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Color-Blind Racial Attitudes in Practicing Dental Hygienists

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Abstract

Purpose: Individuals who subscribe to a color-blind racial ideology may not be aware of differences or differential treatment based on race which may be related to racial inequality in the delivery of oral health care. The purpose of this study was to determine color-blind racial attitudes in a convenience sample of clinical dental hygienists.

Methods: A convenience sample of practicing dental hygienists recruited through social media via snowball sampling was invited to participate in this cross-sectional survey study. The Color-Blind Racial Attitudes Scale (CoBRAS), a valid and reliable measuring instrument, was used to determine unawareness of racial attitudes and stereotyping. Three subscales (Racial Privilege, Institutional Discrimination, and Blatant Racial Issues) were measured by the survey. Descriptive statistics and separate one-way between-subjects ANOVA were used to analyze the data.

Results: Two-hundred and thirty-three ($n = 233$) dental hygienists in clinical practice completed the survey. ANOVA revealed statistically significant differences in overall CoBRAS scores when comparing age groups and ethnicities. Participants aged 18-29 had significantly lower overall CoBRAS scores compared to participants aged 60 and over ($x = 49.41$, $x = 59.17$, respectively; $p = .019$). African American participants scored significantly lower on overall CoBRAS scores compared only to those in the Other ethnicity category ($x = 42.27$, $x = 62.08$, respectively; $p = .029$).

Conclusion: Participants possessed moderate levels of color-blindness, suggesting unawareness of racism and a need to understand the implications of racism as a means of promoting equity and improve oral health care delivery. Findings emphasize a need for more research examining color-blind ideology and how it affects oral health care delivery to diverse patient populations.

Keywords: color-blind racial attitudes, cultural competency, racial stereotyping, dental hygienist, racial privilege

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Introduction

Institutional racism, a form of racism embedded through laws and regulations within society; White Privilege, the societal privilege benefitting white people over non-white people in some societies; and unconscious or conscious biases have become increasingly important topics in the United States (US). The effects of these types of constructs contribute to racial inequality and can be seen in many different sectors including employment and health care.² In addition, the US population is experiencing a demographic shift towards increased diversity. Currently, the US Census Bureau estimates that of 328 million American inhabitants, approximately 13% are African American, 6% Asian, 0.2% Native Hawaiian or Other (Pacific Islander), 3% two or more races, and 19% Latino or Hispanic.³ While the population

diversifies, 64% of health care providers are predominately White.⁴ Moreover, research suggests, in the future, caregiver/patient interactions will be in cross racial/cultural dyads.⁵ These demographic shifts highlight a need for the delivery of ethnically and culturally competent health care, including oral health care, to meet the needs of a diversifying population.

The Institute of Medicine (IOM) publication, *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*, investigated health care disparities and the role of bias and stereotyping at the patient, institutional, and health care system level.⁶ In this report, the IOM found minority groups were less likely to receive cardiac medications or be given proper treatment following a cardiac event,⁷ less likely to receive testing, screening, or pain medication for cancer,^{6,8}

less likely to receive kidney dialysis or transplant⁹, and less likely to receive antiviral HIV drugs,¹⁰ among other care issues. The report also identified differences in delivery of care to minority populations at a disproportionate rate.⁶ This has been a historical trend, with African American populations receiving lower quality of care compared to White counterparts.^{6,7,10-15} Research has also found that some of these disparities extend beyond treatment and care decisions such as minority groups receiving different communication from health care providers.^{11,13} Health care providers may spend less time during appointments with minority patients, infrequently ask patient opinions about treatment decisions, and use a more verbal dominant tone, all contributing to minority patients finding their care to be less patient-centered.^{11,13} Ultimately, the findings of this report support that implicit bias and discrimination were contributing factors affecting health care providers and their patient care decisions.⁶

Implicit biases may manifest in non-verbal behaviors such as eye contact and posture or proximity, and often represent a dissociation between what a person outwardly believes and what is deeply-seated in their thoughts/actions.^{16,17} Implicit biases are different than overt or explicit racism, they are often an automatic, unconscious, unknown negative thought or attitude toward a minority group and can profoundly affect clinical decision-making.^{18,19} The presence of these biases among health care providers and the effects on quality of care are concerning as a clinician may not recognize these deeply seeded thoughts or actions and how they affect their ability to deliver impartial care. Additionally, these biases may operate at a disadvantage to an already vulnerable patient population.¹⁸ Implicit biases have been researched extensively in health care, however, there is a lack of literature in the dental profession. For example, one study examined inherent biases related to race and the effects on dentists' decisions to restore teeth.²⁰ Dentists were given a clinical scenario along with photographs of a Black and White patient and a decayed tooth. Biases were measured through an explicit questionnaire related to how they would treat the patient as well as Implicit Associations Tests (IAT) to measure inherent biases. The study found that overall, dentists were significantly more likely to recommend root canal therapy (RCT) to White patients and significantly more likely to recommend extraction for Black patients instead of a restoration.²⁰ Additionally, 91% of participants scored high on the race preference IAT test and 79% scored high on the race dental cooperative IAT test demonstrating pro-White biases for both IAT tests, and indicating that racial biases might influence the quality of dental care received by Black patients.²⁰

A type of contemporary implicit bias, color-blind racial attitudes, may explain current research findings related to differing care and implicit biases. Color-blind racial ideology can be described as a set of beliefs used to make sense of social categories involving race that emphasizes sameness and does not implicate individuals who are White in racism.^{1,21,22} Moreover, a color-blind ideology focuses on the belief that racism is a concept of the past and all persons have equal opportunities in contemporary society.^{1,21} Those who subscribe to this ideology hold the belief that the color of a person's skin is not seen, everyone is equal, and further opposes the view that racism is an ongoing societal problem.²¹ This ideologic perspective is further explained as one that assumes class and culture, not institutional racism, are responsible for social inequities.²³ Research suggests when evaluated, health care providers with higher color-blind racial ideology scores may engage in racially insensitive behavior and exhibit an increase in negative emotions and a lack of ethnocultural empathy.^{21,24-27} Additionally, research suggests individuals subscribing to color-blind habits may show higher levels of biases on implicit and explicit measures of racism such as IATs.²⁵ All health care should be delivered objectively while taking into consideration the unique characteristics of each patient; however, it is possible some health care providers may exhibit high color-blindness that may be linked to a lack of impartial care.

Although color-blind racial attitudes have been researched in other disciplines, minimal data is available in the dental profession, with only one study in dental hygiene on a student population from one institution in Virginia.²⁸⁻³⁰ Ludwig et al. examined the prevalence of color-blind racial attitudes in dental hygiene students (n=70).³⁰ The results revealed over one-half (65%) of the study participants possessed moderate levels of color-blind racial attitudes, indicating a lack of awareness of White privilege and cultural competence.³⁰ The researchers recommended expanding the sample size to more fully conceptualize color-blind racial attitudes in dental hygienists. Awareness of color-blindness is an important first step in promoting equities in health care and combatting social injustices which may affect dental hygiene care delivery to diverse populations. Therefore, the purpose of this study was to investigate color-blind racial attitudes in a national sample of dental hygienists in the US.

Methods

This study was determined to be exempt (1673546-2) by the Old Dominion University Institutional Review Board (IRB). A convenience sample of dental hygienists who were recruited via social media sites and a non-probability

sampling technique was used for a cross-sectional survey. Snowballing was used to enlist participants in the study. The 24-item survey was administered online (Qualtrics; Provo, UT, USA). Administrators/moderators of dental hygiene Facebook groups were asked for approval to post the survey invitation. Upon approval, a link to the survey instrument was posted on an array of dental hygiene related social media sites. All responses were collected anonymously; voluntary informed consent was understood upon return of the survey. Data collection was performed over a six-week period.

Survey Instrument

The 20-item Color-Blind Racial Attitudes Scale (CoBRAS), a valid and reliable instrument developed by Neville et al.²², was used to measure color blind racial ideology in three subcategories. The first category, Racial Privilege, is comprised of seven items and assesses the blindness of persons to the existence of White Privilege. The seven-item second category, Institutional Discrimination, determines recognition of the implications of institutional forms of racial discrimination, and third category, Blatant Racial Issues, consisted of the six questions designed to measure awareness of general pervasive racial discrimination. Participants used a 6-point Likert scale ranging from strongly disagree (1) to strongly agree (6), to determine level of agreement or disagreement with the 20 statements. Responses were added to obtain subscale and overall scores with total scores on CoBRAS ranging from 20-120 and subscale scores ranging from 7-42. Higher scores indicate higher levels of denial or unawareness of racism. Overall scores ranging from 20-53.3 indicate low unawareness, 53.4-83.7 moderate unawareness, and 83.3-120 high unawareness. Subscale scores ranging from 7-18.6 indicate low unawareness, 18.7-30.3 moderate unawareness, and 30.4-42 high unawareness. In addition to the CoBRAS, five demographic questions were also included (age, gender, ethnicity, geographic location, and education level) in the survey.

Statistical Analysis

A statistical power analysis and effect size (medium effect size; $\eta^2 = 0.25$) was performed.³¹ The projected sample size needed for an alpha = .05, power = .80, and a medium effect size (G*Power 3.1), was approximately $n=231$. Descriptive statistics were used to evaluate the means between groups. Separate one-way between subject's ANOVA were used to determine statistically significant differences ($p < 0.05$) among dental hygienist participants based on age, ethnicity, geographic location, and level of education. If Levene's statistic was significant and violated the assumption of homogeneity of variance, the *F*-statistic was adjusted and reported using Welch's *F* and Games-Howell post hoc tests were utilized to find significant differences between groups.

Results

Two hundred and seventy-two dental hygienists participated in the study; 39 surveys were not used due to incomplete data, yielding a participation rate of 86% ($n=233$). Most respondents (96%, $n=224$) were women, one-third of participants (36%, $n=85$) were between the ages of 30-44 and one-third (33%, $n=76$) were aged 45-59. Nearly half of participants (48%, $n=111$) had a four-year degree, 39% ($n=91$) held a two-year degree, and 11% ($n=26$) held a master's degree. Geographically, almost half of participants (46%, $n=106$) were from the

South and most participants were White (71%, $n=166$). Demographic characteristics are displayed in Table I.

Results revealed an overall average score of 54.04 on the CoBRAS questionnaire indicating overall moderate unawareness of racism among participants (Table II). When comparing overall CoBRAS means among the group demographics of geographic location and education, no statistically significant differences were found ($p > 0.05$). However, when comparing age groups, ANOVA revealed a statistically significant difference ($F(3, 99.844) = 4.076, p = .009$).

Table I. Participant demographics (n = 233)

| Gender | n (%) |
|----------------------------------|-------------|
| Female | 224 (96.14) |
| Male | 3 (1.29) |
| Choose not to respond | 6 (2.58) |
| Age | n (%) |
| 18-29 | 37 (15.88) |
| 30-44 | 85 (36.48) |
| 45-59 | 76 (32.62) |
| 60+ | 35 (15.02) |
| Education | n (%) |
| Two-year degree | 91 (39.06) |
| Four-year degree | 111 (47.64) |
| Master's degree | 26 (11.16) |
| PhD or equivalent | 5 (2.15) |
| Geographic Location | n (%) |
| Northeast | 39 (16.74) |
| Midwest | 54 (23.18) |
| South | 106 (45.49) |
| West | 34 (14.59) |
| Ethnicity | n (%) |
| White | 166 (71.24) |
| Black or African American | 11 (4.72) |
| American Indian or Alaska Native | 3 (1.29) |
| Hispanic | 16 (6.87) |
| Asian | 12 (5.15) |
| Mixed | 12 (5.15) |
| Other | 13 (5.58) |

Games-Howell post hoc test revealed participants aged 18-29 had significantly lower overall CoBRAS scores when compared to participants aged 60 and over ($x=49.41$, $x=59.17$, respectively; $p=.019$). Additionally, ANOVA revealed a statistically significant finding related to ethnicity ($F(6, 226)=2.561$, $p=.020$). Tukey post hoc tests revealed participants of African American ethnicity had significantly lower overall CoBRAS scores compared to those who identified in the Other ethnicity category ($x=42.27$, $x=62.08$, respectively; $p=.029$) (Figure 1).

CoBRAS subscales were also compared among group demographics of age, ethnicity, level of education, and geographic location. Participant average score on the racial privilege subscale was 16.80, indicating low unawareness of White racial privilege. When comparing means among group demographics of age, level of education, and geographic location on the racial privilege subscale, no statistically significant differences were found ($p's > 0.05$). When comparing ethnicity groups, ANOVA revealed a statistically significant difference between ethnicity groups ($F(6, 226)=2.541$, $p=.021$), however Tukey post hoc tests showed that there was no significant difference between any ethnicity groups (Table III).

Table II. Overall and subscale scores for all groups (n=233)

| Group | Score (x) | Racial Privilege (x) | Institutional Discrimination (x) | Blatant Racial Issues (x) |
|----------------------------------|-----------|----------------------|----------------------------------|---------------------------|
| Overall CoBRAS | | | | |
| | 54.04 | 16.80 | 23.46 | 13.78 |
| Age | | | | |
| 18-29 | 49.41 | 16.49 | 19.59 | 13.32 |
| 30-44 | 51.92 | 16.22 | 22.42 | 13.27 |
| 45-59 | 56.32 | 16.67 | 24.87 | 14.68 |
| 60+ | 59.17 | 18.63 | 27.03 | 13.51 |
| Geographic Location | | | | |
| Northeast | 55.95 | 17.08 | 24.36 | 14.51 |
| Midwest | 53.22 | 16.93 | 23.24 | 13.06 |
| South | 53.61 | 16.24 | 23.45 | 13.92 |
| West | 54.50 | 18.06 | 22.82 | 13.62 |
| Ethnicity | | | | |
| White | 54.78 | 17.09 | 23.84 | 13.85 |
| Black/African American | 42.27 | 13.82 | 17.64 | 10.82 |
| American Indian or Alaska Native | 61.33 | 19.67 | 28.00 | 13.67 |
| Hispanic | 46.81 | 16.13 | 19.69 | 11.00 |
| Asian | 54.58 | 19.17 | 21.75 | 13.67 |
| Mixed | 52.50 | 13.50 | 23.67 | 15.33 |
| Other | 62.08 | 17.08 | 27.83 | 17.17 |
| Education | | | | |
| 2-year degree | 55.71 | 17.16 | 24.15 | 14.40 |
| 4-year degree | 52.99 | 16.92 | 22.68 | 13.39 |
| Master's | 52.35 | 15.73 | 23.58 | 13.04 |
| PhD or equivalent | 57.00 | 12.00 | 29.20 | 15.80 |

Figure 1. Overall CoBRAS score based on ethnicity

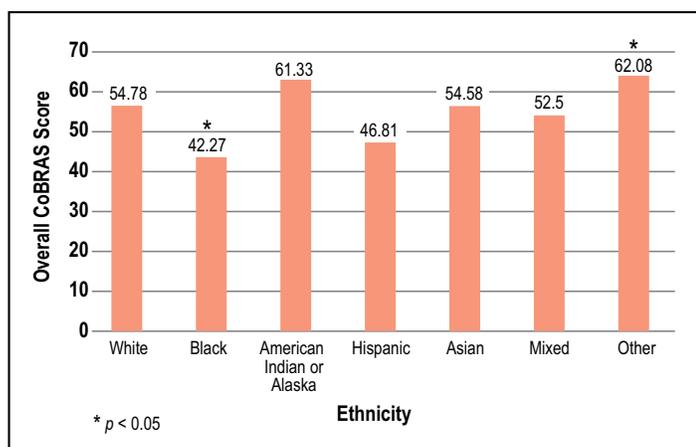
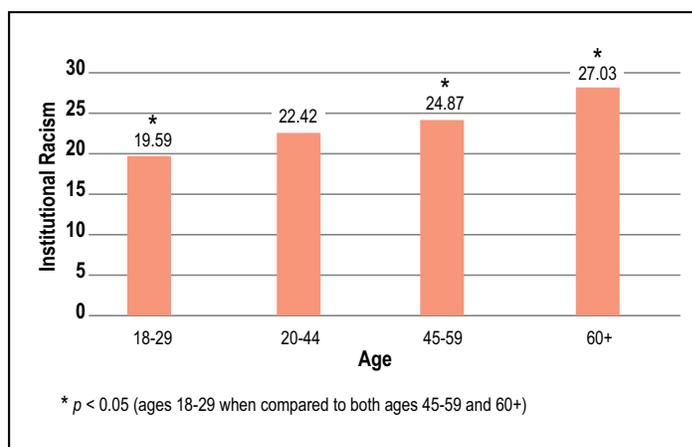


Figure 2. Institutional racism based on age



The overall average score on the institutional racism subscale was 23.56, indicating moderate unawareness of the implications of institutional types of racism (Table II). When comparing means among group demographics of level of education and geographic location, no statistically significant differences were found ($p > 0.05$). However, when comparing age groups, ANOVA revealed statistically significant differences ($F(3,100.849) = 7.443, p < .001$). Games-Howell post hoc test revealed participants aged 18-29 had significantly lower scores on the institutional racism scale compared to participants aged 45-59 and 60 and older ($x = 19.29, x = 24.87, x = 27.03$, respectively; $p = .004$ and $< .001$). Additionally, participants aged 30-44 had significantly lower institutional racism scores compared to those 60 and older ($x = 22.42, x = 27.03$, respectively; $p = .019$) (Figure 2). When comparing ethnicity groups, ANOVA revealed a statistically significant difference between ethnicity groups ($F(6, 226) = 2.239, p = .041$), however, Tukey post hoc tests showed there was no significant difference between an individual group (Table III).

Finally, the overall average score on the blatant racial issues subscale was 13.87, indicating low unawareness of more overt, pervasive racism. When comparing group means among demographics of age, level of education, and geographic location, no statistically significant differences were found ($p > 0.05$). However, when comparing ethnicity groups on the blatant racial issues scales, ANOVA revealed a statistically significant difference ($F(6, 226) = 2.234, p = .041$). Tukey post hoc test revealed participants of Hispanic ethnicity scored significantly lower on the blatant racial issues scale compared to those in the Other ethnicity category ($x = 11.00, x = 17.17$, respectively; $p = 0.048$).

Discussion

Biases in health care providers may influence patient-provider relationships, hiring and promotion practices, decision making, treatment, and interpersonal communication thereby perpetuating health inequities.^{6-15,18,19} Striving to mitigate both explicit and implicit bias is important for all clinicians including oral health care providers and starts with awareness. Refusing to acknowledge differing values, traditions, and racial identities creates obstacles to acceptance and serves as a barrier when addressing the negative impact of racial discrimination and health care.³² This study investigated the prevalence of one form of implicit bias, color-blind racial attitudes in dental hygienists in the US. Overall participant CoBRAS questionnaire scores indicate moderate levels of denial/unawareness of racism. These findings were similar to previous studies among dental and dental hygiene students.²⁸⁻³⁰ Interestingly, average subscale scores

of participants indicated moderate unawareness in only one subcategory, institutional racism.

Participants scored in the low unawareness range for the subscales unawareness of racial privilege and awareness of blatant racial issues, meaning they were aware of White racial privilege and aware of more explicit forms of racism. These subscale findings were slightly different from previous studies of dental and dental hygiene students where participants were moderately unaware of both institutional racism and White racial privilege, which are considered to be more implicit types of color-blind ideology.²⁸⁻³⁰ Previous research of color blind racial attitudes in students who scored moderate in the White racial privilege scale could be a result of White students experiencing less racial discrimination and less interracial tensions and recognition of racial conflict.³³ Institutional racism exists in unfair policies and institutional culture resulting in differing access to goods and services, including health and dental care for minority groups.^{34,35} Institutional racism is difficult to detect and research suggests it is rarely visible by those privileged by it.^{1,35} Perhaps the practicing dental hygienists in this study, being older and having more life experience, have experienced or witnessed racial discrimination which resulted in their awareness of White racial privilege but unawareness of those negatively impacted by institutional racism, resulting in their moderate scores on this subscale.

The results also showed that older participants (60+) scored significantly higher on the overall CoBRAS questionnaire as well as the institutional discrimination subscale. Additionally, younger participants, aged 18-29, scored in the low unawareness range on the overall CoBRAS questionnaire, indicating they were more aware of the overall implications of racism. For the institutional discrimination subscale, older participants (45-49 and 60+) were significantly more unaware of institutional types of racism compared to those in the 18-29-year-old age group and the 30-44-year-old age group. These findings suggest older participants may be more unaware of the existence of racism as well as the racial inequalities that exist at a societal, political, and economic level.^{36,37} Perhaps these findings can be explained as a product of the culture in which these participants were raised. They could also be related to aging as research suggests the ability to suppress a thought or bias intentionally and unintentionally from consciousness, declines with age.³⁸⁻⁴⁰

There is also evidence suggesting that older adults show greater implicit prejudice than younger adults and the loss of inhibition that occurs with aging may play an important role in activation of those implicit prejudices.³⁸⁻⁴⁰ Additionally, the life experiences of younger individuals in this study

Table III. Statistical analyses on overall CoBRAS and all three subscales (n=233)

| Group | Overall CoBRAS Mean (SD) | <i>p</i> -value | Racial Privilege Mean (SD) | <i>p</i> -value | Institutional Discrimination Mean (SD) | <i>p</i> -value | Blatant Racial Issues Mean (SD) | <i>p</i> -value |
|----------------------------------|--------------------------|-----------------|----------------------------|-----------------|----------------------------------------|-----------------|---------------------------------|-----------------|
| Age | | | | | | | | |
| 18-29 | 49.41 (14.69) | .009* | 16.49 (4.57) | .075 | 19.59 (7.44) | <.001* | 13.32 (5.70) | .366 |
| 30-44 | 51.92 (16.52) | | 16.22 (4.43) | | 22.42 (9.20) | | 13.27 (5.85) | |
| 45-59 | 56.32 (14.34) | | 16.76 (4.91) | | 24.87 (7.67) | | 14.68 (5.23) | |
| 60+ | 59.17 (12.89) | | 18.63 (4.47) | | 27.03 (6.97) | | 13.51 (4.77) | |
| Geographic Location | | | | | | | | |
| Northeast | 55.95 (15.48) | .833 | 17.08 (5.00) | .240 | 24.36 (7.95) | .880 | 14.51 (5.78) | .630 |
| Midwest | 53.22 (14.35) | | 16.93 (4.51) | | 23.24 (8.13) | | 13.06 (5.21) | |
| South | 53.61 (16.23) | | 16.24 (4.82) | | 23.45 (8.86) | | 13.92 (5.67) | |
| West | 54.50 (15.29) | | 18.06 (3.82) | | 22.82 (8.20) | | 13.62 (5.02) | |
| Ethnicity | | | | | | | | |
| White | 54.78 (14.96) | .020* | 17.09 (4.62) | .021* | 23.84 (8.20) | .041* | 13.85 (5.31) | .041* |
| Black/African American | 42.27 (18.77) | | 13.82 (5.14) | | 17.64 (9.62) | | 10.82 (6.66) | |
| American Indian or Alaska Native | 61.33 (15.01) | | 19.67 (5.51) | | 28.00 (9.85) | | 13.67 (6.11) | |
| Hispanic | 46.81 (15.60) | | 16.13 (5.01) | | 19.69 (8.85) | | 11.00 (4.69) | |
| Asian | 55.77 (11.91) | | 18.62 (4.23) | | 22.92 (7.16) | | 14.23 (4.42) | |
| Mixed | 52.50 (17.11) | | 13.50 (3.26) | | 23.67 (9.66) | | 15.33 (6.79) | |
| Other | 62.08 (10.96) | | 17.08 (4.03) | | 27.83 (6.51) | | 17.17 (5.52) | |
| Education | | | | | | | | |
| 2-year degree | 55.71 (15.15) | .540 | 17.16 (4.58) | .059 | 24.15 (8.56) | .254 | 14.40 (5.62) | .396 |
| 4-year degree | 52.94 (15.76) | | 16.97 (4.71) | | 22.61 (8.31) | | 13.35 (5.45) | |
| Master's | 52.35 (13.47) | | 15.73 (4.56) | | 23.58 (8.00) | | 13.04 (4.94) | |
| PhD or equivalent | 57.00 (17.42) | | 16.80 (4.66) | | 29.20 (8.98) | | 15.80 (6.220) | |

* *p* < 0.05

along with recent media coverage of implicit and explicit bias may have increased their awareness of racial inequalities.⁴¹ Importantly, institutional forms of racism may affect oral health care delivery and some dental hygienists may need to practice effortful inhibitory processes, as well as stereotype suppression, to replace implicit thoughts on institutional racism with more egalitarian thoughts.⁴² These efforts may produce a positive impact in reducing some barriers to care for diverse population groups. A greater understanding of the unconscious dynamics operating within a color-blind ideology may lead to challenges in understanding how these biases affect the unbiased delivery of dental hygiene care.⁴³

Participant's race played a significant role in overall CoBRAS scores as well as scores on the blatant racial issues subscale. African American participants scored significantly lower on overall CoBRAS scores compared to those in the Other ethnicity category. Moreover, African American participants' overall CoBRAS scores fell in the low unawareness range. Hispanic participants also scored significantly lower on the blatant racial issues subscale compared to participants in the Other ethnicity category. Hispanic participant average scores on this subscale also fell in the low unawareness range as compared to the moderate range for the Other ethnicity category. Race also played a significant role on the racial privilege subscale with American Indian or Alaska Native and Asian participants scoring the highest on this subscale, in the moderate unawareness range. Often, indigenous, Black, and other minority Americans have faced the most severe oppression and repression in everyday instances within these systems and in the past.^{44,45} Findings from this study were interesting because as minority ethnicities, American Indian and Alaska Native and Asian participants scored in the moderate range on the racial privilege subscale. Research suggests being able to ignore, dismiss, or truly believe privilege does not exist, stems from receipt of that privilege.¹ It is possible this subset of participants have not experienced biases based on their ethnicity which led to their unawareness related to White racial privilege.

In contrast, the African American and Hispanic participants in this study may have been subject to biases based on their ethnicity which led to more awareness and low scores on both the overall CoBRAS and blatant racial issues subscale. These findings were significant as research has indicated racially concordant health care interactions are associated with more positive health care interactions related to communication as well as utilization of health care services.⁴⁶⁻⁴⁸ Dental hygienists will encounter increasing diversity in their patient pool as the US population diversifies across the country. Hence, contemporary oral health care

professionals need to increase personal awareness of biases as an important step in providing impartial care to patients from all ethnicities.⁴⁹ Unless dental hygienists address biases such as color-blindness, oral health disparities may continue. Moreover, as in dentistry, greater diversity in the dental hygiene workforce is needed and, at the same time, increased understanding of the implications of racism by current practitioners may increase and improve access to high-quality oral health care.

Health care providers, including dental hygienists, may harbor color-blind racial attitudes in an effort to promote objectivity in oral health care delivery; however, research indicates these attitudes perpetuate barriers and is negatively associated with a multicultural knowledge and empathy.^{21,26,27} Research suggests the attitudes of health care providers and their effect on health disparities are relevant and require further examination.⁶ As a part of diversity training in the education experience, dental hygiene programs might consider adding curriculum content and training programs related to increasing awareness of biases and stereotyping as well as information on gaining an understanding of how personal attitudes affect patient care. Instilling a lifelong commitment to evaluating how personal biases and assumptions may affect the oral health care they deliver to individuals of varying ethnicities and backgrounds is important. Continuing education courses that help participants recognize and evaluate colorblind ideologies is also suggested as an important strategy for mitigating bias in the delivery of oral health care by current clinicians. Equity training may make counterproductive color-blind language and attitudes more transparent and foster more equitable and inclusive oral health care.⁵⁰

Limitations

Several limitations could have influenced the results of this study. Upon viewing the survey invitation, dental hygienists familiar with color-blind ideologies may have been more likely to respond, which may have impacted the results. Other dental hygienists may have felt they did not understand the concept well enough or felt the topic was too controversial to respond. Future studies could include a brief synopsis of color-blind ideology in the invitation letter with a short explanation of the importance of participation. This could increase the response rate for future studies. Research focused on how dental hygienists' color-blind attitudes affect patient care is suggested as a starting point in addressing oral health inequities associated with bias. Future studies should also focus on education and intervention strategies specifically designed for oral health care professionals to assist

with understanding and mitigating personal bias whether it is implicit or explicit.

Conclusion

Participants scores revealed moderate unawareness of the implications of a color-blind ideology on racism and older participants scored significantly higher on the institutional racism subscale compared to younger participants. African American and Hispanic participants were more aware of explicit forms of racism and American Indian or Native Alaskan and Asian participants were more unaware of White racial privilege. Findings underscore the need for more research to better understand how a color-blind ideology affects dental hygiene care. Awareness of color-blindness in oral health care professionals may be an important initial step in promoting more equitable delivery of care to increasingly diverse patient populations now and in the future.

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