

Online Social Support among the Isolated and Lonely: Before and During the COVID-19 Pandemic

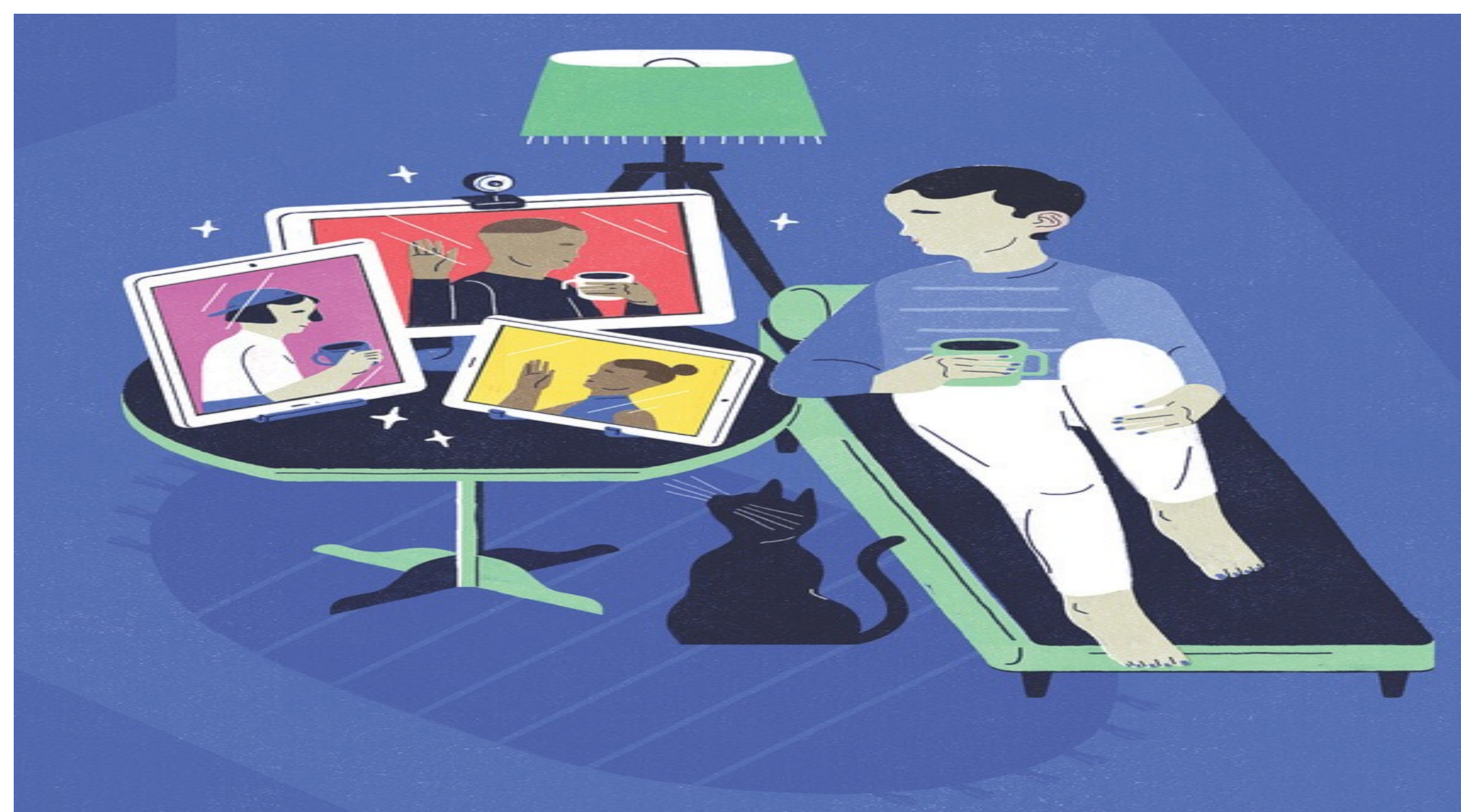
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Abstract

Social isolation and loneliness represent a global public health crisis. They are detrimental and deadly. Their prevalence and severity can be exacerbated by the COVID-19 pandemic. People have become more reliant upon the internet for online social support as a coping strategy.

In this project, we focus on vulnerable individuals who struggle with their physically isolating and emotionally lonely life. We ask one urgent and timely research question: how has the pandemic influenced social support in online communities of the isolated and lonely?

To address the research question, we apply social resources theory and use digital text analysis methods to examine online posts within four Reddit subreddits or forums targeting isolated and lonely users (*r/isolation*, *r/lonely*, *r/loneliness*, and *r/ForeverAlone*).



(Source: *Brain & Life*, illustration by Gracia Lam)

Data and Methods

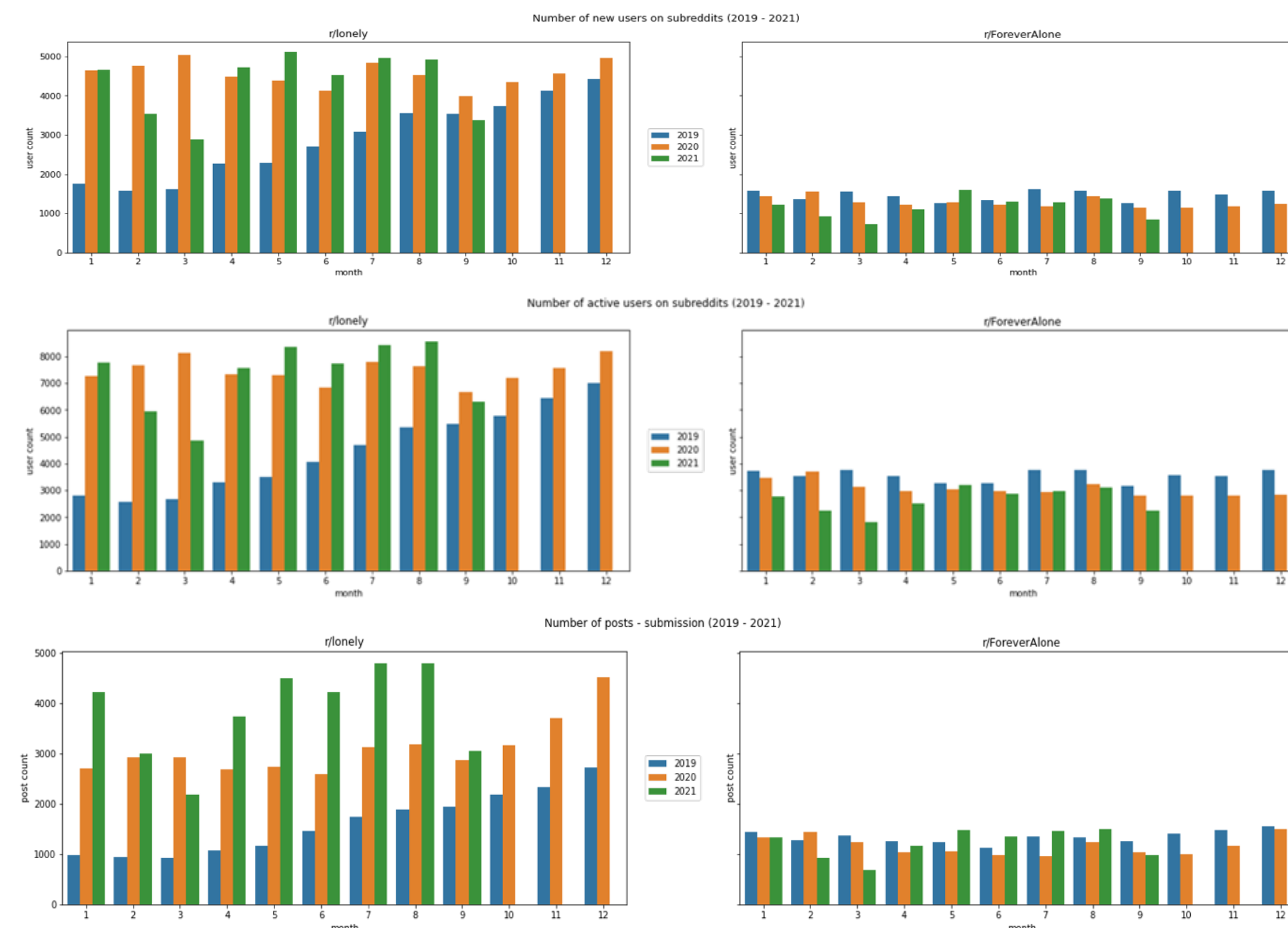
We used the Pushshift (an archive of Reddit data) API to obtain online posts (from the date of the first post to September 23, 2021) within the four Reddit subreddits. We limited most of our analysis to post data from the two more popular subreddits (*r/lonely* and *r/ForeverAlone*) for the purpose of greater statistical power. Online posts include both submissions (initial posts of threads) and comments (replies after each submission). Submissions indicate seeking social support, whereas comments providing social support. The positivity of emotions of online posts measure users' positive emotional well-being.

Subreddit	#submissions	#comments	Created Date	#members
r/lonely	110937	738710	7/03/2008	237k
r/ForeverAlone	97254	2054757	9/15/2010	162k
r/loneliness	3964	21909	3/16/2010	9.5k
r/isolation	74	187	6/17/2010	335

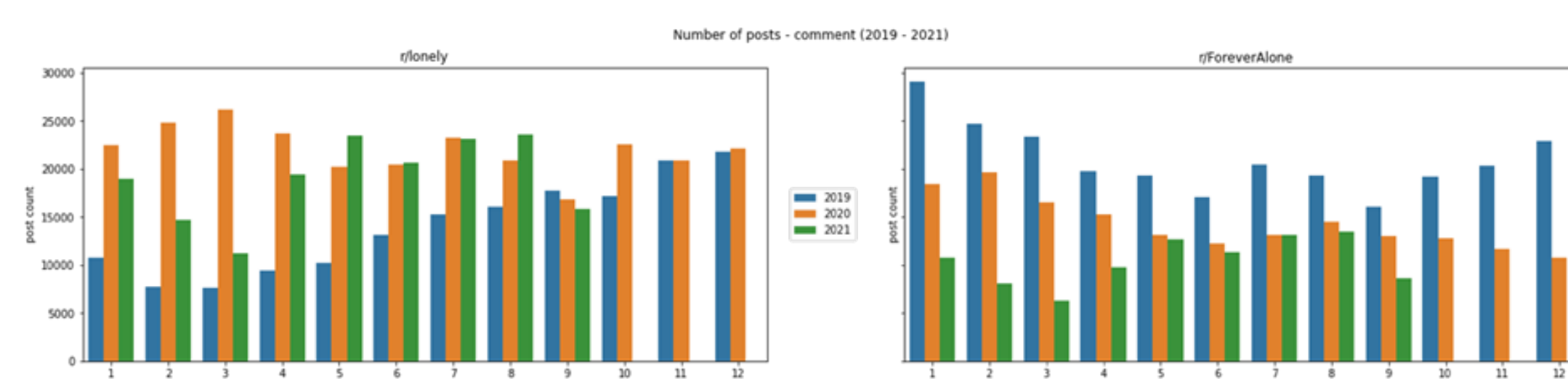
We analyzed the content of these online posts using the Python, R packages, and several digital text mining tools. Specifically, we used Linguistic Inquiry Word Count (LIWC), a computational linguistic analysis software, as well as Valence Aware Dictionary and Sentiment Reasoner (VADER), a lexicon and rule-based sentiment analysis tool that is specifically attuned to sentiments expressed in social media, to detect emotions communicated within online posts. We applied the STEM python library to perform the structural topic modeling, which helps identify the general topics of online posts and topic trends along the timeline.

Trends

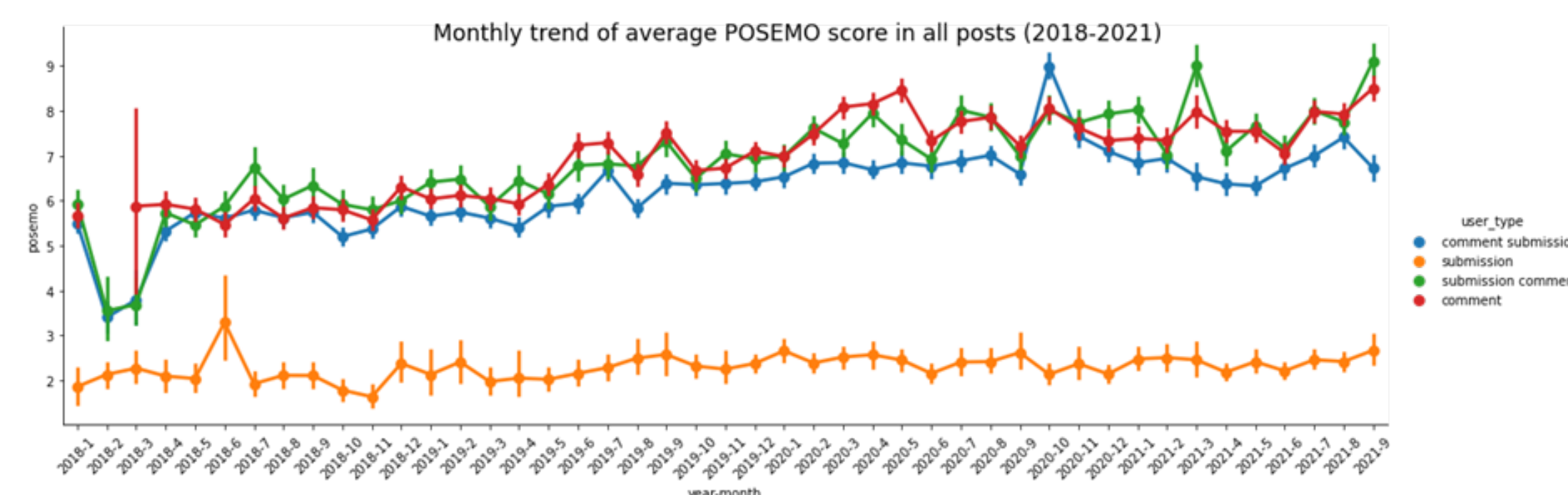
The number of new users, active users, and submissions rises on *r/lonely* but drops in general on *r/ForeverAlone*.



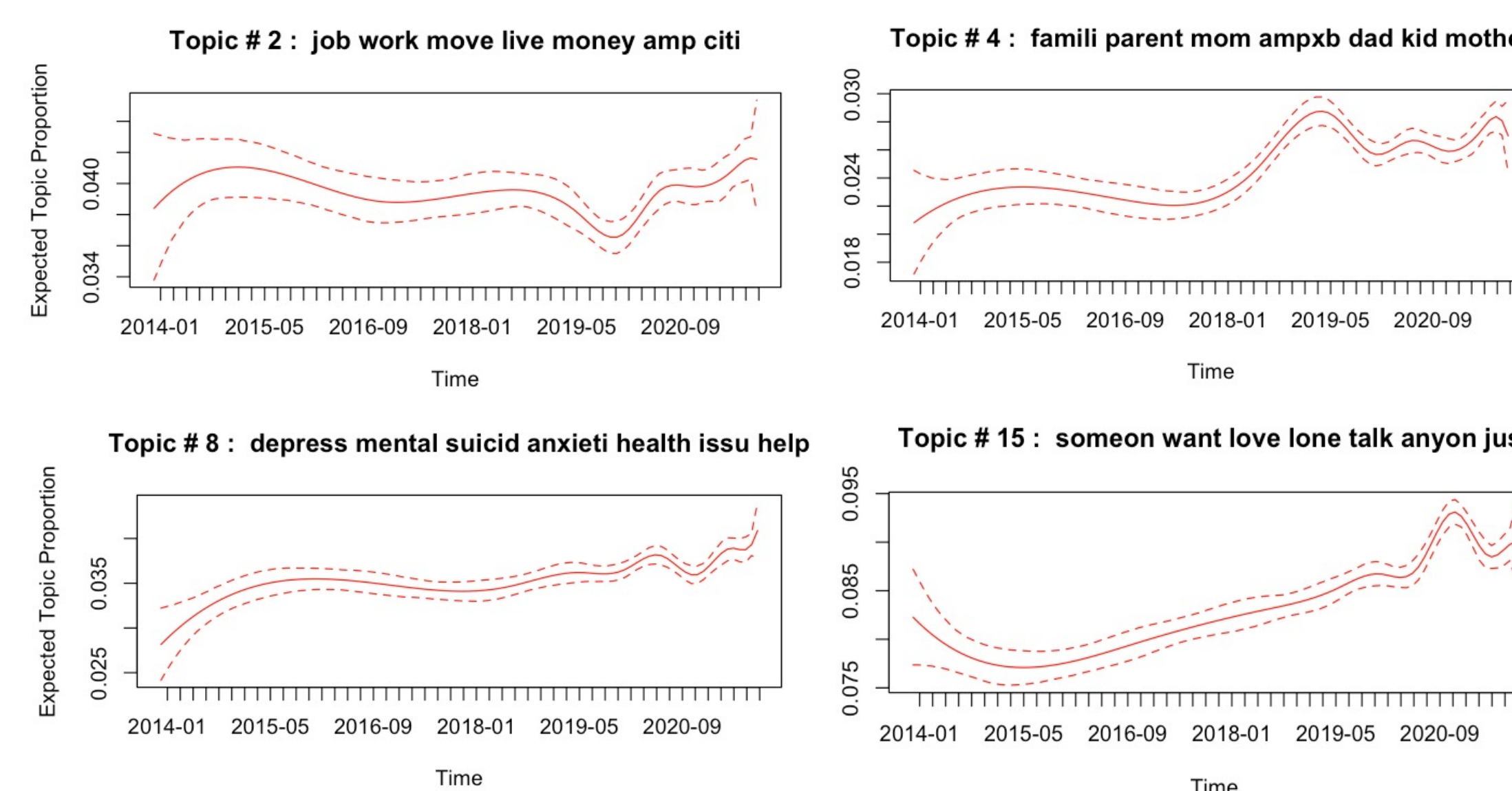
The number of comments rises on *r/lonely* but drops on *r/ForeverAlone*.



Users posting only comments are more emotionally positive than those posting only submissions and their positivity rises slightly.



The proportions of topics related to four life domains (economic, family, health, and networking) rise in general.



Conclusion

The pandemic has affected online support differently across online communities.

Seven tentative implications are worth noting:

- 1) the lonely are more reactive to the pandemic than the romantically isolated;
- 2) more people have been feeling lonely and seeking online support;
- 3) lonely users have been providing more online support to each other;
- 4) opposite trends seem to apply to romantically isolated users;
- 5) users only providing support are more emotionally positive than those only seeking support;
- 6) emotions of users only providing support have become more positive;
- 7) four support contents (economic, family, health, and networking) have become more salient.

Next Step

We will address a following up crucial research question: does online social support protect Reddit users' emotional well-being? The results will provide implications for health interventions through online communities.

We will apply multiple theories (social resources, social cost, and reciprocity) to hypothesize the effects of receiving, providing, and reciprocating support on Reddit users' emotional well-being. Reciprocal support refers to two users' commenting on each other's submissions or comments. We will conduct a multivariate statistical analysis to test our hypotheses using the Python (e.g., Python package NumPy and SciPy).

Suggested Readings

Dean, Derek J., Ivy F. Tso, Anne Giersch, Hyeon-Seung Lee, Tatiana Baxter, Taylor Griffith, Lijun Song, and Sohee Park. 2021. "Cross-Cultural Comparisons of Psychosocial Distress in the USA, South Korea, France, and Hong Kong during the initial phase of COVID-19." *Psychiatry Research* 295.

Ni, Congning, Bradley A. Malin, Lijun Song, Angela L. Jefferson, and Zhijun Yin. 2022 (In Press). "Rough Day ... Need a Hug': Learning Challenges and Experiences of the Alzheimer's Disease and Related Dementia Caregivers on Reddit." The 16th International AAAI Conference on Web and Social Media.

Pew Research Center. August 31, 2021. "Technology Has Been A Lifeline for Some During the Coronavirus Outbreak But Some Have Struggled, Too."

Song, Lijun and Zhe Zhang. Forthcoming. "Social Support." *The Sage Handbook of Social Network Analysis*, edited by J. McLevey, P. J. Carrington, and J. Scott. London: SAGE.

Acknowledgements

This work was funded by an Andrew W. Mellon Fellowship for the Digital Humanities.

Dr. Lijun Song is grateful to her collaborators: Congning Ni (graduate student in computer science), Kerou Cheng and Yiwei Wang (undergraduate students in computer science), Chancey B. Herbolzheimer (graduate student in sociology), and Dr. Zhijun Yin (assistant professor in biomedical informatics). She is also grateful to Vanderbilt Center for Digital Humanities for social support.