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Computational Exploration of Gerontology-related Topics Shared on Twitter



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OBJECTIVE Identifying themes of Twitter posts related to aging and older adults.

BACKGROUND Twitter, a popular Internet social media platform, has become a major medium for sharing information and ideas about various topics, including aging and older adults. While studies have been conducted to examine stigma or perception about specific diseases such as Alzheimer’s disease [1] and seizure [2] on Twitter, there has been little effort to identify general themes of Twitter posts related to aging and older adults.

METHODS	Data Collection	Keywords Used to Retrieve Posts	Data Analysis
	Keyword expansion to find commonly-used keywords starting with seed hashtags #olderadult, #aging...	senior(s) oldperson olderperson(s) oldman elderly elders grandparents	seniorcitizen(s) old(er)people olderadult(s) oldlady elderlypeople granny seniorszn
	Collection of posts using 19 English keywords related to aging and older adults, from 7/1/18 to 7/31/18.		Separation of original tweets and retweets. Text processing of the original tweets. Topic modeling: Latent Dirichlet Allocation (LDA) using Matlab 2018a on hashtag-filtered list of posts. Topics visualized using word clouds (as in [3]).

RESULTS **Dataset Description**
328,568 original tweets (and 722,552 retweets) collected over 31 days.
10,088 tweets (4,762 retweets) contained the hashtags corresponding to the keywords.
45 topics identified computationally, then qualitatively grouped into themes. Most representative themes listed below.

Themes	Family	Social Work	Health
	Including relations with family, commemoration... E.g. of tweet: “Being a Grandma has taught me that my love can be multiplied and my feelings for my children and grandchildren span lifetimes. #family #grandchildren #love #familytime #Grandma #grandparents #myheart #ilovemybabies #thehappygrammy”	Including community resources, service, charity. E.g. of tweet: “Many thanks to the lovely #volunteers from @[edited] who are taking part in a monthly #HelpingHands session as part of our #Community Support Project for #olderpeople in #[edited]. Well done & thanks to all, your work is much appreciated!”	Including disease-specific content, public health, professional caregiving. E.g. of tweets: “Falls are a leading cause of fatal injury among the #elderly population. This @AgingCare article lists 7 things that might cause falls: #eldercare” “Helpful tips to keep our #senior population cool this summer. #Heatwave #Seniors “

Corresponding Examples
Word clouds of most representative words in a topic for the given theme.



Other Themes
Politics and policies (insurance/pension, new laws).
Examples of representative words: medicare, veterans.
News involving older adults (crimes on/by older adults).
Online media (e.g., porn, online videos featuring older adults).
Example of representative words: granny, sexy, video.

DISCUSSION
- Some topics have negative connotations (e.g., crime, porn); some users may use aging-related terms to promote monetized content/spam.
- Knowing the lingua used to exchange about aging/older adults online can help subsequent research and interventions.

Limitations
- Some topics tied to the period studied (July), e.g. tweets related to the heat wave, to the 4th of July.
- Results limited by the keywords chosen, some keywords introduced noise (e.g., high school seniors, senior positions...)

FUTURE WORK
- Comparing these Western (English) themes with themes from Eastern countries (South Korea) as they have different views about aging and older adults
- Analyzing the reach of positive themes (e.g., health promotion) vs. negative ones (e.g., crimes by older adults)

Other Frequent Hashtags	
Most frequent hashtags in the dataset besides keywords used to fetch tweets:	
Ranking	Hashtag
3	#health
4	#seniorcare
8	#aging
11	#maga
12	#loveisland
13	#veterans
14	#family
(Among original tweets)	

REFERENCES
1. Oscar, N., Fox, P. A., Croucher, R., Wernick, R., Keune, J., & Hooker, K. (2017). Machine Learning, Sentiment Analysis, and Tweets: An Examination of Alzheimer’s Disease Stigma on Twitter. The Journals of Gerontology: Series B, 72(5), 742-751. doi:10.1093/geronb/gbx014
2. McNeil, K., Brna, P. M., & Gordon, K. E. (2012). Epilepsy in the Twitter era: a need to re-tweet the way we think about seizures. Epilepsy & behavior, 23(2), 127-130.
3. Douma, L., Steverink, N., Hutter, I., & Meijering, L. (2017). Exploring Subjective Well-being in Older Age by Using Participant-generated Word Clouds. The Gerontologist, 57(2), 229-239. doi:10.1093/geront/gnv119