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Medical Student Experiences Implementing Bias Reduction Strategies: A Qualitative Study

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by

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Each person whose signature appears below certifies that this doctoral project in her opinion is adequate, in scope and quality, as a dissertation for the degree Doctor of Psychology.

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ABBREVIATIONS

CHANGES	Cognitive Habits and Growth Study
IAT	Implicit Association Test
AIDS	Acquired Immune Deficiency Syndrome
PCP	Primary Care Provider
BMI	Body Mass Index
SES	Socioeconomic Status

ABSTRACT OF THE DOCTORAL PROJECT

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by

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Doctor of Psychology, Department of Psychology
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Dr. Patricia M. Flynn, Chairperson

Research has shown that health care provider bias negatively impacts the provider-patient relationship and health outcomes. Studies have identified strategies effective at reducing bias, but there is minimal research implementing these strategies in health care settings, and little is known about effective curricular interventions to teach strategies to medical students. The purpose of the present study was to explore medical students' experiences implementing evidence-based bias reduction strategies with their patients after participating in a bias reduction didactic. The study aimed to 1) determine which bias-reduction strategies medical students most frequently used, and 2) explore student perceptions of the effects of strategy implementation on the medical encounter. Investigators qualitatively analyzed responses to open-ended questions about medical students' experiences implementing evidence-based bias reduction strategies with their patients. Two coders independently reviewed all responses, identified themes, developed codebooks, and double coded student responses. Coders identified three overarching categories of student-perceived implications of strategy implementation: implications for the provider, implications for the patient, and implications for the provider-patient interaction. Each category comprised multiple themes. Themes most frequently described

by the students included the patient feeling more supported/psychologically safe, the student experiencing greater empathy for the patient, and an improvement in connection/rapport with the patient. Study limitations and the implications of findings to inform future research, instrument development, and bias-reduction curricular interventions with medical students are discussed.

CHAPTER ONE

REVIEW OF THE LITERATURE

In 2003, the National Academy of Sciences published a report titled *Unequal Treatment* (Smedley, Stith, & Nelson, 2003) which systematically documented disparities in the quality of health care treatment received by racial and ethnic minority groups and the associated health outcomes. Recent research also points to marked disparities in the treatment of sexual minorities (Hafeez, Zeshan, Tahir, Jahan, & Naveed, 2017; Stover, 2015) as well as individuals with obesity (Gudzune, Beach, Roter, & Cooper, 2013). *Unequal Treatment* ignited interest in discovering the source of disparities in health care, as studies found that disparities generally persist even after controlling for socioeconomic status and access to health care (Smedley et al., 2003; Satcher & Higginbotham, 2008). This finding has led researchers to consider the role of provider bias in health disparities and poor quality of care (Smedley et al., 2003; Betancourt & Flynn, 2019).

Bias

Biases are categorized as either explicit or implicit in nature. Implicit and explicit biases are separate constructs (Nosek, Greenwald, & Banaji, 2007), and their relationship to each other varies in both strength and direction (Nosek, Banaji, & Greenwald, 2002). Explicit biases are consciously held beliefs about an outgroup. Explicit bias negatively relates to overt/verbal expressions of friendliness in interactions with outgroup members (Dovidio, Kawakami, & Gaertner, 2002) and, in medical settings, impacts medical decision making (Van Ryn, Burgess, Malat, & Griffin, 2006). Implicit bias refers to

attitudes and stereotypes about an outgroup that an individual holds unconsciously (Staats, Capatosto, Tenney, & Mamo, 2017). Implicit bias relates to more subtle, less controllable aspects of communication and interpersonal interaction in medical (Hagiwara et al., 2013; Cooper et al., 2012) and non-medical (Dovidio et al., 2002) settings alike. Research has found that people are more likely to rely on implicit associations when there is increased cognitive demand (Bodenhausen & Lichtenstein, 1987; Blair & Banaji, 1996), mental fatigue (Govorun & Payne, 2006), salience of social categories (Mitchell, Nosek, & Banaji, 2003), and situational complexity/ambiguity (Van Knippenberg, Dijksterhuis, & Vermeulen, 1999). Explicit bias instruments are typically self-report while implicit bias instruments generally measure response latencies, such as in the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998).

Research on bias in medical settings has increased since the publication of *Unequal Treatment*. However, important gaps remain to be filled, especially in relation to bias reduction in medical professionals and bias-reduction curriculum for medical trainees. The balance of the review summarizes relevant research on bias in medical practice and highlights important gaps related to evidence-based bias reduction curriculum development for medical students.

Bias in Health Care

Because physicians often endorse little explicit bias (Green et al., 2007; Sabin, Nosek, Greenwald, & Rivara, 2009) and because implicit bias is common among medical professionals and in the general population alike (Nosek et al., 2002; Green et al., 2007; Hall et al., 2015), much of the research on bias in health care has focused on implicit

bias. Furthermore, because stress, mental fatigue, high cognitive demand, and ambiguity are often part of patient care, and because these factors increase the propensity to rely on implicit associations (Bodenhausen & Lichtenstein, 1987; Blair & Banaji, 1996; Govorun & Payne, 2006; Van Knippenberg et al., 1999), this form of bias holds special relevance for medical practice. Most research has explored the effects of implicit bias either on health care providers' treatment decisions, or on their interactions with patients. The following two sections provide a brief overview of the research in this area and review the implications of implicit bias for decision-making and its bearings on the provider-patient relationship.

Implicit Bias and Decision Making

Findings related to the effects of implicit bias on decision-making are mixed. For example, in a vignette-based study of internal and emergency medical residents, Green et al. (2007) found that residents with higher pro-white bias were less likely to recommend thrombolysis to black patients suspected of experiencing a heart attack compared to white patients with the same presentation. Sabin and Greenwald (2012) studied implicit racial bias and decision-making in pediatricians using four case vignettes of children presenting with urinary tract infection, attention deficit/hyperactivity disorder, asthma, and postoperative pain, respectively. Pro-white bias was associated with physicians prescribing narcotic pain medication for white children but not for black children following a surgery. However, there were no associations between implicit bias and any of the treatment recommendations for any of the other case vignettes. Others have not found an association between implicit bias and clinical decision-making (Dehon et al.,

2017), suggesting that further research is needed to address this complex relationship (Zestcott, Blair, & Stone, 2016).

Implicit Bias and Provider-Patient Interactions

In contrast, studies have consistently found a relationship between implicit bias and the quality of provider-patient interactions. Among health care providers, higher levels of implicit racial bias have predicted the use of more dominant language with White and Black patients alike (Cooper et al., 2012) and particularly in racially discordant medical interactions (i.e., physician and patient are not of the same race; Hagiwara et al., 2013; Hagiwara, Slatcher, Eggly, & Penner, 2017). Provider implicit bias has also been linked to lower patient ratings of interpersonal treatment, trust, communication, and overall patient-centered care (Penner et al., 2016; Blair et al., 2013). In a recent systematic review of research published between 2003 and 2013, all eligible articles that examined the relationship between provider implicit bias and quality of care found a negative relationship, and the results generally supported an inverse relationship between implicit bias and the quality of provider-patient interactions (FitzGerald & Hurst, 2017).

Implicit Bias in Medical Students

Much of the existing research has focused on implicit bias in practicing health care providers, and relatively few studies have directly examined the effects of bias on treatment decisions and provider-patient interactions among medical students. However, various forms of implicit bias have been repeatedly identified among medical students.

One study that systematically measured bias in medical students is the Medical Student Cognitive Habits and Growth Study (CHANGES; Przedworski et al., 2015). CHANGES examined implicit and explicit biases in medical students from 49 medical schools across the country. The study design was longitudinal and examined changes in levels of bias in students who matriculated in 2010 and graduated in 2014. Based on data from this larger study, Phelan and colleagues (2016) found that implicit bias against persons with obesity decreased substantially over the course of medical school, but that students maintained some weight bias upon completion of medical school. Another study using CHANGES data found that the level of implicit weight bias in medical students was comparable to levels found in practicing medical doctors (Phelan et al., 2014; see also Sabin, Marini, & Nosek, 2012). Moreover, approximately half of a large subsample of heterosexual participants in CHANGES exhibited some implicit bias against lesbian women and gay men (Burke et al., 2015).

Smaller scale studies have also identified implicit biases among medical students. One study by Haider et al. (2011) measured implicit bias in a sample of 202 medical students and found that more than half of the students' IAT scores indicated pro-White and pro-upper class bias. A smaller study by Bean, Stone, Badger, Focella, and Moskowitz (2013) found that nursing and medical students in a university in the Southwest associated Hispanic patients with greater health risk and noncompliance compared to non-Hispanic White patients.

Bias-Reduction Curriculum in Medical Schools

While research has measured implicit bias in medical students and identified some general correlates to changes in bias over the course of medical school, there are very few studies testing interventions to reduce medical student bias. Matharu et al. (2014) tested an intervention for reducing implicit weight bias in medical students. The intervention involved script reading of a play about obesity, where some students were assigned to read and others served as an audience to the reading. After the reading, students engaged in a discussion about their reactions to the play with minimal facilitation by faculty. A control group attended a lecture about implicit weight bias and the negative impact it can have on treatment. Both groups completed bias measures before the intervention and at four months' follow-up. Results found a significant reduction in explicit bias in the intervention group compared to the control group, but no changes in implicit bias for either group (Matharu et al., 2014). Geller and Watkins (2018) developed a curriculum to reduce implicit weight bias that involved group discussions and video clips from the television series *House*. The intervention emphasized the ethical implications of implicit bias for medical practice, and it was implemented across six consecutive cohorts of 1st-year medical students. While the study measured bias pre-intervention, there were no post-intervention measures to assess for changes in implicit bias (Geller & Watkins, 2018).

In another study, Leslie et al. (2018) implemented an intervention and measured its impact on first and 2nd-year medical students' implicit weight, race, and sexual orientation biases. One group of students completed the IAT, received feedback on scores, and was debriefed on strategies to reduce implicit bias. After this initial

intervention, students completed a year of course work on bias in medical care, primarily targeting bias against sexual minorities and touching lightly on racial/ethnic bias. To control for the priming effects of taking the IAT and receiving feedback, another group did not take the IAT or receive debriefing on bias-reduction strategies until after completing the year of course work on implicit bias. Both groups completed the IAT at the end of the school year. The group that completed before and after measures demonstrated significant reductions in implicit sexual orientation and racial biases. This group also demonstrated significantly lower scores for sexual orientation and racial biases post-intervention than did the group that did not complete the IAT or receive feedback and debriefing until after the intervention (Leslie et al., 2018).

The widely varying methodology used in these studies suggests that there is little consensus about how to design an effective bias-reduction curriculum for medical students. If future generations of physicians are to achieve a more equitable standard of treatment, addressing implicit bias in medical trainees is imperative. However, if bias in medical students is to be addressed, further research is needed to elucidate what constitutes an effective bias-reduction curriculum for medical students.

Bias-Reduction Strategies

A number of evidence-based strategies have been identified in social and cognitive psychological research that appear effective at addressing bias and improving interpersonal relations. However, the literature testing the efficacy of the interventions is limited, and studies implementing these strategies in health care settings are fewer still. The strategies identified include awareness of bias (Devine & Monteith, 1993),

perspective taking (Galinsky & Moskowitz, 2000), mindfulness (Lueke & Gibson, 2015), increased intergroup contact (Turner, Hewstone, & Voci, 2007), multiculturalism (Richeson & Nussbaum, 2004), finding a common ingroup identity (Nier et al., 2001), counter stereotyping (Blair & Banaji, 1996; Blair, Ma, & Lenton, 2001), and pursuing egalitarian goals (Moskowitz, Gollwitzer, Wasel, & Schaal, 1999). Several of these strategies were incorporated into a bias reduction intervention that effectively reduced implicit bias in a sample of college students with gains maintained at as much as eight weeks after the intervention (Devine, Forscher, Austin, & Cox, 2012). Following, we briefly describe each strategy and provide an overview of extant literature supporting its effectiveness.

Awareness of Bias

Cognitive dissonance theory states that people are motivated to reconcile conflicting beliefs and behavior (Festinger, 1957; Festinger & Carlsmith, 1959; Aronson, 1968). Research suggests that people typically engage in behaviors consistent with their self-concept and that there is psychological discomfort when behavior and self-concept do not align (see Aronson, 1968 for a discussion). Bias-reduction research has built off of these findings (Devine & Monteith, 1993). The impact that implicit bias has on the individual's behavior and the frequently observed dissociation between implicit and explicit attitudes about outgroups set the stage for incongruent beliefs and behaviors. Bias-reduction theory maintains that when people are presented with evidence that their behavior is not in line with non-biased, consciously held beliefs and egalitarian intentions, they will be motivated to change their behavior to align with their explicit

beliefs (Devine & Monteith, 1993). In accordance with this line of reasoning, a bias-awareness component was incorporated into a successful implicit racial bias-reduction intervention implemented with non-Black undergraduate psychology students (Devine et al., 2012). Emerging research has also applied this strategy with medical students. Leslie et al. (2018) found that providing students with feedback about their implicit bias scores enhanced the bias-reducing effects of a curricular intervention, which suggests that making students aware of their biases may help to maximize intervention effectiveness (Leslie et al., 2018).

Intergroup Contact

The potential for decreasing prejudice by increasing contact with an outgroup has been an idea of interest, debate, and study for several decades (Pettigrew & Tropp, 2005). An extensive body of research has demonstrated the effectiveness of increased intergroup contact for reducing various forms of prejudice and improving outgroup attitudes (Pettigrew & Tropp, 2006). Research suggests that increasing contact may be useful for decreasing implicit biases specifically (Turner, Hewstone, & Voci, 2007).

An emerging body of research has also explored the effects of imagined intergroup contact, "the mental simulation of a social interaction with a member or members of an outgroup category" (Crisp & Turner, 2009, p. 234). Crisp and Turner argue that while imagined contact should not be thought of as a replacement for actual contact, it can help people to be more open to contact with an outgroup, seeking out opportunities for contact and helping to reduce inhibitions linked to prejudices. A meta-analysis of studies testing the effects of imagined intergroup contact on bias found a

medium effect on both explicit and implicit biases and on outgroup-oriented intentions and behaviors alike (Miles & Crisp, 2014). A variety of outgroups were represented by the studies included in the meta-analysis, and a significant effect of imagined intergroup contact was found for biases relating to nationality, mental illness, age, sexual orientation, and religion (Miles & Crisp, 2014).

Some research has looked at the effects of increased contact with an outgroup on medical students' implicit biases. For example, CHANGES found that favorability and amount of contact over the course of medical school were associated with decreases in heterosexual medical students' bias against lesbian and gay people (Burke et al., 2015). Similarly, favorable contact with obese patients predicted decreased weight bias, and increased contact with medical students with obesity marginally predicted decreased weight bias among medical students (Phelan et al., 2016). While the CHANGES data is descriptive in nature and no controls were implemented, these findings suggest that increased intergroup contact does play a role in mitigating medical student bias.

Common Ingroup Identity

The common ingroup identity model proposes that people show more care and favoritism toward individuals perceived as belonging to the same group compared to individuals categorized as belonging to an outgroup (Gaertner & Dovidio, 2005). If people can be induced to re-categorize an outgroup member as belonging to the same group based on a given criterion, Gaertner and Dovidio (2005) argue that ingroup favoritism can be harnessed to improve attitudes toward people previously perceived as outgroup members and so improve intergroup interactions. Research supports this

hypothesis. For example, Nier and colleagues (2001) found that White university students demonstrated a more cooperative attitude toward Blacks who were visually identifiable as from the same university compared to when they were visually identifiable as being from a different university. There were no university affiliation-based differences in cooperation when White students were approached by another White student (Nier et al., 2001). This study demonstrates how a common identity can improve interactions between individuals who would otherwise perceive themselves as belonging to a different group and thus be less willing to cooperate.

Another study by Dovidio, Gaertner, and Kawakami (1998, as cited in Gaertner & Dovidio, 2005) studied interactions in White-Black and White-White dyads in the laboratory. When instructed beforehand to "avoid wrongdoing" or given no instructions about how to engage in an interaction with a Black confederate, Whites evidenced increased post-interaction access to negative evaluations compared to when they were told to "behave correctly towards the other" or to act as though they were on the same team (p. 633). In the latter two conditions, participants experienced increased accessibility to positive evaluations (Dovidio et al., 1998, as cited in Gaertner & Dovidio, 2005). The increased access to negative evaluations in the former two conditions is indicative of thought suppression (see Wegner, 1994) and suggests a rebound of implicit bias. In contrast, participants' increased access to positive evaluations when told to act as though on the same team with their interaction partner suggests that implicit bias was mitigated in this condition.

Penner et al. (2013) tested the effect of an ingroup identity intervention on improving racially discordant provider-patient interactions and patient treatment

adherence. Providers and patients assigned to the intervention condition were told to act as though they were on the same team and given emblems to wear that identified their common team membership. Physicians were given suggestions as to how to treat their patient as a team member, and shared responsibility for treatment decisions and adherence was emphasized. Physicians assigned to the control condition were not given any instructions. Patients of physicians in the intervention reported greater trust of their own physician and of physicians in general at four and 16 weeks follow-up. They also reported better treatment adherence at 16 weeks follow-up than patients of control physicians. Notably, patients' trust of physicians at 4 weeks mediated the relationship between experimental condition and treatment adherence at 16 weeks follow-up (Penner et al., 2013). While this study did not measure the impact of the intervention on bias, it is an example of how a common ingroup identity intervention can improve patient trust of physicians, and it demonstrates the implications of that trust for treatment adherence.

Perspective Taking

Davis (1980) defined perspective taking as "a tendency or ability… to adopt the perspective, or point of view, of other people" (p. 6). Perspective taking is considered a dimension of empathy (Davis, 1980), and it involves imagining another's experience that differs from one's own subjective experience. Social psychological research has studied the utility of perspective taking for improving outgroup attitudes and reducing bias. In a series of three experiments, college students listened to fictitious (but supposedly real) interviews with a young woman with AIDS, a homeless man, and a convicted murderer, respectively (Batson et al., 1997). Students who were instructed to assume the

perspective of the interviewee and imagine his/her experience reported more favorable attitudes toward the interviewee's group (i.e., people with AIDS, homeless people, and convicted murderers, respectively) compared to students who were told to remain objective while listening to the interview. In all three experiments, empathy mediated the relationship between experimental condition and the attitude towards the outgroup under question (Batson et al., 1997). Another study found that participants who were instructed to engage in perspective-taking while writing an essay about a picture of an individual from a marginalized social group subsequently displayed decreased accessibility to the content of the stereotype as compared to participants who were instructed to suppress stereotypes (Galinsky & Moskowitz, 2000).

The impact of perspective taking on implicit bias has not been studied directly in medical settings. However, a body of research has explored the implications of empathy and perspective taking for the medical encounter. For the purposes of the medical encounter, Hojat et al. (2002) have defined empathy as "a *cognitive* (as opposed to affective) attribute that involves an *understanding* of the inner experiences and perspectives of the patient, combined with a capability to *communicate* this understanding to the patient" (p. s58). It involves understanding the other's perspective and experience without losing touch with one's own experience (Hojat et al., 2003). Perspective taking facilitates empathic concern (an emotional response to another's experience that mirrors the other's distress) among physicians (Lamm, Batson, & Decety, 2007). Furthermore, in a study of medical students' interactions with a standardized patient during a clinical evaluation, perspective taking predicted better patient satisfaction (Blatt, et al., 2010). Amador and colleagues (2015) examined patients' perceptions of

their health care providers' perspective taking following a negative health care encounter. The study findings revealed that when patients perceived their provider to be engaging in perspective taking, they were less likely to experience shame as a result of the negative clinical encounter and were more likely to maintain continuity of care with that provider. These studies illustrate how the ability to take the patient's perspective is central to and reinforces provider empathy, thus strengthening the provider-patient relationship and subsequent outcomes.

Mindfulness

Mindfulness has been defined as a state of awareness achieved through "paying attention on purpose, in the present moment, and non-judgmentally" (Kabat-Zinn, 2013). Lueke and Gibson (2015) found that a 10-minute mindfulness intervention with a sample of White college students predicted significantly lower implicit race and age bias scores compared to an active control group. Additional analyses revealed that the lower bias scores associated with the mindfulness intervention were explained by a weakening of automatic association processes.

As with many bias reduction strategies, little research has directly measured the effects of mindfulness on implicit bias levels in medical settings. However, mindfulness training in health care settings as a stress-reduction intervention are becoming more common, and some findings have potential implications for bias reduction. For example, Asuero et al. (2014) found that empathy among primary health care providers improved moderately after an eight-week mindfulness intervention. A study by Krasner et al. (2009) found that a similar eight-week mindfulness intervention was associated with

significantly higher scores of overall empathy in a sample of 70 primary care physicians and a significant raise on a subscale measuring perspective taking with gains maintained at a 15-month post-intervention assessment. These findings suggest that mindfulness may play a role in facilitating other bias reduction strategies, such as perspective taking, as discussed in the previous section. Furthermore, mindfulness has been shown to reduce cognitive load (see Burgess, Beach, & Saha, 2017, for a review), which has been known to increase the risk of implicit biases being activated (Bodenhausen & Lichtenstein, 1987; Blair and Banaji, 1996; Johnson et al., 2016). In summary, mindfulness has demonstrated utility in reducing implicit bias, freeing up cognitive resources, weakening automatic process associated with implicit bias activation, and improving health care provider empathy.

Multiculturalism

For years, a "colorblind" attitude was advocated as the key to interracial harmony. That is, it was thought that minimizing and ignoring racial/ethnic differences would help alleviate interracial and interethnic tension (Neville, Awad, Brooks, Flores, & Bluemel, 2013). However, research suggests that this approach is not helpful and is even counterproductive. For example, on study found that White participants who avoided talking about race during a race-relevant interaction with a Black confederate displayed less nonverbal friendly behavior and were perceived as more prejudiced than White participants who acknowledged race (Apfelbaum, Sommers, & Norton, 2008). White participants who avoided talking about race also scored lower on a measure of executive function than those who acknowledged race. Researchers found that executive function

actually mediated the relationship between race acknowledgement and nonverbal friendliness, suggesting that the use of a colorblind strategy was more cognitively taxing and interfered with engaging in a friendly manner (Apfelbaum et al., 2008).

In contrast to the colorblind approach, multiculturalism has been tested as a means of improving outgroup attitudes. Multiculturalism focuses on the importance of acknowledging intergroup differences in situations where these differences are relevant (Takaki, 1993; Yinger, 1994). Diversity is recognized and celebrated rather than shunned or ignored. One study that compared these two strategies found that, in the short term, the colorblind strategy was more effective at reducing explicit bias than a multicultural approach under circumstances of high intergroup conflict (Correl, Park, & Smith, 2008). However, the colorblind strategy did not reduce implicit bias, and a rebound effect was observed on the explicit measure after a short delay, suggesting that the lower bias scores initially observed were a function of feeling repression rather than attitude change. In contrast, the multicultural approach resulted in a significant reduction in bias after the delay (Correl et al., 2008). In another study, participants read either a pro-multicultural prompt or a pro-colorblind prompt, depending on the treatment condition (Richeson & Nussbaum, 2004). After reading the prompt, participants paraphrased the ideas into their own words and wrote two reasons why they believed multiculturalism (or colorblindness for control group) was a good approach for improving interracial/interethnic interactions. They were then given a list of statements about the given approach that corresponded to their treatment condition and were asked to circle items with which they agreed. After this intervention, both groups completed the IAT. Participants assigned to the colorblind

condition demonstrated greater pro-White bias than those assigned to the multicultural condition (Richeson & Nussbaum, 2004).

Taken together, these findings demonstrate the utility of acknowledging and embracing intergroup differences in order to improve implicit and explicit outgroup attitudes as well as nonverbal communication. This approach may be useful in improving physician-patient interactions. In fact, research reveals that when patients who had experienced a negative health care encounter perceived that their providers were culturally competent, they were less likely to experience anger and as a result less likely to avoid subsequent medical care (Flynn et al., 2020). Making an effort to understand and acknowledge cultural and racial differences where relevant may help to improve communication, reduce perceptions of prejudice on the part of the patient, and attenuate provider bias.

Counter Stereotyping and Egalitarian Goals

Counter stereotyping is the process of intentionally paying attention to information that contradicts a stereotype rather than information that supports it (Blair & Banaji, 1996). This strategy has been known to significantly reduce stereotype-based responding even under relatively high cognitive demands and to promote counter-stereotypic responding (Blair & Banaji, 1996; Blair, Ma, & Lenton, 2001). There is evidence that another strategy involving the internalization of a goal towards fairness and non-stereotyped judgements of an outgroup (i.e., egalitarian goals) actually inhibits stereotype activation and consequently reduces stereotype-based responding (Moskowitz, Gollwitzer, Wasel, & Schaal, 1999). While there is currently no existing research

examining their effectiveness in medical settings, these findings from the field of cognitive psychology suggest that counter stereotyping and pursuing egalitarian goals are effective at reducing implicit bias.

Qualitative Health Care Research on Implicit Bias Reduction Strategies

Thus far, we have considered the role of implicit bias in health care disparities. We have also considered interventions identified in the social and cognitive psychological literatures that hold promise for reducing implicit bias. Where available, results from medical and non-medical settings support the utility of these strategies, and findings from the field of cognitive psychology serve to elucidate their role in moderating automatic processes. We have noted the general lack of research in medical settings testing the effectiveness of these strategies. Another gap in the literature relates to the qualitative experience of medical students while implementing the strategies, to which we will now turn our discussion.

A handful of studies have qualitatively analyzed medical student's reflections on bias and their perceptions on how bias impacts provider-patient interactions. For example, Peterson, House, Sozener, and Santen (2018) analyzed medical student essays on challenging encounters observed during emergency medicine rotations. In their essays, many students reflected on the struggles inherent in a doctor's work. Thirteen percent of the content related to such struggles discussed bias, either on the part of the provider or the patient. This finding suggests that medical students recognize bias as a challenge in the medical encounter. In another study, medical students were asked to read an article about implicit bias and health disparities and to take two IAT measures (Hernandez,

Haidet, Gill, & Teal, 2013). They were then engaged in a faculty-facilitated group discussion on their perceptions of the IAT, how bias may have influenced specific interactions with patients, and what students believed could have been done to reduce the influence of bias. Hernandez and colleagues (2013) analyzed the data for specific cognitive pathways involved in the reduction of cognitive dissonance related to receiving feedback on IAT scores. The specific pathways of interest were 1) preservation, where students avoid grappling with the question of bias in order to maintain existing beliefs and, 2) reconciliation, where students express openness to discussing bias and willingness to make attitude or behavior changes. Hernandez et al. also analyzed the data to determine whether the espousal of personal versus societal standards was predictive of which dissonance-reduction pathway was used. However, Hernandez et al. did not analyze the data for student's suggestions or attitudes about bias reduction strategies or interventions.

Important to bridging the gap between psychological theory and medical practice is curriculum development to teach the evidence-based strategies to medical trainees. Limited research has tested the impact of curricular interventions on students' levels of implicit bias and, as discussed earlier, methods and results vary widely (Matharu et al., 2014; Leslie et al., 2018). Development of an effective curriculum to teach the evidence-based strategies to medical students is still in the early stages, and little is known about medical students' attitudes toward the strategies or their subjective experience using them. To our knowledge, there is no existing research that explores medical trainee's reflections on the implementation of evidence-based, bias-reduction strategies. As discussed earlier, research from the fields of cognitive and social psychology carried out

in non-medical settings suggest that these strategies effectively reduce bias. In order to translate this research to medical educational settings, it is important to understand medical students' experiences implementing the strategies, and particularly students' perceptions of outcomes associated with the implementation of these strategies. Understanding medical students' experiences implementing evidence-based strategies and their perception of the strategies' effectiveness can inform future interventions designed to promote the utilization of these strategies among medical professionals.

The Present Study

The present study was designed to examine the experiences of medical students implementing a bias reduction strategy with a patient. Specifically, as part of a 3rd-year Applied Preventive Medicine course, students attended a didactic on the role of bias in health care and learned about a number of evidence-based bias reduction strategies. Following the didactic, students were asked to implement one of the evidence-based bias reduction strategies during a patient encounter and then to reflect on their experience using the strategy. The present study was designed to examine medical students' perspectives concerning the implementation of an evidence-based, bias-reduction strategy with a patient in a clinical setting. The following are the aims of this study:

1.) Identify which evidence-based bias reduction strategies medical students most frequently implemented with patients towards whom the students reported bias.

2.) Explore medical students' perceptions of how implementing the strategies impacted patient care.

CHAPTER TWO

METHODS

Participants and Procedures

This study was granted an exemption by the Loma Linda University Institutional Review Board. Participants included 136 3rd-year medical students enrolled in an Applied Preventive Medicine course at a private university in Southern California. Students completed a mandatory one-year Applied Preventive Medicine hybrid course, which included a module on the role of implicit bias in health care. As part of the class, students attended an in-person didactic session at the beginning of the course and completed several online assignments over the next six months. The didactic component took the form of an interactive lecture from a psychologist with expertise in cultural competence training. The didactic included an explanation of implicit and explicit bias, the relationship between implicit bias and health care disparities, and the ubiquitous and adaptive nature of implicit bias. The instructor emphasized the implications of implicit bias on nonverbal behaviors in the context of clinical interactions with patients. During the lecture, the students also completed an Implicit Association Test (IAT, Greenwald, McGhee, & Schwartz, 1998) and received their results. Seven evidence-based strategies for reducing implicit bias were introduced, including awareness of bias, mindfulness, perspective-taking, increased intergroup contact, multiculturalism, counter-stereotyping, and finding common ground (i.e., common ingroup identity). Brief examples were also given of how to implement each strategy during interactions with patients. The PowerPoint was later made available to the students online.

As part of an active learning assignment, students were asked to choose one of the evidence-based bias reduction strategies and implement it with a patient towards whom they may have a bias. They were given four weeks during which they were to implement the strategy. Then students were asked to reflect on their experience implementing the evidence-based bias reduction strategy and submit their responses via Canvas, an online learning system. The reflection assignment consisted of six open-ended prompts that respectively asked students to 1) briefly describe the patient, 2) identify any possible areas of bias, 3) state which evidence-based bias reduction strategy was implemented, 4) describe their experience implementing the strategy, 5) describe any effects of strategy implementation on the care provided and, 6) describe how implementing the strategy affected the patient. Students were explicitly told that there were no wrong or right answers to the reflection assignment and that they would simply be evaluated based on the quality of their reflection.

Qualitative Data: Medical Student Reflection Assignment

Students answered six open-ended questions about patient demographics, potential biases experienced by the student, the bias reduction strategy implemented, their general experience implementing the strategy, perceived impact of implementing the bias reduction strategy on the care they provided, and perceived impact on the patient. In addressing our first research aim, both explicitly reported bias reduction strategies were considered, as well as processes described that matched the description of a bias reduction strategy and that were framed by the student as intended to reduce bias. Any

text that described a phenomenon framed as consequential to strategy implementation was coded as an outcome.

Data Analysis

De-identified student reflection assignment responses were uploaded to NVIVO 12 (QSR International Pty Ltd, 2018) for content analysis. Independently, two coders reviewed all responses to the reflection questions and developed codebooks based on common themes that emerged. Codebooks were consolidated into a single master codebook through comparison and consultation with the coding supervisor. The reflection assignments were then double coded by two coders working independently. The coders and the coding supervisor met periodically to discuss ambiguous language in student responses, settle disagreements in coding, and to make any necessary modifications to the codebook.

Cohen's kappa coefficient was calculated to measure inter-rater reliability. Initial kappa values were low. Upon comparing coding strategies, it was found that coders generally agreed on which portions of text were pertinent to a given theme, but that the first coder consistently included more context than the second coder. The second coder then recoded the data to include additional context captured by the first coder's work. Disagreements in coding (i.e., passages coded by one coder that did not overlap with the other coder's work) were settled through discussion.

CHAPTER THREE

RESULTS

Thematic Overview

We coded a total of 136 medical student assignments. Medical students' responses to reflection assignment prompts were analyzed to identify 1) student bias, 2) evidence-based bias reduction strategy or strategies implemented by the student, and 3) student-perceived implications of implementing the strategy/strategies. In developing a codebook for the implications of strategy implementation, we identified common themes and organized them into overarching categories. A total of 22 themes were identified (e.g., increased empathy/compassion, supported/psychologically safe, improved connection/rapport, etc.) and organized into three overarching categories (i.e., implications for the provider, implications for the patient, and implications for the provider-patient interaction). In the presentation of the results, student-reported biases and bias-reduction strategies employed will be described first, followed by the implications of implementing the strategies. The implications will be presented in order from the most frequently endorsed category to the least frequently endorsed, and themes composing the respective categories will be organized similarly within the discussion of each category. Representative quotes from student responses are presented in the discussion of each theme.

Biases Reported by Medical Students

Student biases were coded based on responses to the prompt asking them to identify possible areas of bias. At times, students described thoughts and feelings of bias that they consciously experienced. For example, one student gave the following reply to the prompt: “Patient had a BMI > 30. I immediately assumed that she was not really making efforts suggested by her PCP…” This quote reflects a bias that the student was aware of in the encounter. Other times, students named one or more “potential areas of bias” without directly endorsing any of them. In some instances, students described patient characteristics or behaviors in response to the prompt (e.g., “The patient cussed me out.”) without assigning a name to the specific bias experienced. In the latter category of cases, text was coded according to the bias implied in the description (e.g., “The patient cussed me out” was coded to “Attitude/interpersonal behavior.”)

The reported biases could be categorized into one of sixteen types of bias. The most frequently endorsed bias had to do with patient overweight/obesity status (n = 43), followed by unpleasant or uncooperative attitude/problematic interpersonal behavior (n = 37), racial/ethnic bias (n = 34), history of substance use/abuse (n = 31), and socio-economic status (SES, n = 26). For a complete list of biases identified with their respective frequencies, see Table 1.

Table 1. Biases Reported by Medical Students.

Bias	*n* (%)
Weight	43 (32)
Attitude/interpersonal behavior	37 (27)
Ethnicity and/or race	34 (25)
Substance use	31 (23)
Socioeconomic status	26 (19)
Mental health	15 (11)
Age	10 (7)
Non-adherence	9 (7)
Pregnancy	9 (7)
Appearance	8 (6)
Gender	5 (4)
Incarceration status	4 (3)
LGBTQ+	4 (3)
Other	4 (3)
STD status	3 (2)
Veteran status	2 (1)

Note: Biases are not mutually exclusive.

Bias Reduction Strategies Implemented by Medical Students

As part of the reflection assignment, students were asked to identify which evidence-based bias reduction strategy they implemented in the patient encounter. To facilitate student recall of strategy names in responding to this prompt, students were provided with a list of the strategies discussed during the in-person didactic. Students frequently reported using more than one strategy. In response to the prompt asking

students to describe their experience implementing the strategy, students at times described processes pertinent to other strategies in addition to the strategy or strategies explicitly named. In these cases, the coder assigned additional "coder-identified" strategies to the case (see Table 2). In a few exceptional cases, the student reported having implemented a specific strategy but clearly described the process of implementation pertaining to a different strategy. In these instances, the strategy described was properly classified and coded. The three most commonly used strategies were perspective taking (n = 71), awareness/concern (n = 52), and mindfulness (n = 40), respectively. See Table 2 for strategy use frequencies and percentages. It should be noted that 50% of students (n = 68) used more than one strategy.

Table 2. Bias Reduction Strategies Utilized in the Patient Encounter

Strategy	Student Identified	Coder identified	Total
	n (%)	*n* (%)	*n* (%)
Perspective-taking	64 (47)	7 (5)	71 (52)
Awareness	29 (21)	23 (17)	52 (38)
Mindfulness	21 (15)	19 (14)	40 (29)
Individuation	26 (19)	6 (4)	32 (24)
In-group identity (common ground)	15 (11)	2 (1)	17 (13)
Counter-stereotype thinking	7 (5)	0	7 (5)
Multiculturalism	2 (1)	0	2 (1)

Implications of Implementing Bias Reduction Strategies

Students provided rich and nuanced responses to prompts asking them to identify perceived outcomes of strategy implementation. Direct quotes from student assignments were organized into themes, and themes in turn were organized into overarching categories. We identified three categories, namely, implications for the provider, implications for the patient, and implications for the provider-patient interaction. Multiple themes comprised each of the three categories with implications for the provider being the category with the most themes (n = 14). In the presentation of results below, we discuss categories and their respective themes in order of frequency of endorsement (greatest to least). Excerpts from student responses are provided to illustrate each theme. Table 3 presents the frequencies and percentages for each theme and overarching category, as well as their definitions.

Table 3. Outcomes related to strategy implementation

Category/Theme	*n* (%)	Node definition
Implications for Provider	*133 (98)*	*The impact of strategy use on the student personally (behaviorally, cognitively, etc.)*
Empathy/Compassion	81 (60)	Increased understanding of the patient's situation, feelings, decisions, etc. (cognitive empathy); experiences of sharing the patient's feelings (emotional empathy); feelings of care, compassion, sympathy, affection, or well-wishing for the patient.
Decreased bias	33 (24)	Seeing patient in a less biased or stereotypical way; better management of bias.
Respect/Trust	30 (22)	General improvement in their evaluation of the patient as a person; seeing patient more holistically, as a person, as having rights; increased trust of patient report and competency.
Active listening	28 (21)	Student listens more to patient; is more attentive; is more open to the patient.
Patient-centered care	28 (21)	Feeling on the same team with patient and/or entertaining patient perspective of problem; involves patient more in treatment planning.
Information gathering	26 (19)	More/better quality information gathering (such as through history taking, chart review, or physical examination).
Personal fulfillment	26 (19)	Implementing the strategy was worthwhile, made the encounter more meaningful/fulfilling, or provided some sense of the relief and/or enjoyment to the student.
Increased awareness/broadened perspective	24 (18)	Student describes learning something new or experiencing a paradigm shift; student describes feeling more grounded and/or more self-aware (of thoughts, feelings, or behaviors).
Motivation to help	21 (15)	Increased sense of responsibility for the patient; more passion to help; more willingness to help/take time; an increased sense of investment in or responsibility for patient's well-being.
Diagnosis/Treatment planning	20 (15)	Improved diagnosis and/or treatment plan.
Patient education	11 (8)	Provides patient with additional education on diagnosis, treatment, and/or self-care.
Advocate for patient	9 (7)	Student advocates for patient to the attending or care team.

Table 3 (continued).

Non-verbal communication	8 (6)	Changes in facial expression, body position, gestures, etc.
Intention for future strategy use	6 (4)	Student expresses intention to implement a strategy in the future.
Implications for Patient	*109 (80)*	*The impact of strategy use on the patient, as perceived or imagined by the student, objectively observed, or reported by the patient.*
Supported/Psychologically Safe	95 (70)	Patient felt heard, understood, or empathized with; cared for, valued, respected, and/or supported; less isolated; less stressed; safe/not judged; experienced increased feelings of comfort, strength, or hope.
Appreciation	32 (24)	Increased patient appreciation, gratitude, thankfulness, or happiness with/resulting from care.
Opens up	31 (23)	Patient opens up more or shares more information than they would have otherwise.
Compliance	21 (15)	Patient more open to medical advice; increased likelihood of compliance or continuity of care.
Less defensive	15 (11)	Improvement in the patient's attitude toward or trust of the student and/or care team.
Implications for Provider-Patient Interaction	*85 (62)*	*The impact of strategy use on the contact between the student and the patient.*
Connection/Rapport	70 (51)	Improved connection or interaction, a sense of friendship or commonality, better rapport, and/or improved demeanor on the part of the student (except were specifically referring to body language).
Verbal communication	21 (15)	Improved or increased verbal communication or information sharing.
Improved Health Care Experience	17 (12)	Strategy implementation results in patient experiencing health care in a new, better way.

Note: Categories and themes are not mutually exclusive. A given passage of text could be coded to more than one category or to multiple themes.

Category 1: Implications for the Provider

Students most frequently discussed the impact of implementing the strategies on themselves. They reported emotional and cognitive changes (e.g., increased empathy, decreased bias) as well as changes in their behavior (e.g., more active listing, increased information gathering).

Theme 1.1 Empathy/Compassion

Empathy/Compassion was the most commonly endorsed effect of strategy implementation on the student personally. The experiences of empathy and compassion described took several forms. The tendency of some students to use the words “empathy” and “compassion” interchangeably or to refer to empathy without a more detailed description of the experience made it difficult to sort the excerpts into more specific subthemes. However, some common subthemes within this node include references to cognitive empathy, emotional empathy, and increased feelings of care/compassion for the patient.

Students often described increased understanding of factors contributing to undesirable patient decisions and behaviors. For example, one student talked about a patient in pain who was verbally aggressive and accusatory toward the care team while experiencing the pain. Though the student indicated that his/her initial reaction to the patient’s attitude was one of sadness and frustration, the student described a change after implementing the bias reduction strategy of perspective taking:

> “My compassion exponentially increased... When I realized she was in a strange place with people of a different culture treating a condition in her body she had little physiologic understanding of, and no family by her side, sitting in bed in

> uncontrolled pain for weeks, I began to understand her anger, her hesitancy to comply with treatment, and her reasons for distrust."

This student's experience suggests an increase in both cognitive empathy and compassion while interacting with a difficult patient. Occasionally, students described the experience of taking the patient's perspective as emotionally overwhelming or uncomfortable.

Theme 1.2 Decreased Bias

This theme reflects students' responses related to a more effective management of bias or seeing the patient in a less stereotypical way than the student otherwise might have. One student reported experiencing bias and feeling that a patient's condition was irremediable due to his low socioeconomic status and lack of access to resources. After taking the patient's perspective, the student reported that "it helped me let go of my judgmental perspective of him and focus more on how I can help him get better outside of the hospital." The student describes two outcomes together: letting go of judgmental attitudes (decreased bias) and an increased focus on helping the patient (motivation to help, discussed in greater detail later). It was common for students to describe multiple and often interrelated outcomes for implementing a strategy.

Theme 1.3 Respect/Trust

Respect/trust includes such student experiences as an increased sense of respect for the patient, seeing the patient more holistically, or having greater confidence in the patient's trustworthiness and competency. One student wrote,

> "As I talked with Mr. H and got to know him better, it became clear to me that he wasn't unintelligent or lazy at all…. I began to see Mr. H as a person, rather than the stereotypes I had conjured up in my mind. This, ultimately placed us on the same level in terms of value and understanding. When I interviewed him and examined him every morning, I didn't see him as many other people did, but I saw him as a smart young man with a desire to move past this low point in the hospital and implement some change in his life."

Theme 1.4 Active Listening

Active listening was reported by over one fifth of the students as a result of implementing the bias reduction strategy. Students described experiences such as being "a better listener," "listening… with an open heart," and being "more empathetic and attentive to the story that the patient had to tell." Students also described setting aside preconceived ideas to hear to the patient's story with less bias. For example, one student who felt biased towards a patient with obesity reported the following:

> "Using these techniques prevented me from making any assumptions about the patient, and allowed her to tell her story and medical problems without me adding any input. This gave a more clear and honest interview, meaning I had more information that could be used to help treat the patient."

This quote is another example of interrelated outcomes, with clearer information gathering (to be discussed later in greater detail) flowing naturally from the act of setting aside assumptions and allowing the patient to tell her story.

Theme 1.5 Patient-Centered Care

Patient-centered care primarily took two forms: involving the patient in treatment decisions, and having a sense of being on the same team with the patient/working toward a common goal. For example, one student reported, "I think that this technique allowed me to understand my patient's goals of care and adjust the treatment and follow-up plan

to fit them." Another student described how the improvement in communication resulting from implementing the bias reduction technique "allowed the patient to be more involved with her care and have more control and autonomy." These two quotes illustrate an increased focus on patient goals in the care process. Another student reported how the technique seemed to help "the patient to feel better understood. I think that she felt like I was on her side working with her to accomplish her goals." This quote reflects a sense of being on the same team with the patient.

Theme 1.6 Information Gathering

As alluded to earlier, a number of students also described various forms of improved information gathering. They related behavioral changes such as taking more thorough histories, asking a wider range of diagnostic questions, and taking more thorough physical examinations. For example, one student noticed a tendency to jump to conclusions about the diagnosis based on minimal presenting problem information and the patient's ethnicity. After the student became aware and mindful of their bias, the student changed their approach to the patient and ended up finding the diagnosis different from what they had initially assumed. They reported in the assignment, "If I didn't catch my biases, I would have pushed myself into a corner, ask a narrow scope of questions and make the patient feel as if I was judging him."

Theme 1.7 Personal Fulfillment

Personal fulfillment was endorsed by nearly a fifth of the students. They described enjoying the encounter more, finding it more fulfilling, and/or feeling more at

ease. In one student's words, "It made the experience much more worthwhile and I felt that I could better connect with the patient when my options were open." Another student noticed their racial bias toward a patient and decided to take the patient's perspective to mitigate the bias. The student reported, "Through perspective taking/empathy, I was able to gain a real friendship and connection with this patient, in which I was able to gain so much happiness from." Both of these experiences illustrate personal enrichment as well as improved connection with the patient, which will be discussed in greater detail under Category 2.

Theme 1.8 Increased Awareness/Broadened Perspective

Increased awareness/broadened perspective was described numerous times. Students described experiencing a paradigm shift, seeing life from a different perspective, or becoming more self-aware. One student reflected on the challenges of maintaining self-awareness during a clinical encounter:

> "I found it more difficult to actively use the technique than I thought it would be. But I thought it was a very rewarding exercise because I learned more about myself, that I was too easily overconfident in my natural ability to remain judgement free. I think that's the bottom line: we are all human and as such we all can have a tendency to easily judge other people."

This quote illustrates both increased awareness on the part of the student of his/her own biases and greater insight into the ubiquitous nature of bias.

Theme 1.9 Increased Motivation to Help

Increased motivation to help was often discussed in the context of experiencing an increase in empathy for the patient and was at times described as an antecedent to

behaviors such as more attentive listening or better information gathering. Students described feeling "more invested in [the] patient's well-being," unwilling to "give up" on patients they might have otherwise had less hope for, and "a stronger since [*sic*] of responsibility… to see the particular patient improve." Students also described feeling motivated to go above and beyond a minimum standard and to "provide the best care possible."

Theme 1.10 Improved Diagnosis/Treatment Plan

Diagnosis/treatment plan referred to improvements in the accuracy of the diagnosis or appropriateness of the treatment plan. It was often framed as following an improvement in information gathering and sometimes as flowing out of an increased motivation to help. One student's experience in using perspective taking with a patient illustrates the interrelatedness of these themes: "I think that it motivated me to investigate his history and plan his treatment out much more thoroughly, since I was more emotionally invested in his well-being."

Theme 1.11 Patient Education

Patient education referred to increases in educating patients about their condition, treatment, or other aspects of care. After implementing the strategy of gathering individuating information about a patient, one student reported that he/she could better "understand the concerns and difficulties that this patient would have in carrying out treatment and healing and could actually answer questions and recommend realistic solutions for them." Students also reported providing "better counseling" to the patient or

helping the patient to have a better understanding of and feel more at ease with actions taken by the care team in the course of treatment.

Theme 1.12 Advocate for Patient

Advocate for patient refers to actions taken by the student to present the patient's case to other members of the care team (usually the attending physician) with the purpose of improving the care provided. It was sometimes framed as being facilitated by improved communication and information gathering and generally intended to have implications for the patient's treatment plan. One student reported, "This empathy technique caused me to take more time with the patient and linger to listen to her story after rounds... These changes then led me to advocate for the patient's requests when speaking with my team." The student went on to describe how more open communication with the patient, as brought about through deepened empathy, enabled the student "to better understand [the patient's] medical course and give more accurate reports to [the care] team."

Theme 1.13 Non-Verbal Communication

Non-verbal communication involved improvements in the student's body language, such as through increased eye contact or a more open body positioning. References to improved body language were frequently accompanied by descriptions of overall improvement in the provider-patient interaction or connection. One student implementing mindfulness reported, "I caught myself crossing my arms a couple times, and then uncrossed them right away." Another student using perspective taking described

how the strategy made the student more considerate of the patient's feelings and nuances such as how the student's body positioning could impact the encounter:

> "After I realized that I had a bias and noticed how my body language and general interaction differed from some of the other patients I saw, it was relatively easy for me to address my bias. I considered how she might be feeling and thought about how I would want to be cared for if I was her. In my next interaction with her, I paid attention to my body language..."

Theme 1.14 Intention for Future Strategy Use

Intention for future strategy use captures student interest in or intention to implement bias reduction strategies in the future. Students described seeing the strategies as valuable in their patient encounter. Students who did not have the chance for ongoing contact with the patient after implementing the strategy indicated that having engaged in the exercise would likely have a positive impact on encounters with other patients in the future. One student sought out individuating information to mitigate bias and build rapport with a substance abusing patient. After the interaction, the student reported,

> "I will definitely try to incorporate this technique with every patient, and I know it won't work with every patient, but it is definitely worth a shot. I also think it's better to practice this now, while we are just students and don't have notes to worry about, so that we can solidify this skill and have it be a natural part of our care during residency."

Category 2: Implications for the Patient

Students described a number of changes in the patient that were related to implementing the bias reduction strategy. At times, when the impact was less obvious, students described how they hoped or imagined the strategy might have impacted the patient. Still, over one fifth (n = 23) of students who endorsed this category described observable changes in patient demeanor or behavior or patient-reported changes in

thought process or emotional state (e.g., the patient expresses appreciation or that he/she feels “heard”).

Theme 2.1 Supported/Psychologically Safe

Feeling supported and psychologically safe was the most commonly endorsed patient outcome. This theme covers a range of patient experiences, including not feeling judged, feeling valued and respected, and feeling understood and cared for. These experiences were frequently described together, and therefore separating each into a separate theme would have misrepresented their interrelatedness. Patients reported to have experienced feeling supported and psychologically safe were often described by the student as being more open and communicative with the student as a result. For example, a student implementing mindfulness with a substance-abusing patient reported,

> “I think overall, me being able to apply these techniques allowed for the patient to have a better experience and I felt as if she felt heard and felt understood by me… I truly think this may have been one of her first interactions where she didn't feel judged and felt open to talk about what was going on in her life.”

This excerpt illustrates both the interrelatedness of the patient experiences represented in this theme as well as the closely linked outcome of increased patient openness, to be discussed in greater detail later in this category.

Theme 2.2 Appreciation

Appreciation emerged as a theme separate from support and psychological safety, but often related and described as resulting from the patient’s experience of feeling heard and understood. It was also at times described in the context of an overall improved

provider-patient relationship. One student implementing mindfulness to address gender, age, and sexual orientation biases with a patient reported,

> "I know the patient felt heard and listened to the day I went to talk with him. He thanked me for coming in and at one point in our conversation there were tears in his eyes. I knew that the connection, no matter how small, had helped us both."

Theme 2.3 Opens up

Opens up refers to the patient being more willing to share health information or to otherwise confide in the student. This theme often emerged in conjunction with an overall improved provider-patient relationship and, as mentioned earlier, it was frequently described as resulting from the patient's experience of feeling supported or psychologically safe. One student implemented individuation to address mental health and substance-use biases with a schizoaffective patient who used methamphetamines. The student described the patient as "very wary" of the staff and uncomfortable with their questions. After implementing the strategy, the student reported,

> "...she was happy to see me every morning... Because I had gotten to know her, I gained her trust and she was more willing to share some of her thoughts that she would usually withhold from the resident and attending physicians."

Theme 2.4 Compliance

Compliance presented as the patient being more receptive to treatment recommendations made by the care team, observable compliance with treatment recommendations, and/or increased likelihood for compliance or continuity of care. Improved compliance was often framed as predicated on the patient feeling heard, understood, or valued (i.e., supported/psychologically safe), and sometimes on an overall improvement in the quality of the relationship and interactions. For example, one student

implemented perspective-taking to address bias with a patient who had a history of substance abuse. The student reported having better interactions with the patient. The student went on to report, “He mentioned that he finally felt like he was being listened. This allowed him to be more willing to participate in group therapy as well as being compliant with medications.”

Theme 2.5 Less Defensive

Less defensive refers to the patient being more trusting of and/or less difficult and defensive with the student or medical team. This theme was sometimes described in conjunction with an overall improvement in rapport and the patient feeling supported/psychologically safe. One student reported, “He was less of the defense and more open to working with the team in his treatment plan. I think he finally felt less judged and more of a part of his own health management.”

Category 3: Implications for the Provider-Patient Relationship

Students also discussed changes in the quality of their interactions with the patient. Most frequently reported was improved rapport with the patient, followed by better communication and the patient experiencing health care in a new and better way.

Theme 3.1 Connection/Rapport

Connection/rapport refers to an improved provider-patient relationship or quality of interactions. This theme was often described in terms of feeling more able to “connect” with the patient, having a better relationship or rapport, and/or overall

improvement of interactions during the encounter. As mentioned previously, connection/rapport was sometimes described as contributing to increased compliance or cooperation. One student implementing perspective-taking with a patient who presented with cirrhosis of the liver described how the technique helped to approach the patient with a more supportive attitude and how this shift impacted the relationship:

> "I think implementing this technique helped me to establish more rapport and trust with the patient. And I think showing that the doctor cares about him as a whole person will help him in the long run in drinking cessation and health maintenance."

This quote frames the patient's experience of feeling respected (i.e., supported/psychologically safe) as contributing to the improved rapport, which may ultimately contribute to better treatment adherence.

Theme 3.2 Verbal Communication

Verbal communication was described either in terms of the provider communicating more effectively, the patient being more communicative with information immediately relevant to their health concerns and treatment, and/or a general improvement in communication overall. One student described the impact of implementing mindfulness with a patient who frequently "[caused] trouble" for the hospital staff and care team. The student described approaching the patient with a more open, less accusatory attitude after implementing the strategy, and the impact these changes had on the patient's care:

> "Having someone come in and give him a few moments to express his frustrations and concerns made him feel listened to and heard. From there, it was much easier to communicate with him about his hopes and goals, and about his treatment from our end of things. Taking the extra couple minutes to hear him out without bias clouding the encounter truly made a difference in the course of the interaction."

The excerpt describes a bi-directional improvement in communication, with the patient better able to communicate his desires and treatments goals and the care team better able to explain the treatment process.

Theme 3.3 Improved Health Care Experience

Improved health care experience refers to the patient having a better experience with health care than they had in the past, a better attitude toward health care, and/or the encounter increasing the likelihood of improved interactions with the health care system in the future. This theme was often framed as related to the patient's experience of being heard or not judged (i.e., supported/psychologically safe). One student described how a patient felt more hope about having her health concerns addressed than she had in previous encounters: "I feel that it positively impacted the interaction; the patient was smiling by the end of the patient encounter and was hopeful about her upcoming appointments for lifestyle visits, which she felt had been ignored requests before." Another student described a shift in a patient's mother's experience of and attitude toward the health care system after implementing perspective-taking: "The mother felt understood and less frustrated with the health care system. Feeling heard, she was calmed and more able to understand the plan the team had for her daughter." In this case, the student also describes more effective communication ("better able to understand") as resulting from the mother's improved experience with the care team.

CHAPTER FOUR

DISCUSSION

Students described a variety of outcomes related to implementing the evidence-based bias reduction strategies. The most frequently reported outcome of implementing one or more strategies was the patient feeling supported/psychologically safe, which fell under the broader category of implications for the patient. The widest variety of outcomes described had to do with the personal implications for the student for using the strategies. Of this overarching category, the most frequently described outcomes were increased compassion and empathy, decreased bias, and increased respect for the patient as a person. A number of students also reported such outcomes as increased active listening, a greater sense of personal fulfillment, improved diagnosis and treatment planning, and improved non-verbal communication, among others. Students described several effects of strategy use on the patient, such as an increased sense of being supported and psychologically safe, improved compliance, and a less defensive/more cooperative attitude. Implications for the provider-patient interaction included improved connection and rapport, improved verbal communication, and the patient having an improved experience with the health care system.

It is of interest to note that most students identified multiple outcomes for implementing the strategy or strategies, and the outcomes were often described as interrelated. For example, students who described taking more time to listen and/or who listened more attentively to the patient often described the patient as feeling more supported and psychologically safe, being more communicative, and/or being more

compliant as a result. The increased listening on the part of the student and an increased sense of being supported/psychologically safe on the part of the patient were also frequently reported in conjunction with an overall improvement in the provider-patient relationship. These findings echo quantitative research conducted by Penner et al. (2016) on the implications of bias for medical interactions. In that research, patients of physicians with lower (vs. higher) implicit bias reported feeling more respected and supported by their doctor and perceiving the care as more patient-centered overall (Penner et al., 2016). Patients from that study also reported greater confidence in treatment recommendations and their own ability to follow through with the treatment plan. The researchers found that the patients' perception of how patient-centered the encounter was mediated the relationship between provider implicit bias and the patients' expectations about treatment difficulty. That study's findings are similar to how medical students from the present study described the outcomes of implementing the bias reduction strategies as interrelated. Specifically, medical students from the present study also brought up that when patients felt more supported and heard, it lead to greater treatment adherence.

Some students also described improvements in their non-verbal communication with patients when they implemented the bias reduction strategies. Previous quantitative research conducted with a general population of college students found that White students with higher levels of unconscious bias exhibited less non-verbal friendliness in interracial interactions (Dovidio et al., 2002). In the present study, some medical students specifically described changes in body positioning and eye contact, and a number of students described having a better "demeanor" with the patient. These findings suggest

that implementing the bias reduction strategies could counter some of the non-verbal behavioral responses associated with implicit bias in patient-provider clinical interactions.

The present findings related to medical students' perceptions of the outcomes associated with implementing bias-reduction strategies during a patient encounter complement previous research on the relationships among such variables as provider bias, the patient's experience of the medical encounter, and the patient's attitude toward the treatment plan. The overwhelming frequency with which the patient was described as feeling more supported and psychologically safe and how frequently this experience was described as facilitating other positive outcomes relevant to patient well-being suggests that these strategies may be effective at simultaneously impacting and improving multiple areas of care that tend to be negatively affected by provider bias and that contribute to health disparities.

Interesting patterns also emerged concerning the bias reduction strategies medical students chose to implement with their patients. Namely, perspective-taking, bringing awareness to one's biases, and mindfulness were the most frequently reported strategies selected by the medical students. It is particularly interesting to note the tendency towards simultaneous implementation of more than one bias-reduction strategy when working with a patient. In fact, half of the students described using more than one strategy. This is consistent with other bias reduction interventions implemented with non-medical college students, where the strategies were taught together rather than individually (Devine et al., 2012; Forscher et al., 2017). According to Devine and colleagues (2012) these strategies may be best conceptualized as interrelated and working together to facilitate a "general

self-regulatory process." The bias-reducing potential of interventions may be maximized by teaching the strategies together rather than focusing on individual techniques.

The research findings also identified aspects from the curriculum that could be refined to enhance the effectiveness of future interventions designed to teach students bias-reduction techniques. For example, some students implementing "awareness/concern" described trying to not view or relate to the patient in a biased way. Previous research has found that suppression of bias is associated with a rebound effect, mitigating the effects of bias in the moment but making biased reactions even more likely than they otherwise might have been in the future (Dovidio et al., 1998, as cited in Gaertner & Dovidio, 2005). In contrast, a paradigm that emphasizes positive actions to be taken rather than shunning negative actions to be avoided is associated with improved quality of interactions and maintained improvements in attitude toward the outgroup after the interaction (Dovidio et al., 1998, as cited in Gaertner & Dovidio, 2005). Future bias reduction didactics could benefit from discussing the limitations of bias awareness when the goal involves avoiding biased behaviors as compared to viewing bias awareness with the goal of engaging in proactive strategies to cultivate positive interactions and attitudes (e.g., perspective taking, finding common ground based on a common ingroup identity).

Limitations

The fact that outcomes were not objectively measured and implications for the patient are drawn entirely from the students' reports constitutes a limitation of this research. Research has found that a person's perception of his or her own behavior in intergroup interactions does not necessarily correspond to how the interaction partner

perceives the person's behavior, especially when unconscious bias is involved. More specifically, Dovidio et al. (2002) found that White research subjects' perceptions of their own behavior in an interaction with a Black research confederate correlated with the subjects' explicit, but not implicit, attitudes. Conversely, confederate perceptions of the subjects' non-verbal behavior correlated significantly with the subjects' unconscious bias, such that greater unconscious bias was associated with perceptions of less non-verbal friendliness (Dovidio et al., 2002). As such, student responses that postulate or make inferences about the patient's experience could reasonably be read with some level of skepticism. Nonetheless, 21% of students reported observable responses from the patient that suggest the student's behavior post-strategy implementation was perceived favorably by the patient. Furthermore, research suggests that acknowledging relevant differences reduces uneasiness in intergroup contact (Apfelbaum et al., 2008). Hence, following the didactic it is likely that students were acknowledging and addressing potential areas of bias that could have led to such outcomes described as the patient feeling more at ease and the interaction being improved overall.

Another limitation of the present research is that the nature of the assignment could tend to bias students' responses. While prompts were neutral and allowed room for either positive or negative reflections on the strategies (e.g., "How do you believe implementing the bias reduction strategy impacted the care you provided for the patient?"), it is possible that students at times provided answers consistent with the information they had received about bias during the didactic and in harmony with feedback they might suppose the instructors hoped to receive. Students may have withheld more negative impressions of the process and outcomes and emphasized the

benefits. Nonetheless, because the strategies taught are based on prior research and have been demonstrated to reduce bias, we are confident that, generally, the benefits reported do reflect real improvements in the students' encounters with patients. Furthermore, the class was structured in such a way to minimize social pressure on the student. Specifically, the guest speaker who gave the didactic on bias was not involved with grading, and students were reassured that they would be graded based on their description of the process of strategy implementation and not the experiences that resulted. Finally, the course instructor was not involved with the students' clinical experience or evaluation, which could reasonably be expected to further reduce student concerns about presenting themselves in a favorable light.

Future Directions

The present study raises a number of questions for future research. The most apparent question to be answered is whether patients also perceive an improvement in care as a result of medical students implementing evidence-based bias reduction strategies. Past research has found that patients perceive differences in the quality of the provider-patient interaction as a function of provider implicit bias (Penner et al., 2016). The current study suggests that medical students may experience improvements in their interactions with patients following a psychoeducational bias-reduction intervention and intentional bias-reduction strategy implementation. Future bias-reduction programs targeting medical students should solicit patient feedback. Quantitative research in this line should measure the extent to which student and patient perceptions of interactions correlate. To enhance objectivity, a mixed-methods research design may also be

employed that includes video recordings of provider-patient interactions to be analyzed and coded by a third party. The use of control groups could also help elucidate the extent to which bias-reduction interventions similar to the present study predict improved health care provider, patient, and third-party ratings of the interaction (especially with regard to supportive and patient-centered care) and whether these perceptions relate to actual changes in patient adherence and medical outcomes. Qualitative studies that solicit patient perceptions may identify additional variables of interest.

Future studies may also compare the extent to which the specific bias reduction strategy implemented affects given outcomes. Do certain strategies more consistently predict one or more given outcomes in the provider-patient interaction? While the present study and previous research in this field has often presented the strategies as a toolkit to be used together, there is a need for research comparing specific strategies and their given effects on the medical encounter.

The present study has implications for future instrument development, especially in the study of patient-centered care and patient-report measures. For the purposes of our codebook, we defined patient-centered care rather narrowly: “Feeling on the same team with patient and/or entertaining patient perspective of problem; involves patient more in treatment planning.” However, patient centered-care has been conceptualized and operationalized in a variety of ways (e.g., Hudon et al., 2011; Scholl et al., 2014; Tzelepis et al., 2015). The term has been used to refer to various aspects of care, such as the provider-patient relationship, emotional support, and access to care, among others (Scholl et al., 2014). In our study, supported/psychologically safe emerged as the most common outcome of bias-reduction strategy implementation and was often described as relating to

other positive outcomes. Students described this theme as facilitating multiple aspects of patient-centered care, such as improved communication, rapport, and the patient's sense of well-being. Because of the overwhelming frequency of this theme in the data and its relevance to various aspects of patient care, we recommend developing a measure to assess this construct. In our data the theme generally took the form of patients apparently feeling more valued, acknowledged, cared for, and heard, and items on the proposed measure might assess to what extent the patient endorses such experiences following an encounter with a physician or medical student. Once the measure has been psychometrically validated, research may assess the extent to which other variables (e.g., bias-reduction strategy implementation by the provider) predict the patient's experience of feeling supported and safe and the extent to which other health outcomes can be predicted by the patient's experience. Possible moderators or mediators of the relationships between the provider-patient encounter and the patient experience should be considered, such as the treatment setting and the patient's cultural beliefs and values.

Conclusions

While the current literature on bias has identified a number of evidence-based strategies that help to mitigate the effects of bias and improve intergroup interactions and attitudes, research applying these strategies in medical settings is still in its infancy. The present study explores medical student perceptions of the effects of implementing the strategies with a patient. Students' descriptions of strategy effects were overwhelmingly positive. Students described such changes as improvements in their compassion and empathy for the patient, improved connection and rapport with the patient, and

improvements in patient-centered care and patient emotional well-being, suggesting that strategies may be useful for improving areas of medical care known to be affected by bias (e.g., Penner et al., 2016; Blair et al., 2013; FitzGerald & Hurst, 2017). Future studies should explore and compare both medical student and patient perceptions of medical encounters incorporating bias-reduction strategies. Bias-reduction research among medical students should strive to identify intervention factors that maximize student comprehension of the material and student success with strategy implementation.

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