

# A Pilot Study in The Role of Consumer Reviews in Revealing Experiences of Structural Racism in Healthcare

Jason Tong, MD<sup>a</sup>, Anietie Andy, PhD<sup>b</sup>, Raina Merchant, MD, MSHP<sup>c</sup>, William Cooper, MD<sup>d</sup>, Rachel Kelz, MD, MSCE, MBA, FACS<sup>e</sup>

a: National Clinician Scholars, Corporal Michael J. Crescenz Veterans Affairs Medical Center, Philadelphia, PA  
b: Center for Digital Health, University of Pennsylvania, Philadelphia, PA  
c: Department of Emergency Medicine, Perelman School of Medicine, University of Pennsylvania Philadelphia, PA  
d: Department of Pediatrics, Vanderbilt University School of Medicine, Nashville, TN  
e: Department of Surgery, Center for Surgery and Health Economics, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA



## RESEARCH OBJECTIVE

Structural racism is a contributor to worse health outcomes and hospital selection patterns for minorities in the United States. Currently, no direct measures of racism exist due to its subjective and experiential nature.

We sought to use publicly available online consumer reviews as a novel method of better understanding the presence of structural racism within healthcare, and how it is reported by healthcare consumers.

## POPULATION STUDIED

We accessed publicly available Yelp online consumer reviews of United States hospitals from 2010 to 2020.

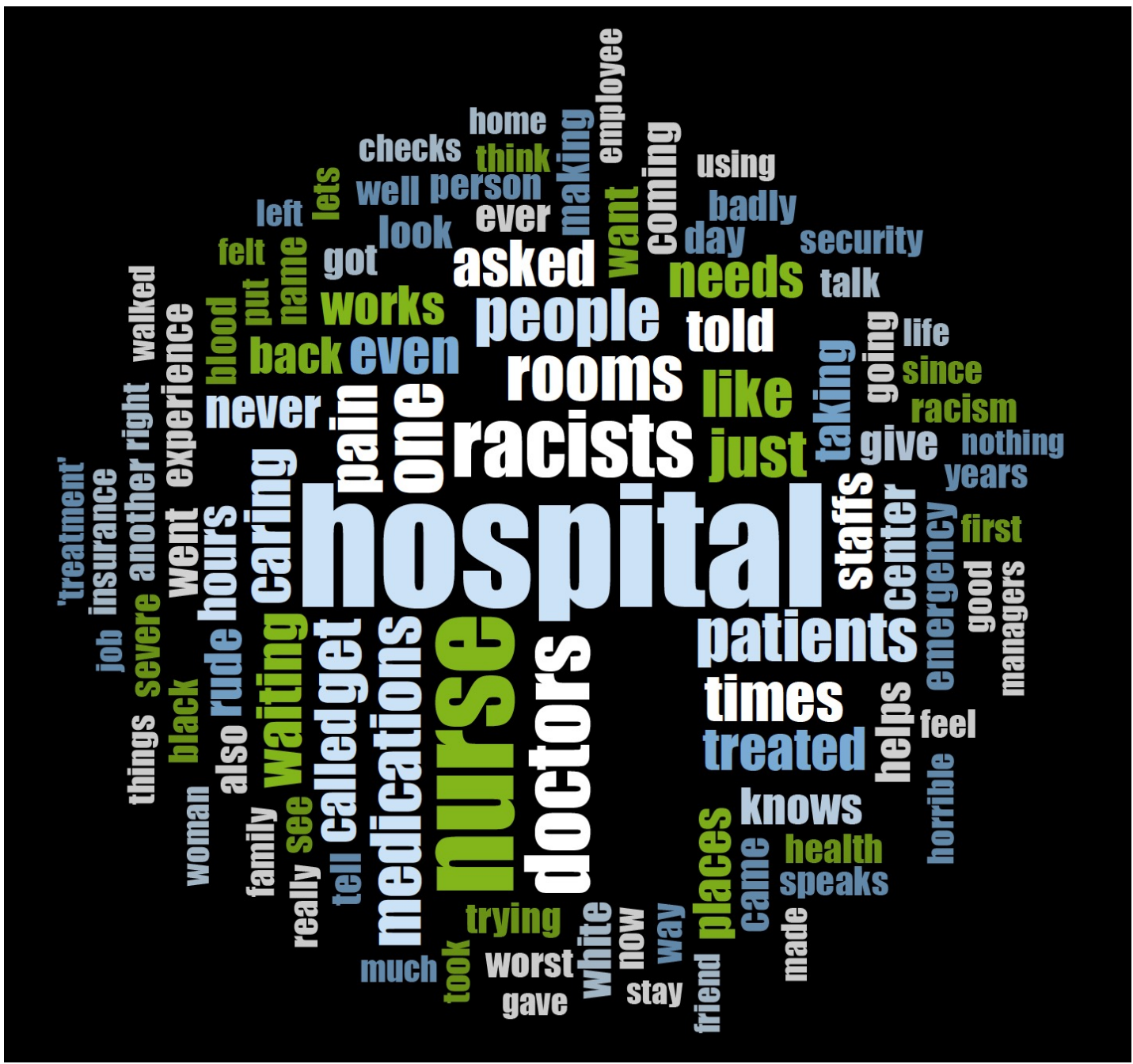
## STUDY DESIGN:

We used natural language processing to identify online consumer reviews mentioning either keyword, “racism” or “racist.” Using an iterative approach, consumer narratives were manually reviewed to better understand content and underlying patterns.

We then performed a qualitative content analysis of the data, and consumer narratives were coded into unique recurring themes. Content code queries were then performed to further understand patterns of racist experiences in healthcare.

## PRINCIPAL FINDINGS

Figure 1. Word Cloud of Most Frequent Terms



## ACKNOWLEDGEMENTS

We would like to acknowledge the Leonard Davis Institute of Health Economics in helping to support and fund this work.

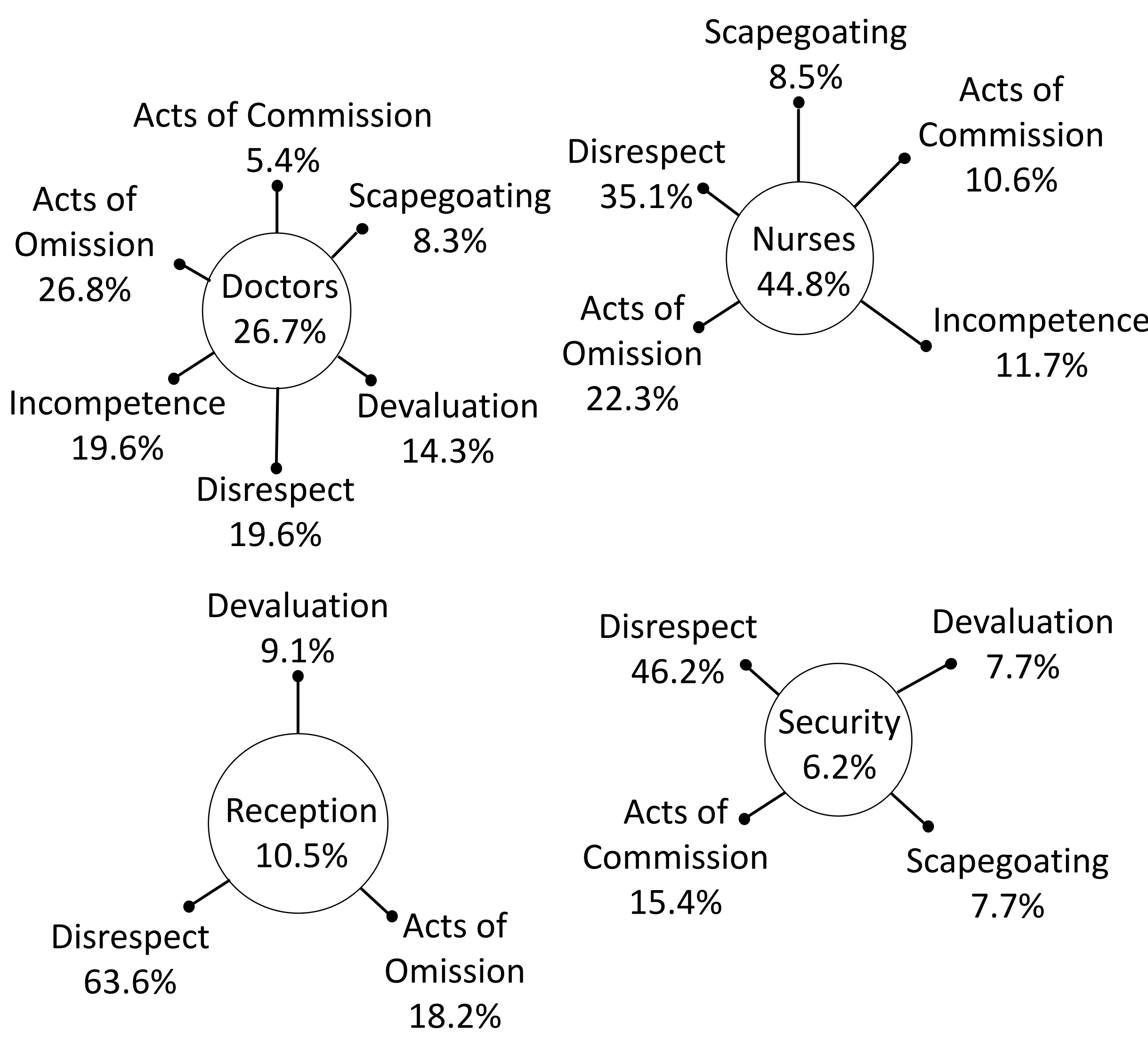
## PRINCIPAL FINDINGS

During the study period, 90,786 Yelp reviews were obtained. Of those, 260 reviews explicitly cited racism in 190 hospitals spread across 33 states. Sample reviews and coded themes included in Table 1. Word cloud of most frequent terms generated for review. See Figure 1.

Table 1. Sample Quotes of Racist Experiences and Associated Coded Themes

Codes	Sample Quote
Domain	
Interpersonal	“Minorities wait hours while non-people of color are given top priority... They are blatantly RACIST”
Institutional	“I’m leaving early due to the constant bombardment of racism... The staff will not do anything or say anything to the racist people.”
Internalized	“...seems African-Americans in terms of professional conduct is very poor.”
Setting	
Clinical	“This hospital is RACIST against minorities... [they] CALLED Social Services on me... If I was a white women not on Medical-Cal this wouldn’t have happened but I’m a minority what can I expect?”
Nonclinical	“Go to this pain clinic if you want to be treated with biased service... The administrative staff are a bunch of racist, rude bigots.”
Themes	
Unprofessional	“The doctor... seems to be a very racist, immigrant hating person. He does not want to listen (and doesn’t let you speak) and just wants to push his points. Very rude, interrupts you after every word. And gives off a very unfriendly attitude.”
Acts of Omission	“Dr... is the most racist unprofessional doctor I have ever met. She illegally denied me treatment and I had to go to higher ups for her to do her job.”
Incompetence	“... he is racist and disrespectful with the patient’s family and he discriminates people I was disappointed with his work ethic it was below average”
Note. Sample quotes and associated coded theme. Quotes are de-identified.	

Figure 2. Themes associated with interpersonal racism by identified perpetrator categories.



Percentages listed under individuals reflect relative proportion of all reviews coded as acts of interpersonal racism. Percentages listed with themes reflect relative proportions of themes per individual type.

- 81% of all reviews cited individual perpetrators of interpersonal racism.
  - Of those, doctors (27%) and nurses (45%) were mentioned most.
  - The most common themes of interpersonal racism included unprofessionalism (41%) and acts of omission (19%). See Figure 2
- There were 70 mentions of institutional racism
  - Most frequently associated with themes of omitting care (26%) and disrespect (23%).
- Racism was 2.5 times more frequently associated with clinical encounters than nonclinical encounters
  - Racism in nonclinical spaces most frequently occur during interactions with reception and security.
- Nine reviews demonstrate internalized racist behavior by the consumer, primarily directed at nurses

## CONCLUSIONS

- This work demonstrates that:
- Consumer reviews are a valuable source of detailed information on racism within hospitals not currently collected through existing survey metrics
  - These reviews demonstrate experiences of racism within hospitals extend beyond the clinical staff to include other critical organization personnel
  - Racism is often interpersonal and bidirectional, affecting both patients and providers

## IMPLICATIONS FOR POLICY AND PRACTICE

- Publicly available consumer reviews offer novel insight into how racism is experienced by healthcare consumers. It may serve as a tool to help evaluate the presence of structural racism in healthcare and offer an opportunity to improve upon it by:
- Including this data on dashboards as an additional resource to prepare and support clinicians in delivering equitable care
  - Directing hospitals to concrete locations and providers in need of training on racism
  - Providing support to hospital personnel experiencing racism by healthcare consumers

## References

- Moy E, Dayton E, Clancy CM. Compiling The Evidence: The National Healthcare Disparities Reports. *Health Aff.* 2005;24(2):376-387. doi:10.1377/hlthaff.24.2.376
- Adkins-Jackson PB, Legha RK, Jones KA. How to measure racism in academic health centers. *AMA J Ethics.* 2021.
- Ranard BL, Werner RM, Antanavicius T, et al. Yelp Reviews Of Hospital Care Can Supplement And Inform Traditional Surveys Of The Patient Experience Of Care. *Health Aff.* 2016;35(4):697-705. doi:10.1377/hlthaff.2015.1030
- Ryskina KL, Andy AU, Manges KA, Foley KA, Werner RM, Merchant RM. Association of Online Consumer Reviews of Skilled Nursing Facilities With Patient Rehospitalization Rates. *JAMA Netw Open.* 2020;3(5):e204682. doi:10.1001/jamanetworkopen.2020.4682
- Jones CP. Levels of racism: A theoretic framework and a gardener’s tale. *Am J Public Health.* 2000;90(8):1212-1215. doi:10.2105/AJPH.90.8.1212
- Vandenbroucke JP, von Elm E, Altman DG, et al. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE): explanation and elaboration. *Ann Intern Med.* 2007;147(8):W163-94. doi:10.7326/0003-4819-147-8-200710160-00010-w1

## Contact Information

Please feel free to contact us with any questions or feedback at:  
Jason.Tong@pennmedicine.upenn.edu  
Twitter:@JasonTong\_MD