IMPLICIT BIAS IN HEALTHCARE PROFESSIONALS: A QUALITATIVE STUDY

By

Stacy Jocelyn Bencomo

A capstone project submitted for Graduation with University Honors

May 06, 2022

University Honors
University of California, Riverside

APPROVED

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Dr. Diamond Bravo
Assistant Professor in the Psychology Department

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Dr. Richard Cardullo, Howard H Hays Chair and Faculty Director, University Honors
Interim Vice Provost, Undergraduate Education

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Acknowledgements

I would like to thank my faculty mentor, Dr.Diamond Bravo, for her continual support throughout this project. Thank you for always making time for me even with your busy schedule. Without your help, I would have surely been lost. I would also like to thank my friends and family for all of their support throughout these four years as an undergraduate student. Without them, I would not have been able to keep up with all of the stress and anxiety that came with the struggles of college. Thank you.

Abstract

While the healthcare industry strives for equity amongst all patients, disparities are still rampant in almost every aspect of care. Research supports that these disparities are often perpetuated by what is commonly referred to as "implicit bias." Implicit bias is defined as unintentional cultural and environmental influences that can affect the ways in which people process and create their perspectives about people. These unintended biases can equally affect every individual, including physicians and other healthcare professionals. Implicit biases can alter physician behavior and medical decision-making, resulting in a difference in medical care between different racial and ethnic groups of people. Throughout this research paper, a brief description of the origins of implicit biases was provided followed by research that supports the presence of implicit biases amongst practicing physicians. A small sample of approximately 15 physicians working in a lower socioeconomic community will be administered a Race Implicit Association Test (IAT) and a Skin-Tone Implicit Association Test (IAT) in order to determine whether or not an implicit bias is present towards specific racial groups. The IAT measures the strength of association between pictures shown on a screen that are either of African American or a White American and words that either has a positive or negative connotation. The participants will categorize both of these to be either "good" or "bad" by clicking on either the "e" or "I" key on their keyboard. The IAT will then compare their response latencies and determine if an implicit bias is prevalent. A similar format is done for the Skin-Tone IAT (i.e., black vs. white). This data will then be analyzed to examine the prevalence of implicit biases. Further research will then be conducted on implicit biases and their impact on medical decision-making. Strategies will then be suggested on potential biases in the medical or clinical settings.

Introduction

As intellectual beings, humans tend to believe that they are objective creatures that are capable of making rational and reasonable decisions in order to govern themselves as a society. However, it is well known that the innate subjective nature of humanity causes their decision-making skills to be inherently rooted in the partiality of personal experience. A renowned American Psychiatrist, M. Scott Peck, described it best, “Human beings are poor examiners, subject to superstition, bias, prejudice, and a profound tendency to see what they want to see rather than what is really there” (15). With this understanding, it is important to inquire about the origins of these natural human tendencies to be biased.

The Merriam-Webster dictionary defines bias as “a tendency to believe that some people, ideas, et., are better than others that usually results in treating some people unfairly” (2) While this is an accurate generalized definition of the word, Gordon Allport, a well-known American Psychologist, defines the term a little differently. In his book on social psychology titled, “The Nature of Prejudice”, he defines the term as being a natural human trait that ultimately results from the need to classify individuals into categories as one strives to quickly process information in a world that is otherwise confusing and unknown (1). Dr.Allport describes bias as an unconscious action that occurs due to the human brain’s natural tendency to categorize people in order to understand the world around them. This definition better explains that while biases are an inherent part of the human rationale, it is not often a conscious decision to be a prejudiced person.

Biases tend to be present in almost every aspect of human life. It is difficult to try to become an unbiased person due to the nature of humans to assign judgment based on first impressions. In this sense, it is widely considered that biases are a natural part of the human

experience and are often required by the brain in order to navigate through the business of the world. Because of this, there are many different aspects to biases and how they arise.

Implicit Bias

Although humans are naturally biased, these biases tend to not be deliberate. As discussed, a person is said to be biased when they have a preference or aversion to persons, ideas, or opinions. These biases can be either implicit or explicit in nature. An implicit bias occurs when someone is not aware of the subjective preference or aversion, be it positive or negative, that they have that tends to develop early on in life. In essence, they have a bias towards something without deliberately making the conscious decision to be biased. On the other hand, an explicit bias is the exact opposite. This occurs when someone is fully aware of the preference or aversion they have (13). Essentially, an implicit bias occurs when the individual is not aware of their own underlying predispositions towards or against something. This can be as simple as naturally being more receptive to someone that one deems to be attractive rather than those that they deem to be less attractive. But how do these biases form?

Dr. Shawn Marsh, a social psychologist and Director of the National Council of Juvenile and Family Court Judges' (NCJFCJ) Juvenile and Family Law Department, explains that these biases are created due to mental maps that our brains naturally create from our own life experiences in order to aid in automatic processing (2009). Dr.Marsh explains that our daily lives are constantly bombarded with multiple kinds of stimuli every single day. From the moment we wake up to the moment we fall asleep, we are faced with numerous different decisions. It is easy for the brain to become increasingly overwhelmed when faced with all of these decisions. In order for the brain to more effectively process all of this information, it creates unconscious mental maps. He explains that once we master a specific task, such as reading or driving, our

brain creates a mental map of how to perform these tasks so that we don't spend a lot of energy thinking about how to do them in the future. Once this mental map is created, our brains often use these shortcuts in order to perform those same tasks more quickly. These mental maps are created from birth and are often out-sourced from our environment, our family, our friends, the news we watch, and many other places that affect how we see the world. Over time, these shortcuts become deeply ingrained in our brains and become automatic processes that we perform and do without thinking (13). These mental shortcuts are what help our brains to quickly make decisions in our everyday lives, but can sometimes cause us to make choices that are inherently, and unknowingly, biased in nature. It is not so said that these shortcuts themselves are inherently biased. It is the culmination of all of the mental maps that one has created throughout their lifetime that causes the brain to create an implicit bias that leads to a biased decision.

As discussed, implicit biases are considered to originate from a person's developmental experiences rather than experiences that occur later on in life. In 2003, Rudman, A. and Goodwin, A. determined that a person's early experiences with their maternal caregivers later influenced their general and automatic attitudes toward women. Through their research, they noted that people that were raised by female caregivers were shown to automatically prefer women over men. It was also noted that people that were raised by male caregivers were shown to be more likely to automatically prefer men over women (18). From this, it was concluded that these biases arose from the experiences that the subjects had with the maternal caregivers that later expressed themselves as an uncontrolled factor in their natural preference toward men or women. These results suggest that one's early experiences rather than later ones are what affect the preferences that they hold later in life. In essence, the mental maps that the participants had

created through the early experiences that they had with their maternal or fraternal caregivers created an implicit bias that either favored or did not favor women over men.

Another encompassing example of implicit bias is showcased in the work done by Eric Uhlmann and Geoffrey Cohen in their 2005 paper, “Constructed Criteria: Redefining Merit to Justify Discrimination”. In one of the experiments conducted by Uhlmann and Cohen, subjects were asked to review the CVs of either a female applicant, named “Michelle”, or of a male applicant, named “Michael”. The subjects were asked to assess how qualified they thought the candidates were for the job position of police chief. One of the candidates had plenty of experience as a police officer but lacked formal education. The other candidate had plenty of formal education but lacked practical experience as a police officer. One group of participants in the study were given the two CVS: the female was the educated one and the male was the practically experienced one. In another group, the names were switched so that the female was the practically experienced one and the male was the educated one. In the end, most participants in both of these groups chose the male candidate for the position of police chief (24,25). Uhlmann and Cohen concluded that “Discrimination arises, in part, from ambiguity in the qualifications of job applicants. When an applicant's credentials are ambiguous, stereotypes are used to fill in the blanks” (24). They discussed that the ambiguity within the applicant's CVs is what allows employers to fill in the blanks with their own preconceived notions and biases even without their conscious awareness. For example, when not enough is known about a woman applying for a job as a warehouse manager it is assumed that she lacks the masculine attributes, such as assertiveness, that are expected of such a position. Because not much is known about the female applicant, employers must create a picture in their minds about what they expect her to

be. Oftentimes, the paint used to create this picture is made from the implicit biases of an employer's mind.

Overall, implicit biases are a large area of study in the mind sciences and have shown that most of one's actions often occur without conscious awareness. Implicit bias is a universal phenomenon that is not limited to a specific group of people, experiences, or environments. They are formed as a result of the brain's need to understand the overwhelming amount of daily stimuli that it receives and, as a result, can create biased outcomes. These types of biases can manifest in all aspects of society including our healthcare system.

Implicit Bias in Medicine

Due to the prevalence of implicit biases in humans, it is enticing to consider its prominence and effects within the healthcare setting. While it is believed that our healthcare providers should be objective in nature, an innumerous amount of empirical research has shown that healthcare providers are not impartial to the effects of implicit bias. A systematic review of implicit bias in healthcare professionals done by C. Fitzgerald and S. Hurst in 2017 concluded that of all of the selected studies done, all of them showed evidence of implicit bias being present in physicians and nurses. The main kinds of biases to note were: race/ethnicity, gender, socio-economic status, age, and mental illness. Along with these results, twenty out of the twenty-five assumption studies that were reviewed showed that there was some form of bias prevalent in at least one aspect of care (6). With this kind of universality of bias, it is worthy to understand the effects of implicit bias in medicine and patient care.

Firstly, it is important to understand the decision-making processes that occur within the healthcare system. Medical decision-making can be understood to involve either Type 1 or Type 2 processes. Type 1 processing occurs mainly due to the mental maps that were developmentally

constructed. This type of processing is fast, often unconscious, and intuitive. Most providers rely on this processing when they are presented with a case that is similar to one's that they have experienced in the past. Providers are able to rely on their prior knowledge in order to create a treatment plan and ultimately a diagnosis. Type 2 processes are slower and more analytical. This type of processing is used when presented with a completely new or different case. In this case, no prior knowledge or experience is available and the provider must therefore recognize or create patterns in order to come up with a plan of care. Figure 1 depicts the type of mental flow of information that is done with either of these processes. Part A depicts Type 2 processes and Part B depicts Type 1 Processes (8).

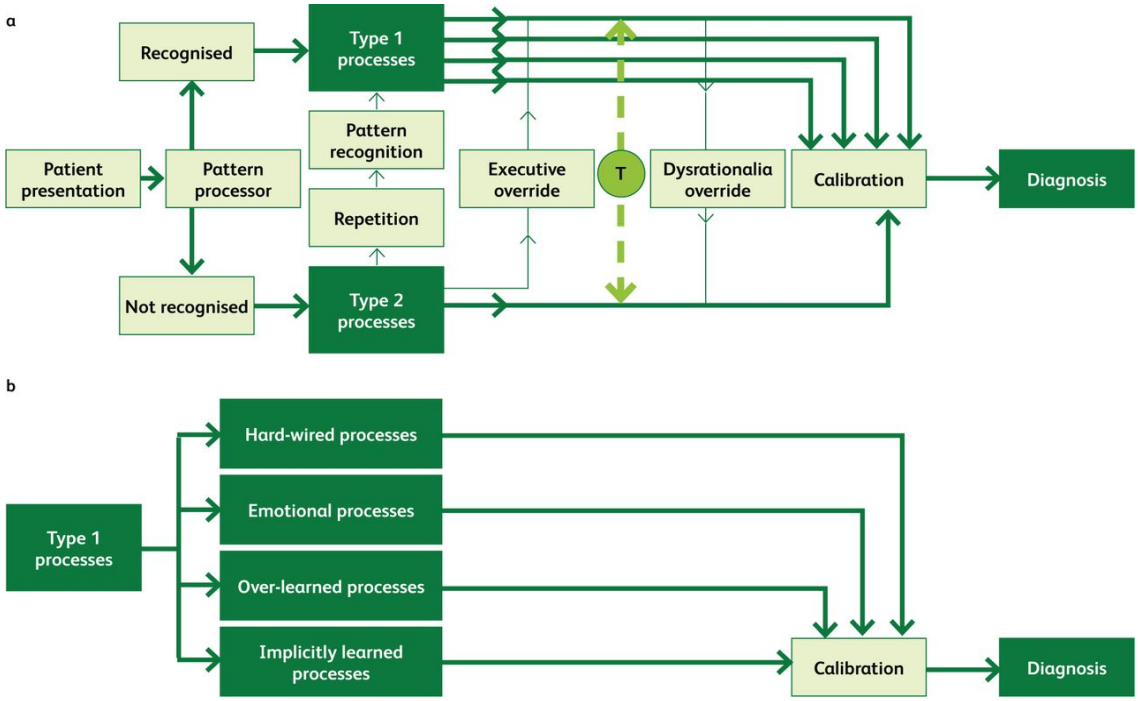

Figure #1: Showing the two types of mental processes that occur during medical decision-making. In this case "T" stands for toggle and is indicating one's ability to switch from either Type 1 or Type 2 processing. Obtained from D. Gopal, et.al, 2021 (8) which was originally adapted from Croskerry, et.al, 2013 (3).

Because Type 1 processing relies on implicitly learned pattern recognition, it is often susceptible to occurrences of implicit biases. Unfortunately, it is Type 1 processing that makes up the bulk of medical-decision making and is prone to cognitive errors. The culmination of these errors is what creates systemic issues and can result in poor decision-making and biased outcomes. As a reminder, it serves well to refer to the notion that implicit biases are not inherently negative cognitive processes. These implicit mental maps are what help the brain modulates the multitude of stimuli that are presented on a daily basis. It is the accumulation of multiple unknowingly biased mental maps that creates one implicit bias.

While implicit biases are necessary for quick cognitive processing, they can often result in systemic issues within the healthcare system. An example of this is noted in the gender-specific differences in the survival rates of myocardial infarctions, colloquially known as heart attacks. While both men and women present with chest pain upon clinical examination, women typically experience an association of symptoms that are considered 'atypical' such as nausea, vomiting, and heart palpitations. It was found that women were 16.7% less likely to be told that their symptoms were cardiac-related (12) and were 15-20% more likely to die from cardiac-related complications during hospital admissions (11). Emerging data is now showing that cardiovascular diseases and related acute coronary syndromes, such as myocardial infarctions, are the leading cause of death in women and have a higher rate of mortality than men (11). These differences are currently being associated with gender-related biases in clinical presentations rather than differences in medical-based treatment. Meaning, that the cause of these differences in mortality is more closely related to the implicit gender biases during clinical presentations of patients and that these biases result in biased medical-decision making and treatment plans for women, more so than men.

Another example of the effects of implicit biases in healthcare is seen in the 2019 MBRRACE-UK report on the "Confidential Enquiries on Maternal Deaths and Morbidity from 2014-2016". The report showed that maternal and perinatal mortality rates were three to four times higher in Black women than in White women in the United States. Similarly, the Center for Disease Control and Prevention noted in their report on their "Pregnancy Mortality Surveillance System" that Non-Hispanic Black women had a higher rate of mortality than any other ethnicity from the years of 2014 to 2017 (Figure #2). The CDC stated, "Variability in the risk of death by race/ethnicity may be due to several factors including access to care, quality of care, the prevalence of chronic diseases, structural racism, and implicit biases" (14). It is clear to see that the effects of implicit biases are prevalent. Implicit biases are causing clear differences in the outcomes of medical treatment plans and while there has not been a definitive causative relationship, it is easy to see that racial implicit biases are definitely playing a role.

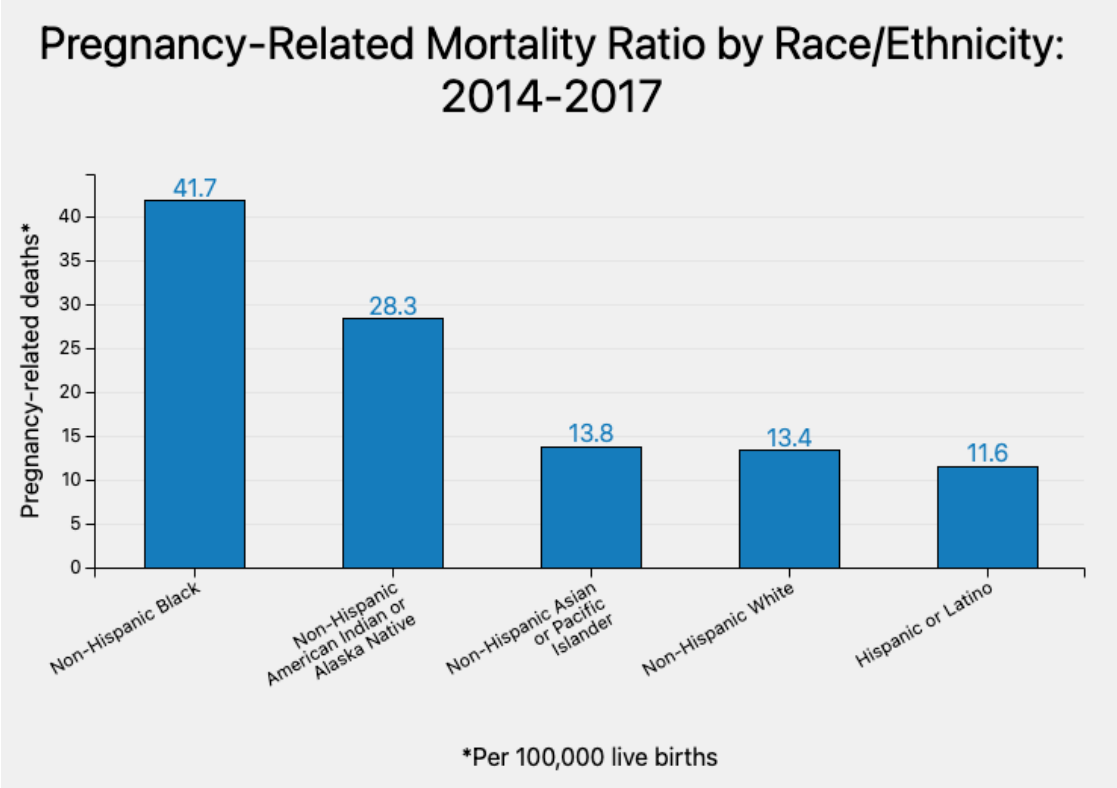

Figure #2: Showing the pregnancy mortality rate ratios from 2014 to 2017. Non-Hispanic black women had 41.7 deaths per 100,000 live births. Non-Hispanic American Indians or Alaska Native women had 28.3 deaths per 100,000 live births. Non-Hispanic Asian or Pacific Islander women had 13.8 deaths per 100,000 live births. Non-Hispanic White women had 13.4 deaths per 100,000 live births. Hispanic or Latino women had 11.6 deaths per 100,000 live births. Obtained from the CDC website (16).

The Implicit Association Test

In an effort to quantify and qualify the amount and different types of biases that are out there many scientists have turned to the use of implicit association tests. One of the most common versions of this test is the Implicit Association Test run by Project Implicit. Project Implicit is a non-profit organization of international researchers that aims to collect data from the public about biases. The online IAT acts as a virtual database for collecting information about the different kinds of biases that are out there and their relative prevalence. Project Implicit was founded in 1998 by three scientists and was then launched and led by Dr.Bethany Teachman, from the University of Virginia, and Dr.Matt Nock, from Harvard University. (17). The online Implicit Association Test has multiple versions such as Racial IAT, Skin IAT, Age IAT, Arab-Muslim IAT, Presidents IAT, Sexuality IAT, Transgender IAT, Religion IAT, and more.

The Implicit Association Test is categorized as a form of implicit measures known as response latency methods. Response latency methods are defined as methods in which relations are determined via a person's ability to complete reaction timed tasks. In this case, The IAT measures the strength of association between how fast the participant is able to categorize images shown on a screen into one of two categories. In the case of the Racial IAT, images of either an African American or a White American are shown and the participant is meant to categorize the images as either "good" or "bad" as quickly as possible. Similarly, another part of the same IAT also presents words that either have a positive or negative connotation (Figure #3). The

participants then categorize the words to be either related to African Americans or White Americans. The online system then compares their response latencies and determines if an implicit bias is prevalent towards or against African-Americans and/or White Americans. A similar method is done for all versions of the online Implicit Association Tests.

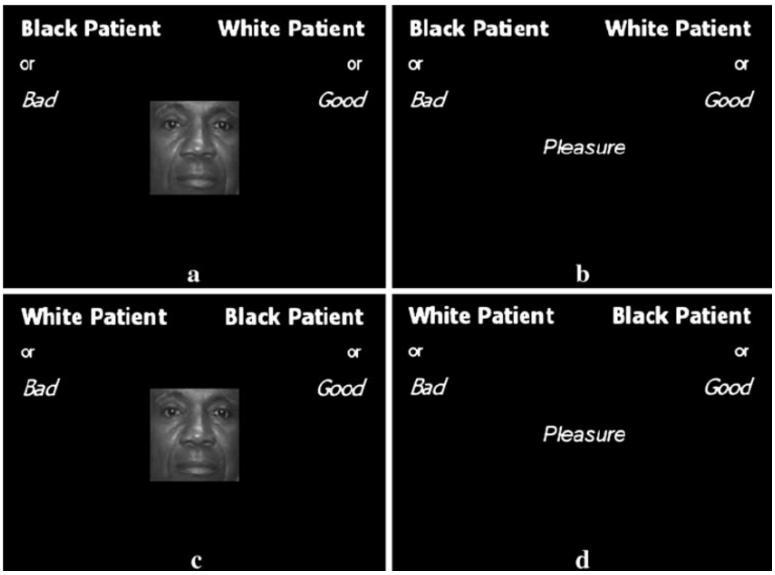

Figure #3: Showing an example of what a participant from an IAT would see. Each panel would be a separate section of the IAT. Obtained from A. Dawson, "Implicit Bias Among Physicians", 2009 (4).

A Qualitative Study Using the Implicit Association Test

For my University Honors Capstone project, I decided to focus on determining the prevalence of implicit biases within the Inland Empire, an area that has a reportedly high population of Black people and Hispanic people. I focused my targets on two hospitals within the region, both of which were located in lower socio-economic regions. I obtained a sample size of 15 physicians, nurse practitioners, and nurses who worked in the emergency department of these two hospitals. It is my assumption that since most of the healthcare workers come from more

affluent and predominantly white communities, the majority of participants will have some form of automatic preference.

Methods

Participants were chosen on a stratified random basis. Due to the ongoing COVID-19 pandemic, participants were asked to complete both the Race IAT and the Skin-Tone IAT from a quiet place that was free of obstruction. Participants were encouraged to complete the task from their homes so as to minimize contact and adhere to social distancing protocols. Participations were strongly encouraged to complete both tasks without disruption. Once both of the tasks were completed, participants were asked to submit their results to the principal investigator. All participants were kept anonymous.

Data

For the Racial IAT, it was noted that more than half of the participants were in the category of having either a moderate or slight automatic preference for European Americans over African Americans. Few participants had a strong automatic preference for European Americans over African Americans and even fewer had a slight preference for African Americans over European Americans (Table #1). For the Skin-Tone IAT, similar results were noted. Most of the participants had a moderate or slight automatic preference for light-skinned people over darker skin tones. Only one participant had a strong automatic preference for light-skinned people over dark-skinned people (Table #2).

Category of Automatic Preference	Number of Participants
Strong Automatic Preference for EA/AA	2
Moderate Automatic Preference for EA/AA	5
Slight Automatic Preference for EA/AA	5
Little to No Automatic Preference for either EA/AA	2
Slight Automatic Preference for AA/EA	1

Table #1: Showing the results of the Racial IAT. “EA” stands for European Americans. “AA” stands for African Americans.

Category of Automatic Preference	Number of Participants
Strong Automatic Preference for LSP/DSP	1
Moderate Automatic Preference for LSP/DSP	6
Slight Automatic Preference for LSP/DSP	5
Little to No Automatic Preference for either LSP/DSP	2
Slight Automatic Preference for DSP/LSP	1

Table #2: Showing the results of the Skin-Tone Implicit Association Test. “LSP” stands for Light Skinned People. “DSP” stands for Dark Skinned People.

Data Analysis

For the Racial IAT, 33.3% of participants had a moderate automatic preference for European Americans over African Americans. Approximately 80% of the participants held some form of automatic preference for European Americans over African Americans (Figure #4 and Figure #5). For the Skin-Tone IAT, 40.0% of participants had a moderate automatic preference for light-skinned people over dark-skinned people. Approximately 80% of the participants held some form of automatic preference for light-skinned people over dark-skinned people (Figure #6 and Figure #7). In order to depict the similarities between both the Racial IAT and Skin-Tone

IAT, the two data sets were overlapped in a smooth scatter plot (Figure #8). A paired t-test analysis was run on the two data sets which rendered a P-Value of 1.0. This indicates that there is no significant difference between the two sets of data.

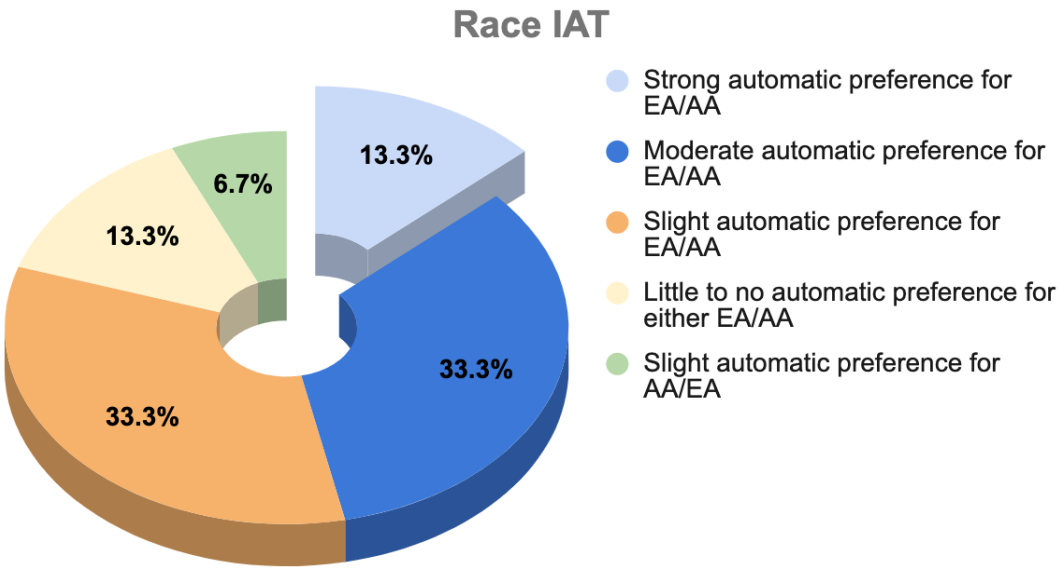

Figure #4: Depicting the results of the Race IAT. In this case, “EA” stands for European American and “AA” stands for African American.

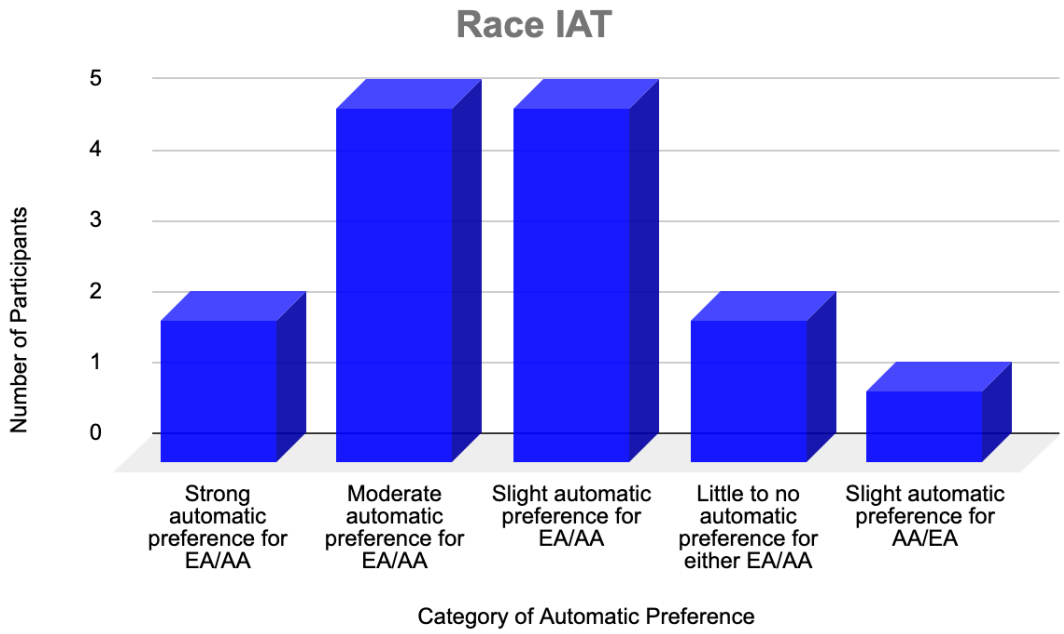

Figure #5: Showing the results of the Race IAT. In this case, "EA" stands for European American and "AA" stands for African American.

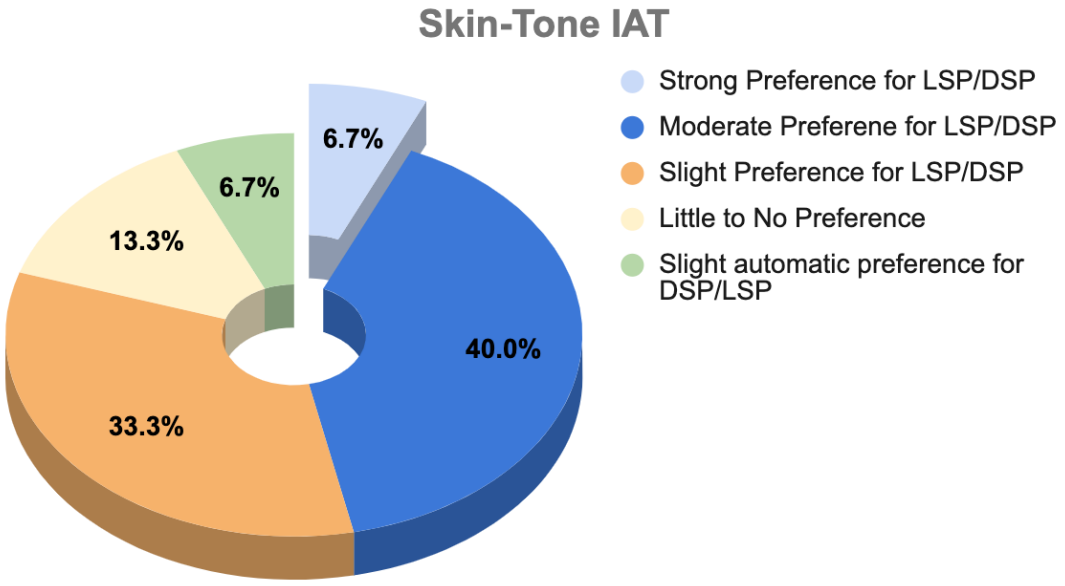

Figure #6: Showing the Results of the Skin-Tone IAT. In this case, 'LSP' stands for Light Skinned People and 'DSP' stands for dark-skinned people.

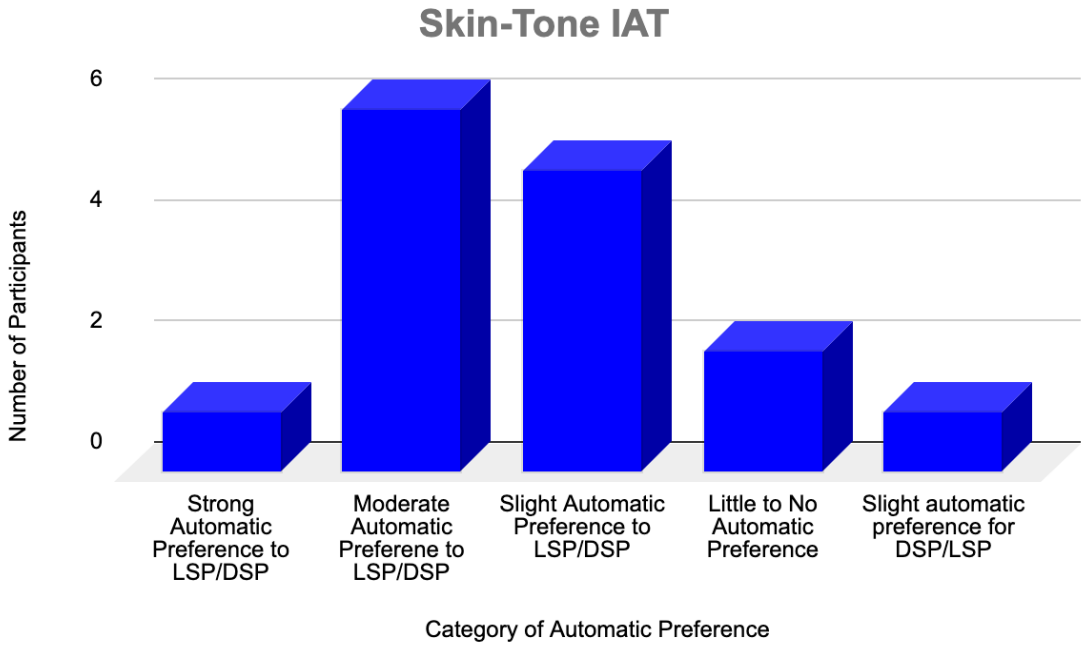

Figure #7: Depicting the results of the Skin-Tone IAT. In this case, 'LSP' stands for Light Skinned People and 'DSP' stands for dark-skinned people.

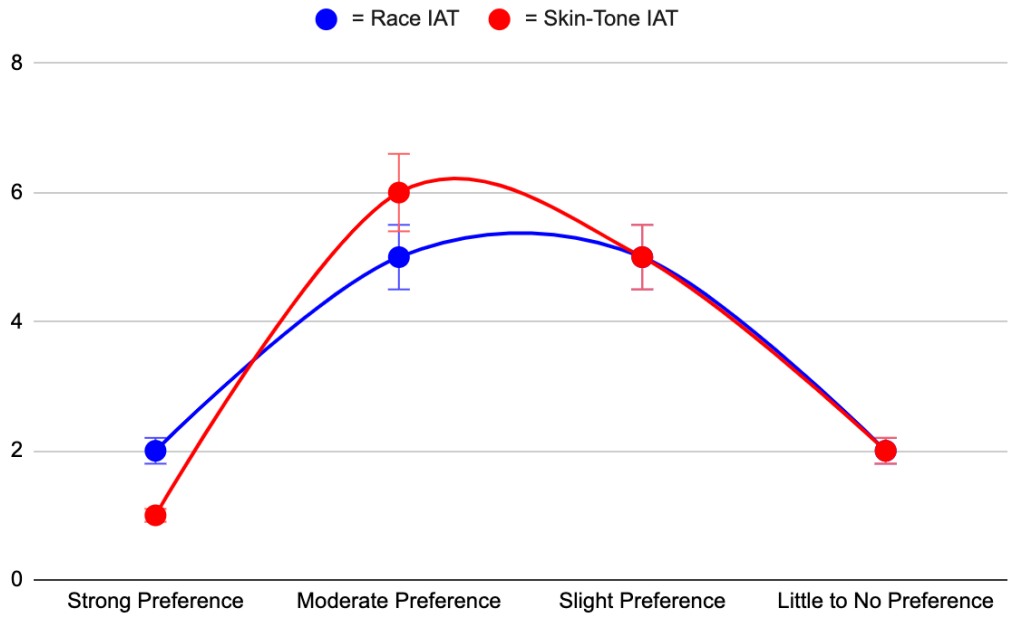

Figure #8: Dual, smooth scatter plot of the results from both the Race IAT and Skin-Tone IAT. The blue line is showing the results of the Race IAT and the red line is showing the results of the Skin-Tone IAT.

Results

In essence, it can be concluded that most participants that held an automatic preference for European Americans over African Americans also held an automatic preference for light-skinned people over dark-skinned people. This indicates that the majority of participants in this study held some form of implicit bias that results in the biased outcome of a preference for European Americans over African Americans.

Overall Relevance

The results of this qualitative study show that there is a presence of implicit biases among healthcare professionals and it can be concluded that most of the healthcare workers within the Inland Empire may hold some form of racial or skin-tone bias. But how prevalent are the effects of implicit bias? In a 2019 report released by the California Health Care Foundation, one of the key findings indicated that one in five Latinos did not have a usual source of care and one in six Latinos had difficulties being referred to a specialist. Another key finding showed that the average life expectancy in California was 80.8 years and the average life expectancy of Black people in California was 75.1 years (7). It was indicated throughout the report that state officials believed that these outcomes were racially biased in nature. With this widespread presence of implicit bias, it is difficult to know where to begin to reduce these disparities, but the City of Riverside has recently begun to take action.

On July 1, 2020, the Riverside City Council voted to add "equity" as an element in the public health crisis. They indicated that "Racism is a public health crisis …" and that "Reducing racial health disparity requires acknowledging the effects structural racism has on health status and then working toward transformative change in our community as a whole." (21). It is clear to

see that our community leaders have already identified the prevalence of the effects of racial implicit biases on the well-being of citizens.

Implicit bias may not only be present within the healthcare system. In a recent report released by a state auditor, on April 26, 2022, it was noted that five California Law Enforcement Agencies are not adequately trained against ethnically/racially biased conduct. In the report, multiple examples of racially biased actions were presented. One such example detailed a joke that an officer was making with co-workers in front of inmates. Allegedly the officer stated, "I took my biology exam on Friday. I was asked to name something commonly found in cells, and apparently, Mexicans is incorrect" (23). With such clear indications of racially biased workers in this region, it is important to begin implementing tactics and mitigating strategies in order to reduce such implicit biases.

Mitigating Strategies

Multiple promising strategies have been suggested in order to reduce implicit biases in individuals. One such strategy is proposed in a study done in 2012 aiming to reduce implicit bias in the long term. The research team suggested that implicit bias was like a habit that could be reduced through awareness and concern for its potential effects. In this study, participants completed a measure of implicit bias and received information on their specific implicit bias. Participants were then assigned to intervention groups and underwent bias education and intervention programs. Some of the strategies presented to participants were stereotype replacement, replacing stereotypical responses with non-stereotypical ones, and counter-stereotypic imaging, which involves picturing non-stereotypical images of certain groups of people such as a "smart Black person". Following the interventions, the participants were

asked to retake the implicit measure. The results showed that the interventions were indeed successful. Participants showed lower scores on their implicit measures post-intervention (5).

Research conducted on implicit bias education on emergency department residents indicated that after intervention measures, participants showed a 33% increase in awareness of their own individual biases and a 9.1% increase in the effects of those biases (26). These results indicate that when coupled with intervention measures post-awareness of implicit biases, individuals are able to show improvement when it comes to recognizing their own biases and understanding the effects of those biases. Recognizing one's own biases is a difficult task but it seems to be one of the very first steps in working toward reducing their effects on one's decision-making.

Other suggested strategies are meant to act as self-interventions. As discussed previously, stereotype replacement and counter-stereotypic imaging were each suggested by the Institute of Healthcare Improvement in 2017 and the Joint Commission in 2016, respectively. Other self-interventions suggested by the Institute of Healthcare Improvement where increasing one's opportunities for contact with groups of people in which they do not belong in the hopes of breaking their own stereotypes. Another suggested intervention was called "individuation" in which healthcare providers were encouraged to view each other's patients as individuals instead of a member of a stereotypical group. Other suggested interventions were partnership building and perspective-taking. Partnership building suggested that healthcare providers should frame all forms of patient contact as a way to build a relationship with the individual so as to view the provider and patient as equals working towards the same goal. Perspective-taking was described as the actions taken in order for healthcare providers to purposefully think in the way that the patient is thinking so as to bridge the gaps between communication and understanding (9).

Fortunately, it seems that most research suggests that implicit biases can be overcome when an individual has the mental conviction to do so. Multiple strategies and training have proven effective in the reduction of implicit biases and their resultant biased outcomes. Research suggests that the combination of multiple strategies is the most effective method of reducing one's bias. Exposing providers to multiple strategies have been shown to almost immediately reduce implicit biases after training and has even been shown to be sustained for several weeks thereafter (20). Luckily, this means that with sustained efforts, a willingness to change, and a combination of multiple strategies it is clearly possible to reduce implicit biases and their effects.

Conclusions

Overall, it can be understood that while implicit biases are both necessary and helpful when making specific kinds of mental decisions, they can often result in unknowingly biased outcomes. The presence of implicit biases in healthcare professionals is proof that, although we assume the impartiality of such workers is objective in nature, implicit biases affect everyone. The combination of the global COVID-19 Pandemic and the recent social justice movements have shone a bright light on the exigency of the reduction of implicit biases in healthcare. This time has provided many with the necessary space to reflect on their own biases and the effects that they may have on others. I implore everyone to become more aware of their own biases and reflect on their role in the systemic issues that have long been in play within the healthcare system. With all of our collective efforts, reduction of the effects of implicit biases can be achieved and ultimately result in a more equitable healthcare system for all.

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