JACEP OPEN
JOURNAL OF THE AMERICAN COLLEGE OF EMERGENCY PHYSICIANS OPEN
A GLOBAL JOURNAL OF EMERGENCY MEDICINE   Open Access

WILEY

ORIGINAL RESEARCH

General Medicine

Barriers to emergency department usage during the COVID-19 pandemic

Joshua D. Niforatos MD, MTS[1] (ORCID) | Alexander Chaitoff MD, MPH[2] |
Alexander R. Zheutlin MD, MS[3] | Max M Feinstein MD, MA[4] | Ali S. Raja MD, MBA[5]

[1] Department of Emergency Medicine, The Johns Hopkins School of Medicine, Baltimore, Maryland, USA

[2] Department of Internal Medicine, Brigham and Women's Hospital, Boston, Massachusetts, USA

[3] Department of Internal Medicine, University of Utah School of Medicine, Salt Lake City, Utah, USA

[4] Department of Anesthesiology, Perioperative and Pain MedicineIcahn School of Medicine at Mount Sinai, New York, New York, USA

[5] Department of Emergency Medicine, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts, USA

Correspondence
Joshua D. Niforatos, MD, MTS, Department of Emergency Medicine, The Johns Hopkins University School of Medicine, 1830 E. Monument St, Suite 6-100, Baltimore, MD 21205, USA.
Email: jnifora1@jhmi.edu

Abstract

Objective: The objective of this study was to determine the public's likelihood of being willing to use an emergency department (ED) for urgent/emergent illness during the coronavirus disease 2019 (COVID-19) pandemic.

Methods: An institutional review board–approved, cross-sectional survey of a non-probability sample from Amazon Mechanical Turk was administered May 24–25, 2020. Change in self-reported willingness to use an ED before and during the pandemic (primary outcome) was assessed via McNemar's test; COVID-19 knowledge and perceptions were secondary outcomes.

Results: There were 855 survey participants (466 [54.5%] male; 699 [81.8%] White; median age 39). Proportion reporting likelihood to use the ED pre-pandemic (71% [604/855]) decreased significantly during the pandemic (49% [417/855]; $P < 0.001$); those unlikely to visit the ED increased significantly during the pandemic (41% [347/855] vs 22% [417/855], $P < 0.001$). Participants were unlikely to use the ED during the pandemic if they were unlikely to use it pre-pandemic (adjusted odds ratio, 4.55; 95% confidence interval, 3.09–6.7) or correctly answered more COVID-19 knowledge questions (adjusted odds ratio, 1.37; 95% confidence interval, 1.17–1.60). Furthermore, 23.4% (n = 200) of respondents believed the pandemic was not a serious threat to society. Respondents with higher COVID-19 knowledge scores were more likely to view the pandemic as serious (odds ratio, 1.57; 95% confidence interval, 1.36–1.82).

Conclusions: This survey study investigated the public's willingness to use the ED during the COVID-19 pandemic. Only 49% of survey respondents were willing to visit the ED during a pandemic if they felt ill compared with 71% before the pandemic.

- -

1 | INTRODUCTION

1.1 | Background

Aggressive mitigation strategies were implemented nationally to decrease transmission of the severe acute respiratory syndrome coronavirus 2 (coronavirus disease 2019 [COVID-19]) virus in the United States.[1] Along with reports of hospitals operating at capacity, the U.S. Centers for Disease Control and Prevention (CDC) reported that emergency department (ED) visits nationwide decreased by 42% during the early part of the pandemic.[2] Simultaneously, there were decreases in acute ischemic stroke imaging,[3] hospitalizations for common acute presentations to the ED (acute myocardial infarction, heart failure, chronic obstructive pulmonary disease, and pneumonia),[4,5] and emergency medical services–reported cardiac arrests.[6] These decreases are in contrast to CDC reports of increases in COVID-19 and non-COVID-19 excess mortality.[7–9] Whether excess deaths were caused by deferred care, a lack of non-COVID-19 hospital capacity, underreporting of out-of-hospital COVID-19 cases, or other mechanisms remains to be determined.[10]

1.2 | Importance

The American College of Emergency Physicians conducted a national survey of the public's concerns around seeking medical care during the pandemic.[11] The results revealed that people are avoiding emergency or urgent medical care to avoid hospital exposure. What remains unknown are what factors may be associated with increased comfort with ED usage during a pandemic.

1.3 | Goals of this investigation

To inform actions that EDs might take to encourage and reassure patients in need of care during a pandemic, we sought to survey the general public regarding their perspectives and willingness to use the ED during a pandemic.

2 | METHODS

2.1 | Study setting and population

A cross-sectional survey was distributed to participants on Amazon Mechanical Turk (MTurk, https://www.mturk.com) between May 24 and 25, 2020. This study was deemed to be exempt from review by the institutional review board at Mass General Brigham in Boston, MA.

MTurk is an online labor marketplace where individuals anonymously complete tasks and in return receive a nominal fee for the completion of tasks (in this case, $1). Behavioral experiments using MTurk survey data are considered reliable sources for high-quality survey data.[12–16] MTurk is increasingly used to study healthcare questions.[16–24]

The Bottom Line

This survey study investigated the public's willingness to use the emergency department during the coronavirus disease 2019 pandemic. Only 49% of survey respondents were willing to visit the emergency department during a pandemic if they felt ill compared with 71% before the pandemic.

Participants were recruited from MTurk to complete a 42-question survey. Inclusion criteria were adults ≥18 years of age residing in the United States. Respondents reporting working in health care were excluded to prevent biased results. We attempted to oversample the older MTurk population with the goal of obtaining 35% of respondents ≥55-years of age to better match national ED usage patterns.[19,25,26]

2.2 | Survey instrument

The survey (Supporting Information) included demographic questions, health insurance status (yes/no), and number of ED visits in the previous 3 months. Survey respondents rated their likeliness to visit an ED (extremely likely to extremely unlikely) if they needed urgent/emergency medical attention before, and then during, the COVID-19 pandemic. They were asked to select from lists of potential pre-pandemic and during pandemic barriers to visiting an ED. This list included non-financial barriers[27] devised based on the 5-category framework of Penchansky and Thomas:[28] affordability, acceptability, availability, accessibility, and accommodation. Respondents ranked a list of potential actions in order of which would lead to increased comfort visiting an ED during the pandemic. Finally, respondents were asked about their impression and knowledge of the COVID-19 pandemic. Knowledge questions related to epidemiological data and mitigation strategies used to treat COVID-19 for hospitalized patients, whereas impression questions were adapted from Pew Research Center items related to public perception of COVID-19 and accounted for a total of 8 possible points.[29,30]

The survey contained 3 quality assurance questions to ensure meaningful responses. Respondents not appropriately responding to these questions were excluded from analyses.

2.3 | Primary and secondary outcomes

The primary outcome was comparison between individuals' self-reported willingness to use an ED before versus during the COVID-19 pandemic. We hypothesized that there would be a decrease in participants' willingness to use an ED during the pandemic. Secondary outcomes were self-reported factors associated with

willingness to use an ED during the pandemic and the association between knowledge of COVID-19 and pandemic severity perception.

2.4 | Statistical analysis

Survey items were coded as continuous, ordinal, or categorical variables in accordance with their survey presentation. The 5-point Likert scale used to assess likeliness to visit an ED before and during the pandemic was collapsed into a nominal variable with 3 levels (likely, neutral, unlikely). Respondents' perceptions of the pandemic were dichotomized (severe, non-severe) and coded as non-severe if respondents indicated that they believed society was overreacting to the pandemic, that they were not worried about the pandemic, or that they did not believe the pandemic was a threat to society.[29,30] In addition, survey respondents were given a score for "knowledge of COVID-19," which was the summation of 1 point for each question answered correctly of 8 possible points. Finally, rank-order scores for the question regarding actions to increase ED comfort were created by assigning points to each rank with a better rank corresponding with a higher point total (ie, rank 1 receives 9 points, rank 2 receives 8 points, and so forth).

Demographics were assessed with descriptive statistics. The McNemar test was used to assess the change in likelihood of visiting the ED before versus during the pandemic. A multivariable multinomial regression model was constructed that assessed the association of self-reported likeliness to visit an ED during the pandemic when compared with a respondent's reported likeliness to visit an ED before the pandemic, adjusting for age, race, sex, income, education, health insurance status, pandemic severity perception, and knowledge of COVID-19.

There are ≈209 million U.S. adults aged ≥18 years. To achieve a 95% confidence interval (CI) with a ±3% margin of error, a sample size of 1067 respondents was desired, calculated using the following formula: $N = (z\ score)2 \times StdDev \times (1-StdDev)\ /(margin\ of\ error)^2$. When we were unable to recruit the full number of respondents in the older age brackets, 3 sensitivity analyses were conducted to ensure integrity of the results. For these analyses, age was transformed into a dichotomous categorical variable (< 55 or ≥55 years). For the first 2 sensitivity analyses, the association between age and before/during COVID-19 likeliness of visiting an ED, and age and pandemic severity perception, were assessed with binomial logistic regression. The third sensitivity analysis used the substituted dichotomized age variable in the multivariable multinomial regression model. The final estimated margin of error based on the recruited sample of 855 respondents was ±3%–4% with a 95% CI. An α level of 0.05 was used to determine statistical significance for all tests. Study reporting conforms to Strengthening the Reporting of Observational Studies in Epidemiology guidelines.[31] All statistical analyses were conducted using Jamovi is the manufacture version 1.2.14.0 (Sydney, Australia).

3 | RESULTS

3.1 | Population characteristics

The 855 respondents included were primarily men (54.5%, n = 466) and White (81.8%, n = 699), with a median age of 39 years (interquartile range [IQR], 31–53) (Table 1). Most respondents had health insurance (88.1%, n = 753), with a median of 2 (interquartile range, 1–4) visits to any doctor within the previous 12 months. Respondents obtained COVID-19-related information primarily through the internet (45.9%, n = 389) or television (30.2%, n = 256). Facebook (31.0%, n = 263) and Twitter (22.4%, n = 190) were the most frequently cited social media resources for COVID-19.

3.2 | Likeliness to visit an ED

More respondents reported feeling likely to use the ED if they felt ill and needed urgent/emergency medical attention before the pandemic versus during the pandemic (71% [95% CI, 67%–74%] versus 49% [95% CI, 45%–52%], respectively). Furthermore, more respondents reported feeling unlikely to use the ED during the pandemic vs before the pandemic (41% [95% CI, 37%–44%] vs 23% [95% CI, 20%–26%], respectively (χš = 109.9, $P < 0.001$, McNemar test). In the multinomial regression model (Table 2), respondents were more unlikely to use the ED during the pandemic (compared with likely) if they were unlikely to visit the ED before the pandemic (adjusted odds ratio [OR], 4.55; 95% CI, 3.09–6.70), female (adjusted OR, 2.03; 95% CI, 1.48–2.79), or answered more COVID-19 knowledge questions correctly (adjusted OR, 1.37; 95% CI, 1.17–1.60). No other predictor variables, including pandemic severity perception, were significant predictors.

3.3 | Pandemic severity perception

Of the respondents, >72% (n = 623) were very confident or somewhat confident that hospitals and medical centers are able to handle the medical needs of people who are seriously ill during the pandemic. A total of 23.4% (n = 200) of respondents did not believe the pandemic was serious.

3.4 | Pandemic severity perception and COVID-19-related knowledge

Those who believed the pandemic is less severe were more likely to not know that severe acute respiratory syndrome coronavirus 2 is the virus that causes COVID-19 (72.5% vs 80%; $P = 0.05$) and did not know the definition of case fatality rate (66% vs 77%; $P < 0.0001$). This group was also less likely to think asymptomatic carriers were contagious (78.5% vs 91.1%; $P < 0.0001$) and were less likely to know the

TABLE 1 Characteristics of survey respondents on Amazon Mechanical Turk (N = 855)

Characteristic	n (%) or Median (IQR)
Gender	
Male	466 (54.5)
Female	382 (44.7)
Nonbinary	7 (0.01)
Age, y	39 (31–53)
Race/Ethnicity	
Non-Hispanic White	699 (81.8)
Non-Hispanic Black	50 (5.8)
Hispanic	40 (4.7)
Asian	48 (5.6)
Other	18 (2.1)
Household income	
Less than $15,000	61 (7.1)
$15,000–$25,000	89 (10.4)
$26,000–$40,000	147 (17.2)
$41,000–$59,000	153 (17.9)
$60,000–$89,000	197 (23)
Greater than $90,000	208 (24.3)
Highest education	
No high school education	0 (0)
Grades 9–11	9 (1.1)
Grade 12 or GED	89 (10.4)
College 1–3 years	232 (27.1)
College 4 years or more	371 (43.4)
Graduate or professional degree	154 (18)
Region	
Northeast	167 (19.5)
Midwest	197 (23)
South	332 (38.8)
West	158 (18.5)
Unknown	1 (0.1)
Health insurance	
Yes	753 (88.1)
No	102 (11.9)
Number of doctor visits past 12 months	2 (1–4)

Note that the GED is the high school equivalency diploma. IQR, interquartile range; GED, general education development; ED, emergency department.

reason behind social distancing (91% vs 98%; *P* < 0.0001) or the distance that is recommended to social distance (90% vs 97%; *P* < 0.0001). Finally, higher scores on the composite "knowledge of COVID-19" were associated with viewing the pandemic as serious (OR, 1.57; 95% CI, 1.36–1.82).

TABLE 2 Predictors of reporting willingness to visit the emergency department during the pandemic as "unlikely"

Predictor variable	Odds ratio	95% Confidence interval Lower	Upper
Age	0.99	0.98	1.0
Gender			
Male	Reference	–	–
Female	2.1	1.5	2.9
Income			
Less than or equal to $15,000	0.97	0.47	2.0
$15,000–$25,000	0.94	0.50	1.7
$26,000–$40,000	1.3	0.80	2.2
$41,000–$59,000	0.80	0.50	1.4
$60,000–$89,000	0.80	0.50	1.3
Greater than or equal to $90,000	Reference	–	–
Education			
Grades 9–11	1.1	0.20	5.4
Grade 12 or GED	0.80	0.40	1.5
College 1–3 years	1.3	0.80	2.1
College 4 years or more	0.80	0.50	1.2
Graduate or professional degree	Reference	–	–
Insurance			
Yes	1.0	0.60	1.7
No	Reference	–	–
Race/Ethnicity			
Black	1.1	0.50	2.1
Hispanic	0.80	0.40	1.7
Asian	0.60	0.30	1.3
Other	0.95	0.30	2.8
White	Reference	–	–
Pandemic severity perception			
Severe	Reference	–	–
Not severe	0.98	0.67	1.4
Knowledge of COVID-19	1.4	1.2	1.6
ED comfort before COVID-19			
Neutral versus likely	1.9	0.90	3.8
Unlikely versus likely	4.8	3.3	7.2

Estimates represent the log odds of willing to go to the during the COVID-19 pandemic as unlikely versus likely. COVID-19, coronavirus disease 2019; ED, emergency department; GED, general education development.

3.5 | Self-reported barriers to ED usage

Before the pandemic, the most frequently cited barrier of 1322 selected responses was affordability of health care (24.2%, n = 320) (Table 3). The pandemic changed self-reported barriers to ED usage, with the most frequently cited barrier of 1693 responses as concern about personal exposure to COVID-19 (27.6%, n = 468) (Table 3).

3.6 | Factors associated with increased comfort to use an ED during the pandemic

Table 4 provides the overall rank-ordered list of steps respondents said would increase their comfort in going to the ED. The most frequently chosen factor was telemedicine screening to determine necessity of an in-person visit (20.1%, n = 172). The overall top-ranked factor associated with increased comfort was orienting chairs >6 feet apart in the waiting room.

3.7 | Sensitivity analyses

The sensitivity analyses revealed no significant differences between dichotomized age groups and the primary outcome and did not significantly change the results of the regression model.

4 | LIMITATIONS

Limitations are noted with this study. MTurk is a non-probability sample of U.S. adults, and although existing studies suggest that MTurk results are generalizable for the purposes of behavioral research,[12–16] at least one study suggests that MTurk workers are not generalizable to health status and behaviors.[32] Participants in this survey had a median age of 39, which is younger than the group of highest ED users nationally.[26] However, the sensitivity analyses address this latter concern and suggest potential generalizability with regard to age-related perceptions. In addition, the sample population was predominantly White with college degrees, which does not fully represent the race, ethnic, and educational demographics of the United States.

5 | DISCUSSION

Survey results demonstrate that U.S. adults reduced their willingness to use the ED during the pandemic. Furthermore, respondents who perceived the pandemic as "severe" were less likely to be willing to use the ED compared with respondents who believed the pandemic was not severe, although on the order of ≈10%. Survey respondents who scored higher on COVID-19 knowledge questions were both more likely to view the pandemic as severe and to report being

TABLE 3 Barriers to emergency department usage before and during the COVID-19 pandemic

Before the COVID-19 pandemic, what barriers, if any, would prevent you from going to the emergency department if needed? Select as many as apply.	N	Proportion of respondents (%)
Health care too costly/worried about the cost of care (affordability)	320	24.2
I did not face barriers that prevented me from going to the emergency department	317	24.0
Wait time at the emergency department is often too long (accommodation)	217	16.4
Have no transportation to travel to the emergency department (accessibility)	146	11.0
No health insurance (affordability)	91	6.9
Takes too long to travel to the emergency department (availability)	57	4.3
No emergency facilities that provide trustworthy and quality care (acceptability)	47	3.6
No emergency facilities in neighborhoods that are safe (acceptability)	36	2.7
No time to go to the emergency department (accessibility)	34	2.6
Other (please list)	32	2.4
Did not know where to find an emergency department (availability)	23	1.7
Could not find an emergency department that spoke my language (accommodation)	2	0.2

Currently, what barriers, if any, would prevent you from going to the emergency department if needed? Select as many as apply.	N	Proportion of the 1,322 barriers identified by participants (%)
Concern about personal exposure to COVID-19	468	27.6
Health care too costly/worried about the cost of care (affordability)	281	16.6
I want to help "flatten the curve" by not using the ED	195	11.5
Wait time at the emergency department is often too long (accommodation)	166	9.8
I did not face barriers that prevented me from going to the emergency department	153	9.0

(Continues)

TABLE 3 (Continued)

Currently, what barriers, if any, would prevent you from going to the emergency department if needed? Select as many as apply.	N	Proportion of the 1,322 barriers identified by participants (%)
Other issue related to COVID-19 (please describe)	92	5.4
No health insurance (affordability)	81	4.8
No emergency facilities that provide trustworthy and quality care (acceptability)	55	3.2
No emergency facilities in neighborhoods that are safe (acceptability)	41	2.4
Takes too long to travel to the emergency department (availability)	41	2.4
Have no transportation to travel to the emergency department (accessibility)	40	2.4
No time to go to the emergency department (accessibility)	27	1.6
Other issue unrelated to COVID-19 (please describe)	23	1.4
Did not know where to find an emergency department (availability)	22	1.3
Could not find an emergency department that spoke my language (accommodation)	8	0.5

COVID-19, coronavirus disease 2019.

unlikely to use the ED during the pandemic. These results are consistent with other research that demonstrates an association between perception of COVID-19 severity and a variety of health-related behaviors.[33,34]

The most important reported barriers to ED usage before the pandemic were ED costs, ED wait time, lack of transportation, and lack of insurance, which is consistent with prior research.[35,36] During the pandemic, the most important barriers were concern related to personal exposure to COVID-19, healthcare costs, and a desire to help "flatten the curve" by avoiding the ED. The most important intervention identified to alleviate concern about personal exposure to COVID-19 during an ED visit was placing waiting room chairs >6 feet apart, followed by telemedicine screening by phone and/or video to determine the necessity of an in-person visit.

Ideally, interventions to allay patient concerns about COVID-19 exposure, as well as to help screen for appropriateness of an ED visit, may reduce time to diagnosis/treatment and perhaps all-cause mortality from emergency medical conditions unrelated to COVID-19. Increase of ED telemedicine, as well as making this information known to the public, may help assuage fear.

TABLE 4 Factors associated with increased comfort of visiting an emergency department during the COVID-19 pandemic

By order of importance, rank the following factors that would make you feel more comfortable going to the emergency department.	Rank order
6+ feet between chairs in the waiting room	1
Telemedicine screening (by phone and/or video) to determine whether an in-person visit is even necessary	2
Telemedicine evaluation in the emergency department (doctors and nurses seeing you using an iPad with only minimal in-person interaction)	3
Masks distributed to every person who enters the emergency department	4
Additional signs telling you exactly what the emergency department is doing to keep you safe	5
Allowing at least 1 family member or friend to stay with you in the emergency department	6
Shorter wait times	7
Additional resources or staff to help you get care at home instead of in the hospital (if appropriate)	8
Suggestions not listed here	9

COVID-19, coronavirus disease 2019.

It is conceivable that barriers to ED usage during the ongoing and future pandemics could be mitigated by the interventions identified in this study (Table 4). Given the concern for a prolonged COVID-19 pandemic, hospitals have an obligation to restructure their ED in such a way that individuals, especially those at high risk of emergency conditions, are not deterred from seeking medical care.

In summary, self-reported willingness to use the ED for an urgent/emergent illness decreased during the pandemic compared with before the pandemic. Perceived pandemic severity was inversely related to knowledge of COVID-19. During the pandemic, barriers to ED usage included concerns related to COVID-19 exposure. Hospitals should implement strategies to reduce COVID-19-related barriers to ED usage as well as informing the public about these efforts to potentially prevent unnecessary morbidity and mortality from ED avoidance.

ORCID

Joshua D. Niforatos MD, MTS https://orcid.org/0000-0003-4702-7465

REFERENCES

1. Schuchat A, COVID CDC. 19 Response Team. Public Health Response to the Initiation and Spread of Pandemic COVID-19 in the United States, February 24-April 21, 2020. *MMWR Morb Mortal Wkly Rep.* 2020;69(18):551-556.

2. Hartnett KP. Impact of the COVID-19 pandemic on emergency department visits — United States, January 1, 2019–May 30, 2020. *MMWR Morb Mortal Wkly Rep.* 2020;69.

3. Kansagra AP, Goyal MS, Hamilton S, et al. Collateral effect of Covid-19 on stroke evaluation in the United States. *N Engl J Med.* 2020;23;383(4):400-401.

4. Solomon MD, McNulty EJ, Rana JS, et al. The Covid-19 pandemic and the incidence of acute myocardial infarction. *N Engl J Med.* 2020;13;383(7):691-693.

5. Baum A, Schwartz MD. Admissions to veterans affairs hospitals for emergency conditions during the COVID-19 pandemic. *JAMA.* 2020;324(1):96–99.

6. Wong LE, Hawkins JE, Langness S, et al. Where are all the patients? addressing Covid-19 fear to encourage sick patients to seek emergency care. *NEJM Catal Innov Care Deliv.* 2020. https://catalyst.nejm.org/doi/pdf/10.1056/CAT.20.0193.

7. Bilinski A, Emanuel EJ. COVID-19 and excess all-cause mortality in the US and 18 comparison countries [published online ahead of print October 12, 2020]. *JAMA.* https://doi.org/10.1001/jama.2020.20717.

8. Woolf SH, Chapman DA, Sabo RT, Weinberger DM, Hill L, Taylor DDH. Excess deaths from COVID-19 and other causes, March-July 2020. *JAMA* 2020;324(15):1562-1564.

9. Gold JA, Rossen LM, Ahmad FB, et al. Race, ethnicity, and age trends in persons who died from COVID-19—United States, May–August 2020. *MMWR Morb Mortal Wkly Rep.* 2020;69(42):1517–1521.

10. Faust JS, Del Rio C. Assessment of deaths from COVID-19 and from seasonal influenza. *JAMA Intern Med.* 2020;80(8):1045-1046.

11. American College of Emergency Physicians and Morning Consult. Public poll: emergency care concerns amidst COVID-19. https://www.emergencyphysicians.org/article/covid19/public-poll-emergency-care-concerns-amidst-covid-19.Published April 2020. Accessed on May 1, 2020.

12. Berinsky AJ, Huber GA, Lenz GS. Evaluating online labor markets for experimental research: amazon.com's mechanical turk. *Polit Anal.* 2012;20(3):351-368.

13. Buhrmester M, Kwang T, Gosling SD. Amazon's Mechanical Turk: a new source of inexpensive, yet high-quality, data? *Perspect Psychol Sci J Assoc Psychol Sci.* 2011;6(1):3-5.

14. Buhrmester MD, Talaifar S, Gosling SD. An evaluation of Amazon's Mechanical Turk, its rapid rise, and its effective use. *Perspect Psychol Sci J Assoc Psychol Sci.* 2018;13(2):149-154.

15. Crump MJC, McDonnell JV, Gureckis TM. Evaluating Amazon's Mechanical Turk as a tool for experimental behavioral research. *PloS One.* 2013;8(3):e57410.

16. Cunningham JA, Godinho A, Bertholet N. Outcomes of two randomized controlled trials, employing participants recruited through mechanical turk, of internet interventions targeting unhealthy alcohol use. *BMC Med Res Methodol.* 2019;19(1):124.

17. Chaitoff A, Niforatos J, Vega J. Exploring the effects of medical trainee naming: a randomized experiment. *Perspect Med Educ.* 2016;5(2):114-121.

18. Niforatos JD, Chaitoff A, Mercer MB, et al. Association between public trust and provider specialty among physicians with financial conflicts of interest. *Mayo Clin Proc.* 2019;94(12):2467-2475.

19. Solnick RE, Peyton K, Kraft-Todd G, et al. Effect of physician gender and race on simulated patients' ratings and confidence in their physicians. *JAMA Netw Open.* 2020;3(2): e1920511.

20. Levy AG, Scherer AM, Zikmund-Fisher BJ, et al. Assessment of patient nondisclosures to clinicians of experiencing imminent threats. *JAMA Netw Open.* 2019;2(8):e199277.

21. Silver EP, Broomell SB, Davis AL, et al. Communicating a prognosis: a randomized trial of survival rate language. *J Gen Intern Med.* 2019;34(10):1990-1991.

22. Levy AG, Scherer AM, Zikmund-Fisher BJ, et al. Prevalence of and factors associated with patient nondisclosure of medically relevant information to clinicians. *JAMA Netw Open.* 2018;1(7): e185293.

23. Pratap A, Allred R, Duffy J, et al. Contemporary views of research participant willingness to participate and share digital data in biomedical research. *JAMA Netw Open.* 2019;2(11): e1915717.

24. Schoenfeld EM, Mader S, Houghton C, et al. The effect of shared decision making on patients' likelihood of filing a complaint or lawsuit: a simulation study. *Ann Emerg Med.* 2019;74(1):126-136.

25. Mortensen K, Alcalá MG, French MT, et al. Self-reported health status differs for Amazon's Mechanical Turk respondents compared with nationally representative surveys. *Med Care.* 2018;56(3):211-215.

26. National Hospital Ambulatory Medical Care Survey: 2017 emergency department summary tables. https://www.cdc.gov/nchs/data/nhamcs/web_tables/2017_ed_web_tables-508.pdf. Published online 2017. Accessed June 1, 2020.

27. Kullgren JT, McLaughlin CG. Beyond affordability: the impact of nonfinancial barriers on access for uninsured adults in three diverse communities. *J Community Health.* 2010;35(3):240-248.

28. Penchansky R, Thomas JW. The concept of access: definition and relationship to consumer satisfaction. *Med Care.* 1981;19(2):127-140.

29. Covid-19 news pathways: explore the data. Pew Research Center's American News Pathways data tool. https://www.pewresearch.org/topics/coronavirus-disease-2019-covid-19/. Published April 2020. Accessed on April 23, 2020.

30. 5 Facts about partisan reactions to COVID-19 in the U.S. Pew Research Center's American News Pathways data tool. https://www.pewresearch.org/fact-tank/2020/04/02/5-facts-about-partisan-reactions-to-covid-19-in-the-u-s/. Accessed on April 23, 2020.

31. Vandenbroucke JP, von Elm E, Altman DG, et al. Strengthening the reporting of observational studies in epidemiology (STROBE): explanation and elaboration. *PLoS Med.* 2007;4(10): e297.

32. Walters K, Christakis DA, Wright DR. Are Mechanical Turk worker samples representative of health status and health behaviors in the US? *PloS ONE.* 2018;13(6):p. e0198835.

33. Oosterhoff B, Palmer C. Psychological correlates of news monitoring, social distancing, disinfecting, and hoarding behaviors among US adolescents during the COVID-19 pandemic. *PsyArXiv.* 2020. Published online March 23. https://doi.org/10.31234/osf.io/rpcy4.

34. Lee M, You M. Psychological and behavioral responses in south korea during the early stages of coronavirus disease 2019 (COVID-19). *Int J Environ Res Public Health.* 2020;17(9).

35. Kennedy J, Rhodes K, Walls CA, et al. Access to emergency care: restricted by long waiting times and cost and coverage concerns. *Ann Emerg Med.* 2004;43(5):567-573.

36. Spechbach H, Rochat J, Gaspoz J-M, et al. Patients' time perception in the waiting room of an ambulatory emergency unit: a cross-sectional study. *BMC Emerg Med.* 2019;19(1):41.

AUTHOR BIOGRAPHY

Joshua Niforatos, MD, MTS, is a resident physician in emergency medicine at The Johns Hopkins Hospital.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.