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Exploring The Role Of Racial Associations Within Life And Psychiatry: The Dissociation Of Explicit And Implicit

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Exploring the role of Racial Associations within Life and Psychiatry: The Dissociation of Explicit and Implicit

A Thesis Submitted to the Yale University School of Medicine
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Degree of Doctor of Medicine

by
Dervin Junior Cunningham
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Here, silent, speak the great of other years, the story of their steep ascent from the unknown to the known, erring perchance in their best endeavor, succeeding often, where to their fellows they seemed most to fail.

Here, the distilled wisdom of the years, the slow deposit of knowledge gained and writ by weak, yet valorous men, who shirked not the difficult emprise;

Here is offered you the record of their days and deeds, their struggle to attain that light which God sheds on the mind of man, and which we know as Truth.

Unshared must be their genius; it was their own; but you; be you but brave and diligent, may freely take and know the rich companionship of others' ordered thought.

Lines written by George Stewart- Carved over the fireplace in Historical Library at the Yale University School of Medicine

ABSTRACT

EXPLORING THE ROLE OF RACIAL ASSOCIATIONS WITHIN LIFE AND PSYCHIATRY: THE DISSOCIATION OF EXPLICIT AND IMPLICIT

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Objective: In the past decade there has been increased interest in understanding racial disparities throughout the world. In doing so, racial associations and biases have been found to be one potential etiology of these disparities. Particularly in the medical field, trainings and institutions often have providers rely on self-reported racial associations as a means to understanding their biases. However, there is little known on how explicit/self-reported associations relate to implicit associations and clinical behavior, specifically within mental healthcare. This study aims to understand the relationship between explicit/self-reported statements and psychiatric providers' implicit racial associations.

Methods: Psychiatric providers were asked to provide explicit/self-reported statements reflecting their views on racial associations regarding (1) compliance, (2) diagnosis, and (3) treatment. They were also asked to complete 3 race Implicit Association Tests (IATs) on the same outcomes. Demographic predictors of self-reported statements were examined. Linear regression models were used to estimate the association between

explicit/self-reported associations and results of IATs, which served as indicators of implicit racial associations.

Results: We analyzed data from 294 providers who completed IATs. Training level was the only demographic predictor of explicit/self-reported associations—Board-certified psychiatrists had stronger explicit/self-reported associations of Black patients with non-compliance, compared to medical students ($\beta_{\Delta}D$= 0.03, P <0.01) but not for the other assessed categories. Explicit/self-reported and implicit associations linking non-compliance with Black patients were significantly but weakly correlated ($\beta_{\Delta}D$=0.11; P < 0.01, R^2=0.03). Otherwise, explicit/self-reported statements were NOT significantly correlated with implicit associations.

Conclusions: Overall, these results suggest a dissociation between psychiatry providers' explicit/self-reported vs. implicit racial associations. This may imply that racial associations and biases often operate outside conscious awareness. Future studies may benefit from including both implicit and explicit association assessments in order to better understand their relationship and how these (1) affect clinical behavior and (2) whether interventions can change both self-reported and implicit racial associations. This is vital to better understand conscious and unconscious processes within individuals, particularly psychiatrists, to reduce racial disparities within healthcare. It is also essential in our efforts to create a world with justice, liberty, and meaning for all.

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PART I: THE BEGINNING

Until the color of a man's skin
is of no more significance than the color of his eyes –
Me say war.

Bob Marley

DEDICATION

I dedicate this thesis to my younger siblings.
Keep striving and pushing forward, knowing you can do almost anything if you put your mind to it. Particularly, I dedicate this to my brother DeMarcus Cunningham,
to whom my bias and favoritism may lie!

ACKNOWLEDGEMENTS

I would like to first thank the Bloch lab for making this thesis possible. I can still remember the first day I met the Bloch team and the peculiarity of our interaction! Drs. Michael Bloch and Amalia Londono-Tobón met with me as I attempted to figure out if this lab would be the best fit. I appreciated the time they took to explain their current projects, as well as hear my interests spanning humanities and more. It especially meant a lot to see a minority scholar, like Dr. Londono-Tobón who made sure to let me know that she understood the struggles of moving throughout systems, and that she would be there to guide me, within and without medicine. Dr. Bloch helped me feel that I could be a meta-analytical prodigy, like he, and allowed me to slowly come to terms with the complex realities of race. I thank Dr. Landeros-Weisenberger for always being a person first, and for sharing stories that inspired me to always keep going. Dr. Flores I thank for reminding me to never feel like an imposter, as we are all stars, and for sharing his statistical genius with me. I can go on and on about each member within the lab, for being patient with me and not looking away when I asked the simplest of questions. It is often forgotten how challenging medical school is and how much the student wants to learn yet is unable to fully understand and find his way at that time.

As this study is the second iteration of a much larger project that is underway, I would like to thank the faculty and trainees who reviewed the pilots for this project. One of which was Dr. Robert Rohrbaugh, who also served as a mentor for me throughout my medicine journey, and being an advocate for me in my time of need.

Of particular note, I want to thank Dr. Carl Bergmann, my lifelong mentor from the University of Georgia, who has never given up hope on me and has always there to remind me that he believed in me, when my personal resilience reached the cusps of its boundary. I have always joked that he was my white father because he was there for me in more ways than one.

I would like to thank my personal family and friends, who have been there for me through thick and thin. My parents for being guiding lights in my life. My younger siblings for providing me unconditional love. Long-time friends for helping me keep perspective. Colleagues for providing solidarity throughout the journey.

Thanking the staff, custodians, and everyday people I saw around Yale, and who always gave me a smile right when I needed it.

I know there are so many people who deserve to be in this section and I just say you will never be forgotten to me.

I would also like to thank God for allowing me to make it this far. While there is much that it is often unknown, one thing that is certain is that there is much more to life than what meets the eye.

Trust in the Lord with all your heart and soul. Lean not on your own understanding but acknowledge Him in all your ways and He will make your paths straight.

Proverbs 3:5-6

PREFACE

Imagine there's no countries
It isn't hard to do
Nothing to kill or die for
And no religion, too
Imagine all the people
Living life in peace
You may say I'm a dreamer
But I'm not the only one
I hope someday you will join us
And the world will be as one

John Lennon and Yoko Ono

I sat at the dining table with two of my roommates. We ate, laughed, and were merry, finding momentary solace from the challenges of our mid-20s. I had just finished joking with one of my roomies and telling him a story about my day, albeit an apocryphal one to be funny. Since one other roommate had just sat down with us, the first roommate chose to retell the story. I noticed that as it was retold, he said confidently that I had "eaten watermelon" earlier. Hearing this, I turned to him and asked why he said this. Confused, he looked at me, uncertain of what I meant. I then reminded him that I had never mentioned "eating watermelon". In fact, I had joked about "eating cucumber sandwiches" as I had pretended to be a distinguished individual! I had a suspicion as to why he made this slip of the tongue: implicit associations. I proceeded to call him a racist, as it is a well-known stereotype that all Black people like watermelon, and I was definitely of the darker persuasion (although I do like watermelon!). Yet I knew for certain that he was not a racist, as he has been one of the best friends and companions I could have had in medical school, in addition to being an avid social justice activist of minority heritage. In fact, he has been one of my role models because of who he is - and who he will be for this world.

Later that evening, he apologized to me. "Dervin, I am not even sure how I said that?" We talked a little about the incident, and it seemed clear that his mind had utilized a quick implicit association. I was Black and mentioned fruits; hence, in efforts to recall the event, he had likely subconsciously connected these two concepts with the implicit association of watermelon. We had, in fact, been talking about many things together that day, and in trying to remember what I said, his mind had made quick shortcuts to regather the information. However, these mental shortcuts point to a much larger issue at hand, which, at times, can have detrimental consequences.

As this work essentially functions as my dissertation, a scholarly piece meant to showcase some intellectual ability, creativity, and curiosity, I write this less as a way to fulfill my requirements for my degree, but rather as a way to begin to understand the world at large and how we, as humans, perceive it. The human conscious experience is an intriguing phenomenon.

Many disciplines, including social psychology, show it as one that is often inaccurate and highly influenced by various social circumstances and experiences, as exemplified above. Hence, the goal for each of us taking part in this existential reality, as individuals and particularly as clinicians, is to become more aware of how we perceive the world, and to make deliberate attempts to perceive it more accurately. If not, our simple and automatic thought processes can have detrimental effects.

Implicit bias is an area I had heard about before, but it wasn't until my second year of medical school that I really began to process its implications. During February of 2017, I was removed from my psychiatry clerkship. This was regarded by the Dean of Students as "the first time in the school's history a student had been removed from rotations." To be honest, when I heard that I had made history, I was quite excited, although I wished it was in another way.

I had only recently begun my psychiatry clerkship within the LV2 child and adolescent unit at the Yale Psychiatric Hospital and was removed due to "professionalism" issues as reported by my attending physician. It was my first clinical rotation in medical school, and I was working with a young White male patient who was having current difficulties in his psychological life. I have always been one with a peculiar ease in connecting with others and someone who, when provided an opportunity to make a difference, always chooses to make the difference. While I knew that I did not have the clinical training, academic authority, or even the simplest understanding of psychopharmacologic mechanisms of action, I felt that I had the ability to provide this patient something he needed: hope and an empathetic ear. I proceeded to take in his story. This led to me being told it was inappropriate for me to be exploring his traumatic history, despite another student on the same rotation being congratulated for their ability to explore the traumatic history of another patient.

On the rotation I noticed several other occurrences which did not sit well with me, and I made my concerns known publicly with the intention of improving the quality of care of our patients. For instance, one minority patient was discussed as being "out of it" and largely disoriented. This same patient would, however, run up to me every morning when I walked in, remembering my name and telling me interesting things she had learned the day before. Thus, I advocated for her during morning rounds so that it was known that she was not as "out of it" as some team members had described. Unfortunately, my eagerness to help and take initiative was not received by my attending in the manner that I had intended. While I attempted to connect with patents within the unit as members of the human race, I felt a different type of "race" was inextricably linked to my experience.

To this day, I wonder whether my actions and behaviors would have been seen as threatening or egregious if I were not a Black male. I had to sit in on meetings and be told that my behavior was "not becoming of a Yale medical student", all while accusations were said, some of which, interestingly enough, had never occurred. When I asked to have a meeting with administrators and the attending involved to discuss some inconsistencies in the arguments, this was deemed impossible to set up. I politely joked that "I was in a lose-lose situation. If I agreed to the accusations, I was guilty. If I denied them, I was defensive. So, what should I do?"

Although I hope this experience never occurs in my professional career and my life again, it had a profound impact on my growth as a physician and as an individual. If I, a Black medical student at one of the finest institutions, was not only removed from my formal education for 13 weeks and placed on academic probation, but also asked to seek mental health treatment (which I was cleared from and later told I never needed to seek in the first place, not for this anyway.), I can only imagine what Black and other minority patients without my academic pedigree and articulateness may face within the medical system. I learned during medical school to modify my behavior and presentation so that my views and experiences were more acceptable and less threatening to medical professionals, so that I could better advocate for my patients and move through this system. I learned to voice any thoughts as questions and even took lessons from the Drama School, as dictated by probation, to learn "professionalism." I personally decided to engage in psychotherapy as a way to self-reflect, in addition to many other things which helped me to rise beyond.

After much reflection and help from a tremendous support system, including personal mentors, academic advisors, colleagues, and friends/family I repeated my psychiatric clerkship within a different unit. Not only did I receive Honors for my academic performance, but also the highest numerical gradings possible. One evaluation by an attending read, "Dervin did a marvelous job on his rotation, showing a poise, maturity, and curiosity light years beyond what is typically seen in his peers." This all culminated in the eventual removal of my academic probation.

It is important to note that Black individuals make up less than 6% of the medical student body, but 13.5% of the general population. (1, 2) The AAMC reports that the national average of practicing Black physicians is 4%. (3) These numbers are even smaller within medical administration and education. This showcases a dismal reality. While large triumphs have been made in the world, there is still so much to do. Particularly as diversity is one factor that allows for increased understanding of those from a variety of backgrounds, as well as the potential reduction of implicit bias in decision-making.(4)

As Victor Frankl alluded to in his memoir *Man's Search for Meaning*, when faced with difficulty the question is not "what is wrong with life? Rather, we have to sometimes ask what is life EXPECTING of us." (5) It may be challenging to realize that only in difficulty can man attain spiritual growth. I would not have begun to deeply enjoy the work in social cognition without my experience during medical school. I would not have met amazing mentors. I would not have had the chance to find myself.

This is not to say, as Frankl mentioned, that difficulty is necessary for growth. If there is an easier option, it is logical to take that path instead. Nevertheless, it is often when we are met with challenges that we can rise above ourselves and situations. There is not only post-traumatic stress but also post-traumatic growth and much perspective to be attained. (6)

PART II: THE RESEARCH

Cognitive schemas—thought structures—influence what we notice
and how the things we notice get interpreted.

Michelle Alexander, *The New Jim Crow: Mass Incarceration in the Age of Colorblindness*

INTRODUCTION

Background

To be human is to be biased and to be biased is to be human. While bias is a term imbued with negative connotations, it is largely forgotten that bias is an evolutionary adaptation—specifically, one that allows our species to more optimally function within social environments. (7, 8) In any given moment, the human mind processes enormous amounts of information, at rates as high as millions of bits per second. (9) To consciously sort through this magnitude of information would be inefficient. (9) Instead, emerging research in neuroscience and social psychology show that the humans take shortcuts to 'structure' and more easily process their social environment. (8) The unconscious mind is primed by the social world to make certain associations (i.e., scream=danger or red=stop). (10) When later presented with similar stimuli, certain assumptions can be made based on these associations or "biases" in order for quicker information processing and decision-making. This mechanism allows faster reactions to threats and other events requiring swift action (ie, while driving in a foreign country, a red light still likely means stop).

On the contrary, research has also illuminated numerous shortcomings inherent in utilizing these associations. (11) For example, it is known that certain groups are more likely to be selected for gifted or honors classes, hired for job openings, or killed by police shootings (12-14). While this may occur due to overt forms of discrimination—racism, sexism, and other modes inequality—this is not always the case. Growing evidence showcases that certain harmful associations lie beyond conscious awareness, particularly with regard to race. They are implicit, even within those who deeply value equity, modulating individual behavior and creating differential perceptions and decision-making based on arbitrary categories such as race. (8, 15-

17) These associations are primed by current structural inequities, remnant of historical injustices and/or current policies and media. (8)

In medicine, as in our larger society, these associations and disparities are highly prevalent, particularly those regarding race. (18, 19) Studies have shown that compared to White patients, Black or African American patients are less likely to receive reperfusion therapy for acute myocardial infarction; receive optimal pain management in emergency settings; be referred for coronary artery bypass grafting; or be considered as candidates for organ transplantation. (20-23) (24-26) Similarly, racial disparities have been demonstrated in psychiatry, including, but not limited to: shorter duration of psychotherapy appointments; increased admittance to hospitals against their will; inadequate treatment of mood disorders; and increased diagnosis of psychotic disorders in Blacks compared to Whites. (27-34) To provide numerical context to such disparities, one study found that 27% of Blacks received antidepressants when first diagnosed with depression vs 44% of their White counterparts.(35) Of those Black patients who did receive antidepressants, they were less likely than their White counterparts to receive newer antidepressant drugs (i.e. SSRIs). (35)

As discussed, the area of social cognition may help elucidate the etiology of these racial disparities. A growing body of literature suggests that racial healthcare disparities may be related, in part, to an interplay between implicit and explicit associations (e.g. combination of conscious and subconscious perceptions and decision-making processes). (7, 26, 36, 37) *Explicit associations* refer to conscious associations that can be self-reported by individuals. (38) *Implicit associations* refer to the idea that some associations lie outside conscious awareness. (11) These associations, while important in certain instances for providing heuristics and structure for the clinician, may affect judgement and behavior by creating a non-objective interpretation of

patient-provider experiences. (37, 39) By providing standardized criteria for mental health diagnosis, structured diagnostic criteria such as the Diagnostic and Statistical Manual of Mental Disorders [DSM] or the International Classification of Diseases [ICD] aim to increase objectivity in clinical assessments by providing standardized criteria for diagnosis. However, due to large variability in psychiatric presentations, and perhaps also due to patient-physician cultural differences and upbringing, the effect of implicit associations may become augmented among providers, resulting in differential diagnosis and treatment based on race despite the field's best attempts at standardization.

Understanding if self-reported and implicit associations are related is particularly important as this will help in determining if a provider's reporting of associations (i.e. self-report) is or is not a reliable assessment of her/his implicit associations. If it is not, then it is vital that more be done within psychiatric training and clinical environments to increase awareness of implicit associations for all providers to reduce current healthcare disparities and increase social justice.

Meta-analytic studies in fields other than healthcare demonstrate that explicit/self-reported associations may not always correlate with implicit racial associations. (40) Within healthcare, there also appears to be a significant dissociation between implicit and explicit associations. When asked to consider race or ethnicity, many individuals, including healthcare providers, report having egalitarian beliefs (i.e. that all people are equal and should be treated equally) but show moderate to strong implicit associations involving minority groups including Black, Latinx and women. (7, 36, 40-44) It has been hypothesized that this dissociation may be due to lack of introspection by individuals, or due to an individual's desire to see themselves, or be regarded by others, as "unbiased." (45, 46) In addition, the lack of available feedback and

training regarding the presence and degree of possible implicit associations in clinical care may allow this dissociation to remain unknown to providers. As such, this reinforces such associations and undermines the importance of racial associations and biases within clinical work. (47, 48)

Specific Aims

This study is concerned with differential perceptions that occur within the psychiatric provider. The relationship between implicit and explicit associations with regard to race (Black vs. White) has not been well-researched within the field of psychiatry. This study focuses on that relationship. One prior study showed that implicit racial associations exist in psychiatrists and trainees who paired Black faces faster with poor compliance (vs. good compliance), psychotic disorders (vs. mood disorders), and antipsychotics (vs. antidepressants). (49)

The purpose of this current study was to investigate demographic predictors of participants' self-reported racial associations regarding Black patients. Additionally, we investigated whether explicit and implicit racial associations relate to one another regarding three broad areas of patient care: (1) psychiatric diagnosis (psychosis vs. mood disorders); (2) treatment compliance (vs. non-compliance); and (3) medication regimen (antipsychotics vs. antidepressants) as a means of answering the question: "Is there dissociation between implicit and explicit racial associations among mental health providers?"

MATERIALS AND METHODS

Author Contributions

D.C., A.L.T., J.F., M.H.B. contributed to the conception and design of the study. A.L.T. and M.H.B. contributed to data collection. V.A., K.M., P.M., and J.F. participated in data analysis.

D.C. wrote the initial draft of the paper. All authors participated in editing the manuscript to create the final version.

Data Collection and Processing

This cross-sectional study recruited providers with prescribing privileges (currently or eventually) at various stages of training including US medical students, psychiatry residents/fellows and board-certified psychiatrists. The study consisted of a web-based survey encrypted to ensure confidentiality. The research study was deemed exempt by Yale University School of Medicine Institutional Review Board (Protocol#: 1611018601). No monetary compensation was given for completion of the study. Participants were provided copies of their implicit association test results and educational information on the topic. The recruitment period was from May 19, 2017 to December 4, 2017. E-mail requests were distributed to psychiatry residency programs, medical schools, and hospitals throughout the US. Links to the survey were also advertised via social media platforms (e.g. Facebook & Twitter). Additional recruitment took place at scientific conferences including the American Psychiatric Association Annual Meeting, the American Academy of Child and Adolescent Psychiatry Annual Meeting, the American Psychiatric Association Components Meeting and the PsychSIGN Medical Student Conference. Participants could access the survey link via computer or smartphone.

Prior to participation, informed consent was obtained electronically. All participants were screened with two questions: *Are you a student or a professional in the healthcare field?* (Answers: Yes /No) and *Which of the following is NOT an antidepressant?* (Answers choices: bupropion, citalopram, fluoxetine, risperidone, venlafaxine). The screening questions were designed to include participants who were expected to prescribe psychiatric medications. After successful completion of screening, demographic information was obtained from all participants.

Lastly, participants took three IATs to determine their implicit association scores (i.e. D scores) and answered explicit/self-reported questions that mirrored the IATs.

Explicit/Self-Reported Associations

To observe the degree of explicit (i.e. self-reported) associations, each participant was asked 5 questions pertaining to 3 categories: 1) compliance; 2) diagnosis; and 3) treatment. Answers were recorded on a 7-point Likert scale (-3 to +3). See Table 1.

Table 1 Description of the implicit and explicit associations among mental health providers that were evaluated within each major category of compliance, diagnosis, and treatment

Categories used to compare explicit *vs.* implicit associations	**Associations directed toward:**	**Implicit tasks**	**Explicit statements**
		Stimuli words/terms to infer topics and associations	Questions/prompts *
Compliance	Compliance	Compliant, Willing, Cooperative, Reliable, Amenable	*Compared to White patients, the compliance of Black patients is?*
	Non-compliance	Non-Compliant, Reluctant, Resistant, Irresponsible, Difficult	
Diagnosis	Psychotic disorders	Hallucination, Delusion, Paranoia, Schizophrenia, Schizoaffective, Psychosis, Psychotic	*Compared to White patients, the prevalence of psychosis among Black patients is?*
	Mood disorders	Bipolar, Manic, Depressed, Cyclothymia, Dysthymia, Depression, Hypomania	*Compared to White patients, the prevalence of mood disorders among Black patients is?*
Treatment	Antipsychotics	Risperidone, Quetiapine, Haloperidol, Olanzapine, Perphenazine, Aripiprazole, Clozapine	*Compared to White patients, the effectiveness of antipsychotics among Black patients is?*
	Antidepressants	Sertraline, Fluoxetine, Paroxetine, Citalopram, Escitalopram, Venlafaxine, Duloxetine	*Compared to White patients, the effectiveness of antidepressants among Black patients is?*

* Answers could range from -3 (very much lower), -2(much lower), -1(minimally lower), 0 (same), +1(minimally higher), +2 (much higher) and 3+ (very much higher)

Implicit Associations Tests (IATs)

To observe the degree of implicit associations, this study utilized Implicit Association Tests (IATs). A commonly used tool within social psychology, IATs serve as a measure of the strength of automatic/implicit associations as an indicator for implicit bias. IATs have been extensively studied and validated(50-53).

In this study, participants were asked to quickly categorize standardized facial images of Black vs. White faces, and stimuli words in three categories using their keyboards or handheld devices. IATs were adapted to include stimuli words related to compliance (non-compliance vs. compliance), diagnosis (psychotic disorder vs. mood disorder), and pharmacological treatment (antipsychotics vs. antidepressants).

The differential response times (D-scores) are the calculated outputs of IATs. The underlying assumption is that strongly associated concepts are sorted faster and with fewer errors than concepts less strongly associated. The D-score, calculated by Project Implicit, refers to the difference in average response time on the blocks of trials divided by the pooled standard deviation, after factoring in practice-block data, use of error penalties, and individual respondent standard deviation. A full description of the IAT D-score algorithm has been described previously.(50)

In this study, D-scores >0 imply faster pairing of Black facial images with non-compliance/psychotic disorders/antipsychotics (or alternatively, White facial images with compliance/mood disorders/antidepressants). D-scores <0 imply interpretations opposite to those given above. A total of seven trials were completed by each participant, including practice trials. Compared to initial trials, later trials were reversed (terms and keys on the keyboard), and the trial order was counterbalanced. The adaptation of the IAT was developed with support of Project Implicit, a non-profit organization founded by the developers of the IAT.

As a sociocultural disclaimer, in the original test, participants were asked to sort facial images using the terms “Black” and “White”. For consistency, provider race/ethnicity is also described as Black and White (instead of Caucasian and African-American or other geographic heritage / extraction or sociological terminology).

Data Analysis

Data management and statistical analysis were performed using STATA/IC v16 (StataCorp). Continuous variables are presented as mean (SD). Categorical variables are presented as the number (proportion) of participants. Control variables included participant self-reported-race/ethnicity (White, Black, Hispanic, Asian/Pacific Islander, Other/Native American), age (continuous),-sex (male vs. female), and level of training (medical student, resident, board certified psychiatrist). Univariate linear regression estimated the association between each explicit statement with their respective IAT D score (Table 3). Multivariate linear regressions adjusted for control covariates (Table 3). Another set of regressions were conducted to observe what demographics, if any, predicted the degree of self-reported associations. All significant associations are reported at a threshold of $\alpha = 0.05$.

RESULTS

Study Sample

A total of 686 potential participants accessed the online survey. Of those, 126 were excluded for answering screening questions incorrectly, 163 did not participate in any of the three IAT tasks, and 103 were not mental health physicians or medical students. The final sample size available for analysis was N=294.

Table 2 describes the demographic characteristics of included participants. Mean age ±SD of providers in the sample was 33 ±10 years and 64% were female. In terms of self-reported race-ethnicity, 52% identified as White, 16% Black, 13% Hispanic, 12% Asian/Pacific Islanders, and 8% Other/Native American. The sample included: 42% medical students, 21% psychiatry residents, 25% psychiatry fellows, and 12% board-certified psychiatrists.

Table 2 Participant characteristics

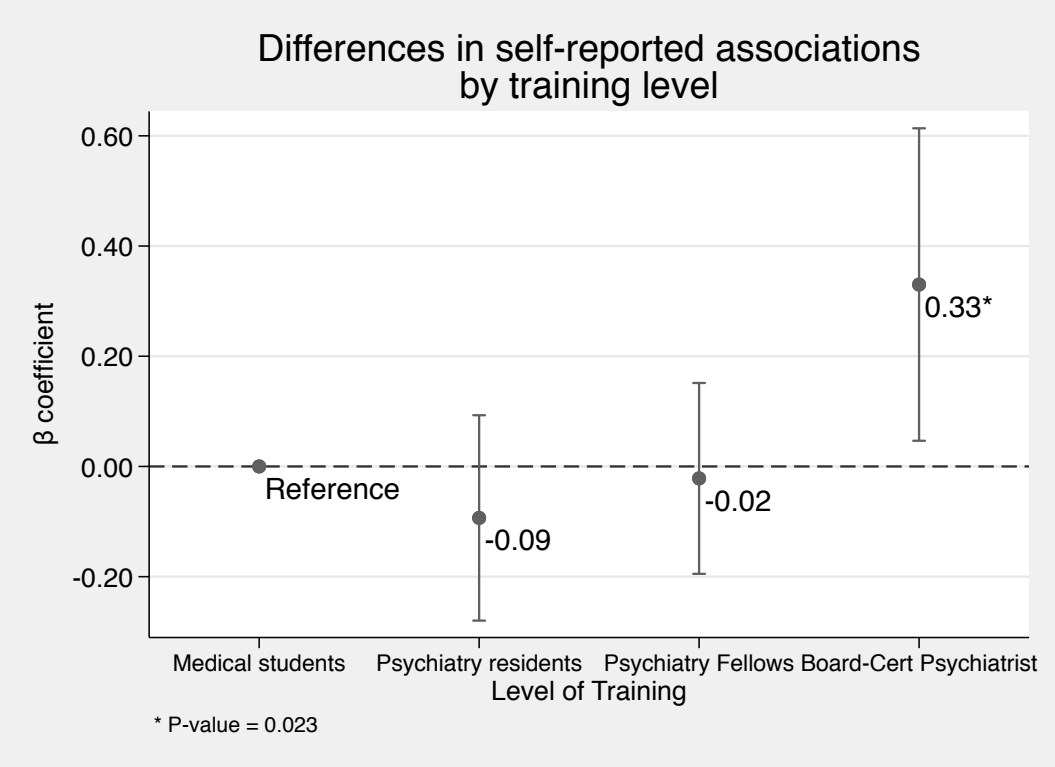
	N (%)
Age, mean (SD)	33.50 (10.46)
Gender	
Male	105 (36.2%)
Female	185 (63.8%)
Race/Ethnicity	
Asian, Pacific	35 (11.9%)
Black	47 (16.0%)
White	151 (51.5%)
Hispanic, any race	37 (12.6%)
Nat Am, Mixed, Other	23 (7.8%)
Level of Training	
Medical students	122 (41.6%)
Psychiatry residents	62 (21.2%)
Psychiatry Fellows	73 (24.9%)
Board-Cert Psychiatrist	36 (12.3%)

Demographic Correlates of Self-Reported Associations

In terms of demographics, training level was the only variable predictive of explicit/self-reported associations (Figure 1). Specifically, when compared to medical students, board-certified psychiatrists had higher self-reported association of Black patients with non-compliance

($\beta_{\Delta D}$= 0.33, P <0.01). There was no association between other demographic characteristics (i.e. gender, race, level of training and age) and self-reported racial associations involving pharmacotherapy (antipsychotics/antidepressants) and diagnosis (psychosis/mood disorders).

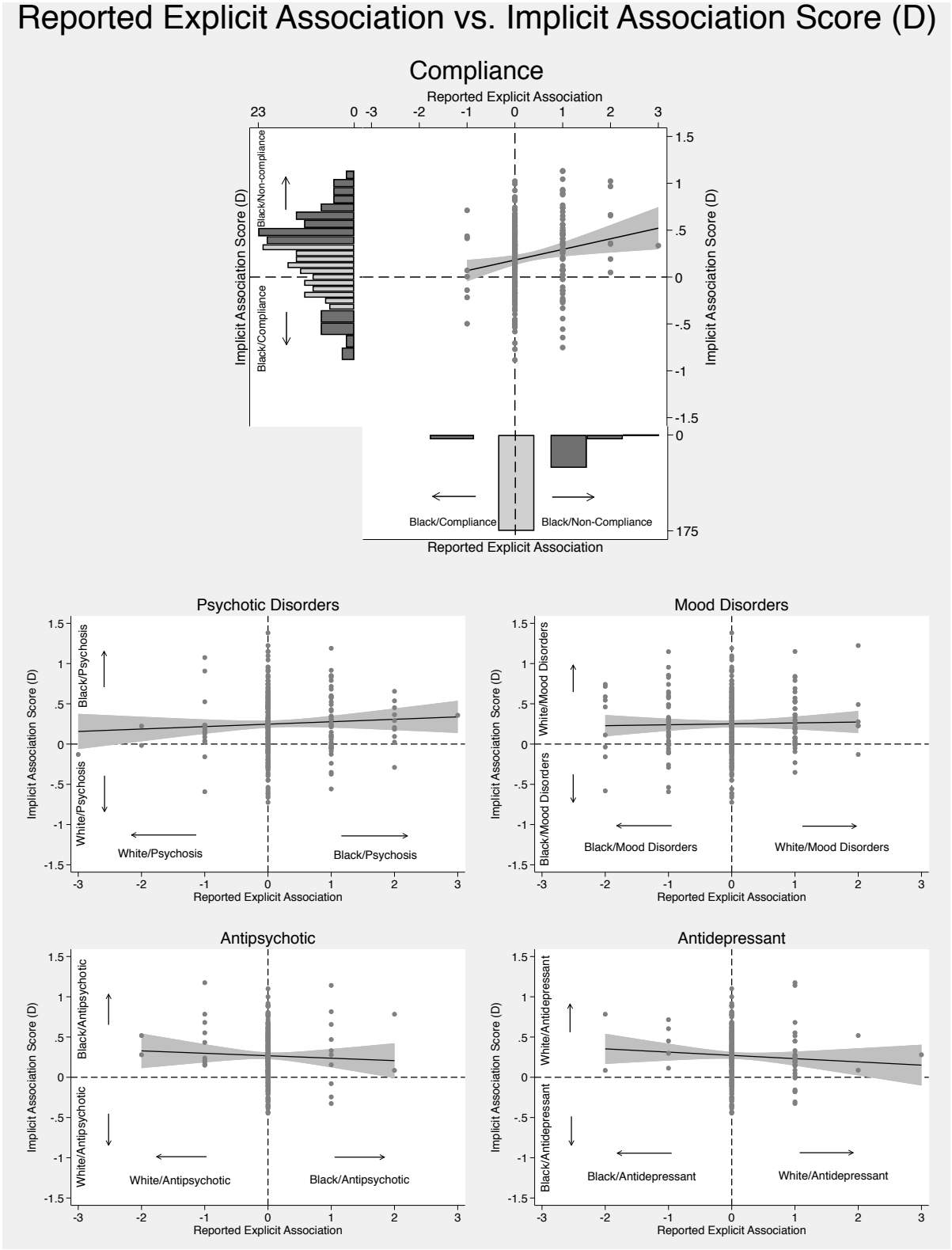
Figure 1 Differences in self-reported/explicit racial associations regarding compliance across level of training



Statistical Relationships of Explicit and Implicit

We evaluated the statistical relationship between self-reported/explicit statements and implicit racial association scores among participants in 3 tasks: compliance, psychiatric diagnosis, and psychiatric treatment. Figure 2 depicts scatterplots with corresponding fitted regression lines of the associations between explicit/self-reported measures and implicit racial associations.

Figure 2 Relationships between explicit/self-reported and implicit associations regarding compliance, diagnosis, and treatment



In unadjusted models, explicit/self-reported racial associations and the corresponding implicit associations scores only correlated significantly in the compliance task with weak coefficients. Specifically, explicit/self-reports of non-compliance among Black patients were significantly associated with higher implicit associations pairing Black faces with non-compliance ($\beta_{\Delta D} = 0.11$; $P < 0.01$). Although statistically significant, this association explained only 3% of the overall variance of the non-compliance D-score.

In contrast, in unadjusted models explicitly self-reporting higher prevalence of psychotic disorders (or lower prevalence of mood disorders) in Black patients was not significantly associated with the implicit pairing of Black faces with psychosis (as opposed to mood disorders). Lastly, self-reporting higher effectiveness of antipsychotics (or lower effectiveness of antidepressants) in Black patients was not significantly associated with implicit pairing of Black faces with antipsychotics (as opposed to antidepressants).

After adjusting for demographic variables (age, sex, race, ethnicity, and level of training), the relationship between explicit/self-reported and implicit compliance D scores remained significant ($\beta_{\Delta D} = 0.13$; $P < 0.01$), but the variance explained by the self-reported associations remained low ($R^2 = 0.18$ for the whole model). Lastly, explicit/self-reported and implicit D-scores regarding psychiatric diagnosis and treatment remained not significantly associated in adjusted models (Table 3).

Table 3 Explicit/self-reported racial associations as predictors of corresponding implicit association test scores

Implicit Associations (Dependent Variable)	Compliance / Non-compliance Task	Psychosis / Mood Disorder Task		Antipsychotics / Antidepressants Task	
Univariate $\beta_{\Delta D}$	0.113 (0.034 - 0.192) *	0.030 (-0.025 - 0.086)	0.011 (-0.053 - 0.076)	-0.030 (-0.149 - 0.088)	-0.040 (-0.121 - 0.041)
Unadjusted Variance explained (%)	2.97	0.26	0.04	14	0.36
Multivariate $\beta_{\Delta D}$	0.127 (0.049 - 0.206) *	0.003 (-0.053 - 0.059)	-0.010 (-0.076 - 0.057)	0.008 (-0.098 - 0.114)	-0.015 (-0.087 - 0.058)
Adjusted Variance explained (%)	17.77	17.79	17.55	17.14	17.18
Self-Reported Associations (Independent Variable)	Compliance of Black patients	Psychotic disorders in Black patients	Mood disorders in Black patients	Antipsychotics response in Black patients	Antidepressants response in Black patients

Notes: reported as β (95% CI); multivariate models include age, gender, race and ethnicity, and level of training, in addition to self-reported beliefs which is the only independent variable in the univariate models.; *p<0.01

DISCUSSION

Scholarly Interpretation

As previously introduced, to be human is to be biased. With this understanding, a growing body of research is now concerned with the measurement of unconscious biases and their consequences in and beyond healthcare. Regarding racial associations and prejudices, as reported by the National Equity Project, "the question is not *if* it is happening, but *when* is it happening?" Nevertheless, as showcased in this study, the question should also be: are individuals *aware* when it is happening? Given the known health disparities in mental health and their consequences, being *aware* of when implicit associations are occurring is imperative.

While the importance of exploring the relationship between implicit and explicit associations within society at large has become more apparent, this research is only now emerging within modern medicine. To our knowledge, this study is the first to quantify evidence

regarding demographic predictors of explicit/self-reported associations in psychiatric providers, and whether mental health providers are aware of their implicit racial associations. Overall, demographic characteristics were not associated with explicit/self-reported racial associations with the exception of a positive association between training level of the provider and self-reported associations regarding non-compliance. That is, compared to medical students, Board-certified psychiatrists were more likely to self-report that they believed Black patients were less compliant than White patients. Additionally, as hypothesized, most explicit/self-reported racial associations among psychiatric providers were not correlated to the corresponding implicit racial associations. Specifically, self-reported and implicit racial associations were not significantly correlated to perceptions of medication efficacy (antipsychotics and antidepressants) or to diagnosis (psychosis/mood disorders). Only in the case of non-compliance were explicit statements and implicit associations statistically related: providers who tended to pair Black patients with non-compliance implicitly also tended to do so explicitly. However, although statistically significant, the association between implicit and explicit scores were weak in magnitude and explained very little variance in implicit associations.

These results suggest that implicit associations and self-reported/explicit statements are largely dissociated – a finding consistent with studies in other specialties.(36, 40, 44) The observation that providers' self-reported statements concerning non-compliance within Black patients were weakly but positively and significantly associated with corresponding implicit racial associations regarding non-compliance is worth exploring. Reasons for this finding could include higher provider awareness or willingness to report explicit associations related to compliance and race. Providers may regard this association as more "socially acceptable," "known," or "better understood" than the other constructs tested (diagnosis and treatment)

because it is more openly discussed in clinical teams and clinical encounters. If this hypothesis holds true, then dedicated time and open discussions about known biases may allow providers to be more self-aware and enable them to speak openly about biases and stereotypes.

To date, studies have not explored whether a provider having more explicit understanding and reporting of their implicit associations (i.e. higher implicit and explicit correlations) positively impacts the provider's behavior. More studies in this area are urgently needed to better guide future interventions. Dissociation may be further augmented when individuals are unaware of or unable to openly talk about these potentially inaccurate biases and associations. When "unspoken" or "unacknowledged," these associations can become detrimental to the care of patients, particularly those with mental-healthcare needs.

A provider may explicitly hold egalitarian beliefs (i.e. that all people are equal and should be treated equally) while simultaneously holding implicit attitudes that differentiate Whites and Blacks.(40, 42) Our findings suggest that mental health care providers (like other health providers and society at large) are largely unaware of (or do not self-report) implicit racial associations. Thus, utilizing self-reported statements by providers to assess individual or systematic bias may not be a reliable measure, as these statements may not be reflective of potential implicit associations that may be working outside of conscious awareness and impacting the management of Black patients.

Limitations

This study has several limitations. First, although the IAT has been widely utilized and validated, it is unclear if Implicit Associations Tests are the best means of measuring implicit associations and implicit bias. More tools to assess unconscious and implicit bias are needed that

circumvent any limitations inherent within IATs. Second, it is unclear how significantly implicit racial associations modulate behavior and clinical decision-making. Further studies are needed to assess how much clinical significance implicit associations have within mental healthcare. Third, our study involved a convenience sample rather than an epidemiologically representative sample of all mental health providers. Many of the study participants were recruited at major academic centers and scientific conferences, which may not reflect a diverse and generalizable sample of the US mental health providers. Our sample was also skewed toward trainees, with less participation from Board-certified psychiatrists. Interestingly, participation by Board-certified psychiatrist was higher among Black/African American providers. Further studies are needed to replicate our results in a more representative sample. Fourth, this study used only one or two questions to assess explicit associations. More subtle questionnaires may be needed to assess racial attitudes within medicine and psychiatry and how these relate to implicit associations. Lastly, although the study was anonymous, due to social desirability, participants may have refrained from openly sharing their biases.

Conclusion

Our study investigated the relationship between explicit/self-reported assessments of racial bias and IAT results in the field of mental health. Our results suggest that providers' self-reports do not correlate strongly with their own implicit racial associations.

Implicit associations are vital in creating heuristics to more rapidly process new information in a rapidly changing world and this has its evolutionary advantages.(54) However, problems arise when the unconscious mind is primed to make associations that are reflections of structural inequalities, which providers are not aware of.(8) These associations can become

detrimental to the care of patients, particularly those with mental healthcare needs. This is critical, as such racial unfounded associations may cause differential care, erroneous diagnosis, and unnecessary side effects due to inappropriate pharmacologic treatment for members of minority populations. These results add to the growing evidence that certain perceptions involving race operate outside of a clinician's awareness.

Further research is needed to determine if explicit awareness of unconscious implicit racial associations affects mental health care delivery and outcomes, and if these implicit and explicit associations are amenable to modulation with interventions.

PART III:

CLOSING THOUGHTS & MENTAL WANDERINGS

Many people think they are thinking when they are merely rearranging their prejudices.

William James

AFTERTHOUGHTS

As iterated before, this scholarly work is less to fulfill some arbitrary requirement as dictated by the medical establishment for my induction into the privilege that is modern medicine. This work is my way of processing the reality that is life, a reality that is often only partially processed by its partakers. In fact, as this thesis shows, the world, and the reality that it lies within, is only viewed by us, the human race, through implicit and explicit associations, as it is too complex for our understanding. Maybe that is why the prophet Jesus once said in the book of Mark 8:18, that "[we] have eyes but fail to see, and ears but fail to hear."

Even psychiatry admits to our inability to understand the grand phenomena of that which is life. Irvin Yalom says in his masterwork, *Existential Therapy,* that to be human is to have limited perception of the world. Victor Frankl equally proclaimed that his job as a therapist was to actually be an ophthalmologist to help people see. His role was that of "widening and broadening the visual field of the patient so that the whole spectrum of potential meaning becomes conscious and visible to him."

As we undergo the developmental stages, rising into adulthood, we are primed by our world, make various associations, and then utilize assumptions for any understanding of new stimuli. This is how we come to understand the world in front of our visual fields. While a beautiful mechanism and process, it is one with many inherent flaws, especially when race becomes a stimulus.

This thesis is thus concerned with the explanation of why many members of our human race are often not seen for who they are, but rather what we assume them to be. And why some members of our human receive differential care and treatment. As alluded to in many works of profound literature, such as *Pedagogy of the Oppressed* by Paulo Freire, not everyone is given

the opportunity to be human due to various form of social oppression and inhumane misperception/implicit associations. And to bring this back to a psychiatric lens, it is the job of the mental health clinician to reopen our eyes of understanding to see the person that sits before us, in all their beauty and imperfection. And through our therapeutic work allow them to attain an ontological awakening, arriving at conscientização, as rightful heirs of humanity. It is often forgotten that who we like, what behavior is deemed as "normal", and many other "perceptual deductions" are just that—perceptual deductions. They are not always based in objective reasonings.

This study is concerned, at heart, with certain differential perceptions that occur by the psychiatrist, regarding the human and patient, within psychiatry. In particular, this study is concerned with the unequal treatment, knowingly and unknowingly, of Black patients. While race is a concept that it is highly complex and not well defined, this study regards Black patients as all and any individuals appearing with darker skin tones. Emerging evidence showcases that while race has genetic underpinnings, it is a concept largely evolved from arbitrary perceptual differences in the skin tones of persons, of certain historical significances as discussed in *How to be an Anti-Racist* by Ibram X. Kendi and many other works. However, with the separation of the human into various races come meanings and prejudices, which consciously and unconsciously change the perception and understanding of the human by another human. This is the foundation of how explicit and implicit racial associations modulate human cognition, especially in that of the psychiatrist, in ways that we now know negatively affects the care of Black patients within the mental health arena.

POTENTIAL SOLUTIONS/FUTURE RESEARCH

I fitted none of the roles, legal or illegal with which my neighbors were familiar….
my indefinite status was therefore a subject of speculation and a source of unease…
This made for a nodding relationship in which my neighbors kept their distance….

Invisible Man, Ralph Ellison

1. Bias Training

With increasing evidence of the significant role implicit racial associations play within healthcare, there has been increased discussion on the implementation of bias training within curricula. One study showed that this implementation can "raise learners' awareness of their implicit biases."(55) Nevertheless, there is a lack of formal training on this subject area within medical school and graduate education at large. (47, 56) While still in its novice stages, these types of trainings have begun to take root here at Yale University.

2. Anti-Racist Declaration Contract

Bias training is important, as it brings awareness to long-standing and sometimes inaccurate racial associations that, as discussed in the thesis above, have detrimental consequences. Nevertheless, bias training only brings about awareness. If we were to think about this through a "transtheoretical model of behavioral change", bias training could be analogous to the pre-contemplative stage.(57) To bring one closer to the contemplation stage, the implementation of "Anti-Racist Declaration Contacts" could be one creative solution.

What do I mean by "Anti-Racist Declaration Contracts", one may ask? I mean simply that all individuals, at any stage of medical training, should be required to sign an agreement stating their willingness to live a life based on "anti-racist" ideologies. This could be optional, nevertheless, for those unwilling to sign this contract, there could be additional conversations

and individualized meetings to flush out the reasoning to their unwillingness to live an "anti-racist" medical career.

As alluded to in the preface to this thesis (e.g., "eating watermelon") we all have an ability to act based on racial association and stereotypes, consciously and subconsciously. In fact, on many occasions, I, as a Black male, have watched as thoughts/sentiments such as, "they are less smart" or "I should not trust them", have arisen when I see individuals of the Black race. We have to come to an understanding that prejudicial thought processes are only a natural part of human social cognition. What is unnatural is when we do not choose to acknowledge the illogicity of these cognitive distortions and errors, and choose instead to act upon them. As suggested by Ibram Kendi's work, it is not enough to say "I am not racist."(17) We have to instead realize that we are a product of an unjust world and, in turn, say "I am an anti-racist."

While not particularly directed towards implicit bias in mental healthcare, studies investigating the role of self-regulation of implicit prejudices (16, 58) proposed that an individual must first acknowledge the inappropriateness of being prejudiced in order for self-regulation to occur. They must then be willing to adopt true egalitarian beliefs, which must be integrated in their self-concept and practiced to their best of their ability. This is the heart of the proposed "Anti-Racist Declaration Contracts", despite it only being a start to addressing implicit associations and discrimination.

3. Metacognition/ Mindfulness

We are here to awaken from the illusion of our separateness.

—Thich Nhat Hanh

In continuing the theme of "transtheoretical model of behavioral change", an intervention that can begin to address the stage of action involves the theme of metacognition/mindfulness. To take a step back, it is important to note that racial associations are only one of many types of cognitive errors/biases as discussed in works such as *Thinking Fast and Slow* by Daniel Kahneman. In this vein, new understanding has arisen in regards to finding ways to address biases and cognitive distortions. In short, this involves doctors learning to cultivate the mind to prepare it to operate more optimally. This can start through techniques such as meditation. Several studies have looked at the role meditation can play in reducing implicit bias.(59) Meditation allows practitioners to "focus on the present and view thoughts and feelings nonjudgmentally as mental events, rather than as part of the self."(59) Analogous to muscles, the mind is thought of as an entity that has to be strengthened for more precise usage. Meditation essentially allows for more refined usage, with increased mental flexibility, as it induces a state of constant self-reflection and metacognition.

As suggested in *How Doctor's Think* by Jerome Groopman, "it is impossible to catalog all of the stereotypes that you can carry in the mind or consistently recognize that you are fitting the individual before you in a stereotypical mold." However, a doctor can avoid bias and inaccurately stereotyping patients by employing metacognitive analysis and asking "what else are they, as the doctor, not seeing?"

As alluded to in the introduction of this thesis, "in any given moment, the human mind processes enormous amounts of information, at rates as high as millions of bits per second." (9) Hence, the necessity of relying on stereotypes, racial associations, and heuristics to maintain functionally. But as Nietchze implies, man also has to strive to become something more than himself—the ubermunch….. even in mental prowess.(60)

4. Parenting Interventions

As is often the case in psychiatry, problems have a developmental etiology. Implicit associations and biases are ones that may bear no different, hence, why enacting better parenting strategies are important. One study conducted by Sesame Workshop and NORC at the University of Chicago found that a majority of parents rarely discuss race and other categories of social identity with their children. However, according to one NPR piece, this becomes a problem as children are "hard-wired to notice differences at a young age — and they're asking questions.(61)" It is unclear, at this time, how this intervention can be implemented, but it is clear that to address biases, more research has to be done addressing the problem starting in childhood when the various neural networks and perceptual processes are being laid down in the developing individual.

5. Increased Physician Diversity

Again, Black individuals make up less than 6% of the medical student body, but 13.5% of the general population. (1, 2) The AAMC reports that the national average of practicing Black physicians is 4%. (3) These numbers are even smaller within medical administration and education. These numbers showcase how small of a percentage minorities make up within the healthcare field. Many studies have discussed the importance of increasing physician diversity in attempts to address bias.(4) Also, in increasing diversity, I am able to ensure myself a future job!

REFERENCES

1. Quick Facts. In: Bureau USC, editor. 2018.
2. Chakrabarti M. Why Are There So Few Black Men Going Into Medicine? WBUR2018 [Available from: https://www.wbur.org/onpoint/2018/09/03/black-men-medicine-medical-school.
3. eCareers H. Minorities in medicine: a look at physician diversity. . 2018.
4. Marcelin JR, Siraj DS, Victor R, Kotadia S, Maldonado YA. The Impact of Unconscious Bias in Healthcare: How to Recognize and Mitigate It. The Journal of Infectious Diseases. 2019;220(Supplement_2):S62-S73.
5. Frankl VE. Man's search for meaning; an introduction to logotherapy: A newly revised and enlarged edition of From death-camp to existentialism. Translated by Ilse Lasch. Preface by Gordon W. Allport. Boston : Beacon Press, 1962.; 1962.
6. Tedeschi RG, Calhoun LG. The Posttraumatic Growth Inventory: measuring the positive legacy of trauma. J Trauma Stress. 1996;9(3):455-71.
7. Blair IV, Havranek EP, Price DW, Hanratty R, Fairclough DL, Farley T, et al. Assessment of biases against Latinos and African Americans among primary care providers and community members. Am J Public Health. 2013;103(1):92-8.
8. Amodio DM. The neuroscience of prejudice and stereotyping. Nat Rev Neurosci. 2014;15(10):670-82.
9. Wu T, Dufford AJ, Mackie MA, Egan LJ, Fan J. The Capacity of Cognitive Control Estimated from a Perceptual Decision Making Task. Sci Rep. 2016;6:34025.
10. Bargh JA, Chen M, Burrows L. Automaticity of social behavior: direct effects of trait construct and stereotype-activation on action. J Pers Soc Psychol. 1996;71(2):230-44.
11. Maina IW, Belton TD, Ginzberg S, Singh A, Johnson TJ. A decade of studying implicit racial/ethnic bias in healthcare providers using the implicit association test. Soc Sci Med. 2018;199:219-29.
12. Rooth D-O. Automatic associations and discrimination in hiring: Real world evidence. Labour Economics. 2010;17(3):523-34.
13. Rojek J, Rosenfeld R, Decker S. The Influence Of Driver'S Race on Traffic Stops in Missouri. Police Quarterly. 2004;7(1):126-47.
14. Smith J, LeRose B, Clasen RE. Underrepresentation of Minority Students in Gifted Programs: Yes! It Matters! Gifted Child Quarterly. 1991;35(2):81-3.
15. Greenwald AG, Banaji MR. Implicit social cognition: attitudes, self-esteem, and stereotypes. Psychol Rev. 1995;102(1):4-27.
16. Devine PG, Plant EA, Amodio DM, Harmon-Jones E, Vance SL. The regulation of explicit and implicit race bias: the role of motivations to respond without prejudice. J Pers Soc Psychol. 2002;82(5):835-48.
17. Kendi IX. How To Be an Antiracist. New York: One World; 2019. 322 p.
18. Penner LA, Hagiwara N, Eggly S, Gaertner SL, Albrecht TL, Dovidio JF. Racial Healthcare Disparities: A Social Psychological Analysis. Eur Rev Soc Psychol. 2013;24(1):70-122.
19. Institute of Medicine Committee on U, Eliminating R, Ethnic Disparities in Health C. In: Smedley BD, Stith AY, Nelson AR, editors. Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care. Washington (DC): National Academies Press (US)

20. Canto JG, Allison JJ, Kiefe CI, Fincher C, Farmer R, Sekar P, et al. Relation of race and sex to the use of reperfusion therapy in Medicare beneficiaries with acute myocardial infarction. N Engl J Med. 2000;342(15):1094-100.
21. van Ryn M, Burgess D, Malat J, Griffin J. Physicians' perceptions of patients' social and behavioral characteristics and race disparities in treatment recommendations for men with coronary artery disease. Am J Public Health. 2006;96(2):351-7.
22. Mills AM, Shofer FS, Boulis AK, Holena DN, Abbuhl SB. Racial disparity in analgesic treatment for ED patients with abdominal or back pain. Am J Emerg Med. 2011;29(7):752-6.
23. Epstein AM, Ayanian JZ, Keogh JH, Noonan SJ, Armistead N, Cleary PD, et al. Racial disparities in access to renal transplantation--clinically appropriate or due to underuse or overuse? N Engl J Med. 2000;343(21):1537-44, 2 p preceding
24. Lin MY, Kressin NR. Race/ethnicity and Americans' experiences with treatment decision making. Patient Educ Couns. 2015.
25. Elster A, Jarosik J, VanGeest J, Fleming M. Racial and ethnic disparities in health care for adolescents: a systematic review of the literature. Arch Pediatr Adolesc Med. 2003;157(9):867-74.
26. Haider AH, Schneider EB, Sriram N, Dossick DS, Scott VK, Swoboda SM, et al. Unconscious race and social class bias among acute care surgical clinicians and clinical treatment decisions. JAMA Surg. 2015;150(5):457-64.
27. Olfson M, Cherry DK, Lewis-Fernandez R. Racial differences in visit duration of outpatient psychiatric visits. Arch Gen Psychiatry. 2009;66(2):214-21.
28. Young AS, Klap R, Sherbourne CD, Wells KB. The quality of care for depressive and anxiety disorders in the United States. Arch Gen Psychiatry. 2001;58(1):55-61.
29. Olbert CM, Nagendra A, Buck B. Meta-analysis of Black vs. White racial disparity in schizophrenia diagnosis in the United States: Do structured assessments attenuate racial disparities? J Abnorm Psychol. 2018;127(1):104-15.
30. Schwartz RC, Blankenship DM. Racial disparities in psychotic disorder diagnosis: A review of empirical literature. World J Psychiatry. 2014;4(4):133-40.
31. Blow FC, Zeber JE, McCarthy JF, Valenstein M, Gillon L, Bingham CR. Ethnicity and diagnostic patterns in veterans with psychoses. Soc Psychiatry Psychiatr Epidemiol. 2004;39(10):841-51.
32. Gara MA, Minsky S, Silverstein SM, Miskimen T, Strakowski SM. A Naturalistic Study of Racial Disparities in Diagnoses at an Outpatient Behavioral Health Clinic. Psychiatr Serv. 2019;70(2):130-4.
33. Peter L. Chien M, and Carl C. Bell, MD. Racial Differences and Schizophrenia. Directions in Psychiatry. 2008;28:297-304.
34. Snowden LR. Bias in mental health assessment and intervention: theory and evidence. Am J Public Health. 2003;93(2):239-43.
35. Office of the Surgeon G, Center for Mental Health S, National Institute of Mental H. Publications and Reports of the Surgeon General. Mental Health: Culture, Race, and Ethnicity: A Supplement to Mental Health: A Report of the Surgeon General. Rockville (MD): Substance Abuse and Mental Health Services Administration (US); 2001.
36. Green AR, Carney DR, Pallin DJ, Ngo LH, Raymond KL, Iezzoni LI, et al. Implicit bias among physicians and its prediction of thrombolysis decisions for black and white patients. J Gen Intern Med. 2007;22(9):1231-8.
37. FitzGerald C, Hurst S. Implicit bias in healthcare professionals: a systematic review. BMC Med Ethics. 2017;18(1):19.
38. Reihl KM, Hurley RA, Taber KH. Neurobiology of Implicit and Explicit Bias: Implications for Clinicians. J Neuropsychiatry Clin Neurosci. 2015;27(4):A6-253.

39. Haider AH, Schneider EB, Sriram N, Dossick DS, Scott VK, Swoboda SM, et al. Unconscious race and class bias: its association with decision making by trauma and acute care surgeons. J Trauma Acute Care Surg. 2014;77(3):409-16.
40. Hofmann W, Gawronski B, Gschwendner T, Le H, Schmitt M. A meta-analysis on the correlation between the implicit association test and explicit self-report measures. Pers Soc Psychol Bull. 2005;31(10):1369-85.
41. Nosek BA, Smyth FL, Hansen JJ, Devos T, Lindner NM, Ranganath KA, et al. Pervasiveness and correlates of implicit attitudes and stereotypes. European Review of Social Psychology. 2007;18(1):36-88.
42. Dovidio JF, Kawakami K, Johnson C, Johnson B, Howard A. On the nature of prejudice: Automatic and controlled processes. Journal of Experimental Social Psychology. 1997;33(5):510-40.
43. Blair IV, Steiner JF, Fairclough DL, Hanratty R, Price DW, Hirsh HK, et al. Clinicians' implicit ethnic/racial bias and perceptions of care among Black and Latino patients. Ann Fam Med. 2013;11(1):43-52.
44. Sabin JA, Rivara FP, Greenwald AG. Physician implicit attitudes and stereotypes about race and quality of medical care. Med Care. 2008;46(7):678-85.
45. Hofmann W, Gschwendner T, Schmitt M. On implicit–explicit consistency: the moderating role of individual differences in awareness and adjustment. European Journal of Personality. 2005;19(1):25-49.
46. Fazio RH, Olson MA. Implicit measures in social cognition. research: their meaning and use. Annu Rev Psychol. 2003;54:297-327.
47. Khatri U, Zeidan J, LaRiviere M, Sanchez S, Weaver L, Lynn J, et al. An Evaluation of Implicit Bias Training in Graduate Medical Education. MedEdPublish. 2019;8.
48. Zeidan AJ, Khatri UG, Aysola J, Shofer FS, Mamtani M, Scott KR, et al. Implicit Bias Education and Emergency Medicine Training: Step One? Awareness. AEM Educ Train. 2019;3(1):81-5.
49. Londono Tobon A FJ, Taylor J, Johnson I, Landeros-Weisenberger A, Aboiralor O, Bloch M. Implicit Racial Associations on Psychiatric Diagnosis,

Treatment, and Compliance Expectations. Manuscript Submitted for Publication. 2018.
50. Greenwald AG, Nosek BA, Banaji MR. Understanding and using the implicit association test: I. An improved scoring algorithm. J Pers Soc Psychol. 2003;85(2):197-216.
51. Nosek BA, Greenwald AG, Banaji MR. Understanding and using the Implicit Association Test: II. Method variables and construct validity. Pers Soc Psychol Bull. 2005;31(2):166-80.
52. Greenwald AG, Poehlman TA, Uhlmann EL, Banaji MR. Understanding and using the Implicit Association Test: III. Meta-analysis of predictive validity. J Pers Soc Psychol. 2009;97(1):17-41.
53. Nosek BA, Smyth FL. A multitrait-multimethod validation of the Implicit Association Test: implicit and explicit attitudes are related but distinct constructs. Exp Psychol. 2007;54(1):14-29.
54. Johnson TJ, Hickey RW, Switzer GE, Miller E, Winger DG, Nguyen M, et al. The Impact of Cognitive Stressors in the Emergency Department on Physician Implicit Racial Bias. Acad Emerg Med. 2016;23(3):297-305.
55. Archambault ME, Van Rhee JA, Marion GS, Crandall SJ. Utilizing Implicit Association Testing to Promote Awareness of Biases Regarding Age and Disability. The Journal of Physician Assistant Education. 2008;19(4).
56. Sherman MD, Ricco J, Nelson SC, Nezhad SJ, Prasad S. Implicit Bias Training in a Residency Program: Aiming for Enduring Effects. Fam Med. 2019;51(8):677-81.
57. Prochaska JO, Velicer WF. The transtheoretical model of health behavior change. Am J Health Promot. 1997;12(1):38-48.

58. Legault L, Green-Demers I, Grant P, Chung J. On the self-regulation of implicit and explicit prejudice: a self -determination theory perspective. Pers Soc Psychol Bull. 2007;33(5):732-49.
59. Lueke A, Gibson B. Mindfulness Meditation Reduces Implicit Age and Race Bias. Social Psychological and Personality Science. 2014;6.
60. Nietzsche FW. Thus spoke Zarathustra : a book for all and none: Cambridge : Cambridge University Press, 2006.; 2006.
61. Turner C. Why All Parents Should Talk With Their Kids About Social Identity NPR2019 [Available from: https://www.npr.org/2019/10/08/767205198/the-things-parents-dont-talk-about-with-their-kids-but-should?utm_medium=social&utm_source=facebook.com&utm_campaign=npr&utm_term=nprnews&fbclid=IwAR0RRqqEjQAX968lWl-AW0B9Sfyo9sLZWkPGirkB58T_WzgGxAgZmoXBT2w.