Comparing Pre and Post-Lock Down Emotional Valence from Twitter to Gain Insights to Refine Interventions for Hispanic and African American Family Caregivers of Persons with Dementia

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Background and Aims

News media have frequently described dementia patients as COVID-19's hidden victims, and family dementia caregivers have been physically and psychologically affected during the pandemic, citing loss of support and increased loneliness. On the other hand, positive caregiving experiences during the pandemic also were reported.[1] Unfortunately, it remains largely unknown if these positive experiences extended to those who were already suffering socio-economic and structural disadvantages.[1] Afinn algorithm helps to detect the affective state of users of social media, proposing a total emotional valence score.[2] The purpose of this study was to detect topics and emotional valence to understand emotional distress as a foundation for developing Twitter-based interventions for dementia caregivers.

Methods

- We randomly extracted Tweets mentioning dementia/Alzheimer's caregiving related terms (n= 58,094) from Aug 23, 2019 to Sep, 14, 2020 via an API.
- We applied natural language processing to identify topics and sentiments from the Tweet corpus.
- We compared emotional valence scores of Tweets from prior to (through the end of 2019) and after the beginning of the COVID-19 pandemic (2020-).

Results

- The mean emotional valence score significantly decreased from 1.18 (SD 1.57; range -7.1 to 7.9) to 0.86 (SD 1.57; range -5.5 to 6.85) after COVID-19 (difference -0.32 CI: -0.35, -0.29) (figure 2).

Figure 1. Emotional valence score of dementia caregiving Tweets before and after COVID-19

Results and Discussion

Prevalence of topics increased:

- ✓ Caregiver emotional distress (e.g., depression, helpless, stigma, lonely, elder abuse)
- ✓ Caregiver coping (e.g, resilience, love, reading books)

Prevalence of topics decreased:

- ✓ Late-stage of dementia caregiving (e.g., nursing home placement, hospice, palliative care) (figure 2).
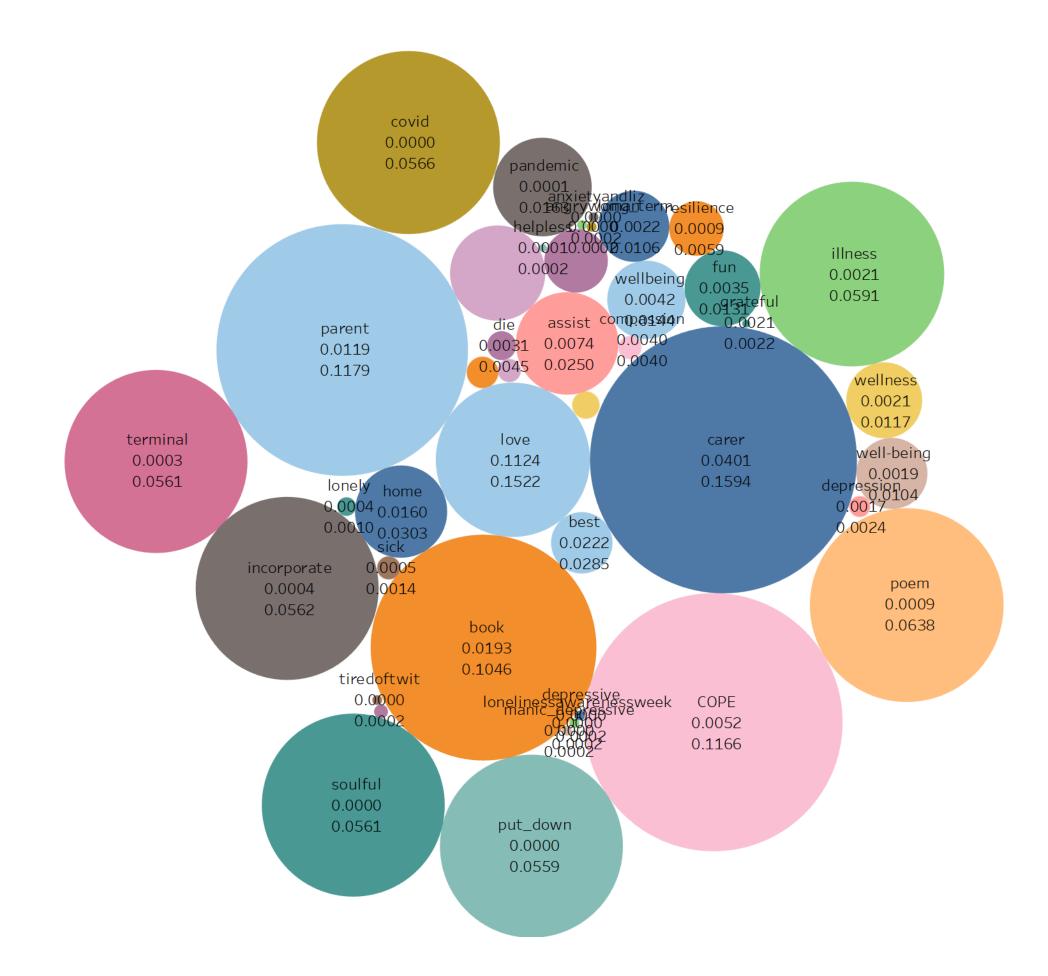

Figure 2. Changes in topic prevalence in Tweets mentioning dementia caregiving during COVID-19

Conclusion

Application of topic modeling and sentiment analysis of streaming social media Twitter provides a foundation for research insights regarding Alzheimer's caregiving mental health needs for family caregivers of a person with ADRD.

Acknowledgments

References
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