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Exploring Unconscious Bias in Disparities Research and Medical Education

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The evidence that physician behavior and decision making may contribute to racial inequalities in health care[1–5] is difficult to reconcile with the fact that most physicians are genuinely motivated to provide good care to all their patients.[6] This apparent contradiction can cause considerable cognitive dissonance, the uncomfortable feeling that occurs when holding 2 conflicting ideas simultaneously. Cognitive dissonance has been shown to be so aversive that people are highly motivated to resolve it, often by discounting the evidence supporting one of the conflicting beliefs. For scientists, however, cognitive dissonance motivates inquiry into how 2 seemingly contradictory sets of facts can coexist. The study by Haider and colleagues[7] in this issue of *JAMA* is part of a growing body of work applying concepts and methods from cognitive and social psychology to medical care and education research to understand and inform interventions to eliminate the physician contribution to racial inequalities in care.

Current explanations for the paradox of well-intentioned physicians providing inequitable care are rooted in strong evidence that humans have at least 2 cognitive systems.[8] One system involves conscious, controlled, and effortful processing of stimuli and produces explicit beliefs and attitudes. The second system responds to stimuli by rapidly, effortlessly, and automatically applying implicit knowledge, beliefs, attitudes, and skills that have been stored, through repeated exposures, in long-term memory. The 2 systems can have significantly different responses to external stimuli such as social group category. For example, although most US residents explicitly (consciously) hold egalitarian attitudes about race, 80% of white Americans may still have implicit (unconscious) attitudes favoring whites over blacks.[9] Implicit racial attitudes have been proposed as one explanation for the evidence that sometimes clinicians provide worse technical or interpersonal care to nonwhite patients, even when they fully intend to provide equitable care.[1,5]

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The study by Haider et al[7] assessed medical students' implicit and explicit racial and class attitudes and examined the relationship of these attitudes with responses to written clinical vignettes. The authors randomly varied patient race and social class in the vignettes, using pictures and written descriptions, and found that neither was associated with students' ratings of the credibility of patients' histories or with the type of information students would provide when obtaining consent for a procedure. Using the Implicit Association Test (IAT), the authors found that most medical students had implicit attitudes similar to those found in other populations, favoring whites over blacks and upper- over lower-class individuals. But implicit attitudes were not associated with race- or class-based differences in students' responses to the vignettes, indicating that implicit bias did not translate into unequal assessments of patients.

The findings are highly consistent with a large body of work conducted by cognitive and social psychologists demonstrating that decision making is likely to be determined mainly by explicit attitudes and intentions when people are engaging in deliberate, thought-out decisions and have the cognitive resources, motivation, and opportunity to consider the pros and cons of different actions. Implicit attitudes are more likely to predict behaviors that are not entirely under conscious control.[2] The students in the study by Haider et al[7] were able to focus their attention fully on the vignettes and response options and were likely to be motivated to get the "right" answer. The finding that neither the race nor the social class of the patient influenced students' responses under these conditions provides important support for the hypothesis that when clinicians have sufficient cognitive resources, time, information, and motivation to be unbiased, their intent to provide equitable care is not undermined by biased implicit attitudes.[5,10]

In contrast, implicit attitudes are more likely to influence cognitions and behaviors when cognitive processing capacity is low due to fatigue, illness, anxiety, or cognitive overload. It takes effort to override implicit biases and replace them with controlled consideration of patients' unique characteristics. Furthermore, when cognitive capacity is taxed, memory is biased toward information that is consistent with implicit attitudes, and people are less able to override automatic categorizing and stereotyping.[2,11] Cognitive overload may be especially relevant in clinical settings because it is caused by phenomena common among physicians seeing patients: stress, multiple demands on working memory, distraction, heavy workload, and time pressure.[12]

Implicit attitudes may contribute to unequal care by influencing not only physicians' assessments and clinical decision making but also the way they interact with patients. Implicit attitudes affect verbal communication and nonverbal behaviors, such as rates of blinking, eye contact, and indicators of friendliness, even among people with egalitarian explicit attitudes.[12] This may affect the quality of clinical encounters. Cooper[3] reported that clinicians' implicit racial attitudes favoring whites over black spredicted less patient-centered communication, more negative emotional tone during the visit, and poorer ratings of care by black patients. Similarly, Penner et al[4] found that black patients were least satisfied with their medical encounter when physicians had high implicit racial bias but low explicit bias, even compared with clinicians who scored high on both explicit and implicit bias. This may be because inconsistency between overt expressions (mainly determined by

explicit attitudes) and nonverbal behavior (mainly determined by implicit attitudes) is generally perceived to reflect deceitfulness.[2]

The article by Haider et al[7] also raises important issues regarding use of the IAT in medical education. Medical educators have begun to use the IAT to raise awareness of racial bias among students and to trigger discussions of how race may influence medical care. As the most widely used strategy for assessing implicit bias, the IAT has generated a great deal of criticism and a large body of validation studies in response. A careful review of this literature reveals that the IAT has good predictive validity for behaviors that are not under full conscious control.[13] It is a reasonable research tool to measure average levels and distribution of implicit bias for a group. The test-retest reliability of the IAT, however, makes it less suitable as a diagnostic tool for individuals, and the developers do not endorse its use for that purpose.

Importantly, performance on the IAT can be influenced by exposures that occur immediately before taking the test. Situational factors influence the implicit category that is activated. For example, exposure to admired black individuals temporarily reduces prowhite bias, possibly because the images activate a positive group subtype of “successful blacks.” White patients interacting with a black physician were shown to activate negative stereotypes associated with “black” if the physician criticized them and positive stereotypes associated with “physician” if they were praised.[14] The IAT is valid for research on groups because influence of contextual factors for any given group is random such that some individuals score at their true level, some score higher, and some score lower, resulting in valid group average and distribution. On the other hand, if the entire group has the same exposure right before taking the IAT, the entire group may have their scores influenced in the same direction.

Another caution when using the IAT as a tool in medical education is that providing individuals with their IAT scores can have negative consequences. If not placed in context, evidence of a person’s own racial bias can induce discounting of the findings to reduce cognitive dissonance and sometimes has induced hostility. Additionally, making students aware of racial bias over which they have no conscious control, without giving them skills and strategies to prevent bias from influencing behavior, can induce anxiety and helplessness.[10] Increasing students’ “interracial anxiety” can have numerous deleterious effects, including nervous or incongruent verbal and nonverbal communication that may confuse or alienate patients, avoidance of interracial encounters, or lower interest in working in underserved communities.[2]

Implicit bias among physicians may contribute to inequalities in health care. To evaluate this possibility, future studies should apply the lessons learned in cognitive and social psychology about the complex mechanisms by which implicit bias affects human behavior, the specific behaviors affected, and the conditions under which those behaviors are most likely to be influenced. Likewise, interventions to reduce the putative effects of implicit bias on clinical care should be informed by research about the consequences of exposing people to the results of implicit attitude tests. Implicit attitudes are both subtle and powerful. Research an deducation to explore and reduce their effects should be conducted thoughtfully

and should build on existing knowledge to minimize unintended negative consequences and maximize the chances of eliminating physicians' unintended contribution to racial and social inequalities in health care.

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