

# UNDERSTANDING BIAS IN HOSPITAL COMMUNICATION: A STUDY PROPOSAL OF OPERATOR BIAS TOWARDS HISPANIC CALLERS

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## **Abstract**

Within the realm of healthcare, hospital switchboard operators occupy a crucial position as the initial point of contact for individuals seeking medical assistance. As the demographic landscape of the United States continues to evolve, ensuring equitable treatment and unbiased communication with callers, irrespective of their background, emerges as a pressing concern. This study would examine potential implicit biases among hospital switchboard operators, specifically focusing on their interactions with Hispanic callers. Employing the Implicit Association Test (IAT), this study would aim to uncover any subtle biases inherent in operator interactions.

*Keywords: implicit association test, Hispanic bias, hospital operator, bias reduction, healthcare bias*

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## **1. Introduction**

Hospital switchboard operators play a crucial role as the first point of contact in healthcare communication, facilitating connections between patients, healthcare providers, and various departments. Not only are they responsible for assisting patients in scheduling appointments with their doctor, but they also provide basic information about a patient's status in the hospital (i.e. whether they are admitted or not) and transfer family members to that respective hospital unit. As the first point of contact for a hospital system, it is vital for a switchboard

operator to demonstrate compassion, friendliness, and to maintain a non-judgmental tone with callers from various backgrounds as this sets the precedent for the caller's impression of the hospital.

With the United States becoming increasingly diverse, acknowledging and addressing the cultural aspects of healthcare is critical to achieve equitable access and outcomes. It is expected that by 2050, 25% of the United States (US) population will be Hispanic (Kelson et al., 2022). Despite this being the largest growing ethnic group in the US, the Hispanic community faces higher rates of obesity, type 2 diabetes, and receive worse care in approximately 40% of healthcare quality measures (Brener et al., 2023; Kelson et al., 2022; Maina et al., 2017). The main source of these health disparities is thought to be due to providers' prejudice, stereotyping, and bias towards racial and ethnic minorities (Maina et al., 2017).

## **2. Literature Review**

Bias can be expressed either implicitly or explicitly. Implicit bias refers to the subconscious beliefs, assumptions, and associations that are often unrecognized by the individual, yet influence their perception of others (Hall et al., 2015; Maina et al., 2017). Explicit bias, on the other hand, are attitudes and beliefs towards another group that the individual is consciously aware of (Maina et al., 2017). Implicit biases can be expressed in a multiple of ways in the healthcare setting ranging from less time spent during a patient encounter to performing fewer diagnostic testing (Hall et al., 2015).

Throughout the past 20 years, the Implicit Association Test (IAT) has been used to measure the unconscious associations through a stimulus sorting task (Carpenter et al.). This test has been used in a multitude of studies within the healthcare setting to measure provider bias towards different racial and ethnic backgrounds. In a systematic review by Hall et al. (2015), healthcare providers were found to associate "noncompliance", "risk", and other stereotyping words more quickly

with stereotypical Hispanic faces in comparison to Caucasian faces. Similarly, two other studies included in the review found that roughly half of the physicians surveyed showed a moderate level of bias towards Hispanics (Hall et al., 2015). Maina et al. performed a similar systematic review seven years after the one conducted by Hall et al. and found similar findings while also examining the effects of these biases on health outcomes. Their results showed that increased implicit bias among physicians resulted in fewer follow up recommendations, poorer anticipated therapeutic bonds, and demonstrated more negative affect, verbal dominance, and slower dialogue (Maina et al., 2017).

Rather than one interaction being solely associated with these worsened outcomes, Brener et al. propose the Hispanic Cyclical Barrier to Healthcare (HCBH) model. This model describes three main steps in the cycle: before the appointment, during the appointment, and after the appointment (Brener et al., 2023). At each of these stages in the cycle, they propose challenges that lead to more negative interactions or are the main barrier for Hispanic patients when trying to access healthcare. At the first stage in this cycle, “before the appointment”, one of the challenges listed is structural inequalities followed by scheduling. Both challenges highlight the importance of the switchboard operator in these interactions. If a patient has the preconceived notion that they will be discriminated against or that they will not be able to communicate efficiently and effectively, they will be less likely to seek out healthcare (Brener et al., 2023).

Despite growing awareness of implicit biases in healthcare, there remains a notable gap in the literature regarding the specific biases of hospital switchboard operators, particularly concerning interactions with Hispanic callers. Examining the implicit biases of hospital operators will allow for improved diversity, equity, and inclusion (DEI) training and aid in reducing the challenges presented in the HCBH model.

This study would seek to explore and understand the implicit biases exhibited by hospital switchboard operators, focusing specifically on their interactions with Hispanic callers. The primary objective of this study would be to determine the strength of implicit biases among hospital switchboard operators towards Hispanic patients. Through a comprehensive investigation of these biases, I hope to be able to provide insights that can inform interventions and strategies to promote more culturally competent and unbiased healthcare communication.

### 3. Methods

The primary aim of this study would be to determine to what degree hospital operators exhibit a bias towards Hispanic patients utilizing an IAT placed in Qualtrics. The IAT software that would be used in Qualtrics was developed, tested, and validated by Carpenter et al. (2019) The premise of the IAT is that one can more quickly sort stimuli pairs if they are compatible with previously held associations. Table 1 contains the words that would be used for pairing in the IAT.

<b>Non-Hispanic</b>	Clark, Davis, Johnson, Miller, Robertson, Smith
<b>Hispanic</b>	Flores, García, Ramírez, Ramos, Torres, Vargas
<b>Good</b>	Excitement, Friendship, Happy, Joyful, Pleasant, Polite, Respectful
<b>Bad</b>	Argumentative, Disgust, Hatred, Impolite, Offensive, Rude, Selfish

**Table 1.** Words Used in IAT

#### Data Collection:

The online survey would be disseminated to the switchboard employees and remain open for two (2) weeks for response collection with a target response of 100 participants. The IAT measures the degree to which certain pairs (i.e. non-Hispanic names vs Hispanic names) and categories (i.e. positive vs negative) are associated. Utilizing their keyboard, participants will complete seven (7) blocks of sorting

the stimuli. In each of these trials, participants would be shown a word on the screen in one of the pairs or categories and asked to sort them using the “E” and “I” keys (i.e. “E” for non-Hispanic names or positive; “I” for Hispanic names or negative). Between trials, the pairs and categories would be mixed so that every possible combination is explored.

Blocks 1 and 2 consist of twenty (20) trials each and would be practice rounds of only trial pairs or categories (e.g. press “E” for positive; press “I” for negative). Block 3 would be a round of twenty (20) practice trials for the combination blocks (e.g. press “E” for positive AND for non-Hispanic names; press “I” for negative AND for Hispanic names; compatible block). Block 4 would be the same as Block 3 with forty (40) critical trials. Block 5 would be another practice round like Blocks 1 and 2, however the categories would be reversed (e.g. press “E” for negative; press “I” for positive). Lastly, Block 6 would be similar to Block 3 in that it contains twenty (20) practice combination trials, however, the pairs would be switched (e.g. press “E” for positive AND for Hispanic names; press “I” for negative AND for non-Hispanic names; incompatible block). Block 7 would be the same as Block 6 with forty (40) critical trials.

Data in Blocks 3 – 7 would be computed to obtain a standardized difference ( $D$ ) score indicating in which condition participants were faster. A  $D$  score of 0 indicates no difference in speeds; a positive score indicates that one was faster in the compatible block; and a negative score indicates that one was faster in the incompatible block.

### **Data Analysis:**

Upon completion of the survey in Qualtrics, results would be exported to the iatgen Shiny Web Applet where a  $D$  score was calculated for each participant ( $D$ -score algorithm; Greenwald et al., 2003), indicating in which condition participants were faster as well as provided key diagnostics (drop count, error rate, timeout rate, internal

consistency estimates). From there, a .csv file containing participant ID's and respective *D* scores would be inputted to SPSS v28.0 to perform an independent sample t-test to determine whether the group mean *D*-score significantly differs from 0. Post hoc analyses would also be performed to determine if gender or ethnicity groups significantly differed from each other as well. Participant *D* scores would also be translated into categorical classifications based on the following criteria by Haider et al. (2011): *D* score of 0.15 or lower means no preference; 0.16–0.35, slight non-Hispanic implicit preference; 0.36–0.65, moderate non-Hispanic implicit preference; and higher than 0.65, strong non-Hispanic implicit preference. Negative scores indicate Hispanic implicit preference with comparable interpretation of categories. This categorization would allow for further analyses such as ANOVA to determine how each bias category is associated with other outcomes rather than the binary classification of “bias” or “no bias” necessitated by the t-test.

#### **4. Future Impact**

Many of the current interventions aimed at reducing implicit biases are focused on providing education surrounding the bias, however, a recent systematic review found that these interventions did not lead to long-term improvements in bias reduction, only improvements in bias recognition (Vela et al.). There is still little evidence for an intervention that results in lasting reduction in said biases (Greenwald et al., 2022). Promising research is being conducted in using mindfulness-based techniques and exposure to counter-stereotypical exemplars for bias reduction and future research should delve further into these interventions with Greenwald et al. (2022) stating an important consideration; bias reduction interventions should not be single session interventions, but rather repeated exposure interventions over time (Burgess et al., 2017; FitzGerald et al., 2019). The results from this study could be used to further inform

interventions addressed at reducing bias among healthcare workers.

One possible intervention based on this study could be tailored learning modules specifically targeting the biases identified. These modules could be less focused on bias identification and recognition, but rather how to address and curb these biases. Repeating modules every two weeks for three months may be a possible solution for reinforcing the behavior changes. Another intervention could be a hybrid course that begins with an in-person group session aimed at role-playing different scenarios hospital operators commonly face and how to respond in an unbiased, compassionate, and professional manner. Following the in-person session, online learning modules could be implemented once a week for three months with a final in-person session to gauge improvements in the target behaviors. At the institutional level, this study could influence the onboarding training of new employees to help mitigate bias before there is any negative impact on patient experience.

## **5. Limitations**

Some argue that the IAT lacks construct validity in what it is measuring and whether the *D*-score correlations with measures of discrimination are too small to be of practical societal use. The IAT is generally believed to measure implicit associations between categories and these associations have been found to predict both spontaneous and deliberate behavior. Other theories offer suggestions as to what the IAT is truly measuring, however, those alternative theories predict the same findings as the one based on associations (Greenwald et al., 2022). In regards to the practicality of the IAT, Greenwald et al. (2015) found that two meta-analyses of IAT studies estimated aggregate correlational sizes large enough to explain discriminatory impacts.

## **6. Conclusion**

In conclusion, this study would aim to shed light on an under-

explored aspect of healthcare communication by examining implicit biases among hospital switchboard operators toward Hispanic callers. The findings could have significant implications for improving healthcare access and quality for Hispanic populations by informing targeted interventions. By focusing on the entry point of patient-provider interactions, this research has the potential to influence both the training and ongoing education of hospital staff, promoting a more inclusive and equitable healthcare environment. Future work may extend these findings by exploring additional demographic biases or by implementing and assessing the effectiveness of proposed interventions. Ultimately, addressing operator bias is a step forward in achieving healthcare equity, ensuring that all individuals receive respectful and unbiased service from their first point of contact within the healthcare system. ■

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## REFERENCES

- Brener, S. et al. "A Cyclical Model of Barriers to Healthcare for the Hispanic/Latinx Population." *J Racial Ethn Health Disparities*, 2023, doi:10.1007/s40615-023-01587-5.
- Burgess, Diana J. et al. "Mindfulness Practice: A Promising Approach to Reducing the Effects of Clinician Implicit Bias on Patients." *Patient Education and Counseling*, vol. 100, no. 2, 2017, pp. 372-76, doi:https://doi.org/10.1016/j.pec.2016.09.005.
- Carpenter, Thomas P. et al. "Survey-Software Implicit Association Tests: A Methodological and Empirical Analysis." *Behavior Research Methods*, vol. 51, no. 5, 2019, pp. 2194-208, doi:10.3758/s13428-019-01293-3.
- FitzGerald, Chloë et al. "Interventions Designed to Reduce Implicit Prejudices and Implicit Stereotypes in Real World Contexts: A Systematic Review." *BMC Psychology*, vol. 7, no. 1, 2019, p. 29, doi:10.1186/s40359-019-0299-7.
- Greenwald, A. G. et al. "Statistically Small Effects of the Implicit Association Test Can Have Societally Large Effects." *J Pers Soc Psychol*, vol. 108, no. 4, 2015, pp. 553-61, doi:10.1037/pspa0000016.
- Greenwald, A. G. et al. "Implicit-Bias Remedies: Treating Discriminatory Bias as a Public-Health Problem." *Psychol Sci Public Interest*, vol. 23, no. 1, 2022, pp. 7-40, doi:10.1177/15291006211070781.
- Haider, A. H. et al. "Association of Unconscious Race and Social Class Bias with Vignette-Based Clinical Assessments by Medical Students." *Jama*, vol. 306, no. 9, 2011, pp. 942-51, doi:10.1001/jama.2011.1248.

- Hall, W. J. et al. "Implicit Racial/Ethnic Bias among Health Care Professionals and Its Influence on Health Care Outcomes: A Systematic Review." *Am J Public Health*, vol. 105, no. 12, 2015, pp. e60-76, doi:10.2105/ajph.2015.302903.
- Kelson, M. et al. "Improving Patient Satisfaction in the Hispanic American Community." *Cureus*, vol. 14, no. 8, 2022, p. e27739, doi:10.7759/cureus.27739.
- Maina, I. W. et al. "A Decade of Studying Implicit Racial/Ethnic Bias in Healthcare Providers Using the Implicit Association Test." *Soc Sci Med*, vol. 199, 2018, pp. 219-29, doi:10.1016/j.socscimed.2017.05.009.
- Vela, M. B. et al. "Eliminating Explicit and Implicit Biases in Health Care: Evidence and Research Needs." *Annu Rev Public Health*, vol. 43, 2022, pp. 477-501, doi:10.1146/annurev-publhealth-052620-103528.