

PATIENT-PHYSICIAN COMMUNICATION DURING RACIALLY DISCORDANT MEDICAL INTERACTIONS: LIMITATIONS WITH THE CURRENT CODING SYSTEMS

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Physician implicit racial bias has been found to predict racial minority patients' reports of satisfaction and trust immediately after engaging in racially discordant medical interactions. This suggests physician implicit racial bias is somehow manifested in physician communication behaviors and noticed by patients during the medical interactions. However, it is unclear exactly how physician implicit racial bias manifests behaviorally during racially discordant medical interactions. The authors argue that such lack of understanding might be due to several limitations with the existing patient-physician coding systems. In order to further advance research on patient-physician communication during racially discordant medical interactions, new coding systems tailored for racially discordant medical interactions are required. Specifically, it is suggested that these coding systems need to be capable of assessing physician nonverbal/paraverbal communication behaviors that were found to be positive or negative by racial minority patients themselves. This likely requires innovative research approaches, such as a mixed-methods approach.

Key words: Patient-physician communication; Racially discordant medical interactions; Implicit racial bias; Coding systems; Nonverbal/paraverbal behaviors.

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DeShawn, a 50-year-old Black American, and Ethan, a 50-year-old White American, have both been having severe sinus infections for the past few weeks and have decided to go to a local urgent care clinic. After several Q & A's and a physical exam, they each received a prescription for an antibiotic for 10 days. Before leaving the clinic, they were told to come back in 10 days for a follow-up appointment. Will DeShawn and Ethan both take the antibiotic for 10 consecutive days? Will they both go back to the clinic for a follow-up appointment as recommended by their physicians? Clearly, the answer is "it depends." However, recent research provides convincing evidence that one major factor that can help researchers and clinicians predict whether patients will follow their physicians' recommendations is patients' satisfaction with and trust in their physicians (Epstein & Street, 2007; Nguyen et al., 2009; Schoenthaler et al., 2014). It follows that if DeShawn and Ethan left the clinic feeling satisfied and feel like they could trust their physicians, they would both be more likely to adhere to their physicians' recommendations. Unfortunately, prior research suggests that DeShawn is less likely than Ethan to have a pleasant medical interaction with his physician because of their different racial backgrounds. Consequently, DeShawn is also less likely than Ethan to report satisfaction with and trust in his physi-

cian. This, in turn, can result in DeShawn not taking the antibiotic for the entire 10 days and not returning to the clinic to see his physician for a follow-up, ultimately resulting in the maintenance of the existing racial health disparities.

In the first part of this review paper, we will review the current literature of racially discordant medical interactions in order to demonstrate why DeShawn is less likely than Ethan to have a satisfying medical interaction and to adhere to physician treatment recommendation. In this section, the role of physician implicit racial bias in patient short-term (e.g., self-reported satisfaction with and trust in physicians) and long-term outcomes (e.g., adherence, healthcare utilization) will be particularly highlighted. Next, we will discuss several methodological challenges researchers face when investigating the role of physician implicit racial bias in patient outcomes, particularly in racially discordant medical interactions between racial majority physicians and racial minority patients. In this section, we will underscore the need for new patient-physician communication coding systems. Finally, we will conclude this review by suggesting some innovative methodological approaches that may facilitate the development of such coding systems. It should be noted that this review paper primarily focuses on Black-White racial disparities in the quality of patient-physician communication as there are more literature on this specific form of racial discordance than any other forms (e.g., Asian-White, Black-Latino; Cooper-Patrick et al., 1999; Meghani et al., 2009; Penner et al., 2013; Schoenthaler, Allegrante, Chaplin, & Ogedegbe, 2012). There is some evidence suggesting that the nature and consequences of racially discordant medical interactions are different based on patient race (Blair et al., 2013; Eggly, Barton, Winkles, Penner, & Albrecht, 2015; Gordon, Street, Sharf, & Soucek, 2006). Therefore, although some of the findings and limitations reviewed in this paper are likely be applicable to racially discordant medical interactions other than non-Black physicians-Black patient interactions, the determination of the applicability of the current review should be made cautiously.

PATIENT-PHYSICIAN COMMUNICATION DURING RACIALLY DISCORDANT MEDICAL INTERACTIONS

Patients, regardless of their race, generally prefer seeing same-race physicians (Garcia, Paterniti, Romano, & Kravitz, 2003; Gerbert et al., 2003; LaVeist & Nuru-Jeter, 2002; Saha, Taggart, Komaromy, & Bindman, 2000). For Ethan described in our demonstration, this is not an issue: if he wanted to see a White physician, he could easily find a White physician, and it is likely that he would see a White physician. In contrast, for DeShawn, it is not that simple. If he wanted to see a Black physician, he would have to seek out a Black physician and still not may be able to find one. This is mainly because there are very few physicians who are self-identified as Black/African Americans. According to the 2010 Current Population Survey published by the U.S. Census Bureau of Labor Statistics, only 5.8% of physicians and surgeons self-identified as Black/African Americans in 2010 (U.S. Census Bureau of Labor Statistics, 2011). This number decreases even more when looking at specialty fields, such as oncology, neurology, and emergency medicine (Castillo-Page, 2010). In the same year, the U.S. Census reported that 12.2% of the U.S. population self-identified as Black/African Americans (Humes, Jones, & Ramirez, 2011). These statistics clearly demonstrate that Black physicians are under-represented in the USA. Although the exact numbers vary depending on the sources of statistics, research has generally shown that approximately 80-90% of Black Americans see physicians who are not Black

(i.e., non-Black physicians, particularly White or Asian physicians) when they seek medical help (Chen, Fryer, Phillips, Wilson, & Pathman, 2005; LaVeist & Carroll, 2002; Stevens, Shi, & Cooper, 2003; Traylor, Schmittiel, Uratsu, Mangione, & Subramanian, 2010).

It is now well documented that, generally, the quality of patient-physician communication is poorer in racially discordant medical interactions than in racially concordant ones. For example, physicians and patients in racially discordant medical interactions spend less time on relationship-building (Siminoff, Graham, & Gordon, 2006), exchanging health information (Eggly et al., 2011; Gordon, et al., 2006), and treatment planning (Oliver, Goodwin, Gotler, Gregory, & Stange, 2001). Racially discordant medical interactions have also been found to be less positive in affective tone than racially concordant medical interactions (Cené, Roter, Carson, Miller, & Cooper, 2009; Johnson, Roter, Powe, & Cooper, 2004). Returning to our demonstration with DeShawn and Ethan, these findings from prior research on racially discordant medical interactions strongly suggests that DeShawn is likely to engage in a racially discordant medical interaction with either a White or an Asian physician, which tends to involve less positive patient-physician communication. This less positive communication is likely to adversely affect DeShawn's reports of satisfaction with and trust in his physician.

These disparities in the quality of patient-physician communication between racially discordant and concordant medical interactions pose serious public health challenges because patients' satisfaction and trust can further impact their subsequent health-related behaviors, such adherence and healthcare utilization (Cooper et al., 2009; Dovidio et al., 2008; Epstein & Street, 2007; Thom, Kravitz, Bell, Krupat, & Azari, 2002; see Blair et al., 2014 for a counterargument). For example, Thom and colleagues (2002) demonstrated that patients who reported lower, as opposed to higher, levels of trust in their physicians (i.e., family physicians, general internists, and cardiologists recruited from two managed care settings) were less satisfied with their care, less likely to intend to adhere to their physicians' recommendation, and less likely to report symptom improvement at their two-week follow-up. The association between patient short-term and long-term outcomes have also been documented in a wide range of patient groups, such as hypertension (Cuffee et al., 2013; Ogedegbe, Harrison, Robbins, Mancuso, & Allegrante, 2003; Schoenthaler et al., 2012), diabetes (Bauer et al., 2014; Heisler, Cole, Weir, Kerr, & Hayward, 2007; Lee & Lin, 2009), HIV/AIDS (Murphy, Roberts, Martin, Marelich, & Hoffman, 2000; Roberts, 2002; Schneider, Kaplan, Greenfield, Li, & Wilson, 2004), and primary care, in general (Penner et al., 2009; Safran, Montgomery, Chang, Murphy, & Rogers, 2001; Wroth & Pathman, 2006). In sum, the racial disparity in the quality of patient-physician communication is one key factor contributing to the creation and the maintenance of the racial disparities in health status. Therefore, in order to reduce the pervasive racial health disparities, researchers must address the racial disparities in the quality of patient-physician communication. An important research question is then, "Why do racial disparities in the quality of patient-physician communication exist?"

Recently, several researchers have shown that Black patients' reports of dissatisfaction and mistrust are particularly magnified after interacting with non-Black physicians with higher levels of implicit, automatic racial bias (but not explicit, deliberate racial bias), as compared to lower levels of implicit racial bias (Blair et al., 2013; Cooper et al., 2012; Penner et al., 2010). Additionally, a recent study has shown that both Black and White female observers, after watching video-recorded racially discordant medical interactions, reported more negative impressions of non-Black physicians who fit an aversive racist profile (i.e., high levels of implicit racial bias

and low levels of explicit racial bias) compared to other non-Black physicians when the physicians were interacting with Black patients who have reported experiencing racial discrimination in the past (Hagiwara, Dovidio, Eggly, & Penner, 2016). These findings suggest that physician implicit racial bias plays a more direct, critical role than physician explicit racial bias in determining the quality of patient-physician communication.

Because non-Black physicians with higher levels of implicit racial bias can be differentiated from other physicians by both Black patients (who were actually engaged in the medical interactions) and independent observers (who simply watched video-recorded medical interactions), it is strongly suggested that physicians' implicit racial bias is behaviorally manifested during racially discordant medical interactions. These physician communication behaviors that reflect physician implicit racial bias can ultimately contribute to Black patients' low adherence and under-utilization of healthcare (Figure 1). Therefore, in order to facilitate improved Black patients' health outcomes, such as adherence and healthcare utilization, it is essential to address non-Black physicians' implicit racial bias. However, changing people's fundamental racial attitudes requires time (Kawakami, Dovidio, Moll, Hermsen, & Russin, 2000; Rydell & McConnell, 2006; Shelton, Richeson, Salvatore, & Trawalter, 2005; Wood, 2000). Because numerous racial/ethnic minorities' lives are currently affected by the racial disparities, interventions that produce more immediate outcomes, such as communication skills training, are also needed. In order to develop effective communication skills trainings that are designed to target and improve physician communication behaviors, which reflect physician implicit racial bias, it is crucial to understand how exactly physician implicit racial bias is manifested in communication behaviors during racially discordant medical interactions (Path A in Figure 1) and how Black patients react to these behaviors (Path B in Figure 1). Currently, there is little understanding of the associations between physician implicit racial bias, physician communication behaviors, and patient outcomes. We suggest that one potential reason for the limited understanding of Paths A and B in Figure 1 is the lack of appropriate patient-physician communication coding systems for racially discordant medical interactions.

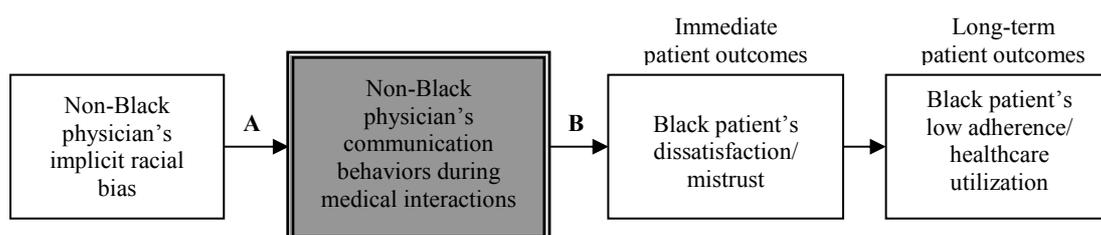


FIGURE 1
A conceptual model of the role of physician implicit racial bias
in the racial minority patients' outcomes.

CHARACTERISTICS OF THE EXISTING PATIENT-PHYSICIAN COMMUNICATION CODING SYSTEMS

Given the crucial role patient-physician communication plays in patient outcomes, many coding systems that are designed to assess the overall quality or some aspects of patient-physician communication have been developed in the past few decades (see Boon & Stewart, 1998; Schirmer

et al., 2005 for systematic reviews). Identifying every existing patient-physician communication coding system and conducting systematic review of them is outside the scope of this paper. Instead, Table 1 summarizes characteristics of some of the existing coding systems that have been widely utilized in prior patient-physician communication research. Although each coding system listed in the table has been well-validated, we argue that they fall short in two important ways: a) inability to assess the impacts of racial majority physicians' implicit racial bias on their communication behaviors during racially discordant medical interactions (Path A in Figure 1) *due to their lack of focus on nonverbal/paraverbal behaviors*, and b) inability to identify physician communication behaviors that are directly associated with racial minority patients' reports of satisfaction/trust (Path B in Figure 1) *due to the absence of racial minority patients' perspective*.

Lack of Focus on Nonverbal/Paraverbal Behaviors

We argue that the reason why physicians' implicit racial bias has been found to play a more direct role than explicit racial bias in determining racial minority patients' outcomes in the previous studies (Blair et al., 2013; Cooper et al., 2012; Hagiwara et al., 2013; Penner et al., 2010) is the different degree of controllability of each form of bias. It has been well documented that the activation of implicit racial bias is rather automatic and spontaneous (Wilson, Lindsey, & Schooler, 2000). Thus, it is relatively difficult to monitor and self-regulate the expression of implicit racial bias. Consequently, implicit racial bias can often "leak out" during interracial interaction even if people are motivated to be egalitarian (Devine, Plant, Amodio, Harmon-Jones, & Vance, 2002; Mann & Kawakami, 2012). Additionally, some individuals are not even aware of their implicit racial bias (Dovidio, Kawakami, & Gaertner, 2002; Greenwald & Banaji, 1995). In these cases, their implicit racial bias is expressed uncensored. In contrast, people can, and usually do, engage in a deliberate appraisal of their explicit racial bias; thus, explicit racial bias is subjected to self-monitoring and regulation (Wilson et al., 2000). It follows that even if individuals hold negative explicit racial bias, they can consciously decide whether they express or inhibit the manifestation of such bias by studying the specific situation that they are in (e.g., surrounded by egalitarian vs. racist people). Taken together, prior social psychology research of intergroup bias provides substantial evidence that, when the situations necessitate egalitarian thoughts or behaviors, expression of explicit racial bias is less likely, whereas the expression of implicit racial bias is still likely.

Importantly, research has shown that these two forms of racial biases are manifested in different types of behaviors (Dovidio et al., 2002; Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Ferguson, 2007; see also Dovidio & Gaertner, 2004 for a review). Specifically, an individual's explicit racial bias is often manifested in one's *verbal* behaviors (i.e., what one actually says), whereas implicit racial bias is often manifested in one's *nonverbal* (i.e., how one communicates without the use of spoken language, such as gesture, facial expression, and body posture) and *paraverbal* behaviors (i.e., how one delivers speech, such as pitch, speed, and tone). For example, Dovidio et al. (2002) found that White participants' explicit racial bias was associated with more positive *verbal* behaviors and friendliness toward White confederates, relative to Black confederates. In contrast, White participants' implicit racial bias was associated with more positive *nonverbal* friendliness toward White confederate than to Black confederate. Furthermore,

TABLE 1
 A list of some of the existing patient-physician communication coding systems (in an alphabetic order)

Instrument	Analysis of verbal behaviors?	Analysis of nonverbal/paraverbal behaviors?	Developed inductively or deductively?
Decision Analysis System for Oncology (DAS-O)	Yes	No	Deductive
Detail of Essential Elements and Patients in Shared Decision Making (DEEP-SDM)	Yes	No	Deductive
Empathic Communication Coding System (ECCS)	Yes	Yes (Global ratings)	Deductive
Eurocommunication Scale	Yes (Global ratings)	Yes (Global ratings)	Deductive
Four Habits Coding Scheme (4HCS)	Yes	Yes (Global ratings)	Deductive
Informed Decision Making Coding System	Yes	No	Deductive
Medical Interaction Process System (MIPS)	Yes	Yes (Global ratings)	Deductive
Missed Opportunities for Advance Care Planning Communication	Yes	No	Inductive
Nonverbal Accommodation Analysis System (NAAS)	No	Yes	Deductive
Nonverbal Communication in Doctor-Elderly Patient Transactions (NDEPT)	No	Yes (Global ratings)	Deductive
Observing Patient Involvement in Decision Making (OPTION)	Yes	No	Deductive
Patient-Centered Behaviour Coding Instrument (PBCI)	Yes (Global ratings)	Yes (Global ratings)	Deductive
Process of Interactional Sensitivity Coding in Healthcare (PISCH)	Yes	No	Deductive
Relational Communication Scale for Observational Measurement (RCS-O)	No	Yes (Global ratings)	Deductive
Roter Interaction Analysis System (RIAS)	Yes	Yes (Global ratings)	Deductive
Verbal Response Mode Coding System (VRM)	Yes	No	Deductive
Verona Medical Interview Classification System (VR-MICS)	Yes	No	Deductive

they found that participant implicit bias, but not explicit bias, was significantly associated with confederates' and independent observers' perceptions of the participants' friendliness. These findings suggest that physicians' implicit racial bias would likely be manifested in physicians' nonverbal and paraverbal communication behaviors rather than verbal behaviors during racially discordant medical interactions (Elliott, Alexander, Mescher, Mohan, & Barnato, 2016; Stepanikova, Zhang, Wieland, Eleazer, & Stewart, 2012). Thus, analyses of nonverbal and paraverbal behaviors are essential in order to fully investigate the impacts of physician implicit racial bias on physician communication behaviors during racially discordant medical interactions.

However, as can be seen in Table 1, the majority of the existing patient-physician communication coding systems are designed to analyze physicians' (and patients') verbal behaviors. For example, the Roter Interaction Analysis System (RIAS), which is one of the most widely used patient-physician communication coding system (Roter & Hall, 1992; Roter & Larson, 2002), is designed to assess patient-centeredness. It codes verbal behaviors by sorting each utterance between patient and physician into approximately 40 mutually exclusive categories, which can generally fall into two broad categories — care-oriented (e.g., reassurance, reflection) versus task-oriented behaviors (e.g., giving directions, asking medical questions; Kissane, Bultz, Butow, & Finlay, 2011). For another example, the Process of Interactional Sensitivity Coding in Healthcare (PISCH) is designed to assess one specific aspect of patient-physician communication — physician's interactional sensitivity (Sabee et al., 2015). In PISCH, coders are instructed to first unitize audio-recorded medical interactions based on certain identifiable activities (e.g., exercise, insurance, and social talk) and then to code each unit on interactional sensitivity. In general, researchers use transcriptions when they use these coding systems, suggesting that they do not have access to physician nonverbal/paraverbal behaviors and that they are solely focused on verbal behaviors.

There are some coding systems that are also designed to assess nonverbal and/or paraverbal behaviors (e.g., RIAS, 4HCS, and MIPS). However, they generally rely on global affective ratings. Coders make global ratings by taking into account all available behavioral cues, including nonverbal and paraverbal behaviors. For example, in addition to the categorization of utterances, RIAS instructs coders to rate the overall affective impressions of both the physician and patient. Coders use a 5-point scale to provide their ratings on: anger/irritation; anxiety/nervousness; dominance; assertiveness; interest/engagement; and friendliness/warmth (Roter & Hall, 1992; Roter & Larson, 2002). In the Four Habits Coding Scheme (4HCS), coders are first required to identify 23 discrete behaviors, which can be divided into four different behavioral categories (i.e., four habits), by taking into account both nonverbal and verbal signs (Krupat, Frankel, Stein, & Irish, 2006). Specifically, the four habits are: 1) Investment in the beginning; 2) Elicitation of the patient's perspective; 3) Demonstration of empathy; and 4) Investment in the end. Next, coders are instructed to rate how much the physician engaged in each of the four habits by using a Likert-type scale. For example, with "Investment in the beginning," a scale ranges from Level 1 (*The clinician needed to continually refer to familiarize self with the case or was unable to relate the current visit to patient's history or past visits*) to Level 5 (*The clinician has indicated clear familiarity with the patient's history or chart*).

The global rating approach is also utilized in the Nonverbal Communication in Doctor-Elderly Patient Transactions (NDEPT), which is specifically designed to assess nonverbal behaviors. NDEPT is designed to assess three categories of attributes: static, dynamic, and kinesic (Gorawara-Bhat, Cook, & Sachs, 2007). Particularly relevant to the present review (i.e., physi-

cian nonverbal/paraverbal communication behaviors during medical interactions) is the dynamic and kinesic attributes. Dynamic attributes referred to the characteristics of the physical relations between the physician and patient (i.e., interaction distance, vertical height difference, physical barriers, and the angle of interaction), whereas kinesic attributes referred to physicians' bodily movement (e.g., stance, eye contact, facial expression, gestures, and touches). In NDEPT, coders are first instructed to identify discrete nonverbal behaviors in each category (e.g., "the shoulder-to-shoulder shortest distance between physician and patient" and "open or closed physician stance" for dynamic and kinesic, respectively). However, the actual coding of each identified nonverbal behavior is done based on the coders' overall impression. More specifically, coders are instructed to rate each identified behavior in the dynamic category on a 3-point Likert-type scale ranging from 0 (*worst*) to 2 (*best*) and those in the kinesic category on a 5-point scale ranging from 0 (*lowest*) to 4 (*highest*) (Gorawara-Bhat et al., 2007).

Obviously, these global ratings are helpful in assessing people's overall impression of the physicians. In fact, there is some evidence that more abstract trait judgments provided by coders (e.g., warm, anxious, friendly) are better than concrete, quantified behaviors (e.g., frequency of nodding, duration of smile, duration of eye contact) at predicting certain outcomes, such as teacher evaluations (Ambady & Rosenthal, 1993). This is because people often form impressions of others based on the unique configuration of multiple nonverbal/paraverbal behaviors (Ambady & Weisbuch, 2010). However, there is also evidence suggesting that certain aspects of nonverbal/paraverbal behaviors, such as voice tone, can predict outcomes in certain contexts (e.g., sales effectiveness, physicians' malpractice status; Ambady, Krabbenhoft, & Hogan, 2006; Ambady et al., 2002). With only global ratings, researchers cannot address exactly which physician communication behaviors are detrimental to patient outcomes or how particular physician nonverbal/paraverbal communication behaviors are interacting with one another to influence racial minority patients' overall ratings of satisfaction or trust. That is, in order to further facilitate the advancement of the patient-physician communication literature, researchers must also examine and quantify different aspects of nonverbal/paraverbal behaviors, such as eye contact, voice tone, and distance between a physician and a patient, in addition to assessing global judgments of physicians.

To the best of our knowledge, there is only one coding system that is explicitly designed to assess different aspects of physician nonverbal/paraverbal behaviors during the medical interactions: the Nonverbal Accommodation Analysis System (NAAS). Specifically, NAAS enables researchers to quantify 10 aspects of nonverbal/paraverbal behaviors: talk time, pause, simultaneous speech, speech rate, interruption frequency, smiling, laughing, gesturing, nodding, and eye contact (D'Agostino & Bylund, 2011). In NAAS, coders are instructed to identify and quantify each of the 10 discrete nonverbal/paraverbal behaviors during the first two minutes and the last two minutes of a given patient-physician communication in appropriate coding units (e.g., duration, amount, frequency). Although NAAS is superior to other existing coding systems in quantifying specific aspects of nonverbal/paraverbal behaviors, the utility of this coding system in assessing the quality of patient-physician communication during racially discordant medical interactions has not been tested. Thus, it is unclear whether those 10 aspects of nonverbal/paraverbal behaviors specifically coded in NAAS would be relevant when differentiating physicians with higher versus lower levels of implicit racial bias in racially discordant medical interactions.

The Absence of Racial Minority Patients' Perspective

Given the lack of patient-physician communication coding systems that enable researchers to assess a wide range of physicians' nonverbal and paraverbal communication behaviors, several researchers have used the deductive approach in order to identify a few specific aspects of nonverbal/paraverbal behaviors that may reflect physician implicit racial bias during racially discordant medical interactions. For example, Cooper et al. (2012) examined the association between physician implicit racial bias and physician verbal dominance in both racially discordant and concordant medical interactions. In this study, verbal dominance was operationalized as the number of utterances, which is one aspect of paraverbal behaviors. They found that physician with higher levels of implicit racial bias exhibited more verbal dominance than physicians with lower levels of implicit racial bias. Hagiwara et al. (2013) replicated the association between non-Black physicians' implicit racial bias and their verbal dominance found in the Cooper et al.'s study (2012) by using another operationalization of verbal dominance — the amount of time a physician talked relative to their patient in a given interaction, which is another aspect of paraverbal behaviors. Hagiwara et al. (2013) also extended Cooper et al.'s study showing that talk time was associated with non-Black physicians' implicit, but not explicit, racial bias.

A recent study has shown that non-Black physicians' implicit racial bias is also associated with variability in their word use (Hagiwara, Slatcher, Eggly, & Penner, 2016). This study drew on the previous research demonstrating substantial variability in people's word use when conveying the same message, which often reflects their emotions, attitudes, and perceptions without their conscious awareness (Chung & Pennebaker, 2007; Tausczik & Pennebaker, 2010). Thus, word use is considered as another aspect of paraverbal behaviors. This study has shown that non-Black physicians with higher levels of implicit, but not explicit, racial bias used first person plural pronouns (i.e., we, our, us) more frequently than other non-Black physicians during the racially discordant medical interactions with Black patients. It should be noted that physicians were referring to the patient and themselves when using first person plural pronouns in general (e.g., "We're going to keep the [Dyalin] at one dose. Okay?"). This finding is consistent with a prediction derived by bridging two lines of research: a) social dominance orientation documenting a sense of social dominance over racial minorities among individuals with higher levels of racial bias (Levin, Federico, Sidanius, & Rabinowitz, 2002; Pratto, Sidanius, Stallworth, & Malle, 1994; Sidanius & Pratto, 1999), and b) linguistic analyses showing that people with higher social status tend to use first person plural pronouns more frequently than people with lower social status (Dino, Reysen, & Branscombe, 2009; Hancock et al., 2010; Scholand, Tausczik, & Pennebaker, 2010). The study has also shown that non-Black physicians' implicit racial bias was positively associated with their use of anxiety-related words (e.g., worried, afraid, nervous), but not other negative emotion words, such as anger and sadness. This finding is consistent with the intergroup anxiety model, which posits that people often experience anxiety when interacting with people from different social groups (Plant & Devine, 2003; Stephan & Stephan, 1985).

The major strength of these empirical studies reviewed above is that they are theoretically-grounded. That is, they examined whether the nature of the associations between physician implicit racial bias and physician communication behaviors they found in their studies were consistent with the predictions driven by existing research and theories. These theory-driven studies clearly demonstrate that physician implicit bias is indeed reflected in physician communication

behaviors during racially discordant medical interactions. However, they are not without limitations. First, to date, researchers have only examined a small set of paraverbal behaviors as a function of physician implicit racial bias (e.g., number of utterances spoke, talk time, word use) by drawing on different theories and research lines that they think are likely to be relevant to racially discordant medical interactions. This piecemeal approach is somewhat inefficient in identifying many more aspects of nonverbal/paraverbal behaviors that may potentially reflect physician implicit bias during racially discordant medical interactions (e.g., eye contact, physical distance between physicians and patients, tone of the speech). Second, and more importantly, none of the paraverbal behaviors that have been found to be associated with physician implicit racial bias is associated with racial minority patients' reports of satisfaction or trust. In other words, these physician communication behaviors have no significant *clinical* implications at this point. However, as mentioned earlier, several studies have shown the significant association between physician implicit racial bias and racial minority patients' reports of dissatisfaction/mistrust (Blair et al., 2013; Cooper et al., 2012; Dovidio et al., 2008; Penner et al., 2010). This indicates that researchers are still missing some important aspects of physician nonverbal/paraverbal communication behaviors to which racial minority patients react negatively. We argue that this lack of clinical implication in the findings reported in the previous studies is partially due to the absence of the racial minority patients' perspective.

In fact, we argue that the racial minority patients' perspective is largely absent from the existing patient-physician communication coding systems. This absence, we believe, is mainly reflected in two stages of coding system development: 1) item selection, and 2) validation. First, items included in the existing coding systems are generally selected based on the researchers' perspective (as opposed to patients' perspective) on what positive patient-physician communication should look like, which is informed by prior research and/or theories. For example, NAAS, which was reviewed earlier as the only coding system that we know of as being specifically designed for assessing physician nonverbal/paraverbal behaviors, was developed based on the Communication Accommodation Theory (CAT). Specifically, CAT focuses on nonverbal communication between two people that can be classified into four accommodation strategies: approximation, interpretability, discourse management, and interpersonal control (Coupland, Coupland, Giles, & Henwood, 1988). For another example, RIAS was developed based on social exchange theories, particularly in regard to interpersonal influence, problem solving, and reciprocity (Ben-Sira, 1980; Emerson, 1976; Roter & Hall, 1992).

We argue that this theory-based approach is one major strength of these coding systems. However, it may not be sufficient when researchers want to predict patients' outcomes as a function of patient-physician communication. This point has been illustrated in a systematic literature review of shared decision making (Shay & Lafata, 2015) as well as a series of empirical studies that showed that researchers and patients conceptualize positive physician-patient communication differently (Lafata et al., 2013; Lafata et al., 2015; Shay, Dumenci, Siminoff, Flocke, & Lafata, 2012). For example, qualitative interviews with primary care patients revealed that how patients conceptualized "shared decision making" was different from how researchers generally conceptualize it (Shay & Lafata, 2014). More specifically, one of the most commonly used conceptualization of "shared decision making" among researchers consists of four key characteristics: both physicians and patients 1) are involved in all phases of patient-physician communication, 2) share information, 3) express treatment preferences, and 4) reach an agreement (Charles, Gafni, &

Whelan, 1997, 1999; Makoul & Clayman, 2006). However, the interviews revealed that a conceptualization of “shared decision making” among patients consists of different four characteristics: physicians and patients 1) share information, 2) are being open-minded and respectful, 3) patients advocate for the self, and 4) physicians personalize a recommendation (Shay & Lafata, 2014). Consistent with these findings, Wunderlich et al. (2010) have found that even though 47% of 363 patients reported that they worked with their physicians to come to a shared decision about colorectal cancer screening, only one out of 62 physicians was rated by observers as containing all four elements of shared decision making. Kasper, Heesen, Köpke, Fulcher, and Geiger (2011) have also found that observations of patient involvement in shared decision making judged from physician’s behavior was unrelated to patients’ self-reports of involvement. Taken together, these findings provide ample evidence that there is a discrepancy between patients’ and researchers’ conceptual definitions of positive patient-physician communication and that coding systems developed solely based on researchers’ perspectives may not be as effective in predicting patient outcomes as they were intended to be.

Second, we also posit that the racial minority patients’ perspective is missing from the coding system validation — the validation of the coding systems was often done with the majority being racially concordant medical interactions involving White patients. Social psychology research has demonstrated that the exact same behaviors can be viewed in different, sometimes opposite, ways in intraracial versus interracial interactions. For example, in their longitudinal study, West, Shelton, and Trail (2009) have demonstrated that an interpretation of a roommate’s anxiety is likely to be different between same-race and other-race roommate dyads. In this study, White freshmen, who were randomly assigned to live with either another White freshman (i.e., same-race roommate) or a freshman from a different racial background (i.e., other-race roommate) at the beginning of an academic year, completed measures of their interaction anxiety and of their interest in living with the same roommate again in a subsequent year. Participants’ roommates also completed the same set of measures. They found that participants’ willingness to live with their same-race roommates again in a subsequent year increased as their same-race roommates’ interaction anxiety also increased. In contrast, participants’ willingness to live with their other-race roommates decreased as their other-race roommates’ interaction anxiety increased. West et al. argued that these differential results between same-race and other-race dyads are likely due to the tendency to attribute partner’s anxiety to factors that are outside of their relationship (e.g., “She must be feeling anxious because of her work”) in intraracial interactions, but to the relationship itself (e.g., “She must not like me”) in interracial interactions.

These findings suggest even if a patient-physician communication coding system is validated in racially concordant medical interactions, researchers cannot assume that the coding system can be also used in racially discordant medical interactions. This point was demonstrated in a study conducted by Hagiwara et al. (2013). Prior research of patient-centered care has shown that greater patient talk reflects patient empowerment and is a characteristic of positive patient-physician communication (Epstein & Street, 2007; Hahn, 2009). However, Hagiwara et al. have shown that Black patients with higher levels of perceived discrimination reported lower levels of trust in their non-Black physicians as compared to Black patients who reported lower levels of perceived discrimination. This lower level of trust in physician, in turn, resulted in the *greater* amount of talking during racially discordant medical interactions. This is consistent with findings from a previous study showing that patients, regardless of their race, tended to engage in more active participation during

medical interactions when they reported mistrust of their physicians (Trachtenberg, Dugan, & Hall, 2005). At the first glance, these findings seem inconsistent with the patient-centered care literature. However, the behaviors associated with patient-centeredness may differ between racially discordant and concordant medical interactions (Hagiwara et al., 2013). Because many of the existing coding systems have been validated with majority White patients, the predictive validity of these coding systems in racially discordant medical interactions is still unclear.

In sum, there is no patient-physician communication coding system, to our knowledge, that enables researchers to identify non-Black physicians' communication behaviors during racially discordant medical interactions that both a) reflect physician implicit racial bias and b) reliably predict racial minority patients' outcomes. Without such coding system, researchers cannot develop effective communication skills training and interventions that are designed to facilitate improved patient outcomes by targeting physician communication behaviors, which are affected by physician implicit racial bias. Clearly, development of such coding systems requires innovative approaches that integrate the patients' perspective into theory-driven approach. One such approach may be a mixed-methods approach.

THE POTENTIAL UTILITY OF A MIXED-METHOD APPROACH

A mixed-methods design integrates the strengths of inductive and deductive reasoning (Johnstone, 2004). This allows researchers to both explore racial minority patients' narratives on racial majority physicians' communication behaviors (i.e., inductive reasoning) and, at the same time, identify theoretically meaningful behaviors by drawing on prior research (i.e., deductive reasoning). In this section, we will provide one example to demonstrate how researchers may be able to use the mixed-method approach to develop new coding systems that are designed to identify physician communication behaviors during racially discordant medical interactions that both a) reflect physician implicit racial bias and b) predict racial minority patients' outcomes.

We believe that an *exploratory sequential* mixed-methods design would be particularly useful for the development of a new patient-physician communication coding system for racially discordant medical interactions. The intent of the exploratory sequential design is to create new contextualized variables, instruments, or interventions. Typically, an exploratory sequential design consists of three stages (Creswell, 2014). In Stage 1, researchers explore a research question through a lens of the individuals affected by the problem of the interest. This is done by collecting and analyzing qualitative data (e.g., interviews, focus groups, written documents) in a form of quotes from the participants. In Stage 2, researchers transform the quotes obtained from the participants in Stage 1 into new variables, instruments, or interventions. This is achieved by first aggregating individual quotes into codes and then hierarchically organizing codes into themes. The quotes, codes, and themes will each inform what variables are important in addressing the problem of the interest, what categories need to be included in the new instrument, and what areas the new intervention needs to target. Finally, in Stage 3, researchers validate the new variables, instruments, and interventions they identified/developed in Stage 2 by collecting and analyzing quantitative data. For instance, if researchers identified a new variable that may play an essential role in addressing their research question, they can measure the new variable and the outcome variable of their interest to test its predictive validity. If researchers have developed a new in-

strument in Stage 2, they can administer the scale in a form of survey to test its validity and reliability (e.g., factor analysis, internal consistency, test-retest reliability). If researchers developed a new intervention, they can assess the outcomes before and after they administer the intervention to test its effectiveness. Figure 2 provides a visual display of the overall flow of the exploratory sequential mixed-methods design.

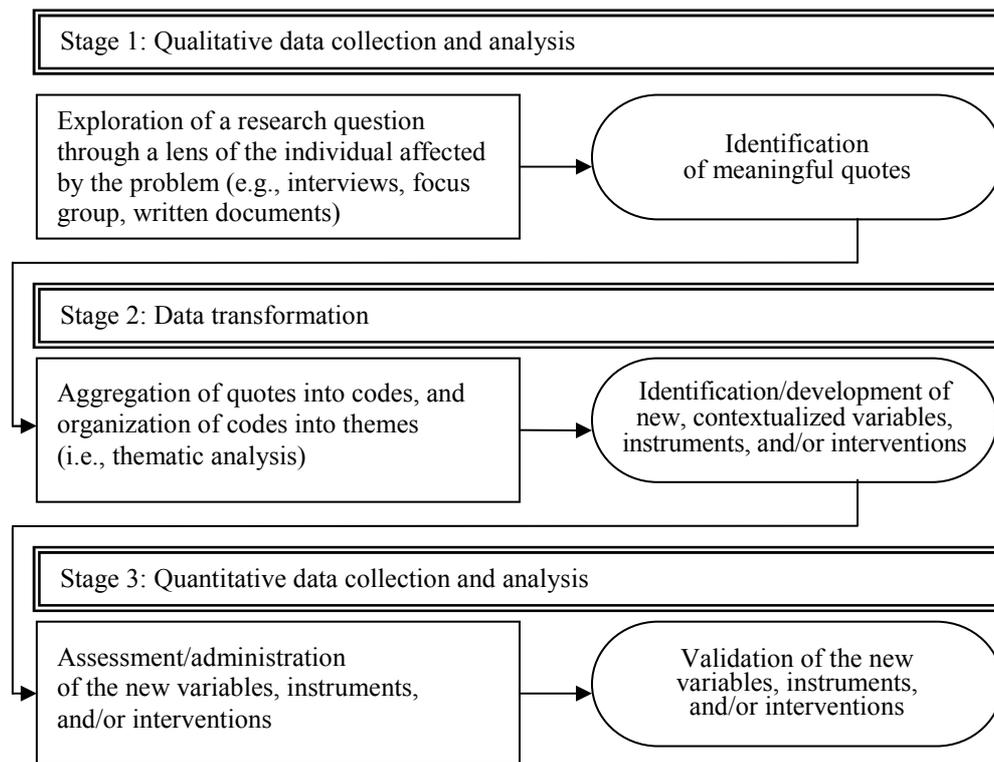


FIGURE 2
Three stages of a general exploratory sequential mixed-methods design.

In the context of the development of a new patient-physician communication coding system in racially discordant medical interactions, in Stage 1, researchers can interview racial minority patients who engage in racially discordant medical interactions and explore which particular physicians' communication behaviors are perceived negatively and positively by the patients. In Stage 2, researchers develop a new instrument that allow them to quantify non-Black physicians' negative/positive communication behaviors based on thematic analysis. In Stage 3, researchers validate the system by assessing which non-Black physicians' communication behaviors included in the new coding system are significantly associated with both physicians' implicit racial bias and Black patients' outcomes. This example demonstrates integrating complementary qualitative and quantitative methods provides a more comprehensive understanding of the links between physicians' implicit racial bias, physician communication behaviors during racially discordant medical interactions, and racial minority patients' outcomes.

It should be noted that the exploratory sequential design is just one of many different designs in mixed-methods approach, including, but not limited to, convergent design, explanatory

sequential design, and intervention design (Creswell, 2013; Creswell & Plano Clark, 2011). A comprehensive review of different types of mixed-methods research designs is beyond our scope. For such review, we refer interested readers to Creswell and Plano Clark (2011) and Creswell (2014) and encourage them to explore other potential approaches to the development of new patient-physician communication coding systems in racially discordant medical interactions.

CONCLUSIONS

Research has increasingly started to show that physician implicit racial bias plays an important role in predicting racial minority patients' short-term (e.g., satisfaction with and trust in physicians) and long-term outcomes (e.g., treatment adherence, healthcare utilization) and in ultimately contributing to the maintenance of the racial health disparities. In this review, we aimed to discuss how researchers can further advance their understanding of the role of physicians' communication behaviors during racially discordant medical interactions as a mediator linking racial majority physicians' implicit racial bias and racial minority patients' outcomes. In doing so, we highlighted two major limitations in the currently available patient-physician communication coding systems (i.e., lack of focus on nonverbal/paraverbal behaviors and lack of patient perspective in development of coding systems) and demonstrated how innovative research approaches, such as a mixed-methods approach, may facilitate the development of new coding systems that are specifically tailored for racially discordant medical interactions. With the help of new coding systems, researchers will be able to identify physician communication behaviors during racially discordant medical interactions that can link physician implicit racial bias and patient outcomes. This will allow for the development of communication skills trainings that effectively and efficiently target those key physician communication behaviors.

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