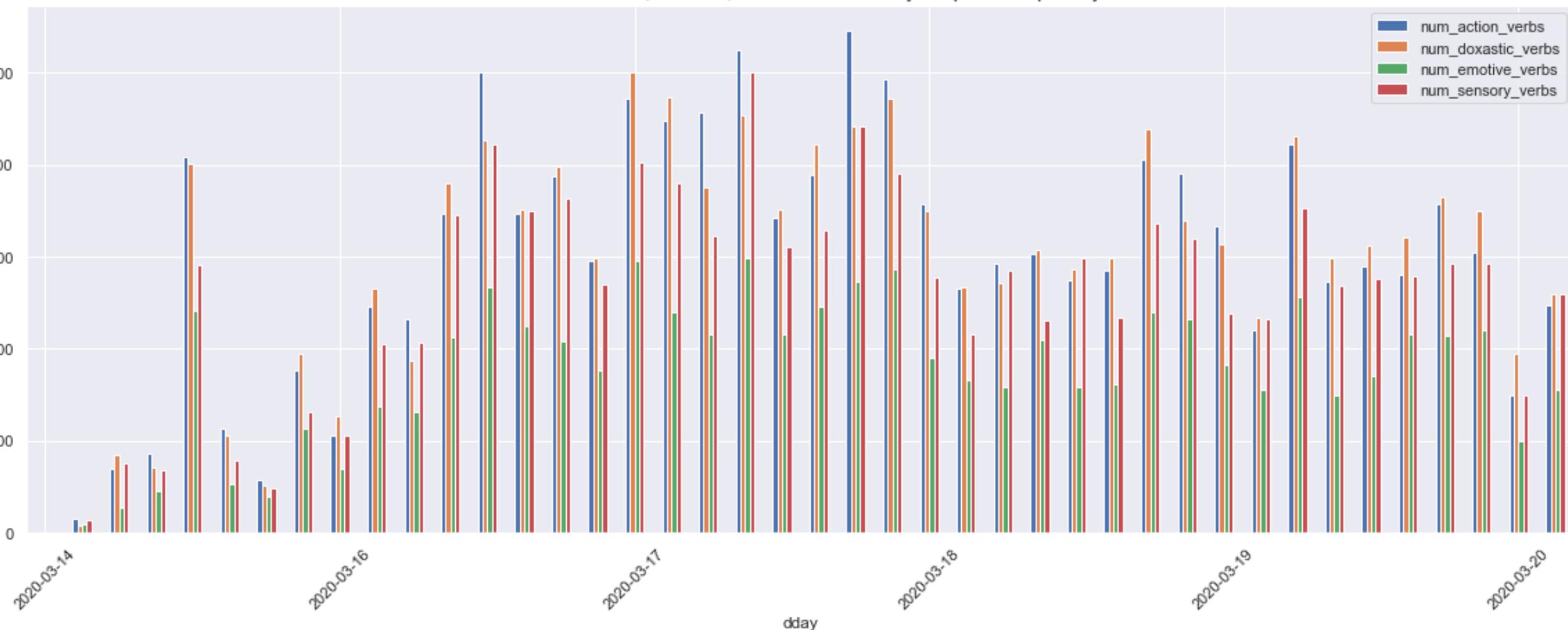
Number of comments and unique words per day



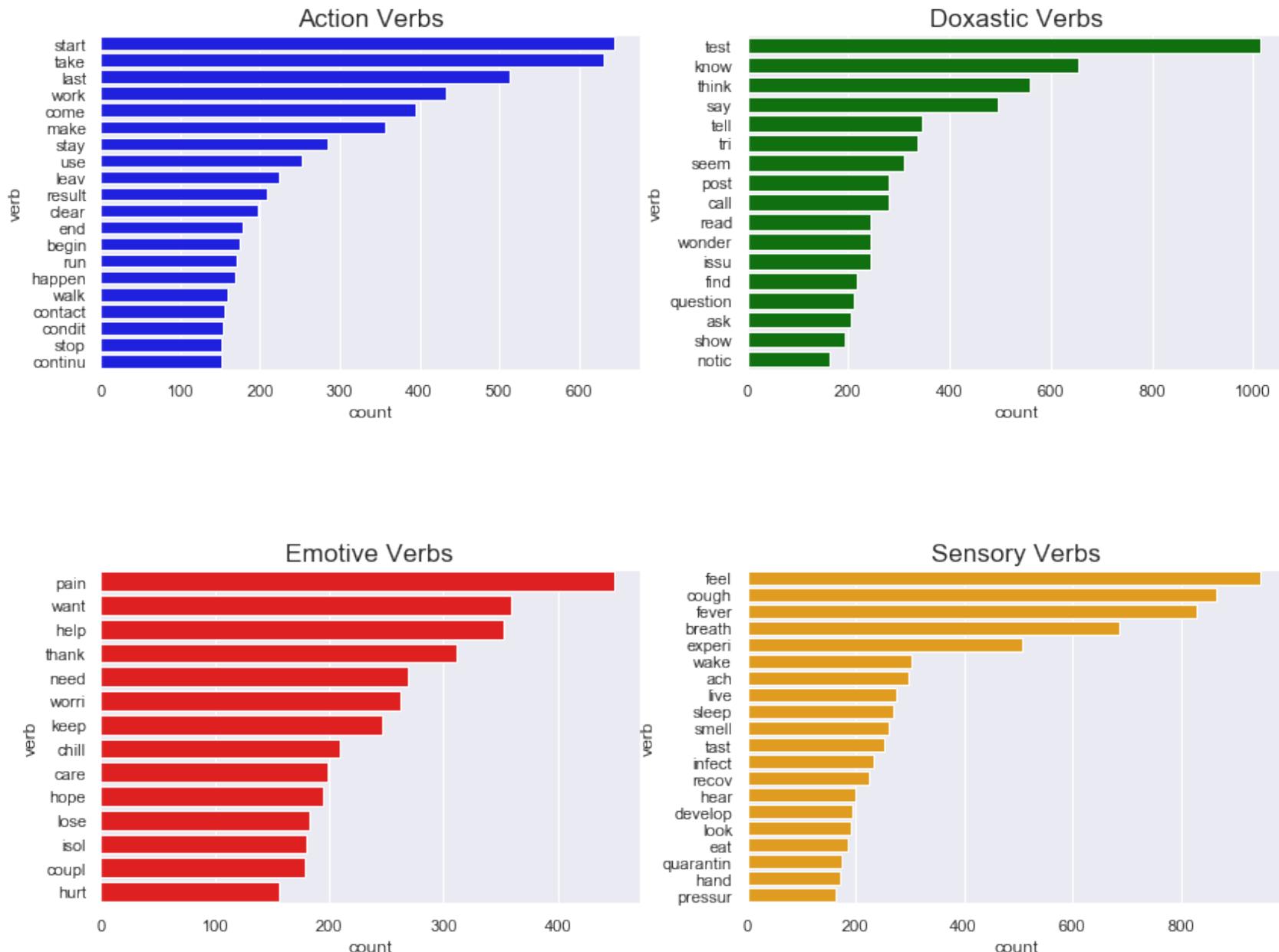
# Categorization of Verbs

- 423 action verbs (an action verb is a verb that expresses physical or other action)
- 277 doxastic verbs (a doxastic verb is a verb pertaining to knowledge, opinion, or belief usually about some proposition)
- 172 emotive verbs (an emotive verb is a verb which shows an emotional activity)
- 156 sensory verbs (a sensory verb is a verb that describes one of the five senses: sight, hearing, smell, touch, and taste)
- 1028 verbs in total

Number of action, doxastic, emotive and sensory unique verbs per day



# Top Verbs in the COVID19positive Reddit posts



# Word Clouds of Verbs in the COVID19positive Reddit posts

## Action Verbs

A word cloud centered around the word "start". Other prominent words include walk, continue, hit, bring, use, send, fit, place, caus, prevent, drop, change, stand, stop, turn, clear, result, put, take, lay, begin, spend, return, move, come, leave, close, spread, progress, comple, happen, work, make, last, contact, and underli.

## Emotive Verbs

A word cloud centered around the word "hurt". Other prominent words include wait, help, fear, worry, hope, stress, coupled, persist, effect, relax, quit, thank, risk, lose, forc, isol, chill, want, freak, surpris, ignor, exhaust, pain, need, keep, panic, concern, fatigu, care, improv, partner, suffer, protect, suspect, and disagre.

## Doxastic Verbs

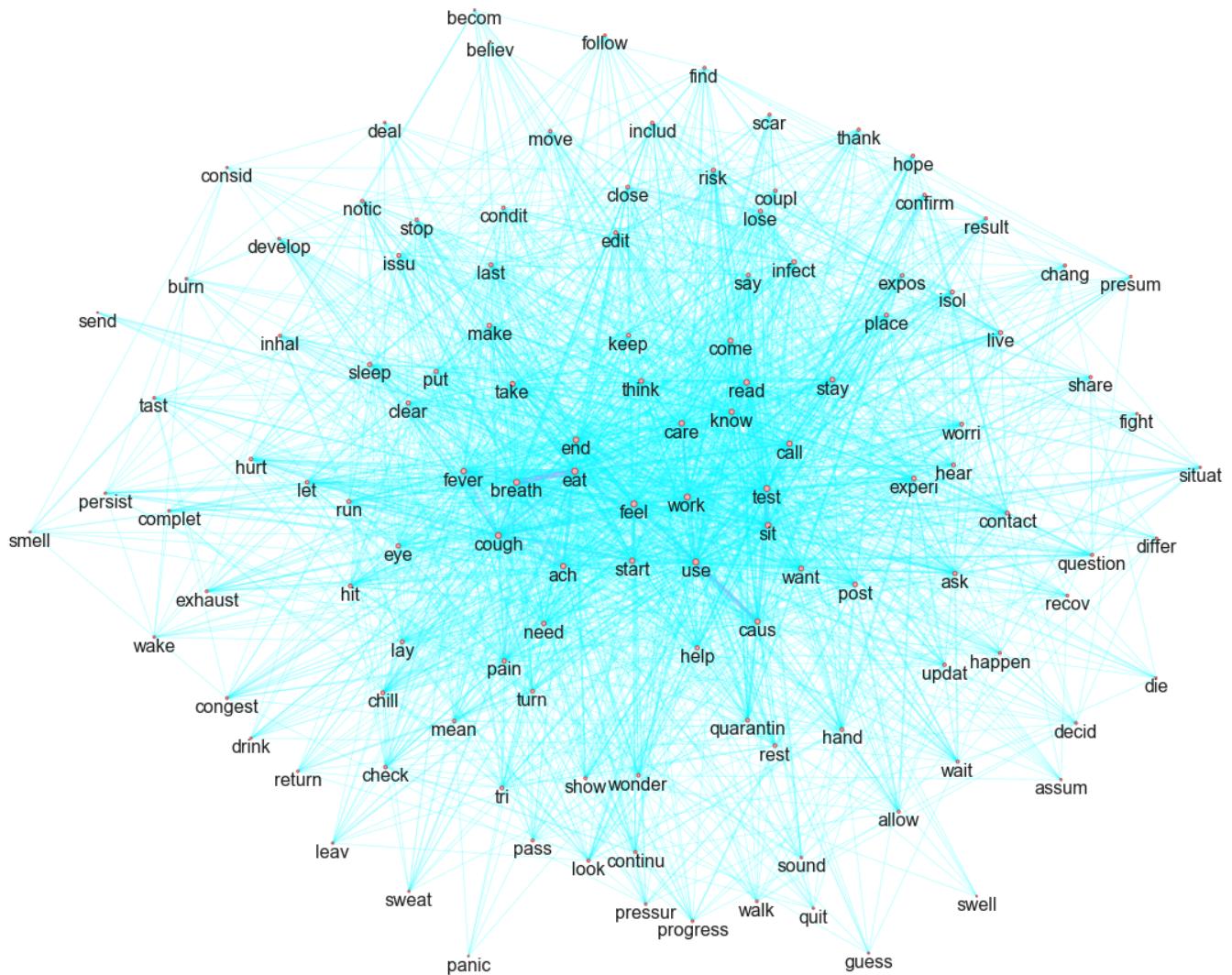
A word cloud centered around the word "say". Other prominent words include find, relat, consider, question, let, read, ask, note, word, believe, assum, prescrib, suppos, wonder, edit, admitt, sound, differ, confirm, talk, situat, becom, post, issu, check, allow, guess, tell, mean, phone, expos, commun, decid, understan, realiz, order, offer, seem, tri, call, presum, manag, follow, show, bare, and secur.

## Sensory Verbs

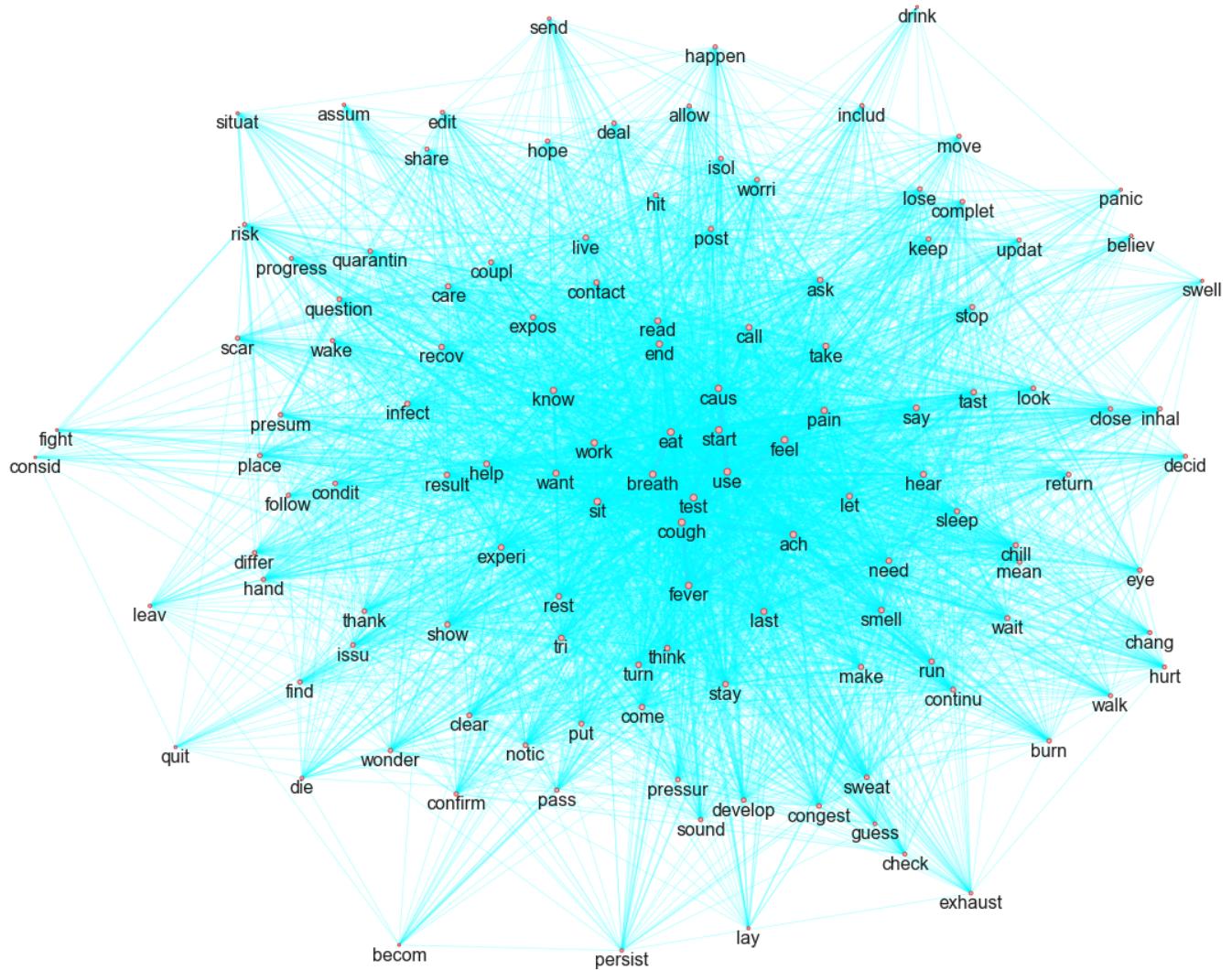
A word cloud centered around the word "feel". Other prominent words include drink, look, live, smell, rest, ling, receiv, sleep, pressur, wake, smoke, visit, eye, watch, remain, sneez, sit, hand, inhal, act, wash, hear, swell, swallow, infect, experi, eat, fast, saw, tickl, hold, monitor, burn, screen, sweat, fever, develop, quarantin, recov, puls, clean, mind, driv, age, tast, breath, ach, stick, and dehydr.

The graphs of co-occurring top verbs  
in the *COVID19positive* subreddit posts  
during six weeks  
from March 14 to April 25, 2020

The graph of co-occurring top verbs in the COVID19positive subreddit posts  
during the first week from March 14 to March 22, 2020  
weighted over their average sentiment score

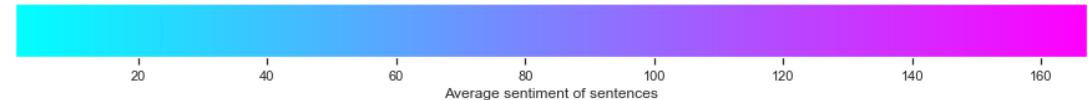
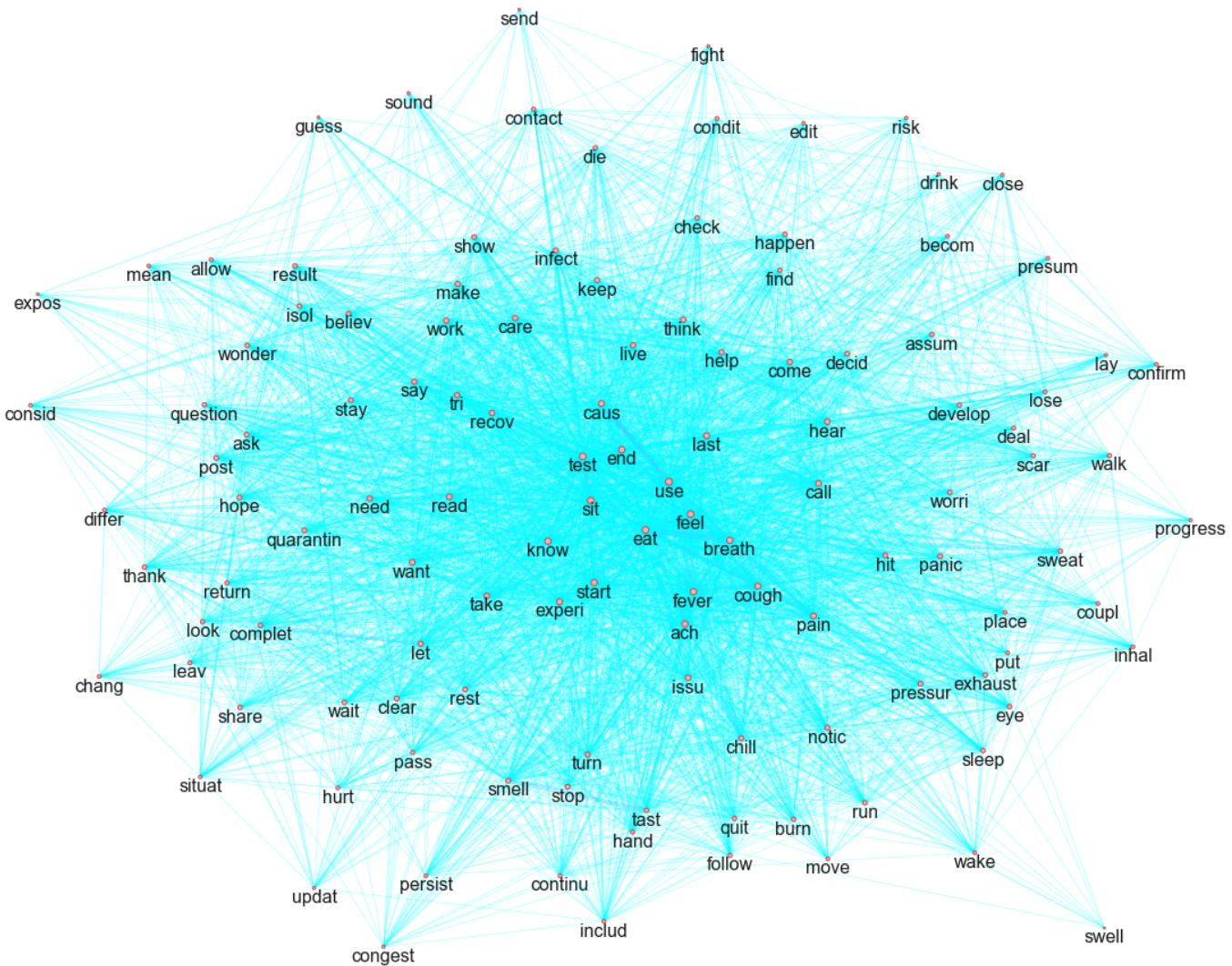


The graph of co-occurring top verbs in the COVID19positive subreddit posts  
during the second week from March 23 to March 29, 2020  
weighted over their average sentiment score

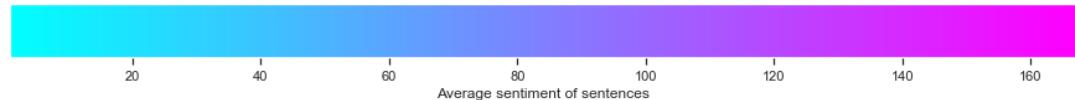
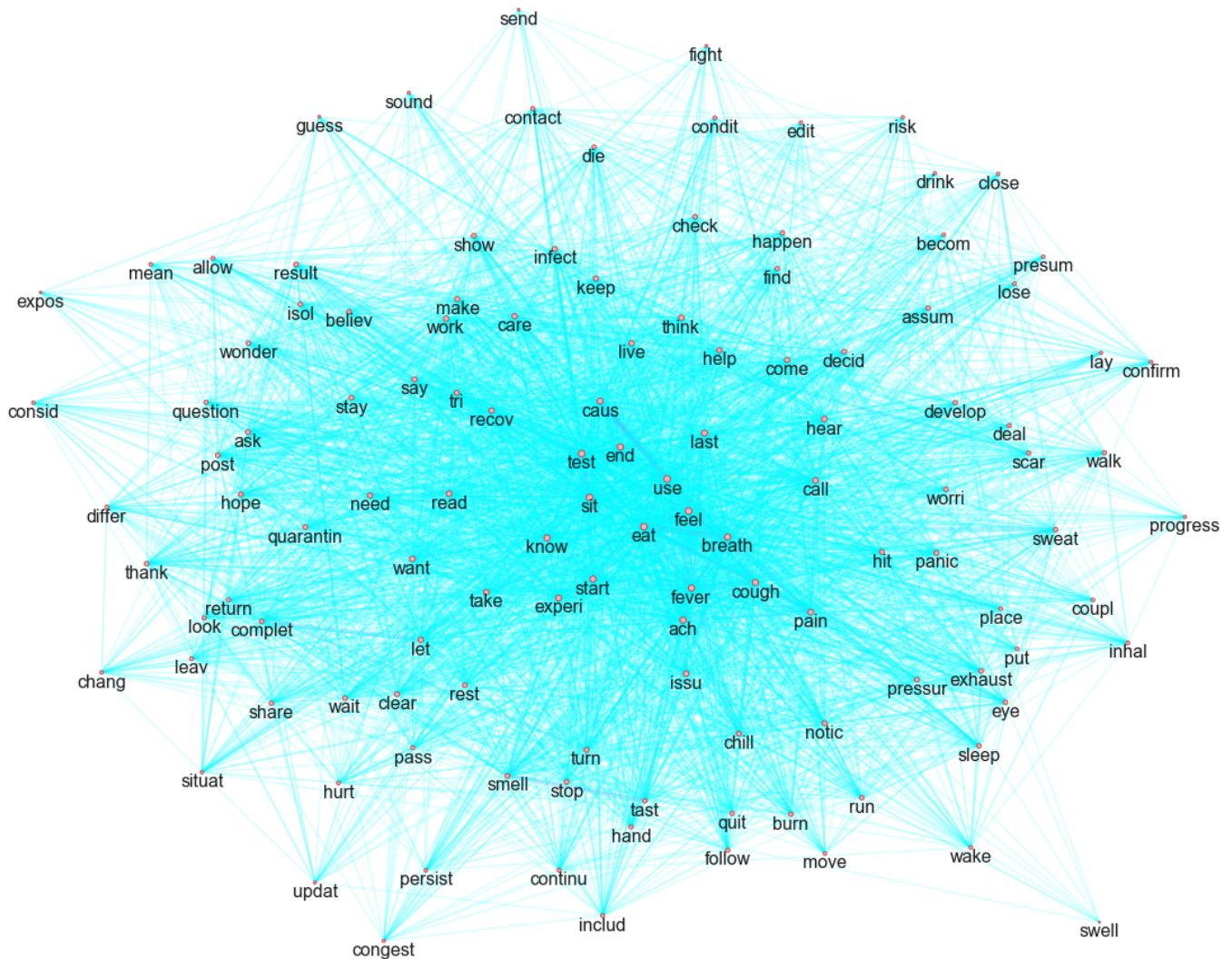


50 100 150 200 250  
Average sentiment of sentences

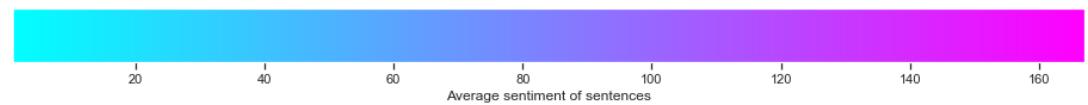
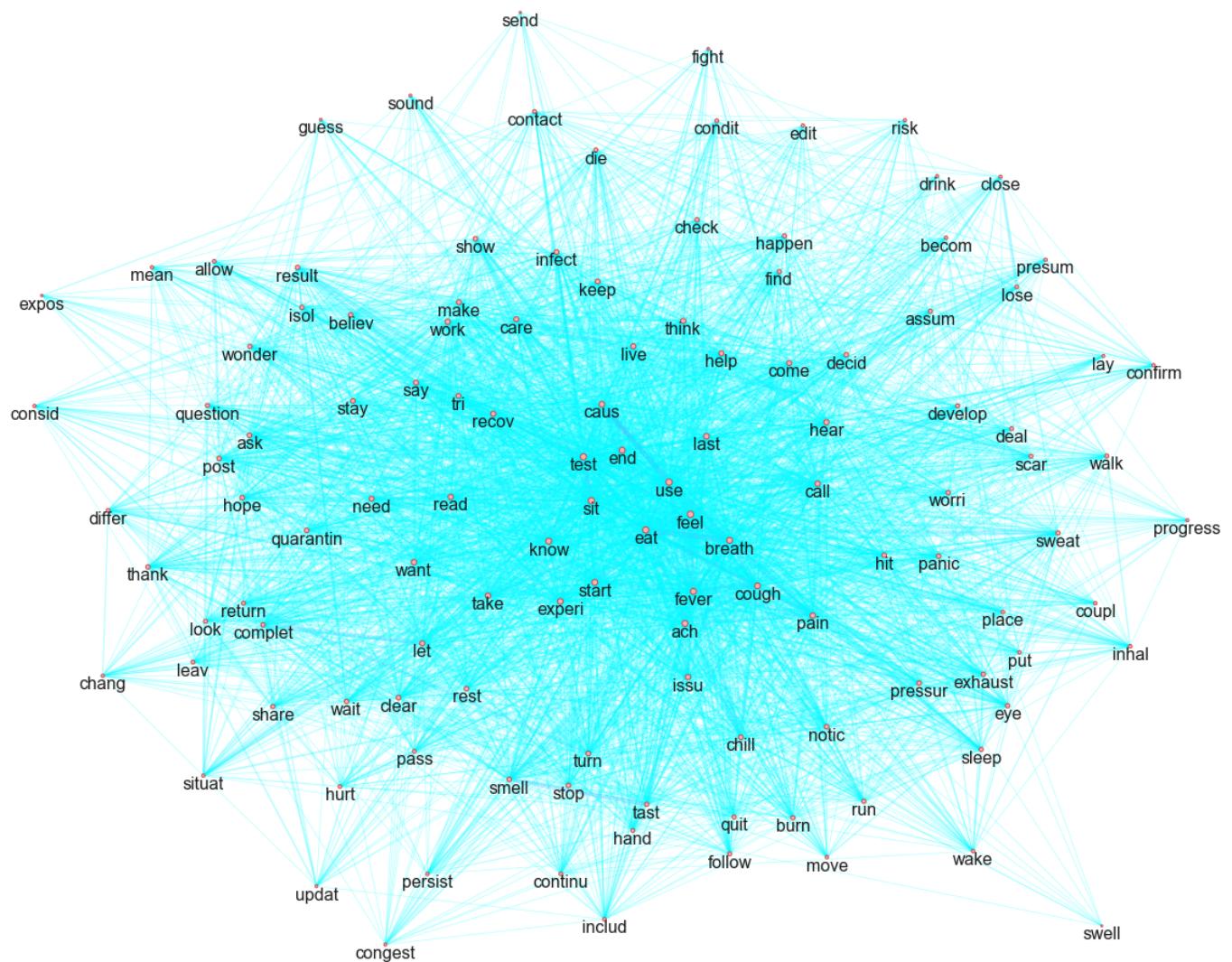
The graph of co-occurring top verbs in the COVID19positive subreddit posts  
during the third week from March 30 to April 05, 2020  
weighted over their average sentiment score



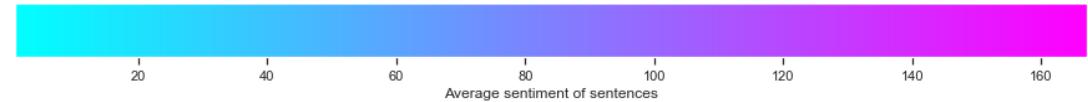
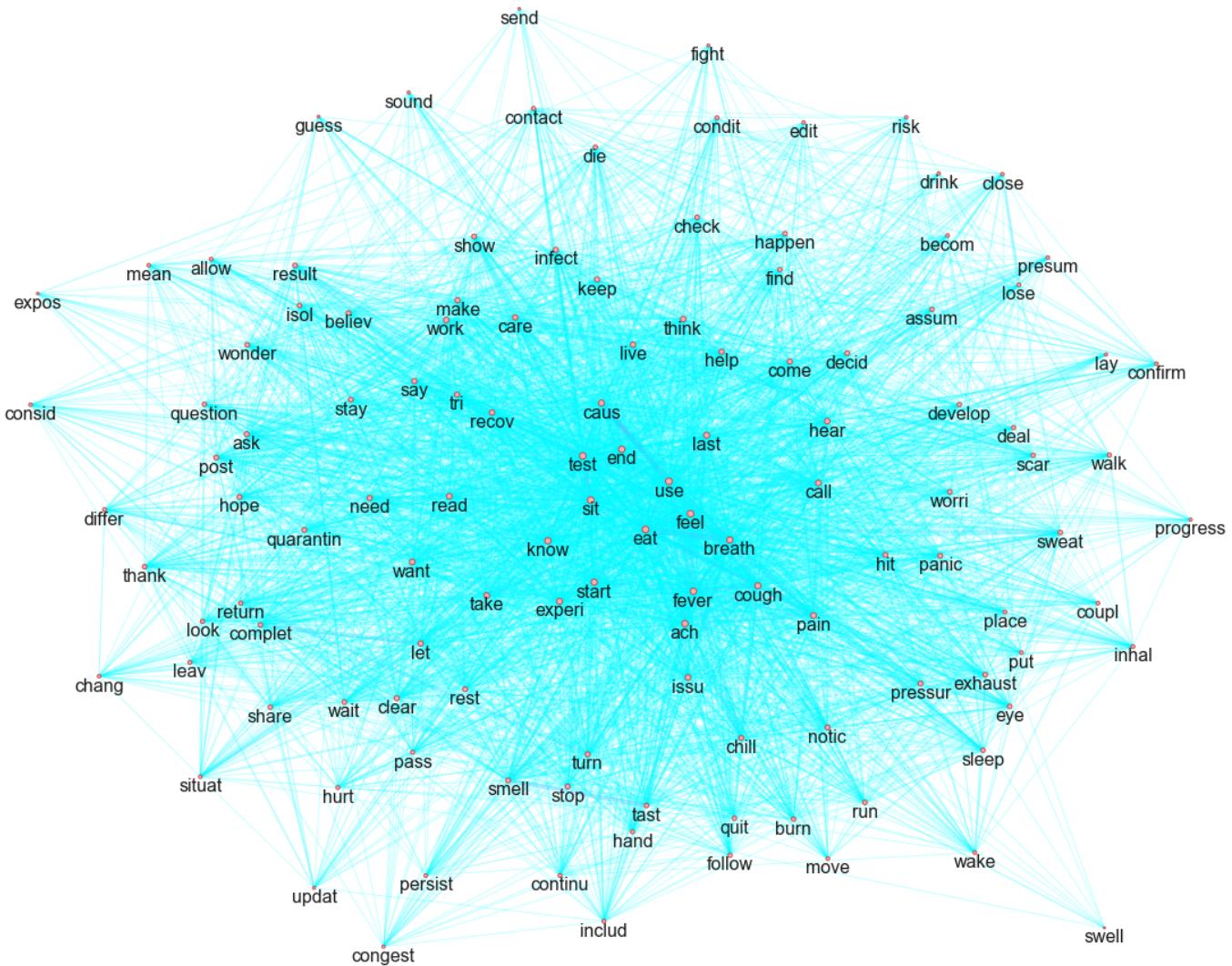
The graph of co-occurring top verbs in the COVID19positive subreddit posts  
during the fourth week from April 06 to April 12, 2020  
weighted over their average sentiment score



The graph of co-occurring top verbs in the COVID19positive subreddit posts  
during the fifth week from April 13 to April 19, 2020  
weighted over their average sentiment score



The graph of co-occurring top verbs in the COVID19positive subreddit posts  
during the sixth week from April 20 to April 25, 2020  
weighted over their average sentiment score



# Conclusions and Further Work

- We learn how verbs of different categories are linked together in posts in different periods
- By studying temporal networks of sententially co-occurring verbs in the COVID19positive subreddit we can trace the discursive ways in which feelings, concerns, opinions and emotions are embroiled, discussed and unfold the experiential narrative of the pandemic inside social media.
- We are going to complete the dataset until June 15 (the first 3 months of the pandemic)