

Coronavirus, Ageism, and Twitter: An Evaluation of Tweets about Older Adults and COVID-19

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OBJECTIVES: In March 2020, the World Health Organization declared coronavirus disease 2019 (COVID-19) a pandemic. High morbidity and mortality rates of COVID-19 have been observed among older adults and widely reported in both mainstream and social media. The objective of this study was to analyze tweets related to COVID-19 and older adults, and to identify ageist content.

DESIGN: We obtained a representative sample of original tweets containing the keywords “elderly,” “older,” and/or “boomer” plus the hashtags “#COVID19” and/or “#coronavirus.”

SETTING: Tweets posted between March 12 and March 21, 2020.

MEASUREMENTS: We identified the type of user and number of followers for each account. Tweets were classified by three raters as (1) informative, (2) personal accounts, (3) personal opinions, (4) advice seeking, (5) jokes, and (6) miscellaneous. Potentially offensive content, as well as that downplaying the severity of COVID-19 because it mostly affects older adults, was identified.

RESULTS: A total of 18,128 tweets were obtained, of which a random sample of 351 was analyzed. Most accounts (91.7%) belonged to individuals. The most common types of tweets were personal opinions (31.9%), followed by informative tweets (29.6%), jokes/ridicule (14.3%), and personal accounts (13.4%). Overall, 72 tweets (21.9%) likely intended to ridicule or offend someone and 21.1% had content implying that the life of older adults was less valuable or downplayed the relevance of COVID-19.

CONCLUSION: Most tweets related to COVID-19 and older adults contained personal opinions, personal accounts, and jokes. Almost one-quarter of analyzed tweets had ageist or potentially offensive content toward older adults. *J Am Geriatr Soc* 68:1661-1665, 2020.

Keywords: social media; Twitter messaging; geriatrics; ageism; COVID-19

On March 11, 2020, the World Health Organization (WHO) declared coronavirus disease 2019 (COVID-19) a pandemic, followed by a national emergency declaration in the United States on March 13.^{1,2} As of April 7, 2020, this disease, initially identified in China in late 2019, had infected more than 1.3 million people in 184 countries or territories around the world, causing the death of approximately 75,000 people.³ In addition, COVID-19 has caused a significant strain on the capacity of healthcare systems across various regions of the world, leading to difficulties in providing therapy, particularly for patients in need of intensive care.

Initial reports from Wuhan, the epicenter of the pandemic, showed that one-half of all COVID-19 cases occurred in individuals aged 60 years and older, with a higher rate of complications and an increased risk of death among older adults.⁴ Additional reports from other countries with a high burden of COVID-19 cases, such as Italy or the United States, also show that case-fatality rates are significantly associated with age, with persons 85 years and older representing those at the highest risk of death.^{5,6} In addition, older adults living in long-term care facilities have been identified as particularly vulnerable to contagion, with some reports showing a high infection and lethality rate after outbreaks in skilled nursing facilities.⁷

The vulnerability of older adults to COVID-19 has been recognized by policymakers, healthcare professionals, the mainstream media, and the general public. Although most stakeholders have voiced genuine concern regarding the

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situation of older adults, a significant amount of information has focused on negative stereotypes of aging or has downplayed the relevance of COVID-19 by focusing on the fact that it harms older adults the most. The objective of this study was to identify Twitter content related to both COVID-19 and older adults, to characterize what type of content was being shared and by whom, and to define whether the content included ageist remarks that discriminated against older people or perpetuated negative stereotypes of aging.

MATERIALS AND METHODS

A qualitative analysis study was conducted. Twitter's search engine was used to search for tweets in the English language that had the keywords "elderly," "older," and/or "boomer" plus the hashtags (user-generated metadata tags that allow for the rapid identification of a theme or content)⁸ "#COVID19" and/or "#coronavirus" during the period from March 12 to March 21, 2020. The selected period included the 10 days following the pandemic declaration by the WHO, and the two chosen hashtags were those found to be the most common after an initial search. Because Twitter data are publicly available, this research was considered to be exempt from institutional review board approval or informed consent.

Tweets were downloaded using the web-based extension *Ncapture* of the qualitative data analysis software Nvivo Plus, v.12 (QRS International) in which the data were processed, downloading each tweet's data to an Excel 2016 spreadsheet for analysis. Following previously published methodology, Twitter publications corresponding to retweets and nonoriginal tweets were excluded.⁹ For the studied period, a total of 18,128 original tweets fulfilling the inclusion criteria were obtained. Assuming that 40% would contain negative messages about older adults, we calculated that a sample size of 362 randomly selected tweets would allow us to estimate the true proportion with a 95% confidence level and a margin of error of 5%. The

list of randomly selected tweets was generated using the random real number function in Excel 2016.

The content of each tweet was classified into these six categories, adapted from previous literature examining stigma and ageism in social media^{10,11}: (1) informative (containing information or data regarding COVID-19 and older adults), (2) personal accounts and/or experiences, (3) personal opinions, (4) advice seeking, (5) jokes, and (6) miscellaneous. In addition, for each individual tweet the following questions were answered: (1) Is this tweet speaking literally (about a specific older adult or group of older adults) or figuratively (metaphorically speaking of older adults as a whole) with respect to older adults and COVID-19? (2) Is this tweet informative? (3) Is this a personal story about real events with respect to the person posting this tweet? (4) Is this a joke or is it intended to be humorous? (5) Is this ridiculing something or someone, or is it intended to be offensive? and (6) Is the tweet implying that the life of older adults is less valuable or downplaying the disease because it mostly harms older people? The authors of each tweet were categorized on the basis of their profile information, obtained from each Twitter account, as either individuals or organizations. The number of retweets for each tweet, as well as the number of followers of each Twitter account, was tabulated to assess content reach and dissemination.

All individual tweets were independently reviewed and classified by three raters. Discrepancies were reviewed and adjudicated by a consensus of the reviewers. Interrater reliability was assessed utilizing Cohen's κ statistics. Descriptive statistics including means, medians, and standard deviations (SDs) were used to characterize tweets by topic, content, and user.

RESULTS

A total of 362 tweets, published by 362 individual accounts, were randomly obtained from the entire sample of tweets

Table 1. Classification of COVID-19 and Older Adults–Related Tweets According to Their Thematic Content

Type of content	No. of tweets	%	Representative tweet
Personal opinions	112	31.9	It sounds simple but true. Older patients are already set up for follow-ups and regular 3 months checkups for other reasons. So they were coming in already. That's why we must not say only elderly people get #coronavirus. Cases now are showing younger and younger patients
Informative	104	29.6	#Coronavirus Guidance on social distancing for everyone in the UK and protecting older people and vulnerable adults - https://t.co/gKwZbHPEPw https://t.co/8wAj4NORtZ
Jokes/Ridicule	50	14.2	Calling #Covid19 the Boomer remover should not make me giggle but it does. Yep I'm going hell lol
Personal accounts/Experiences	47	13.4	Visit to my 80 y.o. dad today. Took him supplies as he withdraws from the world for his own well-being. I'm a 2 hours drive away, he's not online. Look out for the isolated elderly in your area peeps. #coronavirus
Advice seeking	29	8.3	@XXX What about those of us who live with elderly and vulnerable people? We look after them, what exactly do you expect us to do??? #covid19UK #COVID19 #COVID—19 #coronavirus

meeting the inclusion criteria. Eleven tweets were eliminated (six because they were not related to older adults and five because they were in languages other than English), and 351 tweets were analyzed. Of those, 190 (54.1%) contained the word “elderly,” 87 (24.8%) the word “older,” and 74 (21.1%) the word “boomer.”

Of the 351 accounts that published tweets related to COVID-19 and older adults, most (n = 322 [91.7%]) were individuals. An additional 29 (8.3%) were identified as accounts held by organizations. The mean number of retweets per original tweet was 4.5 (SD= 37.7); the median number of followers per account was 605 (range = 0-380,377).

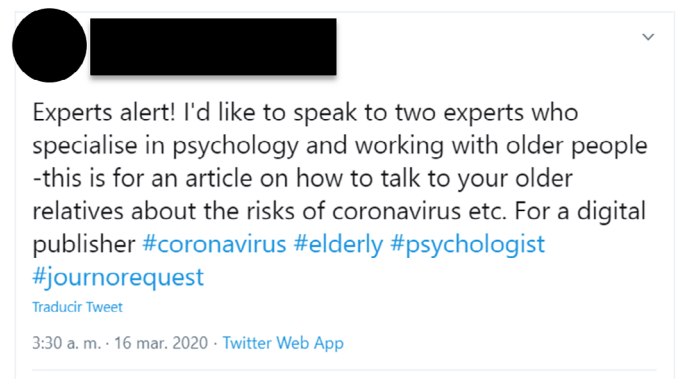
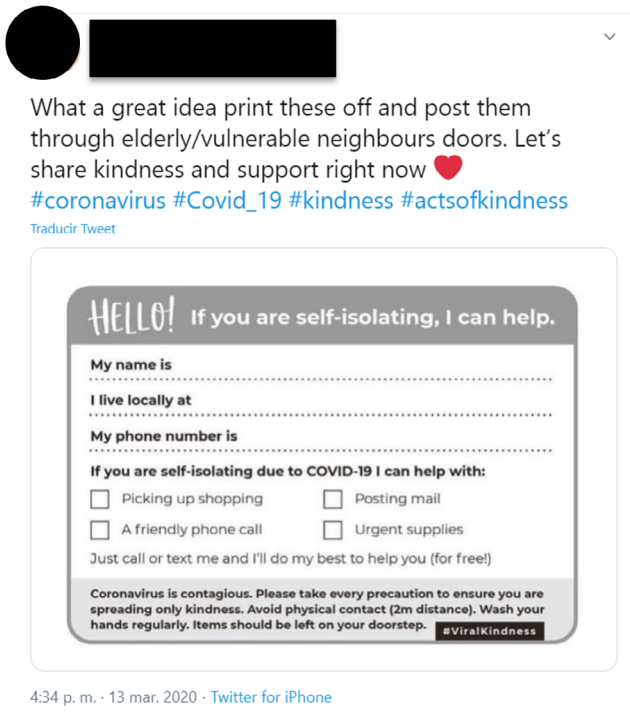


Figure 1. Examples of various types of tweets related to COVID-19 and older adults. (A) Informative content that might be helpful for older adults living in the community. (B) Jokes likely intended to be offensive toward older adults. (C) Personal opinions regarding COVID-19 and older adults. (D) Requests for advice or help.

Almost one-third of COVID-19 and older adult-related tweets ($n = 112$ [31.9%]) were classified as personal opinions. The next most common category was the sharing and discussion of information ($n = 104$ [29.6%]), followed by tweets containing jokes or ridicule ($n = 50$ [14.2%]), personal accounts or experiences ($n = 47$ [13.4%]), and advice seeking ($n = 29$ [8.3%]). Only nine tweets (2.6%) were not classified into these categories. The overall interrater agreement (κ) for classifying the contents of the tweet was .47. Interrater agreement was higher for tweets including information ($\kappa = .65$) and for jokes ($\kappa = .57$), and lower for personal accounts ($\kappa = .42$). Examples of representative tweets for each category are shown in Table 1 and Figure 1.

Most of the analyzed tweets spoke literally about older adults ($n = 196$ [55.8%]), although only one-third contained any information or data regarding COVID-19 and the older population ($n = 111$ [31.6%]). The content of 65 tweets (18.5%) was related to events experienced by the account holders themselves and/or their close relatives. Regarding potentially offensive content, 62 tweets (17.6%) were considered as “humorous”; 77 (21.9%) were likely intended to ridicule or offend someone. Interrater agreement was high when categorizing a tweet as “humorous” ($\kappa = .68$) but lower when characterizing the content as “intended to ridicule or offend” ($\kappa = .47$). Less than one-quarter of analyzed tweets ($n = 74$ [21.1%]) implied that the life of older adults was less valuable or downplayed the relevance of COVID-19 due to the fact that it mostly harms older adults.

DISCUSSION

Most tweets related to COVID-19 and older adults were authored by individuals, and their content was mostly personal opinions, personal accounts, and jokes. In contrast, only one-third of tweets had content aimed at providing information for older patients or recommendations for the general population. In our sample, about one-quarter of all tweets could be considered ageist, either because they included jokes or ridicule aimed at older adults or because their content downplayed the relevance of COVID-19 and/or implied that the life of older adults was less valuable.

Both mainstream and social media have played pivotal roles in the dissemination of information during the COVID-19 pandemic including both the rapid sharing of scientific research as well as various hoaxes and misinformation. Because older adults have been identified as a group at a high risk of complications or death from COVID-19, a significant proportion of news reports and information has dealt with this topic. Unfortunately, this has led to an increase in ageist messages suggesting that COVID-19 is exclusively a disease of older adults, as shown by the appearance and growth of the Twitter hashtag *#boomerremover* that was tweeted more than 4,000 times during our study period.¹² Our results show that, although most of the Twitter content related to older adults and COVID-19 is not intended to be ageist, a significant proportion of tweets have negative implications of aging or are downright offensive. Indeed, the main limitation of health-related information found on social media and other online sources is the lack of quality and reliability, highlighting the importance of creating trustworthy online content

aimed at providing information for older patients during this pandemic.¹³

Limited information is available regarding the prevalence of ageism and negative stereotypes of aging in social media. An analysis of Facebook groups concentrated on older individuals, for example, found that most of the descriptions of those groups focused on negative aging stereotypes including infantilization and contempt.¹⁴ A more recent study that analyzed 311 tweets related to Alzheimer’s disease found that 21% had content that perpetuated stigma and negative stereotypes.¹¹ Although in our study we found a similar proportion of tweets with negative content (including offensive jokes targeting older adults), we were also encouraged by the fact that a large number of tweets called for the community to protect older adults, offered positive messages, and/or highlighted the relevance of older people in society (Figure 1A, C).

Ageism is not exclusive of social media. Ageist messages can also be found in print and television advertisements, television programs, politics, and even from healthcare professionals who may harbor misconceptions that older patients are demented, frail, and somehow unsalvageable.^{15,16} This is undoubtedly also the case with COVID-19, and further studies should aim at understanding ways in which to mitigate this phenomenon. Global organizations, such as the International Federation of Aging, have created content aimed at providing information for older patients and their caregivers and at combating ageism.¹⁷ Encouraging non-ageist attitudes requires learning to recognize and appreciate the heterogeneity and value of older adults as essential members of our society.¹⁸

One of the main barriers to the creation of content that is age friendly and does not contain ageist stereotypes is the lower use of Twitter among older adults. In the United States, for example, Twitter is more popular among adults aged 18 to 29 years, and only 7% of Twitter’s users are 65 years of age and older.¹⁹ However, promoting the inclusion of older voices in social media could have beneficial consequences, such as an increase in health-related knowledge. Additionally, social media could be useful for providing and receiving social support, promoting inclusion, overcoming loneliness (particularly during long periods of physical distancing), and enhancing feelings of self-efficacy and control.²⁰

This study has limitations. We analyzed only 10 days of Twitter content, which may be influenced by events occurring during that time period, such as the WHO pandemic declaration and the national emergency declaration in the United States. However, we were able to obtain a large number of tweets and to analyze a sizable and representative sample. We only used the two most common COVID-19 hashtags, and the inclusion of other search terms may have modified the results. In addition, we only included tweets in the English language, which is the most commonly used in Twitter,²¹ and the prevalence of ageist stereotypes may be different in other languages and cultures. Finally, the interrater agreement for the type of content was moderate, mostly due to issues with classifying tweets that involved personal opinions and personal accounts. However, although the specific type of content may be difficult to classify, the fact that the content of most tweets included personal opinions and accounts remains

true. In addition, agreement between the reviewers was lower when trying to determine whether a tweet “intended to be offensive,” highlighting the difficulties of assessing intentions from posts in social media.

In conclusion, most of the conversation about COVID-19 and older adults on Twitter consisted of personal opinions, accounts, and jokes published by individuals, and almost one-quarter of the analyzed tweets were ageist or potentially offensive. The lack of high-quality informative content aimed at older adults authored by organizations and institutions represents a challenge and an opportunity, both during the COVID-19 pandemic and for future emergency preparedness responses. Future initiatives should prioritize the care of the most vulnerable, including older adults, and encourage efforts to combat systemic ageism to transform attitudes and to mitigate the deleterious impact of negative stereotypes of aging on the health and well-being of older populations.

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