A National Survey of Dental Hygiene Faculty Perspectives on

Diversity, Equity, and Inclusion

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Abstract

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Racial and ethnic diversity in dental hygiene education remains low. Dental hygiene education has largely focused on integrating cultural competence education to meet the needs of the diverse patient populations. Dental and dental hygiene educators as practicing clinicians share the responsibility for meeting the needs of disadvantaged populations, since research has demonstrated the high level of influence dental and dental hygiene education has on the professional attitudes and behaviors of future oral health providers. Little to no studies exist on the current perceptions of racism among dental hygiene educators. Color-blind racial ideologies (CBRI), while seemingly benign, constitute a modern form of racial prejudice that remains a barrier to reducing instances of racism. This study investigated potential unconscious bias related to color-blind racial attitudes among dental hygiene educators using the 20-item, Color-Blind Racial Attitudes Scale.

Of the 172 potential respondents, 89 (52%) completed all of the survey questions. The majority of the respondents were White, female and from the Northeast (74.2%, 93.3%, and 61.8% respectively). The mean CoBRAS score (55.73) indicated moderate levels of color-blind racial attitudes. Race was a significant variable in perceptions of racial dynamics and racism with statistically significant differences between groups as demonstrated by one-way ANOVA

(F[6,82] = 3.496, p = .004). Elevated levels of color-blind racial attitudes among dental hygiene educators were found, indicating a presence of cognitive aspects of stereotyping related to race. The demographic data collected adds to the existing evidence of a lack of diversity among dental hygiene faculty. To advance initiatives for diversity, equity, and inclusion in dental hygiene education, faculty professional development is warranted.

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Acknowledgements

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- My wonderful partner and husband, Eric. Thank you for the unconditional love and support. Thank you for helping me remember to breathe and to make mistakes as part of the journey. We did it!

<div align="center">M. L. C.</div>

Dedication

To my sweet Scarlett

Chapter 1: INTRODUCTION

On June 4, 2020, Matt Crespin, the then-president of the American Dental Hygienists'
Association (ADHA, 2020), released a statement in response to the murders of Black Americans
in the United States. The statement called for unity among dental hygienists in solidarity with
Black Americans and urged action against racism. "The lives of Black Americans and other
people of color have been devalued through systemic and institutional racism for far too long"
(ADHA, June 4, 2020). Two years later, the new ADHA president, Sharlee Burch, issued a
formal apology on behalf of the organization. The apology acknowledged ADHA's role in
systemic racism, particularly in its discrimination against dental hygienists of color. Burch
stated:

> We cannot celebrate the accomplishments of a century of our progress in oral health
> without also reflecting on, and reckoning with, the wrongdoing and harm that was caused
> by discrimination against dental hygienists of color on our watch. (ADHA, March 2,
> 2022)

This formal apology marked a momentous juncture for the dental hygiene profession and
necessitates re-evaluation of the current structures within their education system, such as the
components of the curricula, teaching methodologies, and perspectives of dental hygiene faculty.

The core values and the code of ethics within the dental hygiene profession encompass
societal trust, justice and fairness, and respect for all human beings, while also calling for
individuals to strive for knowledge and personal growth (ADHA, 2020a). The ADHA CEO, Ann
Battrell, followed up the ADHA apology with the organization's call for self-reflection for both
practicing clinicians and the general public: "As leaders in oral health we must be willing to be
accountable, and to actively work to eliminate inequities that exist for both dental hygienists and

the patients we serve" (ADHA, 2022). This tumultuous period in the nation calls for personal self-reflection of biases, reviews of the current systems within the United States, and proactive community engagement from all healthcare providers.

One element of this re-evaluation should be the current demography of the field and if unconscious bias related to race exists. Diversity of Black, Indigenous, and People of Color (BIPOC) among the dental hygiene student body and dental hygiene educators remains low. BIPOC is the umbrella term for Black, Indigenous, and people of color and is used to recognize that not all people of color experience injustices equally (Merriam-Webster, n.d.). More recently, dental education has identified the population of historically underrepresented racial and ethnic (HURE) students and faculty as American/Indian/Alaska Native, Black/African American, Hispanic/Latinx, and Native Hawaiian or Other Pacific Islander population groups (Smith et al., 2022). It is predicted that by 2050, a majority of the population will be composed of racial and ethnic groups other than White (Albino et al., 2012). The majority of dental hygiene educators across the country come from European American backgrounds. Thus, this dissertation research sought to investigate the perceptions of race and racism among dental hygiene educators.

The Practice of Dental Hygiene

Dental hygienists are professionally prepared as primary oral health professionals who become licensed to provide a range of preventive services for the promotion of oral health and overall well-being (Boyd et al., 2021). Originally, the function of the dental hygienist encompassed public health education in school settings (Boyd et al., 2021). Through a century of work and professional evolution, however, the functions of the dental hygienist have expanded. Today, dental hygiene is accepted as the science and practice of the recognition, prevention, and treatment of oral diseases and conditions, with dental hygienists working across a multitude of

career paths from private clinical practice to community health (Boyd et al., 2021). The ADHA (2020) has defined a dental hygienist as a primary care oral health professional who has graduated from an accredited dental hygiene program in an institution of higher education, and is licensed to engage in education, assessments, research and to provide administrative, diagnostic, preventive, and therapeutic services to patients that support their overall health through the promotion of optimal oral health.

The significance of preventive care is well-documented in the prevention of oral diseases. In 2015, the World Health Organization (WHO) recognized that continuity in access to oral health through dental care is essential for maintaining quality of life and preventing communicable diseases. Oral diseases comprise 4 of the 30 most prevalent diseases worldwide and affect about 3.5 billion people (Vos et al., 2017). Prior to the pandemic, dental caries remained the most prevalent preventable disease worldwide (Schwendicke et al., 2015). The nation began to identify oral health as a priority after the landmark report from the U.S. Surgeon General in 2000 brought oral diseases and the disparities disproportionately affecting specific groups to the foreground of healthcare (U.S. Department of Health and Human Services [USDHHS], 2005). The report provided compelling evidence of the lack of equality across the population in accessing oral health services and preventing oral diseases. The segments of the population most impacted by this inequity were from historically marginalized racial and ethnic communities, low socioeconomic positions, and other special populations such as children.

With the diverse racial and ethnic landscape of the United States, the oral health inequities among BIPOC populations remain today and appear to be growing, over two decades after the report was first released. Bastos et al. (2018) critically reviewed decades of dental literature on race inequalities in oral health and determined that key features of racial differences

include substantial gaps between privileged and disadvantaged racial groups, high levels of negative oral health outcomes in disadvantaged racial categories, and race health differentials that continue across time and space. This research also indicated that individual-level socioeconomic status accounts for a major proportion of racial inequities in oral health. In the pediatric population, poorer oral health among marginalized populations remains well-documented. Dental caries in the primary dentition increases a child's risk for dental caries in the adult dentition. Deficient oral health conditions exist in half of Latino(a) children, more than one-third of Black American children, and almost one-third of American Indian and Alaska Native children, compared to only 20% of White children, as this preventable oral disease remains high in marginalized pediatric populations (Albino et al., 2012; da Fonseca & Avenetti, 2017).

As providers of primary oral health services, dental hygienists are often able to serve populations with low access to care, such as low socioeconomic populations, pregnant women, aging adults, and special needs groups (ADHA, 2020b). Historically, dental hygienists have lobbied for change in laws regarding direct supervision across states to increase access to primary oral health care provided by dental hygienists and to increase direct access to services by the population. The term *direct access* means the dental hygienist may "initiate treatment based on his or her assessment of a patient's needs without the specific authorization of a dentist, treat the patient without the presence of a dentist, and maintain a provider-patient relationship" (ADHA, 2021). In 1984, dental hygienists successfully pursued legislation for direct access for the first time in Washington State, but direct access laws remain limited across the country (Naughton, 2014). The COVID-19 pandemic has shifted dentistry's focus back to the necessity of prevention and the need to utilize dental hygienists to deliver this preventive care.

Graduation from an accredited institution of higher learning and successful completion

of written and clinical examinations are required for licensure. The Commission on Dental

Accreditation (CODA) recognized 327 dental hygiene programs across the United States in

2019-2020 (American Dental Association [ADA], 2021b). Of the recognized programs, 261

offered an associate degree and 63 offered a baccalaureate degree. Dental hygiene degree

programs may be housed within dental schools, public and private universities, vocational

schools, and community colleges. The classification of the institutions offering dental hygiene

education consisted of 84.1% public, 6.4% private nonprofit, 9.2% private for-profit, and 0.3%

private state-related (ADA, 2021c).

Emerging Challenges Facing the Dental Profession

Dental hygiene as a health profession operates within the broader practice of dentistry.

While the practice of dental hygiene and the practice of dentistry are separate and distinct

professions, many of the challenges facing dentistry as a whole overlap with dental hygiene.

Oral health disparities continue to afflict a majority of the population of the United States with

individuals from historically marginalized racial and ethnic populations, aging adults, the

uninsured, and low socioeconomic groups often suffering from more severe stages of oral

diseases. The oral health impacts from the recent disruption of dental care due to the COVID-19

pandemic are yet to be fully quantified, but recent studies have indicated obstacles for the

population seeking dental care, such as the disruption of basic preventive oral care services,

socioeconomic changes due to job loss, and changes in self-care health behaviors such as

toothbrushing frequency as factors related to more severe, untreated oral disease (Matsuyma et

al., 2021). The recent return to work required dental professionals to re-evaluate safety protocols

and infection control for both providers and patients (National Institutes of Health [NIH], 2021). It also elucidated that those in the greatest need of oral health care were those in the population most affected by the virus (NIH, 2021).

Dental and dental hygiene educators as practicing clinicians share the responsibility for meeting the needs of disadvantaged populations, since research has demonstrated the high level of influence dental and dental hygiene education has on the professional attitudes and behaviors of future oral health providers (Albino et al., 2012). A 2017 study investigating color-blind racial attitudes in a population of dental students and faculty documented moderate levels of color-blind racial attitudes in both groups (Su & Behar-Horenstein, 2017). The term *color blindness* is often used to explain away acts of racism or stereotyping based on race, where one identifies the inability to see differences between individuals or groups on the basis of race and/or ethnicity (Neville et al., 2013). Color-blind racial ideologies, either conscious or subconscious, are harmful for nondominant racial and ethnic groups as they are used to account for and often rationalize racial inequities (Neville et al., 2006). A pilot study using the same survey instrument to measure racial attitudes and biases was conducted with dental hygiene students and reported consistent findings of moderate unawareness of color-blind racial attitudes (Ludwig et al., 2019). The racial attitudes observed in both student and provider populations translates into the delivery of oral health care. Moreover, individuals from historically underrepresented racial/ethnic backgrounds more often seek treatment from providers of their own race. The Sullivan Commission (2004) reported that 62% of Black Americans in the United States were treated by 5% of Black American dentists, while just 10.5% of Black Americans were treated by White American oral health providers.

Thus, the essential components of clinical education and training for future oral health care providers require the development of inclusive curricula, historically accurate discussions of the role of race and racism in health inequities, critical evaluation of the social determinants of health, and constructive self-reflection on personal biases and behaviors as related to race. Albino et al. (2012) noted the need for dentistry as a profession to change the course of its educational structures because the current model only serves to "reproduce rather than address and change the current landscape of oral health disparities." To disrupt this cyclical system of inequitable oral health delivery, dental and dental hygiene educators must focus research efforts on the interconnectedness of education and the health systems to which we send future oral health providers. Future scholarly studies in oral health must reach beyond descriptions of oral health inequities related to race and seek to contextualize the reasons these inequities exist within the current systems (Bastos et al., 2020). Thus, a substantial change will be required in dental and dental hygiene education to reframe these oral health inequities from their mere existence to specific focus on their root causes.

Another critical factor for dentistry and, accordingly, dental hygiene is the dental health professional shortage across the United States. While there are more than 750,000 practicing oral health professionals nationwide, it is estimated that at least 10,000 additional dental health practitioners are needed in the workforce to serve the over-49 million Americans living in dental professional shortage areas, and this does not account for the growing, changing demographics of the U.S. population (Bersell, 2017; NIH, 2021). The insufficient numbers of oral health professionals correlate to the shortage of dental educators, especially from historically underrepresented racial and ethnic backgrounds. The current available qualified faculty to fill vacant positions is insufficient, and the numbers of vacant positions are growing (Theile, 2017).

For dental hygiene, there were 119 vacant full-time and part-time teaching positions across the country in the 2017-2018 academic year (American Dental Education Association [ADEA], 2021). The same academic year saw 223 combined full-time and part-time educators leave positions.

The modest increase in racial and ethnic diversity within the profession is promising, but underrepresentation continues to be a weakness for the profession, especially as related to the diverse composition of the United States (National Institutes of Health [NIH], 2021; Theile, 2017). The total dental hygiene faculty by race/ethnicity for 2021-2022 was 0.2% American Indian or Alaska Native, 4.4% Asian, 4.6% Black, 6.7% Hispanic or Latino, 0.5% Native Hawaiian or Pacific Islander, 1.1% two or more races, 80.4% White, and 0.1% nonresident status The total allied dental faculty by race/ethnicity for 2017-2018 was 0.5% American Indian or Alaska Native, 3% Asian, 4% Black, 7% Hispanic or Latino(a), 1% two or more races, and 84% White (ADA, 2022). The lack of diversity among dental hygiene faculty members is evident. This remains a distinct barrier when seeking to recruit BIPOC students to the profession (Theile, 2017). Representation signifies importance. Research has identified that family members and faculty within the dental profession influence overall interest in the dental profession (Nalliah et al., 2014). Individuals interested in a career in oral health are less likely to pursue the profession if they do not see others like them in the profession (Nalliah et al., 2021).

The current emphasis on diversity within dental hygiene education comes in the form of cultural competency training. Cultural competency training in dental hygiene seeks to increase students' abilities and skills to deliver care to diverse populations (Ocegueda et al., 2016). While efforts may be made to increase cultural competence education, few standards exist for cultural competency within current accreditation standards. Furthermore, if the majority of faculty and

staff training future oral health professionals remains of White, European American descent, the curricula may present divisive stereotypes of various racial and ethnic populations. When faculty and staff from diverse backgrounds are "missing" in the educational experience, students lack the representation of diversity to signify its importance in developing a culturally competent workforce (Albino et al., 2012).

The emphasis on cultural competency also does not completely recognize the intersectionality of each individual's human experience. Various components of social identity are linked to determinants of health and individual well-being (Muirhead et al., 2020). For example, a heterosexual male of Mexican American descent may experience current heterosexual privilege and gender privilege, but still experience disadvantages in the healthcare system related to racial identity (Muirhead et al., 2020). How are the various elements of social identity and this intersectionality applied to the dental and dental hygiene curricula? Are these elements even considered? These are critical questions in need of exploration within these educational systems.

The emerging data from the COVID-19 pandemic only amplifies the challenges ahead for the dental educational workforce shortage. The shift to online coursework and dependence on technology during school closures proved to be a distinct barrier for dental hygiene education as this degree requires hands-on clinical instruction. Dental hygiene faculty reported feeling exhaustion and burnout frequently, and the quick pivot to online learning affected feelings of teaching self-efficacy (Arnett et al., 2022). Many academic institutions implemented hiring suspensions to compensate for economic and other strains placed on their operations. A 2022 survey of dental hygiene educators found that 23% of those leaving education noted COVID-19 related factors (Arnett et al., 2022).

Historically Underrepresented Racial and Ethnic Populations (HURE)

and Dental Hygiene Education

Higher learning in colleges and universities has long been associated with intellectual growth, emotional development, and the potential economic promise associated with career advancement opportunities. Dental hygiene remains unique in that programs offer students the robust experiences of college, while preparing to become licensed oral health professionals ready to enter the workforce upon graduation. Between 1995-1996 and 2015-2016, the percentage of students of color pursuing undergraduate degrees nationwide grew from 30% to 45% (Espinosa et al., 2019), approaching the proportion of representation in the population. In dental hygiene education, however, a shortage of diversity among students and faculty is well documented, with current enrollment of historically underrepresented racial and ethnic (HURE) populations continuing to be a challenge for programs across the country. In 2019-2020, of the 16,178 enrolled dental hygiene students, 0.7% were American Indian/Alaska Native, 8.4% were Asian, 5.1% were Black, 16.2% were Hispanic/Latino(a), 0.5% were Native Hawaiian or Pacific Islander, 2.4% were from two or more races (other than Hispanic), 2.8% were Unknown, 63.5% were White, and 0.4% identified as nonresident status (ADA, 2021).

Increasing diversity over the past two decades in dental hygiene has remained slow, even with the addition of new dental hygiene degree programs. Since 1998, the number of dental hygiene programs has grown by 40.3% from 233 programs to the current 327 programs. Enrollment into these new institutions provides opportunities for reaching students from HURE backgrounds to enter the profession. The gap in the representation of racial and ethnic individuals in the dental hygiene profession is not unique to dental hygiene; the underrepresentation of BIPOC individuals in the healthcare workforce has existed in dentistry,

medicine, and nursing, among other healthcare professions. A 1990 study assessing allied health programs and racial and ethnic diversity among enrollment identified increasing diversity among applicants as the top priority of 11 deans surveyed (Elder, 1990). A 1998 study assessing diversity among the student body in U.S. entry-level dental hygiene programs found 10.5% of dental hygiene students and 6.7% of faculty were from HURE populations (Dhir et al., 2002).

In 2010-2011, a survey of allied dental education programs found only 13.7% of enrolled dental hygiene students came from racial and ethnic populations other than White, despite these groups constituting 29.8% of the population (ADA, 2021). More recently, a 2015 survey of dental hygiene program directors found 17% considered the recruitment of BIPOC students a priority, with 35% reporting it was important/very important to do so (Hunter et al., 2015). Thus, while some positive growth has occurred, in the current racial and ethnic make-up of dental hygiene students, certain racial and ethnic groups remain underrepresented when compared to the overall population of the United States—namely, Alaska Native/American Natives, Black Americans, and Hawaiian Native/Pacific Islanders. This trend coincides with dental school admissions, where in the recent decade, newly opened dental programs recorded low enrollment rates for Alaska Native/American Native and Black students (Nalliah et al., 2021). These similarities further the need for educators from both professions to collaborate and share approaches for meeting the needs of the oral healthcare system as a whole.

A 2014 survey seeking to identify barriers to BIPOC individuals entering the dental hygiene profession found lack of funding, lack of emotional and social support from family, and lack of self-confidence related to role models from the same race or ethnicity as the highest perceived or experienced barriers (Sandino & Rowe, 2014). The same study revealed 62% of participants chose a career in dental hygiene due to influences from a dentist, family member, or

dental hygienist from similar racial/ethnic backgrounds. Programs across the United States have begun to address the need for more diverse dental and dental hygiene professions to model the country's overall diverse population. The University of Michigan School of Dentistry has created a mentorship program among dental and dental hygiene students with underrepresented BIPOC individuals from a low-income high school. The purpose of the program was to expose younger students from low-income areas to opportunities within dentistry and to allow current dental and dental hygiene students experiences in education (Inglehart et al., 2014). The success of the program was demonstrated in positive relationships formed by the mentors and students with heightened interest in oral health careers.

Increasing the number of individuals from HURE communities to the dental hygiene profession facilitates opportunities for educational advancement and economic growth among these racial and ethnic communities. The Bureau of Labor Statistics (BLS, 2021) reported that the median salary for a dental hygienist in 2020 was $77,090. Depending on the state and scope of practice laws, dental hygienists can earn upwards of $100,000 per year. Attaining a degree as a dental hygienist allows individuals to re-enter their communities as licensed health professionals. They carry skills related to the delivery of preventive oral health care, basic disease prevention, oral health education, and knowledge of public health systems and policies. Communities with dental hygienists from historically marginalized communities also serve as a gateway to other high-income health professions to enter the community. High-income careers in dentistry have the potential for generational impact, where families are introduced to many opportunities in the oral health profession (Nalliah et al., 2021).

Color Blindness and Modern Racism

Overt forms of racism generally are unaccepted within today's society, leaving many to believe the United States has moved beyond its racist past. However, cities across the nation report increases in racially motivated hate crimes, especially since the beginning of the pandemic (Tillman, 2022). The election of President Barack Obama marked a move to a "postracial" society for many in the population, especially White Americans (Neville et al., 2013). Yet, significant research into the psychology of race and racism has identified a transition in the manifestations of racism from overt, undisguised acts to more implicit, unconscious, and micro forms of racism (Awad & Jackson, 2016; Neville et al., 2013; Sue et al., 2007). The dynamics of this shift in systemic and individual racism have led social science scholars to identify a more modern racism. Modern racism or "ultramodern" racism (McConahay 1986; Neville et al., 2013) describes experiences of internalized racism, often put forth in the form of false acquisition of stereotypes relating to race and ethnicity.

One manifestation of this ultramodern racism is color blindness. Biologically, color blindness refers to the inability to differentiate between color hues resulting from an inherited recessive trait (Merriam-Webster, n.d.). In relation to race, the term *color blindness* is often used to explain away acts of racism or stereotyping based on race, where one identifies the inability to see differences between individuals or groups on the basis of race and/or ethnicity. Color-blind racial ideologies (CBRI) are a modern form of racial prejudice that remains ineffective in reducing instances of racism. Neville et al. (2013) identified color evasion and power evasion as two facets of CBRI, where color evasion ignores racial differences to divert racial superiority, and power evasion denies racism and discrimination within power dynamics, where success and failure of an individual are based solely on merit and perceived individual abilities. The

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perpetuation of racism by color blindness challenges the experiential reality of individuals of color and is used often by White individuals to explain away discriminatory behaviors (Sue et al., 2007). Individuals in positions of power, such as educators, who hold high levels of color blindness may be deficient in their ability to form working relationships with individuals from other races and ethnicities (Neville et al., 2006). In dental hygiene education, this may be particularly damaging to students from HURE populations who seek mentorship, leadership, and support from their faculty for success with the demanding program. It may also impact the curricula, where individual perceptions and beliefs of the role of racism and its relationship to the delivery of oral health services may influence pedagogical practices.

Research Problem

The need for a diverse dental work force has been well documented in the research literature as necessary to prepare future dental hygienists appropriately and to eliminate oral health disparities. Dental hygiene faculty serve as mentors for future oral health providers, especially as related to caring for individuals from diverse backgrounds. The National Institutes of Health (NIH, 2021) report on oral health stressed the need for specific work aimed at addressing "underlying structural, cultural, and interpersonal biases that lead to persisting disparities…" (p. 3) for any real change to occur in the oral health of the overall population. In the search for strategies aimed at increasing a diverse oral health workforce, perceptions of the educators involved in the teaching, curricula development, and recruitment of future dental hygienists are critical.

Accreditation standards for dental hygiene education advise programs on the basic minimum standards for dental hygiene education. 'Diversity' as related to educational standards for dental hygiene appears only once within the Accreditation Standards for Dental Hygiene

Education Programs as an aspect of professional development, stating that programs need to "cultivate the development of professionalism and ethical behavior by fostering diversity of faculty, students, and staff…" (Commission on Dental Accreditation [CODA], 2022). These standards relay the minimal acceptable standards and describe the necessity of academic freedoms afforded to all dental hygiene institutions when developing the curricula. The lack of specific verbiage related to diversity and the ambiguity related to "cultivating the professional development" towards diversity draw out a distinct facet of dental hygiene education, where the unknown attitudes towards race and racism among dental hygiene educators may impact the curricula taught (or not taught) to future oral health professionals. Studies identifying unconscious racial bias among dental students, dental faculty, dental hygiene students, and practicing dental hygienists exist (Ludwig et al., 2019; Ludwig et al., 2022; Su & Behar-Horenstein, 2017); however, to date, no studies have yet sought to identify the perceptions of race and racism among dental hygiene faculty.

Dental hygiene faculty hold positions of power and serve as mentors for future oral health providers. At a time when the world is reckoning with the manifestations of systemic racism, the potential unconscious bias related to race and racism among dental hygiene educators must be investigated. Thus, the problem this study sought to address is how knowing more about the racism and perceptions of race among the current dental hygiene faculty will drive the application and development of new curricula and professional development relating to oral health inequities and race. Using the Color Blind Racial Attitudes Scale (CoBRAS) to assess racial attitudes, the researcher intended to assess the existence and scope of unawareness of racial privilege, institutional discrimination, and blatant racial issues. Since no previous studies are available for this population, the data collected in this study should provide a baseline of any

unconscious bias among dental hygiene educators. If unconscious bias does exist among faculty related to race, what evidence do we have? This study will be valuable in quantifying any levels of existing bias related to race, in assessing the current racial and ethnic diversity among dental hygiene educators, and in discerning opportunities for future professional development for educator training related to racial bias.

Purpose of the Study

The purpose of this study was to explore the perceptions of race and racism among dental hygiene educators based on the CoBRAS subscales of unawareness of racial privilege, institutional discrimination, and blatant racial issues. Since no standard for teaching facets of diversity, equity, and inclusion exists for current dental hygiene curricula, this study is significant to determine the baseline of possible racism in dental hygiene faculty and to direct new curricula addressing the voids in dental hygiene education. The results will advance the acquired capacity of students and graduates to be more inclusive in their healthcare practice and identify the need for antiracist practices for patients and communities accessing oral health care. The purpose of this quantitative, cross-sectional study, thus, was to utilize Antiracist Pedagogy within Critical Race Theory (CRT) and apply the parameters of the CoBRAS survey to identify the existence of color-blind attitudes and stereotyping characteristics (dependent variable) of dental hygiene faculty (independent variable), as assessed in a national cross-sectional study. The aim of this study was to determine if there are levels of racial stereotyping in the forms of unawareness of racial privilege, institutional discrimination, and blatant racial issues. This information is essential to determine the baseline for future planning of dental hygiene faculty recruitment, professional development, and curricula planning. The additional questions from

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this study may provide more detail to determine any barriers to possible aspects for future

implementation of educational practices based in antiracist pedagogy.

Theoretical Framework

If any level of racism exists among current dental hygiene educators, dental hygiene

students continually receive instruction with levels of implicit and/or explicit bias present. Thus,

future healthcare providers maintain these facets of structural racism as they enter the profession.

Antiracist pedagogy is a concept within Critical Race Theory (CRT) applied to describe and

reduce the continual impact of racism using practices encouraging a world engaged in social

justice in every aspect (Blakeney, 2005). The core of antiracist pedagogy urges learners to

identify the manifestations of race in the operations of societal structure and perceive racist

ideologies within themselves (Blakeney, 2005; Brookfield, 2014). It is from this internal

awareness and acknowledgment of racism that one may begin to see the destructive powers of

racism and, thus, work towards dismantling it. Antiracist pedagogy derives its principles from

Freire's (1970) concepts of oppression and CRT's perspective of the lack of the current society's

abilities to uplift the oppressed out of the oppressed state (Blakeney, 2005).

There is a need to identify the application of antiracist pedagogy to the education of

dental hygienists since it is unknown how to model curricula for educators teaching future oral

health providers. Following principles of antiracist pedagogy, if faculty and educators studied

within the historically unjust, racist systems and practiced as healthcare providers within these

systems, how, then, does one become committed to dismantling these racist systems? Brookfield

(2014) challenged educators and institutions to not cleanse themselves of identifying their own

systemic racism, but instead "to make racist inclinations public and to engage learners in a

consideration of how to recognize and challenge these" (p. 89). Professional development

towards cultural competence, cultural sensitivity and diversity, equity, and inclusion is necessary for educators throughout their tenure. However, without baseline evidence of the existing perceptions of race and racism within educational systems such as dental hygiene education, it is impossible to measure the objectives put forth for such professional development. Thus, the evidence obtained from this study will provide a benchmark required to launch and implement professional development and revised curriculum efforts with the principles of antiracist pedagogy.

Research Questions

The main research question for this study is: What are the current perceptions of race and racism among dental hygiene educators? Additionally, the research sought to explore the following questions:

1. Does unconscious bias related to race exist among dental hygiene educators?

2. What are potential barriers to adopting antiracist pedagogy among dental hygiene educators?

The data collected through the CoBRAS survey instrument were analyzed to answer these questions with the aim of determining new curriculum pathways or strategies to reduce any presence of biases.

Chapter 2: REVIEW OF THE LITERATURE

To build an educational framework that enables dental hygiene students and graduates to become more inclusive in their delivery of healthcare, a review of the literature must begin with the current assessment of the experiences for historically marginalized racial and ethnic populations who comprise the communities living with oral health inequities. It is necessary to consider these individuals' experiences with oral health, within the oral healthcare system, and within the higher educational environments where future providers are trained. Systematic and scoping reviews of oral health inequities related to race have identified familial, sociocultural, and structural categories in research to address oral health problems (Como et al., 2019; Henshaw & Karpas, 2021). This review explores current oral health inequities related to race by describing racism relating to health inequities, current trends in oral disease by race and ethnicity, oral health utilization by race and ethnicity, and current experiences of racial microaggressions in higher education.

Deficiencies in the oral healthcare system for BIPOC populations stem from an interconnected web of systemic, institutional, and personal racism, as well as overarching structural inefficiencies of healthcare in the United States, specifically the separation between dental health and medical health. Structural racism refers to the comprehensive societal fostering of "racial discrimination through mutually reinforcing systems of housing, education, employment, earnings, benefits, credit, media, health care, and criminal justice" (Bailey et al., 2017, p. 1453). Institutionalized racism is defined as the unequal access to products, services, and education within a society by race, and it is often normalized because of its association with

and integration into power structures (Jones, 2000). Personal racism, or what Jones (2000) formulated as *personalized* racism, refers to discrimination and bias towards an individual based on racial identity (p. 1212). These definitions provide a framework of context for the oral health inequities by race described in this review. The continued separation of oral health delivery systems from medical care and the policies and actions resulting in the unequal allocation of resources have laid the foundation for the stagnant improvement of oral health in BIPOC populations.

The value of oral health cannot be overemphasized. Beyond the social media frenzy and marketing campaigns inundating the population with the need for an aesthetically perfect smile, poor oral health has a direct association with tooth decay, tooth loss, infection, and poor nutrition. Oral health has been identified as an inclusive indicator of a person's overall socioeconomic status and use of preventive health systems (Han, 2019). The American Dental Association (ADA, 2021a) recommends daily twice-a-day brushing, cleaning in between the teeth, a healthy diet limiting sugars and fermentable carbohydrates, and regular visits to a dental professional to maintain oral health. These guidelines are based on an individual's low risk for oral diseases, such as tooth decay and gum disease, and adequate daily removal of biofilm, more commonly known as dental plaque. Visiting a dental professional 'regularly' presents as a simple task, yet the cost of preventive visits, lack of insurance, time off from work and school, fear of oral health professionals, lack of education on the importance of oral health, and access to healthy foods are just some of the reasons individuals are not regularly evaluated by a dental professional (Como et al., 2019). All of these factors interconnect with the social determinants of health; thus, the consistency of poverty as a recurring theme in the epidemiological patterns of oral health inequities is not surprising (Henshaw et al., 2018).

Dental Caries

Dental caries, commonly referred to as tooth decay, is a multifactorial infectious disease. The experience of dental caries combines an individual's oral microflora, behavioral factors such as diet and frequent intake of fermentable carbohydrates, and a susceptible tooth surface (Boyd et al., 2021). Numerous risk factors for other chronic diseases and conditions share mutual risk factors for dental caries. *Healthy People 2010* identified a regression in oral health objectives related to dental caries experience, with the population showing an increase in untreated tooth decay in both children and adults (Beatty, 2017). Thus, a renewed focus on reducing tooth decay and increasing preventive dental visits was included in *Healthy People 2020*. When considering the prevalence of dental caries globally, untreated tooth decay in permanent teeth is the most common health condition (James et al., 2018).

In the United States, the management of dental caries has evolved, with a shift towards emphasizing prevention and minimally invasive preventive therapies through oral hygiene strategies and professional prophylaxis often completed by dental hygienists. This prioritization of prevention allows for earlier intervention rather than emergency treatments such as tooth extractions once extensive disease sets in. This change relates to the early 20th century introduction of community water fluoridation, the continued widespread use of home fluoride products such as toothpastes and mouthwashes, and the increased use of professional preventive therapies (Boyd et al., 2021). However, tooth decay in the United States remains a consistent health problem with those from communities of color, especially Black Americans, who often experience more untreated disease.

The National Health and Nutrition Examination survey (NHANES) continually evaluates the health and nutritional statuses of children and adults in the United States. Prior to the

COVID-19 pandemic, the NHANES survey included interviews and examinations of a sample of 5,000 individuals who were representative of the U.S. population. For dentate adults aged 20 to 64, 90% presented with some kind of dental caries experience (either treated or untreated) (Centers for Disease Control & U.S. Department of Health and Human Services [CDC & USDHHS], 2019). In those aged 65 and older, 96% presented with some sort of dental caries experience (either treated or untreated) (CDC & USDHHS, 2019). Racial and ethnic disparities exist among those with untreated dental caries. For adults aged 45-64 years of age from 2015-2018, untreated dental caries for Whites from a non-Hispanic background was 22.5%; percentages for other groups included Asians, 13.9%; Blacks, 40.8%; and Hispanics/Latinos (including or Mexican origin), 28.5% (CDC & National Center for Health Statistics [NCHS], 2021). In adults aged 65 and over, Blacks exhibited the greatest increase in caries experience over time, and Blacks, Mexican Americans, poor, or current smokers were more than twice as likely to have untreated tooth decay than those who never smoked, were White, or were not in a low socioeconomic population (CDC & USDHHS, 2019). These data coincided with other studies in which Black Americans were about 2.5 times more likely to experience untreated dental decay when compared to other racial groups (Dye et al., 2015; Kelesidis, 2014).

Inequities for dental caries by race and oral health also exist in pediatric and adolescent populations. For children aged 2-5, about 33% of Mexican Americans and 28% of Black children have experienced tooth decay in the primary dentition, compared to 18% of White children (CDC & NCHS, 2021). In a 2020 study of dental caries and racial inequities among a pediatric Medicaid population, Black children were 1.3 and 1.2 times more likely to experience untreated primary tooth decay and overall dental caries, respectively, in the primary dentition, compared to other racial groups (Selvaraj et al., 2021). The pediatric population with the highest prevalence

of early childhood caries is the Native American/Indian Native population. Warren et al. (2012) documented that 32% of children from a Native American tribal community experienced dental caries by the age of 18 months. The rate of tooth decay among preschool children in these populations continues to be at least four times higher than White children of the same age and remains underserved by dental professionals (da Fonseca & Avenetti, 2017; Phipps et al., 2019).

Decreases in tooth decay for children aged 6-11 with mixed dentitions (both primary and permanent teeth) have been observed, especially among Mexican American children, but overall, the first permanent molars remain the most commonly affected with tooth decay for this age group (CDC & NCHS, 2021). The first permanent molar is usually the first tooth of the permanent dentition to erupt into the oral cavity (around 6 years of age). The experience of tooth decay in the primary dentition and the learned values of oral hygiene habits are integral to future oral health self-care and risk for preventable oral diseases. It is well established that the greatest predictor of future tooth decay is the presence of past tooth decay (da Fonseca & Avenetti, 2017). Thus, the greater percentages of untreated tooth decay in historically marginalized racial and ethnic populations, especially from lower-income households, continue to translate into the next stage of oral development, with 23% of low-income families having untreated cavities in the permanent dentition (CDC & NCHS, 2021). This is double the percentage, compared to children from higher-income households. Selvaraj et al. (2021) reported data consistent with these findings in their study with Black children on Medicaid having 2.6 and 2 times higher frequency of untreated permanent dental caries and overall caries experience, respectively, compared to children from other racial groups (p. 138).

Dental sealants are a valuable preventive therapy to protect the dentition from tooth decay. A dental sealant is a thin, plastic coating placed into the developmental pits and fissures

of teeth to physically seal off the surface from bacteria and debris (Boyd et al., 2021). Placement of dental sealants by dental hygienists or dentists is recommended on posterior permanent teeth soon after eruption for children and adolescents. This preventive procedure to protect against dental caries has been the focal point of many policies to advance access and utilization of oral health care for children. A 16% increase was observed in the prevalence of dental sealants among poor, near-poor, and Mexican American children from 2011-2016 (CDC & NCHS, 2021). However, the CDC also indicated that inequities for dental sealants still exist related to family income for children aged 6-19 years of age, with low-income households 15% less likely to get sealants than children from high-income households (CDC & NCHS, 2021).

Periodontal Conditions and Tooth Loss

The gingiva and supporting structures of the teeth are known as the periodontium. Destruction of the periodontal tissues and the numerous modifying factors leading to disease are complex. Periodontitis, commonly referred to as gum disease, is an inflammatory process related to specific microorganisms and is characterized by a progressive destruction of the periodontal ligament and alveolar bone (Boyd et al., 2021). The destruction of the periodontium often results in tooth mobility and eventual tooth loss if not treated. The inequities in periodontal conditions related to race are well-documented. Severe periodontal disease is most common among Mexican American and Black adults (Eke et al., 2018). Historically, the inequity of the experience of periodontal disease between different racial and ethnic groups has remained significant. Borrell and Crawford (2008) described pervasive disparities related to race and ethnicity, with their findings that Black adults were twice as likely to have periodontitis as White adults (p. 388). A 2014 analysis of the Behavioral Risk Factor Surveillance System identified the highest percentage of tooth loss related to destruction of the periodontium in Black Americans

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(33.7%), while Whites had the lowest (20.8%) (Nazer & Sabbah, 2018). These trends in unequal oral disease experience related to periodontal conditions remain consistent with current data. Populations from historically marginalized communities experience high levels of periodontal disease, with upwards of 79.4% of older Mexican Americans and 72.6% of older Black Americans living with periodontal disease, compared to 56.3% of older White Americans (Eke et al., 2018). When evaluating oral health disparities related to racial and ethnic background, Huang and Park (2015) found older Black adults were more than twice as likely to report chewing difficulties associated with the numbers of teeth present when compared to older White adults (p. 5).

Access to and Utilization of Oral Health Services

Access to oral health care is multidimensional. It is significantly guided by public policy, specifically as related to private or public insurance coverage for preventive dental visits (Henshaw & Karpas, 2021). However, income, financial resources, and socioeconomic status strongly impact access and utilization of dental care. Differences between racial and ethnic groups in utilization of dental services have been found. From 1999 to 2008, adult Asian Americans had the highest observed increase and received the highest proportion of dental cleanings (76.69%) (Wu et al., 2013). This was followed by Whites (76.18%), Hispanics/Latinos (62.33%), American Indians/Alaska Natives (61.85%), and Black Americans (56.52%). A cross-sectional examination of dental care utilization found racial disparities between Hispanic and Non-Hispanic Black populations almost three times less likely to visit the dentist within a 1-year period, compared to the White population (Ju et al., 2021). A 2013 study on the utilization of preventive dental care among middle-aged and older Americans found an overall increase in individuals receiving dental cleanings, especially among Asian Americans, but Black

participants were the only racial group significantly less likely to receive a dental cleaning in the last year (Wu et al., 2013). Research has indicated that Black Americans cited inferior access to care, with cost being the main barrier for the lack of dental visits (Kelesidis, 2014). Higher proportions of the population on lower incomes are less likely to utilize dental services, and dental visits within a 12-month period are more common among individuals who are aging women, White, and non-smokers (Ju et al., 2021; Sabbah et al., 2019).

One contributing factor to the persistent high levels of oral disease in historically marginalized communities is the continued lack of access to affordable oral health care from a lack of BIPOC oral health care providers (Inglehart et al., 2014). Oral health providers from historically marginalized backgrounds are more likely to accept Medicare or Medicaid and care for lower socioeconomic status or uninsured communities than White providers (Sandino & Rowe, 2014). Data analysis of the dental delivery system of the California Dental Survey (CDS) supported this with its identification that most California dentists are White or Asian American, which is at odds with the size of the Latino and Black populations in the state (Pourat et al., 2015). The expansion of Medicaid within the Affordable Care Act (ACA) sought to address the barriers related to access and utilization of oral health care. Studies on the expansion of the ACA have identified increases in utilization, mostly in pediatric and young adult populations, but these increases are not sufficient to sustain the growing numbers of the aging population in need of care who age out of employer-supported dental coverage (Lutfiyya et al., 2019; Nazer & Sabbah, 2018; Selvaraj et al., 2021). Limited numbers of practicing dental providers accept Medicaid, citing low reimbursement rates for services provided (Albino et al., 2012). This leaves these underserved populations with limited options for access and utilization of care.

Dental and dental hygiene programs offer lower costs of care and may accept Medicaid but are not accessible in all geographic locations. Geographic location is another contributing factor to accessing oral health services. The lack of available dental providers in specific geographic locations populated by majority low-income Black Americans has been linked to rates of dental caries between neighborhoods (Tellez et al., 2006). Inconsistent access and utilization of preventive services have been documented for those living in rural areas, especially Black Americans. Older Black children living in rural areas are more likely to have untreated dental caries (Como et al., 2019). When comparing rural and urban utilization of services, non-Hispanic White adults (59.1%) were more likely than Hispanic adults (45.7%) to have a dental visit using private insurance (Blackwell et al., 2019). Among adults aged 18-64 residing in urban areas, non-Hispanic White adults (70.2%) were more likely than Hispanic (59.4%) and non-Hispanic Black (61.8%) adults to have a dental visit in the past 12 months (Blackwell et al., 2019). Additionally, the dental appointments at educational institutions are often much longer than in private practice settings, with certain procedures taking multiple appointments to complete.

Experienced Racial Discrimination and Oral Health

The experiences of racial and ethnic discrimination of an individual when utilizing oral health services, or health services of any kind, are instrumental in the continued utilization of those services, perceived susceptibility to oral diseases, and perceived abilities of self-care. These experiences encompass all encounters with the systems (insurance, appointment scheduling, building access) and the individuals providing the care (dentists, hygienists, assistants, support staff, etc.). Sabbah et al. (2019) reported a negative association with the utilization of dental services, with those experiencing racial discrimination as less likely to have

used dental services within the past year. When examining tooth loss and racial discrimination, individuals who experienced prejudice during health visits had a 141% increase in tooth loss, compared to those who did not experience prejudice (Muralikrishnan & Sabbah, 2021). A study examining dentists' treatment planning based on case evaluations found that the participating dentists exhibited greater bias and recommended tooth extractions more often for Black patients presenting with tooth decay rather than restorative treatments such as root canal therapy (Patel et al., 2019). The emotional stress of experiencing racial discrimination while under the care of a trained health professional may lead some to switch providers easily or seek treatment elsewhere. However, this is only feasible for individuals if other providers are geographically present, financial and insurance constraints do not present as barriers, and other work/life elements do not hinder the ability to receive care elsewhere.

Implications for Dental Hygiene Education

Significant evidence of racial and ethnic oral health inequities exists within the literature related to disease prevalence and experiences of discrimination. As contributing scholars to this body of evidence, dental hygiene educators must critically evaluate their own research, their current curricula, and the clinical training that educates future oral health providers. Dental hygienists directly deliver care related to dental caries prevention and treatments related to minimizing periodontal conditions. The greatest need for dental hygienists delivering this preventive care is among the populations suffering most from oral health inequities. The first step to changing oral disease experience within different racial and ethnic populations begins with recognizing the significant presence of racism in oral health care. Adopting the contextualization of racism in oral health has a greater potential for true advancement to promote and support antiracism and antiracist pedagogy than merely continuing to explain these

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inequities as facets of existing oral health trends (Bastos et al., 2020). These changes are not small tasks, as they require critical self-analysis of a system on both micro and macro levels for all educators.

Racial Microaggressions

Dental hygiene programs, while sometimes found in graduate dental schools, are more often affiliated with community or technical colleges. A comprehensive search of racial microaggressions and dental hygiene education revealed no results. Numerous differences exist between undergraduate and graduate students; therefore, the majority of the studies chosen for this literature review used samples of undergraduate student populations. These studies included research on racial microaggressions related to multiple ethnicities and racial groups and were grouped together to identify overall themes on racial microaggressions. However, it should be recognized that microaggressions are experienced differently between racial groups, with Black students often experiencing greater instances of racial microaggressions. This literature review is specific to racial microaggressions experienced by students of color in higher education settings. The following sections are organized into the following major areas: Racial Microaggressions in Higher Education, Racial Microaggressions Experienced in the Classroom, Racial Microaggressions and Overall Campus Climate, Mental and Physical Health Outcomes and Racial Microaggressions, and Implications for Educators and Systems of Higher Education.

Racial Microaggressions in Higher Education

Higher learning in colleges and universities has long been associated with intellectual growth, emotional development, and potential economic stimulus from career advancement opportunities. Institutions of higher learning have maintained segregation long after the U.S. Supreme Court decision in *Brown v. Board of Education* in 1954. From 2015-2016, the

percentage of students of color pursuing undergraduate degrees grew from 30% to 45% (Espinosa et al., 2019). Individuals of color continue to experience both overt and subtle acts of racism in the United States at the systemic and individual levels. In 2010, the WHO named racism a social determinant of health with its conceptual framework of action (Solar & Irwin, 2010). Racist acts of bias, segregation, and hostility have long plagued institutions of higher education in the form of overt racism and microaggressions. Racial microaggressions are brief indignities that communicate bias and derogatory insults to the targeted individual, with the perpetrators of racial microaggressions often unaware of the detrimental impacts of the verbal or nonverbal communications (Sue et al., 2007; Sue et al., 2010). These experiences in a learning environment such as a college correlate with poorer mental health outcomes and impact academic performance (Blume et al., 2012; Farber et al., 2020; Kim et al., 2017; Manns-James et al., 2020).

Microaggressions occur based on a number of factors such as race, sexual identity, gender, and religion, among many others. For the purpose of this review, qualitative and quantitative research studies on microaggressions experienced on the basis of race and ethnicity are discussed. This review also prioritizes studies where the samples included undergraduate students or a majority of undergraduate students due to the differences between undergraduate and graduate student populations.

Racial Microaggressions Defined

Racial microaggressions may occur towards any group from any group, but they most often impact people of color. Racial microaggressions include brief prejudiced comments, discriminatory actions, and institutional biases in systems of power, resulting in an intense emotional response in the attacked individual (Farber et al., 2020). They may be verbal or

nonverbal communications or interactions. They are "brief, and commonplace, daily verbal, behavioral, and environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative racial slights or insults" (Sue et al., 2007, p. 273). The term *racial microaggressions* was first conceived by Chester Pierce in 1970, and significant research on the psychology of racial microaggressions has led to distinct subcategorizations in the form of microinsults, microinvalidations, and microassaults.

This taxonomy of racial microaggressions comes from the landmark research of Sue et al. (2007), from which subcategories and nine corresponding themes emerged from an extensive review of social psychological literature and research on racism. This classification system forms the theoretical framework for the majority of research on racial microaggressions. The nine foundational themes that emerged became well-documented in subsequent research; thus, a sense of urgency for more continued research on racial microaggressions beyond the field of psychology grew. The multitude of studies on racial microaggressions and the subtle discriminatory acts lived by persons of color daily indicated that these experiences may cause more psychological harm, increase racial anger, and negatively affect self-esteem than overt acts of racism (Solórzano et al., 2000).

Microassaults, Microinsults, and Microinvalidations

The first subcategory of racial microaggression is classified as a microassault. This verbal or nonverbal attack comes with explicit actions or derogatory behavior such as the use of a racial slur, epithet, or name calling, and is thought of as more "traditional" racism (Sue et al., 2007). Displays of microassaults are obvious, undisguised acts often intended to cause harm or incite fear (Farber et al., 2020). Microassaults may include the brandishing of a hate symbol such as a swastika or the use of a Nazi salute. In a systematic review of microaggressions in learning

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environments, microassaults occurred in 20% of the studies reviewed (Ogunyemi et al., 2020). These behaviors often elicit intense emotional responses such as fear from the targeted individual and, upon description, appear to do more harm than on a "micro" level but remain categorized as a microaggression. Often, perpetrators of microassaults are likely to express these acts only in private to maintain anonymity of their racist feelings, but various levels of subconscious awareness may bring about their use (Sue et al., 2007). Microassaults are particularly dangerous for students in a higher education setting when those who hold positions of power, like a faculty member, carry these thoughts of inferiority.

The second subcategory of racial microaggressions is characterized as microinsults. These communications, often unconscious, lack awareness, project insensitivity and rudeness, and demean an individual's heritage (Sue et al., 2007). In a systematic review of microaggressions in learning environments, microinsults were reported in 82.5% of the studies reviewed (Ogunyemi et al., 2020). Microinsults may occur in verbal dialogues or nonverbal actions and are often very brief. Within the subcategory of microinsults are the themes of ascription of intelligence, second-class citizenship, pathologizing cultural values/communication styles, and the assumption of criminal status (Sue et al., 2007). These statements or actions frequently reveal ignorance or cultural unawareness on behalf of the perpetrator (Farber et al., 2020). An instructor commenting with surprise about the success of a student of color may not seem harmful at first glance. However, what are the implications of the *surprise* behind the student's success? Sue et al. (2007) described the importance of context in these situations, where students of color may hear these descriptions frequently as they move forward in their academics (p. 274). Ascription of intelligence relates to statements such as "You are so articulate" or "You are a credit to your race," where the assigned intelligence to a person in

association with race implies a lack of overall intelligence to the entirety of the "other" population when compared to the dominant White population (Sue et al., 2007).

Assumption of criminality may occur in the act of locking a car door upon seeing a person of a different race or ethnicity passing by. Pathologizing cultural values such as communication styles relates to the notion of people of color assimilating to the dominant culture (Sue et al., 2019). For example, asking a person of color to "calm down" or not be "loud and animated" indicates this communication style is not the "norm" or ideal based on dominant White ideologies and standards of normalcy. The idea of historically marginalized ethnicities being identified as second-class citizens has long been ingrained in the dominant U.S. society. Individuals of color being mistaken as service workers, the Black or Latino(a) doctor not being acknowledged as the physician upon entering an exam room, or a person of color being overlooked to give preferential treatment to a White person all illustrate the subconscious unawareness present in these common racist microinsults.

The third subcategory of racial microaggressions is characterized as microinvalidations. These experiences occur from communications or actions where the experiences, thoughts, and feelings of people of color are negated (Sue et al., 2007). The unconscious, hurtful actions and behaviors from the perpetrators show a lack of empathy for the lived experiences of the individuals on the receiving end of the microinvalidation. Ogunyemi et al. (2020) identified microinvalidations in 4.5% of studies reviewed within their systematic review of learning environments (p. 97). Within this subcategory, the distinct themes that emerged included alien in own land, color blindness, myth of meritocracy, and denial of individual racism (Sue et al., 2007). In comments such as "I don't see color" or "Everyone is a human being," the inherent lived differences between different races are nullified (Sue et al., 2007). The myth of meritocracy

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includes statements that assert race does not play a role in succeeding in a career as well as a denial of White privilege (Sue et al., 2007). Statements such as "The most qualified person gets the job" or "Only hard workers succeed" that students hear time and again from teachers, counselors, and professors give the implication of laziness if success is not met and deny the existence of White privilege. A frequent experienced microinvalidation relates to the denial of individual racism. Perpetrators of racial microinvalidations defend their actions or statements, regardless of the impact their words or actions have on an individual. With these statements or actions, individuals are able to deny the feelings of racism or racial oppression experienced by an individual and promote their own feelings of decency and morality (Sue et al., 2007). These microinvalidations may occur on individual or systemic levels, or both.

Racial Microaggressions Experienced in the Classroom

Arguably, the most influential space on a college campus during the collegiate experience is the classroom. In 2018, of all full-time faculty in degree-granting postsecondary institutions, less than 2% were Alaskan Native/American Indian, 12% were Asian/Pacific Islander, 6% were Black, 6% were Hispanic/Latino, and 75% were White (U.S. Department of Education [USDOE], 2020). The increase in the multicultural landscape across the United States increases a need for cultural competence among educators, and the percentages of full-time faculty show little progress towards racial diversity among college faculty. Cultural competence is an attribute necessary for educators, but it has been found that unconscious biases remain even after multicultural training (Sue et al., 2010).

For students of color, the college classroom is a place where racial microaggressions occur frequently, and educators are often ill-prepared to recognize their own biases or the biases of other students when they occur. The occurrences of racial microaggressions, because of their

brevity and seemingly trivial nature on the part of the perpetrator, introduce fear, anger, and

shame into the targeted individuals in an environment intended to empower students. This is

especially concerning considering that students' successes relate to classroom experience

(Boysen et al., 2009). In a 2015 study on the frequency of microaggressions in community

college classrooms, out of 60 observed classes, a total of 51 racial microaggressions were

identified, with multiple occurrences happening in the same classroom in a single class session

(Suárez-Orozco et al., 2015). The community college campuses where these occurred served

high numbers of historically marginalized students. This same study revealed that of the 60

classrooms, microaggressions were observed in 41.2% of remedial classrooms, compared to

24.1% and 21.4% in general education and vocational classes, respectively (Suárez-Orozco et al.,

2015). In a sample of 1,747 undergraduate students reporting on experiences of bias from a 2009

study, students reported the most frequent personal characteristic targeted for both overt and

subtle bias in the classroom related to race or ethnicity—33% and 19%, respectively (Boysen et

al., 2009).

Common themes throughout the literature on racial microaggressions in the classroom

relate to invisibility, pressure to conform, and the difficult dialogues about race that occur in the

classroom with complicit faculty (Mills, 2020; Solórzano et al., 2000; Suárez-Orozco et al.,

2015; Sue et al., 2009). A recent qualitative study on the experiences of 17 Black students at a

Predominantly White Institution (PWI) indicated a Eurocentric majority of course content, where

White students knew little or only nonspecific details of Black history (Mills, 2020). This placed

an undue burden on Black students to either educate their peers or submit to the heavily

Eurocentric teachings. The participants elaborated further that any discussion of race or race-

related topics rarely occurred and were superficial in exploration when they occurred (Mills,

2020). These experiences were also documented in Solórzano et al. (2000), where Black students expressed feeling "invisible" and identified that "their experiences as African Americans were omitted, distorted, and stereotyped in their course curriculum" (p. 65). A nurse practitioner recalled her experience in nursing school in a recent editorial calling for antiracism in nursing education; she identified "leaving her Black identity at the door" to pursue her nursing degree (Coleman, 2020).

Experiences and feelings of invisibility impact students from multiple ethnicities. A 2016 study on the experiences of Latino(a) students on a PWI campus identified experiences where little emphasis was placed on Latino(a) culture or history within coursework, and students were encouraged not to speak languages other than English (Von Robertson et al., 2016). The consistency of these described experiences of racial microaggressions identifies voids in the overall educational system, where the multicultural and historical events and evolution of our culture do not translate into educational settings or texts.

A consistent aspect of racial microaggressions experienced in the classroom relates to the role of the professor or faculty member. The position of a faculty member in front of the class is a position of power, where professionalism and ethical excellence are touted as key characteristics in academia. However, because racial microaggressions are most often subconscious actions or words, the potentially most serious experiences with racial microaggressions occur between students of color and their respective faculty members. Boysen et al. (2009) studied perceptions of bias in the college classroom and a considerable number of students reported that faculty responses to biases were to join in, or the faculty were the initial source of the bias (p. 225). While this review serves to lay the foundation of the frequency with which students of color experience racial microaggressions on the college

campus and the harmful effects from these experiences, there is limited information on the perspectives of educators. In the same study of perceptions of bias in the college classroom, 48% of instructors rated their overall effectiveness in responding to instances of biases in the classroom as successful (Boysen et al., 2009). This revealed a discrepancy in the perceptions between students and instructors, where the undergraduate students in the same study indicated a success rate of 28% for instructors' successful responses to biases when they occurred. More studies are needed on instructor and faculty perceptions of their own biases.

From Suárez-Orozco et al. (2015), data on microaggressions in the community college classroom uncovered instructors as most frequently the perpetrators of microaggressions, with a specific student as the target (p. 157). In instances where students of color bring race to the forefront of class discussions, they are often met with resistance in the form of microaggressions from instructors in the form of microinsults and microinvalidations. This denial of racial reality often involves a student sharing a personal experience of discrimination and a White faculty member finding justification for the behaviors from some reason other than racism (Sue et al., 2009). Some experiences with color blindness were not considered negative in the research. In one qualitative study, Black students "welcomed" the idea of equal treatment but did not truly assume that their race was not visible, so it was a "false color blindness" (Williams et al., 2020).

Another facilitation of racial microaggressions from a faculty member occurs when an instructor fails to acknowledge racism or racist acts present in educational content. Black students from a study on racial microaggressions and campus climate gave the example of an instructor's inability to use the word "racism" when describing incidents of racism in course material (Solórzano et al., 2000). Suárez-Orozco et al. (2015) recorded one example of this during a discussion of Thomas Jefferson as a slave owner during a remedial English class:

The White instructor started to speak about Thomas Jefferson and his relationship with his slave Sally Hemings. A Black male student asked, "He raped her?" The instructor disagreed, saying "He had three or four children with her." The student then asked, "Oh, so he had a relationship with her?" The instructor replied, "He was an honorable guy. He bought her a sandwich." [The instructor] grinned, evoking what seemed to be uncomfortable laughter from the students in the class. (p. 157)

This directly relates to microinvalidations as a type of microaggression, where the lived racist experiences of slaves are denied, as is the historical existence of systemic racism.

Ascription of intelligence is a well-documented racial microaggression among students of color (Solórzano et al., 2000; Sue et al., 2009; Von Robertson et al., 2016; Yeo et al., 2019). Students of color in academically demanding majors have reported an overall lack of support from faculty members. A 2020 survey of racial microaggressions in 1,688 students of color in STEM majors found Black students had a 54% probability of experiencing more frequent microaggressions, compared with other students of color. The study provided examples of being laughed at during faculty office hours or encouraged to change majors (Lee et al., 2020). Similar results were found by Ellis et al. (2019), where first-generation college students from diverse backgrounds described receiving microinsults and discouragement during course advisement from their faculty in academic mentorship roles (p. 7). A 2003 study on academic and general campus climates found that students from historically marginalized groups felt they were taken less seriously as students, did not receive equal mentorship from faculty advisors, and overall felt less self-confidence than their White peers (Reid & Radhakrishnan, 2003). Students of color identified feelings of self-doubt after faculty implied lower expectations of them, even when performing well academically (Solórzano et al., 2000). Williams et al. (2020) found a "counter-stereotypical surprise or assumed exceptionalism" from a focus group of Black students from PWIs where respondents delineated the responses of their White faculty and peers as "You're not like other Black people" (p. 5). These experiences and daily microaggressions may impact

future career and educational choices. A study of 225 Black students at a PWI found racial microaggressions significantly correlated with worry about future employment ($r = .34$, $p < .001$), and students with high to moderate academic achievement and higher exposure to racial microaggressions seemed to experience greater worry about future employment (Salami et al., 2020).

Racial Microaggressions and Overall Campus Climate

Racial microaggressions often occur as brief, subtle demeaning acts where the targeted individual may not be aware that a microaggression even occurred (Williams, 2020). Minikel-Lacocque (2013) suggested a need for universities to redefine "success" beyond student graduation rates, degree attainment, and grade point averages if students, particularly students of color, experience hostility and unhappiness related to the overall college experience (p. 433). A survey of 684 undergraduate students on alcohol use, anxiety, and experiences with racial microaggressions found that students of color experienced an average of more than three racial microaggressions per day and an average of 290.546 (SD = 1750.118) racial and ethnic microaggressions over a 90-day period on campus (Blume et al., 2012).

Along with academic rigor, universities and colleges advertise diversity among reasons for students to pursue their education at these institutions. However, studies on general campus climate and racial microaggressions revealed that diversity may be advancing the "tokenism" of students of color (Ellis et al., 2019; Mills, 2020; Solórzano et al., 2000). The feeling of tokenism was described by participants in a study where Black students identified feeling "undervalued" from their university and believed their presence was exploited "for the appearance of a more racially diverse campus" (Mills, 2020, p. 51). Campus climate refers to student experiences and observations with racism in general campus and academic settings. Reid and Radhakrishnan

(2003) found that students of color, particularly Black students and Latinx, perceived a more negative general campus climate than White students (p. 264). Similar feelings of microinvalidations were described by first-generation students from diverse backgrounds, who reported receiving little support in navigating campus life once at school (Ellis et al., 2019).

Experiences in residence halls and other shared campus spaces highlight further examples of racial microaggressions on the college campus. Harwood et al. (2012) identified microinsults in the form of racial jokes, environmental racial microaggressions from racial slurs written in shared living spaces, and environmental racial microaggressions in the form of segregation and inferiority of status based on residence. Segregation also emerged as a theme from a 2020 study, where Black students at a PWI reported perceived segregation among residence halls and indicated how campus tours avoided these segregated areas (Mills, 2020, p. 49). Students of color from multiple studies reported a perception of "unspoken rules" for themselves, compared to White students, when using shared social spaces, especially relating to any involvement with campus security (Mills, 2020; Solórzano et al., 2000). This relates to the assumption of criminality in the form of microinsults. The assumption of criminality brought the most responses from a focus group of participants in a qualitative study on microaggressions against Black students on a PWI campus, where students described instances of peers crossing to the other side of the street or checking over their shoulders in the hallway when Black students followed behind them on campus (Williams et al., 2020).

Mental and Physical Health Outcomes and Racial Microaggressions

Experiences with racial microaggressions may "have significantly more influence on racial anger, frustration, and self-esteem than traditional overt forms of racism" (Solórzano et al., 2000). Microaggressions occur at a systemic level within higher education, but microaggressions

are also deeply personal for the targeted individual, resulting in a collective internalization of mental and physical stress (Farber et al., 2020; Huynh, 2012). These experiences bring feelings of isolation, where lack of representation and longing to connect with other students of color lead to negative mental health effects (Lee et al., 2020; Minkel-Lacoque, 2013). A survey of 1,710 graduate and undergraduate students at a PWI found racial microaggressions were significantly and negatively associated with a sense of belonging (r = −.39, p. < .001) among all racial groups surveyed (Lewis et al., 2019). From this emerged a feeling to conform, where students of color sought to decrease outward displays related to their ethnicities in an effort to fit the Eurocentric "norms" present on their campuses (Mills, 2020; Yeo et al., 2019). A 2012 study of alcohol use, microaggressions, and minority students found associations with anxiety, lack of self-efficacy, binge drinking, and alcohol-related consequences (Blume et al., 2012). A sample of Asian American college students identified that the total effect of microaggressions on well-being was significant ($B = -1.40$, $p = .001$), and an increase in racial microaggression experiences was associated with increased cultural mistrust, which, in turn, was associated with reduced well-being (Kim et al., 2017). A sample of 136 Black female college students revealed microaggressions were significantly and positively correlated with body mass index (BMI) when controlling for adverse life events and income (BMI ($\beta = .42$, $p < .0001$), and waist circumference also increased with exposure to microaggressions ($\beta = .36$, $p < .001$) (Manns-James et al., 2020).

Implications for Educators and Systems of Higher Education

Systems of higher education require substantial changes in pedagogy to change the culture of racism and the experiences of racial microaggressions for students in their classrooms. Change must also occur on the personal level, with introspective analysis on the part of educators to examine personal feelings of racism and bias. In a study of White trainees and classroom

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dialogues on race, Sue et al. (2010) found trainees were likely to participate in and explore self-evaluations of their racial biases within a "safe" focus group environment (p. 212). More open and honest dialogue on race and racism is necessary in higher education, as is the incorporation of current issues of race and culture (Sue et al., 2007). In addition, educators require training on methods to confront racism and microaggressions when they occur in the classroom. The ability to deconstruct microaggressions in the classroom setting requires objective and observational experiences that cannot be acquired in a training session (Ogunyemi et al., 2020; Sue et al., 2007).

The current literature exhibits the need for urgency in identifying the mechanisms behind microaggressions in the classroom, their presentation in the systems of higher education, "the type of impacts they have on people of color, the dynamic interaction between perpetrator and target, and the educational strategies needed to eliminate them" (Sue et al., 2007, p. 273). Recommendations for systemic change include an increase in the numbers of historically marginalized racial and ethnic populations as students, faculty, and administrators to levels similar to those of the national landscape; a curriculum identifying the historical and current experiences of people of color; funding and support for recruitment within these communities; and institutional operations that reinforce a commitment to diversity (Ogunyemi et al., 2020).

The call to action for systemic change in dental hygiene is here. Fighting racism requires all health disciplines to advocate for antiracist practices. This begins in the educational setting where future health providers learn. For educators in healthcare, it is essential for educational establishments to include relevant content to train future health professionals appropriately to continue to work towards decreasing racial inequities in health (Coleman, 2020). In dental hygiene education, this requires thoroughly evaluating the curricula, identifying current

perceptions of racism among educators, identifying strengths and weaknesses in courses teaching diversity and cultural competence, and identifying potential barriers for antiracist practices.

The responsibility of such pedagogical changes in dental hygiene thus falls to the overwhelmingly majority White faculty. It cannot be the continued burden of underrepresented racial and ethnic faculty, staff, and students. With a majority of White educators in healthcare disciplines such as dental hygiene, additional research is needed to identify current perceptions of race and racism in the present curricula, as well as potential barriers to the adoption of antiracist teaching methods. More importantly, the profession of dental hygiene will need to deepen its efforts to diversify the practice of dental hygiene to make the profession resemble the diverse cultural, linguistic, and social demography of the United States. This work requires honest dialogues, assessment, and reflection that move towards greater oral health equity. Hopefully, the subsequent chapters of this work will promote the use of antiracist pedagogy as a framework for advancing dental hygiene curricula.

Chapter 3: METHODS

The current perception of race and racism among educators is unknown. Thus, the research question this study sought to investigate was: What are the current perceptions of race and racism among dental hygiene educators? Approval was obtained from the Institutional Review Board (IRB) at Teachers College, Columbia University as protocol #22-044. Permission was granted from the American Psychological Association for the use of the Color-Blind Racial Attitudes Scales (CoBRAS). The null hypotheses were: (a) There is no unconscious bias related to race among dental hygiene faculty; and (b) There are no significant differences between racial and ethnic groups, faculty rank, and geographic region related to perceptions of race and racism. Informed consent was delivered to potential respondents and completed prior to opening the survey. Respondents' participation in the study was voluntary. Assessing the status of dental hygiene educators provides necessary data to identify biases and indicators of potential racism among current dental hygiene faculty. This study sought to identify the baseline information related to perceptions of race and racism needed to strategize for curriculum change and professional development in dental hygiene education to mitigate future student experiences with racism and discrimination.

Population and Sampling

The population for this study included dental hygiene educators from accredited, degree-granting programs in the United States. The unit of sample for this study was the dental hygiene program from which the individual dental educators were selected. At the time this study began, there were 327 dental hygiene programs accredited by the American Dental Association (ADA)

across the country and 4,840 dental hygiene educators (ADA, 2022). Of the total 4,840 dental hygiene educators, 69.9% identified as part-time and 30.1% identified full time educators (ADA, 2022). A nationwide survey of the 4,840 dental hygiene educators was not feasible at this time because this project received no outside funding. The researcher sought listservs from different dental and dental hygiene educator associations but was denied access to protect privacy.

Collecting data related to the personal perceptions of race, racism, diversity, equity, and inclusion presented challenges for obtaining a high response rate because of the sensitive nature of the research topic. Prior to sampling, the researcher explored existing research and the peer-reviewed literature related to various critical issues of cultural competency and diversity, equity, and inclusion in the field of dental hygiene. Purposive sampling was first used to aggregate potential programs based on geographic location, type of institution, and educational affiliation of previous authors (if available). From this list, the researcher searched each program's website to identify each school's availability of faculty email contacts. Programs without the availability of faculty contacts were eliminated from the list. This yielded a possible 20 dental hygiene programs.

Each of the dental hygiene program directors at the 20 institutions was sent an email inquiring about potential faculty interest in participating in the survey. Directors were asked to respond "yes" to the email if they believed a majority of their faculty would complete the survey and wanted their program to be placed into the sampling pool for potential participation. From the program directors contacted, 12 dental hygiene program directors responded and indicated their interest in having their program included in the sampling pool. Each program was then categorized into regions of the country based on the state in which the school was located. The United States was divided into the following geographic regions: Northeast (CT, DC, DE, MA,

MD, ME, NH, NJ, NY, PA, RI, VT); South (AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA, WV); Central (IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, WI); and West (AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY). From the 12 total programs, two dental hygiene programs were then selected at random from each region, for a total of eight programs. By clustering the sample into different geographical regions, the researcher sought to investigate if perceptions of race and racism vary in different parts of the country. The use of random sampling within the use of purposive sampling sought to increase the internal validity of the study. Faculty from each selected program were then approached and surveyed. This search produced 177 potential participants to survey populated into a password-protected listserv. This purposive sampling method was employed to identify dental hygiene programs with faculty—all of whom had an equal chance of being included in the survey—who were likely to complete the survey.

After two schools were chosen per region at random, the total number of possible respondents was calculated based on each chosen program's part-time and full-time faculty. The researcher used each program's website to formulate the list of potential respondents and contacts using listed school email addresses. Each chosen dental hygiene program's website was thoroughly assessed for the most recent email contact information for current full-time, part-time, and adjunct dental hygiene faculty. This search produced 177 potential participants to survey. Each listed educator's email address was then populated into a listserv within Qualtrics®, a web-based survey tool (http://qualtrics.com). This study was created accounting for a refusal rate of 70% of the individual respondents. The compiled list of all respondents from the institutions chosen were stored with password-protected software. Qualtrics® was used to host the survey items.

Survey Instrument and Measures

The Color-Blind Racial Attitudes Scales (CoBRAS) developed and validated by Neville et al. (2000) was the survey instrument used to complete this cross-sectional study. Permission for use of this instrument was obtained from the American Psychological Association. This instrument was designed to identify racial attitudes and cognitive aspects of stereotyping through a 20-item questionnaire. The CoBRAS instrument measures racial attitudes by utilizing a 6-point Likert scale, with total higher scores demonstrating greater levels of color-blind racial attitudes and greater sociopolitical dimensions of a belief in a just world, and signifying overall greater racial prejudice (Neville et al., 2000). The instrument has been used widely with White or majority White samples, which are similar to the population of dental hygiene educators that were sampled for this study's purposes (Awad & Jackson, 2016). The strength of this instrument lies in its ability to detect unconscious attitudes even in well-intentioned individuals. These subtle forms of racial bias measured with the CoBRAS instrument thus assists in identifying less outward forms of discrimination and how denial of racial bias may cultivate more passive forms of racism such as racial stereotyping and inaction to social injustice based on race (Neville et al., 2000).

Explicit outward expressions of racial bias and racism are not acceptable forms of expression. However, the historical origins of racism in the United States throughout the centuries now manifest more commonly as implicit bias or microaggressions. This shift from explicit to implicit manifestations has led to the scholarly development of scales designed to measure aspects of Color-Blind Racial Ideologies (CBRI) (Awad & Jackson, 2016). Overall, CBRI as a form of racial bias allows an individual to explain away injustices within society related to race (Neville at al., 2013; Sue & Behar-Hornstein, 2017). These ideologies often fail to

identify race as a differentiating factor with systemic and individual implications in health and well-being. Ignoring the racial and ethnic differences, especially by those in power, is detrimental for individuals of color trying to live within a racialized society that ignores racial divisions (Neville et al., 2013). This disregard of systemic and individual racism, whether intentional or not, through racial bias continues the cycles of injustice for people of color, where notions of merit and hard work often undermine social justice issues related to race.

The limited literature supporting prejudiced attitudes of racial bias in the form of color-blind ideologies was the catalyst for the construction of the CoBRAS (Neville et al., 2000). Awad and Jackson (2016) described the development of the CoBRAS as a valid instrument that is successful in measuring power evasion, a dimension of CBRI. Power evasion is the "willful denial of power relationships designed to ignore racism and discrimination" (p. 142). There is deficient research on power dynamics and the structures of power within dental hygiene education related to race and racism. Dental hygiene educators hold positions of power as both teachers and healthcare providers; thus, it becomes necessary to operationalize unconscious biases related to race and racism among this population of educators. The survey instrument contains three subscales (represented by a chosen survey item): Unawareness of Racial Privilege (i.e., "Race is very important in determining who is successful and who is not"); Institutional Discrimination (e.g., "Immigrants should try to fit into the culture and adopt the values of the U.S."); and Blatant Racial Issues (e.g., "Racism may have been a problem in the past, but it is not an important problem today"). Neville et al. (2000) validated the CoBRAS in a study with a high level of internal consistency, with Cronbach's α ranging from 0.7 to 0.86. The instrument also demonstrated an adequate level of 2-week test-retest reliability. No significant association was observed with the Marlowe-Crowne Social Desirability Scale, establishing discriminant

validity, thus making the CoBRAS the principal measure for color-blind racial attitudes (Awad & Jackson, 2016).

Total scores from the combined subscales may range from 20 to 120, with each item scored on a scale from strongly disagree (1) to strongly agree (6). Ten items (#2, 4, 5, 6, 8, 11, 12, 15, 17, 20) across the three subscales are reverse-scored, with strongly disagree (6) and strongly agree (1) (e.g., "White people in the U.S. are discriminated against because of the color of their skin"). Overall scores ranging from 20-53.3 indicate low unawareness, 53.4-83.7 moderate unawareness, and 83.8-120 high unawareness. The lower the score, the greater the awareness of racial dynamics within society. Additionally, the CoBRAS measures the subscales of unawareness of racial privilege (7 items), unawareness of blatant racial issues (6 items), and unawareness of institutional racism (7 items). The subscales are scored ranging from 7 to 42, with 7-18.6 indicating low unawareness, 18.7-30.3 moderate unawareness, and 30.4-42 high unawareness, again with lower scores indicating greater awareness of racial injustice within aspects of the measured subscales. The CoBRAS has shown a high level of internal consistency and demonstrated an acceptable level of 2-week test-retest reliability.

Demographic items were also included in the data collection. The demographics were divided into the two subcategories of background information and educational experience. The background demographic information collected related to gender identity, age range, and race. The educational experience demographic information collected included faculty rank, degree programs offered, full-time or part-time status, and geographic region of their dental hygiene program. The choice "prefer not to say" was included as an answer option for demographic information. The sensitive nature of collecting data related to race and racism perceptions may have deterred some from answering any of the survey data. However, the option choice of

"prefer not to say" was presented to encourage completion of all survey items for data analysis and increase the response rate.

Procedure

This was a quantitative, cross-sectional study with data collection following the Dillman Method. Using the purposive sampling method described previously, 12 dental hygiene programs were chosen at random after clustering by geographic region with the assistance of a computerized random digit program. All dental hygiene faculty from the randomly selected schools with listed emails on the school's website were compiled for a total of 177 (N = 177). All potential respondents were sent an email that contained the survey link within an electronic cover letter detailing the significance of the study and the importance of participants' responses. To assure participants of confidentiality, the researcher prepared the informed consent describing that all responses would be confidential, with no identifying information associated with recorded responses and stored with password-protected software. The survey was sent to the sample population within one week of sampling on a Tuesday morning (Dillman, 1978). Each program director of the selected school was contacted with a cover letter describing the study. Utilizing Dillman's (1978) method for maximizing potential response rate, the survey was open for a 10-week period, with reminders to non-responding participants sent at 1, 3, and 7 weeks. A request to extend the survey beyond the initial period was granted by the IRB in an effort to increase response rate. Additional reminders were sent during weeks 10 and 12, with a final email cover letter to the non-responders with a final invitation for a response.

Participants from the selected programs who agreed to participate completed the informed consent on the first page prior to opening the survey. Participants first completed the two-part demographic section of the questionnaire, followed by the full version of the Color-

Blind Racial Attitudes Scale on the online platform. Undeliverable emails were referenced to check for spelling or numerical errors. Participants were only able to complete the survey in one sitting. Opened surveys that were not completed were marked as non-respondents after one week and contacted subsequently as non-responders. Partially completed surveys were marked complete if the individual participant hit the submit button. The survey link could not be accessed after the individual's submission or date of expiration. After completion of the CoBRAS survey questions, participants were asked if they wanted to be chosen for a drawing for a $100 Amazon gift card for their participation. Participants either chose "no" or "yes" and additionally were asked to enter a separate email address of their choice for communication if chosen from the drawing. One participant was chosen for a $100 gift card and was notified via the email address they provided after completing the survey. The name of the survey did not appear anywhere in the email notification for the gift card.

Data Analysis

In applying the parameters of the CoBRAS survey instrument, the researcher determined that the attitudes and stereotyping characteristics of participants were the dependent variable, with the independent variable being dental hygiene faculty. Data from Qualtrics® were imported into SPSS (v. 27) to generate descriptive statistics, including means between groups, standard deviations, maximum and minimum scores, percentages, and total scores. ANOVA and the Pearson's *r* Correlation were used to test for differences between groups based on demographic background and educational experience factors. Chapter 4 describes the statistical analysis completed from the data collection. Only fully completed surveys were included for analysis.

The objectives associated with this data analysis were to identify and quantify any level of racial bias among dental hygiene faculty with total scores and respondents' overall level of

unawareness racial bias based on the three subcategories. Further analysis between groups by race and ethnicity, geographic region, and faculty rank may help to identify trends of unawareness based on demographic groupings. It was expected that the majority of completed surveys would come from White females, as they are the dominant group among dental hygiene faculty. If moderate to high levels of color-blind racial attitudes exist among dental hygiene faculty indicating elevated levels of racial stereotyping and bias, the use of these pilot statistics would assist in creating objectives for professional development programs targeted at cultivating diversity, equity, and inclusion for dental hygiene programs across the nation.

Chapter 4: RESULTS

This chapter begins with describing the demographics of the sampled population of dental hygiene educators. Then, the results of the quantitative analysis using the Color-Blind Racial Attitudes Scale (CoBRAS) are presented and explained using descriptive statistics. Analysis of the demographic data describes the sample characteristics, compared to the national demographics of the population of dental hygiene educators. Then, the results of the one-way ANOVA of the differences between group means by race, age, faculty rank, and geographic region are presented. Lastly, the Pearson's *r* Correlation is used to describe the relationship between age and mean CoBRAS score. From the 177 potential participants, five email addresses were returned as undeliverable due to no longer working at the institution listed. Of the 172 potential respondents, 99 responses were recorded. Of the 99 responses, 89 completed all of the survey questions, for a response rate of 52%. The principal investigator acknowledges the small sample size of this study and its implications for generalizability of the findings from this one investigation. Yet, the existence of racial bias and varying experiences of racism by race and ethnicity in healthcare are well-documented, with elements of systemic racism described as "so embedded in systems that it often is assumed to reflect the natural, inevitable order of things" (Braveman et al., 2022). Therefore, the significant values from this study urge dental researchers to expand future investigations of racism within dental hygiene education.

The dental hygiene faculty sample consisted of 83 females (93.3%) and 5 males (5.6%). One respondent did not identify a gender but completed all other demographic data, and no statistical comparison of CoBRAS scores was made relating to gender. The overall collection of

this information adds to the description of diversity of the sample respondents. Race and ethnicity were self-reported. The racial and ethnic diversity of the sample of dental hygiene educators appears in Table 1. The sample consisted of 1 American Native/Alaska Native (1.1%), 6 Asian (6.7%), 4 Black/African American (4.5%), 6 Latino(a)/Hispanic (6.7%), 1 identifying as two or more races (1.1%), 66 White/Caucasian (74.2%), and 5 chose "prefer not to answer" (5.6%). Table 1 indicates the self-reported work status of the respondents with 46 full-time educators, 42 part-time educators, and 1 educator indicating "prefer not to answer." Respondents self-reported age.

Table 1

Racial and Ethnic Diversity of Educators and Teaching Status

Race/Ethnicity	Teaching Status			
	Full-time	Part-time	Prefer Not to Answer	% of Sample
American Indian/Alaska Native	0	1	0	1.1
Asian	2	4	0	6.7
Black/African American	0	4	0	4.5
Hispanic/Latino(a)	4	2	0	6.7
Native Hawaiian/Pacific Islander	0	0	0	0
Prefer Not to Answer	3	1	1	5.6
Two or More Races	1	0	0	1.1
White/Caucasian	36	30	0	74.2

Table 2 describes the ages of respondents with 2 aged 29 and under (2.2%), 18 aged 30-39 (20.2%), 24 aged 40-49 (27%), 16 aged 50-59 (18%), 24 aged 60-69 (27%), and 5 aged 70 and over (5.6%).

Table 2

Age of Dental Hygiene Educators

Age Category	N	%
29 and under	2	2.2
30-39	18	20.2
40-49	24	27.0
50-59	16	18.0
60-69	24	27.0
70 and above	5	5.6

The United States was divided into four geographic regions for this study. Faculty rank and geographic region of respondents are described in Table 3. Of the 89 total respondents, 33 identified their rank as Instructor, 24 identified as Assistant Professor, 16 identified as Associate Professor, 11 identified as Professor, 3 identified as "none of the above," and 2 chose "prefer not to answer." For geographic regions, 55 were from the Northeast, 10 from the South, 12 from the Central region, 8 from the West, and 4 chose "prefer not to answer."

Table 3

Geographic Region of Institution and Faculty Rank

Geographic Region of Institution	Faculty Rank					
	Professor	Associate Professor	Assistant Professor	Instructor	None of the Above	Prefer Not to Answer
Northeast	6	10	13	24	1	1
South	1	1	5	3	0	0
Central	2	2	2	4	2	0
West	1	3	3	1	0	0
Prefer Not to Answer	1	0	1	1	0	1

Dental hygiene programs across the United States may be part of various institutional settings. Respondents for this study were asked which educational setting best described the dental hygiene program where they teach. Table 4 identifies the type of institution as self-reported by the respondents. From the survey, 2 identified teaching in a Community college/Technical college, 53 identified teaching in a University/College with an affiliated dental school, and 34 identified teaching in a University/College without an affiliated dental school. None of the respondents identified teaching in a vocational school.

Table 4

Type of Institution

Type of Institution	Count
Community College/Technical College	2
University/College with Affiliated Dental School	53
University/College without Affiliated Dental School	34

This study used the survey instrument known as the Color-Blind Racial Attitudes Scale (CoBRAS) validated by Neville et al. (2000). The CoBRAS instrument measures scores from the combined subscales that range from 20 to 120, with each item scored on a scale from strongly disagree to strongly agree. Overall scores ranging from 20-53.3 indicate low unawareness of racism and discrimination, 53.4-83.7 moderate unawareness of racism and discrimination, and 83.3-120 high unawareness of racism and discrimination. Of the 89 participants, the mean total CoBRAS score was 55.73, with a standard deviation of 18.18. The minimum score was 22 and the maximum score was 103.

Table 5 identifies the descriptives of total CoBRAS scores by race and ethnicity. For respondents identifying as American Indian/Alaska Native, the mean total score was 30, with no standard deviation due to only one respondent. For respondents identifying as Asian, the mean total score was 45.83, with a standard deviation of 20.10. For respondents identifying as Black/African American, the mean total score was 35, with a standard deviation of 7.35. For those identifying as Latino(a)/Hispanic, the mean total score was 58.17, with a standard deviation of 13.92. For those identifying with two or more races, the mean total score was 35, with no standard deviation due to only one respondent. Those identifying as White/Caucasian,

the mean total score was 56.71, with a standard deviation of 17.25. Respondents who chose "prefer not to answer" for race and ethnicity, the mean total score was 77.60, with a standard deviation of 13.41. A one-way ANOVA was performed to compare race and ethnicity with total CoBRAS scores. There were statistically significant differences between groups, as demonstrated by the one-way ANOVA ($F(6,82) = 3.469$, p = .004). Table 6 Panel A and Table 6 Panel B show the results of the one-way ANOVA, along with the tests for homogeneity of variances table. Unequal group sample sizes were noted. Levene's Test of Equality of Variances was used and not violated to test for homogeneity of variances.

Table 5

Descriptors of Total CoBRAS Scores by Race and Ethnicity

Race and Ethnicity	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Total*	89	55.73	18.18	1.92	51.90	59.56	22.00	103.00
American Indian/Alaska Native	1	30.00					30.00	30.00
Asian	6	45.83	20.10	8.20	24.73	66.93	26.00	83.00
Black/African American	4	35.00	7.34	3.67	23.30	46.69	24.00	39.00
Hispanic/Latino(a)	6	58.16	13.92	5.68	43.55	72.77	36.00	74.00
Prefer Not to Answer	5	77.60	13.40	5.99	60.95	94.24	56.00	91.00
Two or More Races	1	35.00					35.00	35.00
White/Caucasian	66	56.71	17.24	2.12	52.47	60.95	22.00	103.00

*Reflects 95% confidence interval for mean

Table 6, Panel A

One-way ANOVA with Race and Ethnicity and Total CoBRAS Scores

Source	df	SS	MS	F	p
Between groups	6	5889.131	981.522	3.469	.004[*]
Within groups	82	23204.397	282.980		
Total	88	29093.528			

*p-value significance level of .05

Table 6, Panel B

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Total_Scores	Based on Mean	.813	4	82	.521
	Based on Median	.927	4	82	.452
	Based on Median with adjusted df	.927	4	72.833	.452
	Based on trimmed mean	.836	4	82	.506

Mean total scores by faculty rank were calculated and appear in Table 7. A one-way ANOVA was performed to compare faculty rank and total CoBRAS scores. There was no statistically significant difference in mean total scores by faculty rank (p = .143), as shown in Table 8.

Table 7

Descriptors of Total CoBRAS Scores by Faculty Rank

Faculty Rank	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Total*	89	55.73	18.18	1.92	51.90	59.56	22.00	103.00
Professor	11	60.09	12.49	3.76	51.69	68.48	45.00	83.00
Associate Professor	16	63.62	16.53	4.13	54.81	72.43	38.00	92.00
Assistant Professor	24	49.91	21.56	4.40	40.80	59.02	22.00	103.00
Instructor	33	54.15	16.77	2.92	48.20	60.10	24.00	85.00
Prefer Not to Answer	2	72.00	18.38	13.00	-93.18	237.18	59.00	85.00
None of the Above	3	50.66	18.50	10.68	4.70	96.62	32.00	69.00

*Reflects 95% confidence interval for mean

Table 8

One-way ANOVA with Faculty Rank and Total CoBRAS Scores

	df	*SS*	*MS*	*F*	*p*
Between group	5	2706.127	541.225	1.702	.143*
Within groups	83	26387.402	317.921		
Total	88				

*p-value significance level .05

Mean total scores by geographic region appear in Table 9. A one-way ANOVA was performed (see Table 10) to compare geographic regions and mean total CoBRAS scores. There was no statistically significant relationship between geographic regions and mean total scores ($p = .105$).

Table 9

Descriptors of Total CoBRAS Scores by Geographic Region

Geographic Region	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Total *	89	55.73	18.18	1.92	51.90	59.56	22.00	103.00
Northeast	55	55.80	16.43	2.21	51.35	60.24	26.00	92.00
South	10	49.50	21.96	6.94	33.78	65.21	22.00	91.00
Central	12	53.00	18.62	5.37	41.16	64.83	27.00	81.00
West	8	55.87	19.38	6.85	39.66	72.08	25.00	86.00
Prefer Not to Answer	4	78.25	20.12	10.06	46.23	110.26	57.00	103.00

*Reflects 95% confidence interval for mean

Table 10

One-way ANOVA with Geographic Region and Total CoBRAS Scores

Source	df	SS	MS	F	p
Between groups	4	2506.603	626.651	1.980	.105*
Within groups	84	26586.925	316.511		
Total	88	29093.528			

*p-value significance level .05

The CoBRAS measures the three subscales of unawareness of White racial privilege (7 items), unawareness of blatant racial issues (6 items), and unawareness of institutional racism (7 items). The subscales are scored ranging from 7 to 42, with 7-18.6 indicating low unawareness, 18.7-30.3 moderate unawareness, and 30.2-42 high unawareness of racism and discrimination within each of the subscales. Mean scores for each subscale were calculated and are shown in Table 11. For the subscale of Unawareness of Racial Privilege, the mean total score was 23.36, with a standard deviation of 7.80. The minimum score was 8.0 and the maximum score was 42.0. For the subscale of Unawareness of Institutional Discrimination, the mean total score was 20.22, with a standard deviation of 7.43. The minimum score was 7.0 and the maximum score was 37.0. For the subscale of Unawareness of Blatant Racial Issues, the mean total score was 12.15, with a standard deviation of 5.23.

Table 11

Descriptors of Totals for Subscales Racial Privilege (RP), Institutional Discrimination (ID), and Blatant Racial Issues (BRI)

Subscale	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
RPsubscale	89	23.35	7.80	.82	21.71	25.00	8.00	42.00
IDsubscale	89	20.22	7.42	.78	18.66	21.78	7.00	37.00
BRIsubscale	10	12.14	5.22	.55	11.04	13.24	6.00	26.00

*95% confidence interval for mean

A one-way ANOVA was performed to compare the effect of race and ethnicity on mean total scores of each subscale. The descriptives of mean CoBRAS scores of the three subscales by race and ethnicity are shown in Table 12, Table 13, and Table 14. A one-way ANOVA revealed that there were statistically significant differences in mean subscale scores between at least two groups by race and ethnicity for Unawareness of Racial Privilege and Unawareness of Institutional Discrimination ($F(6,82) = 3.104$, p = .009) and ($F(6,82) = 2.854$, p = .014), respectively. There was no statistically significant difference in mean scores between groups by race and ethnicity for the subscale of Unawareness of Blatant Racial Issues ($F(6,82) = 2.090$, p = .063). These results are shown in Table 15. A Pearson correlation coefficient was computed to assess the relationship between age and total CoBRAS scores. There was a positive correlation between age and total CoBRAS scores, r = .178, n = 89; however, the relationship was not statistically significant (p = .095). These results are identified in Table 16.

The analysis and interpretation of these results continue in Chapter 5.

Table 12

Descriptors of CoBRAS Unawareness of Racial Privilege (RP) Subscale by Race/Ethnicity

Race and Ethnicity	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Total *	89	23.36	7.80	.82	21.71	25.00	8.00	42.00
American Indian/ Alaska Native	1	12.00					12.00	12.00
Asian	6	21.00	8.46	3.45	12.12	29.88	11.00	36.00
Black/African American	4	15.25	4.03	2.01	8.83	21.66	11.00	20.00
Hispanic/Latino(a)	6	23.66	4.96	2.02	18.45	28.87	16.00	29.00
Prefer Not to Answer	5	33.80	6.41	2.87	25.83	41.76	27.00	42.00
Two or More Races	1	19.00					19.00	19.00
White/Caucasian	66	23.48	7.51	.92	21.63	25.33	8.00	40.00

*Reflects 95% confidence interval for mean

Table 13

Descriptors of CoBRAS Unawareness of Institutional Discrimination (ID) Subscale by Race/Ethnicity

Race and Ethnicity	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Total *	89	20.22	7.42	.78	18.66	21.78	7.00	37.00
American Indian/ Alaska Native	1	12.00					12.00	12.00
Asian	6	15.16	7.52	3.07	7.27	23.05	8.00	28.00
Black/African American	4	12.75	4.92	2.46	4.91	20.58	7.00	19.00
Hispanic/Latino(a)	6	21.83	7.88	3.21	13.55	30.10	12.00	31.00
Prefer Not to Answer	5	27.40	6.87	3.07	18.86	35.93	16.00	34.00
Two or More Races	1	10.00					10.00	10.00
White/Caucasian	66	20.72	6.97	.85	19.01	22.44	7.00	37.00

*Reflects 95% confidence interval for mean

Table 14

Descriptors of CoBRAS Unawareness of Blatant Racial Issues (BRI) Subscale by Race/Ethnicity

Race and Ethnicity	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Total *	89	12.14	5.22	.55	11.04	13.24	6.00	26.00
American Indian/ Alaska Native	1	6.00					6.00	6.00
Asian	6	9.66	5.08	2.07	4.32	15.00	6.00	19.00
Black/African American	4	7.00	2.00	1.00	3.81	10.18	6.00	10.00
Hispanic/Latino(a)	6	12.66	2.65	1.08	9.87	15.45	8.00	16.00
Prefer Not to Answer	5	16.40	5.68	2.54	9.34	23.45	12.00	26.00
Two or More Races	1	6.00					6.00	6.00
White/Caucasian	66	12.50	5.23	.64	11.21	13.78	6.00	26.00

*Reflects 95% confidence interval for mean

Table 15

One-way ANOVA with Race and Ethnicity and CoBRAS Subscales of Racial Privilege (RP),
Institutional Discrimination (ID), and Blatant Racial Issues (BRI)

Subscale	Source	df	SS	MS	F	p
RPSubscale	Between groups	6	991.126	165.188	3.104	.009*
	Within groups	82	4363.368	53.212		
	Total	88	5354.494			
IDSubscale	Between groups	6	838.798	139.800	2.854	.014*
	Within groups	82	4016.708	48.984		
	Total	88	4855.506			
BRISubscale	Between groups	6	318.734	53.122	2.090	.063
	Within groups	82	2084.367	25.419		
	Total	88	2403.101			

p-value significance level of .05

Table 16

Correlation with Age and Total CoBRAS Scores

Correlations		Please select the category that includes your age:	Total_Scores
Please select the category that includes your age:	Pearson Correlation	1	.178
	Sig. (2-tailed)		.095
	N	89	89
Total_Scores	Pearson Correlation	.178	1
	Sig. (2-tailed)	.095	
	N	89	89

*p-value significance level of .05

Chapter 5: DISCUSSION

This study sought to answer the following research questions:

- What are the current perceptions of race and racism among dental hygiene educators?

- Does unconscious bias exist among dental hygiene educators?

- What are potential barriers to adopting antiracist pedagogy among dental hygiene educators?

This chapter presents a discussion of the key findings, recommendations, implications for practice, and conclusions. The chapter concludes with a self-reflection by the investigator as a White educator.

Key Findings

This was the first study to investigate the attitudes of dental hygiene educators and their perceptions of race. Its purpose was to identify the current perceptions of race and racism among dental hygiene faculty. The study also sought to identify the prevalence of unconscious bias within dental hygiene educators. The results revealed race to be a significant variable in perceptions of racial dynamics, while faculty rank and geographic location were not significant. The sample size was small, but the presence of unconscious bias within this sample of predominantly White educators warrants further exploration of bias related to race among dental hygiene educators and the curricula. Whether conscious or subconscious on behalf of the perpetrator, color-blind racial attitudes are harmful for nondominant racial and ethnic groups as they are used to account for and often rationalize racial inequities (Neville et al., 2006). Among White Americans in particular, color blindness may be used as a means of explaining away

racism as only existing in the past, with reference to the historical imagery of violent, outward attacks on individuals or groups related to race (Edwards, 2017; Neville et al., 2016). These survey results identified race as a significant variable in the differing perceptions of racial dynamics and racism. These ideologies constitute a modern form of racial prejudice that remains obstructive to reducing instances of racism. Investigators found moderate levels of color-blind racial attitudes among the participating dental hygiene educators, indicating elevated levels of belief in a more just world and denial of racial dynamics related to color-blind ideologies (Neville et al., 2000). The three subscales recorded moderate levels of unawareness of racial privilege (RP) and unawareness of institutional discrimination (ID), with low levels of unawareness to blatant racial issues (BRI) among the surveyed participants. Typically, White individuals reported higher levels of color-blind racial ideologies (Neville et al., 2014). With race and ethnicity as the independent variable, this study obtained similar results among White faculty, adding to the existing literature that there is a relationship between race and color-blind racial ideologies. The small sample size warrants further investigation with larger samples testing race and ethnicity again as the independent variable.

From the independent variables of geographic region, age, professional rank, and part-time/full-time teaching status, no statistically significant differences were found between groups ($p > .05$). When comparing between groups by the variables of race and ethnicity, the mean total scores between groups were statistically significant within the sample population ($p = .004$). There were additional statistically significant differences in mean scores for two of the three CoBRAS subscales between at least two groups by race and ethnicity for unawareness of racial privilege and unawareness of institutional discrimination ($p = .009$, $p = .014$). These subscales operationalize cognitive aspects of power evasion within color blindness (Awad & Jackson,

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2016). The sample population scored low for the subscale measuring unawareness of blatant

racial issues, indicating this sample of educators identified obvious acts of racism still as a major,

unacceptable problem for the United States.

The races and ethnicities with the highest mean total scores within the study were

Hispanic/Latino(a) and White, respectively. However, the majority of the sample population

identified as White (74.2%), compared to a much smaller number of educators identifying as

Hispanic/Latino(a) (6.7%); White educators remain the dominant racial and ethnic group across

the total population of educators. It should also be noted that the highest mean total scores from

the entire population sampled came from the group who chose "prefer not to answer," with a

mean total score of 77.6, indicating moderate levels of unawareness of racial privilege and belief

in a just world related to race. It is crucial to note this significantly higher score from this group

of educators in the current system existing with notable ideologies of color and power evasion

related to racial stereotyping. Combining these groups together indicated that 86.5% of the dental

hygiene educators sampled in this study possessed moderate color-blind racial attitudes. While

this is the first study exploring only dental hygiene faculty perspectives and yielded a small

sample size, previous studies of dental hygiene students and dental students and dental faculty

from Ludwig et al. (2019) and Su and Behar-Hornstein (2017), respectively, reported moderate

levels of color-blind racial attitudes using the CoBRAS. Ludwig et al. (2022) reported on the

results of the CoBRAS scale on practicing dental hygienists, where moderate levels of color-

blindness were found with statistically significant differences by ethnicity and age.

While abhorrent blatant forms of racial prejudice exist, this study sought to identify more

subtle forms of racism embodied as implicit or unconscious bias, often associated with acts of

racial stereotyping. The mean total scores for the subscales unawareness of racial privilege and

unawareness of institutional discrimination revealed moderate levels of unconscious or implicit bias were present. Unawareness of racial privilege relates to beliefs of hard work being the variable synonymous with success—thus, a denial of White privilege (Neville at al., 2000). These color-blind racial ideologies are often described as "ultramodern racism" and are proven time and again to be a useless "prejudice-reduction strategy" (Neville et al., 2014). The mean score for the sample related to unawareness of racial privilege was 23.36, with scores ranging from a minimum of 7.0 to a maximum of 42. By race and ethnicity, the lowest scores recorded were from the groups American Native/Alaska Native (12.0) and Black/African American (15.25). These two groups represent faculty from historically marginalized racial and ethnic populations. The highest scores were recorded from Hispanic/Latino (23.67), White (23.49), and those who chose "prefer not to answer" (33.8).

It was predicted that individuals identifying as White would have the highest level of color-blind racial attitudes because they are the dominant group in society; structurally within dental hygiene education and among practicing dental hygienists, they remain the racial and ethnic majority group (Bianchi et al., 2022). While the mean total score of 56.71 represented moderate levels of color-blindness among this sample of White educators, those identifying as Hispanic/Latino(a) and those who chose "prefer not to answer" had greater total mean scores of 58.17 and 77.6, respectively. No racial or ethnic identity assumptions may be concluded for the "prefer not to answer" group, but it is crucial to note this significantly higher score as evidence of educators in the current dental hygiene system existing with notable ideologies related to racial stereotyping. The second highest mean total score was from the sample of Hispanic/ Latino(a) individuals (n = 6). While the sample was small and requires further study, previous research indicated that racial stereotyping and discrimination exists between historically

marginalized racial groups (Kohatsu et al., 2011). The results from this small sample of educators identifying as Hispanic/Latino(a) add to this existing literature and amplify the complexities of race, racial identities, and racism within our culture. The racial and ethnic groups with mean total scores indicating low color-blind racial attitudes came from American Indian/Alaska Native with a score of 30, Asian with a score of 45.83, Black/African American with a score of 35, and those identifying as two or more races with a score of 35. Faculty from the racial and ethnic backgrounds of American Indian/Alaska Native, Black, and two or more races are represented in the lowest percentages among all dental hygiene faculty nationally. Historical multigenerational barriers to dental care and education within these marginalized racial and ethnic communities may relate to their scores and identification of the existence of racism in the form of racial stereotypes from personal experiences with discrimination within these systems (Bianchi et al., 2022).

The presence of these implicit biases related to unawareness of racial privilege manifested within dental hygiene educators and, by association, with dental hygiene curriculum remains unknown and requires further exploration. The existence of elevated levels of implicit bias among these health educators requires necessary action for the future of dental hygiene education and the need for future studies with larger sample sizes. With a majority White faculty as dental hygiene educators, this result provides evidence of the need for further exploration not only of these unconscious attitudes and beliefs among educators, but also of their manifestations in the education and training of future dental professionals.

The dental hygiene faculty in this sample had a mean total score of 20.22 for the subscale of unawareness of institutional discrimination. The scores ranged from a minimum of 7.0 to a maximum of 37. By race and ethnicity, the lowest mean scores were recorded among those

identifying as two or more races, American Native/Alaska Native (12.0), and Black/African American (12.75). The highest mean scores were recorded among those who chose "prefer not to answer" (27.4), Latino(a)/Hispanic (21.83), and White (20.72). These scores signified moderate levels of unawareness and bias relating to issues such as social policies that advance equity by race and ethnicity as well as debatable topics such as English existing as the only official language of the United States. The presence of these statistically significant biases within this sample related to race suggest a strong need for more research within the population of dental hygiene educators. Education for a health profession needs to prepare individuals for meeting the needs of a diverse population. The majority of dental hygiene faculty are White women. Consequently, further study to identify the mechanics of a lack of racial and ethnic diversity among this faculty group is necessary. Various aspects of the educational process such as the curriculum, patient care, clinical decision making, and student-faculty relationships may be influenced.

The demographic data collected add to the existing evidence of a lack of diversity among dental hygiene faculty with a White majority faculty, especially among historically underrepresented racial and ethnic (HURE) populations. Respondents from this study from HURE populations represent 13.4% of participants. This coincided with the national average of 13% of total dental hygiene faculty from HURE groups (Istrate & Stolberg, 2020). It should be noted that no participating respondents self-identified as Hawaiian Native/Pacific Islander, as this remains one of the most underrepresented populations among dental hygiene educators.

Strengths and Limitations

This was the first national cross-sectional study to explore self-reported perceptions of race and racism among dental hygiene educators as a group from various programs across the

country. All four geographic regions of the United States were included for sampling and represented in the results. Respondents represented educators from community colleges, programs affiliated with dental schools, and programs not affiliated with dental schools. The demographic data collection provides a current snapshot of dental hygiene faculty related to age, race, faculty rank, and work status. It confirms a lack of racial and gender diversity among dental hygiene faculty nationally, as this sample parallels the current national landscape of practicing dental hygiene educators. The majority of faculty within the dental hygiene workforce continues to be White and female. The use of the CoBRAS survey instrument provided a means to quantify perspectives of race and racism in relation to racial bias. The results provided baseline data for use in future research.

There were several limitations to the study. The sample size was small and yielded a response rate below 60%. This research study lacked funding from outside sources, and professional dental hygiene organizations refused to share contact information for listed dental hygiene educators. Additionally, the country is recovering from the COVID-19 pandemic where virtual fatigue may have reduced response rate. The utilization of Dillman's (1978) method using personalized communication to potential respondents may not have maximized participation because educators felt inundated with email communication during the pandemic. A low response rate may also be attributed to the survey topic of race and racism. Cultural reckoning across the nation and continuous discourse for improving racial inequities from systemic racism may have impacted the willingness of those sampled to participate in studies examining personal biases, especially those choosing "prefer not to answer" for many of the demographic variables.

The lack of willingness may be attributed to shame of personal racial bias or fear of retaliation, even though results remain confidential. Previous studies also revealed the use of

specific language such as *White privilege* in studies related to social justice as a deterrent for targeted populations to participate, especially online (Quarles & Bozarth, 2022). Potential bias may also exist in the answers from those responding to the survey who chose answers they believed were significant. However, the CoBRAS has shown a high level of internal consistency and demonstrated an acceptable level of 2-week test-retest reliability. With little known as to how institutions address racial bias within program policies and practices, future studies should expand on the quantitative findings with qualitative methods to contextualize the "why" and "how" racial biases manifest in the overall educational culture and to identify institutional responses to student and faculty experiences of racial biases (Smith et al., 2022).

Recommendations and Implications for Practice

The results from this research relate directly to the future of dental hygiene education and the training of the future dental hygiene workforce. The evidence of moderate levels of overall color blindness among dental hygiene educators found within this study demonstrated an urgent need by dental hygiene programs and dental hygiene education to evaluate the study of race and racism within dental hygiene curricula; to assess teaching mechanisms related to diversity, equity, and inclusion; and to strategize and implement sustainable professional development for educators with the goal of eradicating racial bias among faculty and training professionals to deliver equitable care.

Color-blind racial attitudes among the dominant members of a society are harmful for the historically marginalized racial and ethnic members of the society. Whether unconscious or unintentional, racial stereotypes and their presence within society compound with overt racial acts of prejudice and cause continuous damage to individuals and communities from historically marginalized racial groups (Braveman et al., 2022). Previous studies in higher education using

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the CoBRAS scale have found higher total scores related to higher levels of fear of different racial and ethnic groups and less emotional distress related to the existence of racism, while lower scores were associated with greater introspection of racial inequity in the United States (Neville et al., 2014; Spanierman & Heppner, 2004). The ideological foundations of color blindness are barriers to antiracist pedagogical practices because the arguments associated with it reject racial dynamics and diminish the societal and psychological experiences between different races and ethnicities (Neville et al., 2013; Sue et al., 2007). With power evasion as a facet of color blindness (Neville et al., 2013), significant research within dental hygiene education is necessary to identify where and how these racist beliefs exist within current course content, how and what students from historically marginalized racial and ethnic backgrounds experience in dental hygiene education, and how these experiences may influence all aspects of patient care. Sabbah et al. (2019) reported a negative association with the utilization of dental services from those experiencing racial discrimination as less likely to have used dental services. Evaluation of tooth loss and racial discrimination found individuals who experienced prejudice during health visits had a 141% increase in tooth loss, compared to those who did not experience prejudice (Muralikrishnan & Sabbah, 2021). These events add to the multifactorial development of oral diseases and combine with other elements of structural racism leading to poorer health outcomes for marginalized racial and ethnic communities. Braveman et al. (2022) explained the evolution of these "sequential causal pathways," where it may take time for poor health outcomes to develop in communities from racial inequities and the root causes become less visible over time. Assessing this evidence, dental hygiene educators must critically evaluate any potential presence of racial discrimination in their own clinical training of future oral health providers who often deliver preventive care to underserved populations.

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Formal appraisal of the dental hygiene curricula in relation to studies of race and racism requires the review of current accreditation standards from the Commission on Dental Accreditation (CODA). The powerful influence of accreditation standards in dictating not only the curricula but also the educational culture of the professional training for a dental hygienist implores this governing body to review and design educational standards that meet the needs of delivering oral health to the diverse general population of the nation (Smith et al., 2022). CODA currently designates that the dental hygiene curriculum must contain content in the following key areas: general education, biomedical sciences, dental sciences, and dental hygiene sciences. Within these current standards for dental hygiene, nowhere does specific language identify the necessity for the study of diversity, equity, and inclusion, or race and racism as related to oral health. The word "diversity" appears in only one CODA standard, where programs are guided to "cultivate the development of professionalism and ethical behavior by fostering diversity of faculty, students, and staff, open communication, leadership, and scholarship."

Within the overall statement of general policy, the Commission acknowledges "institutional academic freedom" and allows for considerable flexibility in the structuring of programs and their curriculum. The value of "institutional academic freedom" within accreditation standards needs re-evaluation from CODA, as the duty of this executive leadership council cites its service to the public and the profession to continually promote and observe the quality of dental hygiene educational standards. Without the specific delineation of the study of topics related to diversity, equity, and inclusion within accreditation language, the degree to which these topics are taught, their standardization within dental hygiene programs, and the level of priority designated to these subjects rest on the faculty. Thus, when considering the results from this research study where the presence of color-blind racial attitudes among dental hygiene

educators exists at elevated levels, the study of race and racism within dental hygiene education and the core humanistic elements of the study of diversity, equity, and inclusion may vary based on an individual's own perceptions. The development of new accreditation standards from the governing body of CODA may be the most effective method for change, as it would require structural change and move dental hygiene education and its culture forward towards antiracist pedagogy.

Reviewing the mean scores of the subscales of unawareness of racial privilege, unawareness of institutional discrimination, and unawareness of blatant racial issues provides a baseline for the evaluation of where and how faculty may prioritize the study of race and racism within current dental hygiene education. A total of 83.2% of respondents disagreed or strongly disagreed with the statement "Racism may have been a problem in the past, but it is not an important problem today." The mean total score for the subscale unawareness of blatant racial issues was 12.15, indicating that dental hygiene faculty within this study overall identified that blatant racism and actions of blatant racisms still exist in our society. However, the mean total scores for unawareness of racial privilege and unawareness of institutional discrimination were 23.36 and 20.22, respectively, with statistical differences between groups by race.

A key statement within the subcategory of unawareness of racial privilege asked respondents to agree or disagree with the statement "Race is very important to determining who is successful and who is not." The mean total score for this statement was 4.14, yet 44.9% of respondents indicated they disagreed or strongly disagreed with the statement. Therefore, with the race and ethnicity of the educator as a significant variable, the interpretation of the role of race and racism related to facets of coursework and student successes and failures likely differs for students from HURE backgrounds, compared to White students. The dynamics behind this

denial of privilege are not thought to be intentional, and there is no intent to shame dental

hygiene educators with existing moderate to high color-blind racial attitudes. For the health

discipline of dental hygiene with low numbers of both faculty and students from historically

marginalized racial and ethnic communities, this suggests that individuals from underrepresented

racial and ethnic backgrounds within the dental hygiene educational system may be met with

these manifestations of power evasion related to racial stereotyping. The acknowledgment of

such implicit bias among dental hygiene educators, specifically White educators, seeks to

associate that we as individuals are enmeshed in systems of power, knowingly or not (Blachet-

Garneau et al., 2018). Thus, we must draw out the existence of this racism to engage in

meaningful change. Without this identification, the dental hygiene educational structure will

continue to contribute to the minimization of color-blind racial ideologies and attempt to

diminish their significance in continuing racial inequities (Hughey et al., 2015).

The subscale of unawareness of institutional discrimination found moderate levels of

color-blind racial attitudes within this sample. Questions within this subscale pertain to

perceptions of institutional forms of discrimination (Awad & Jackson, 2016). Consequently, it is

necessary to question the pedagogy of forms of institutional racism that are implicated when

educating future dental hygienists on oral health inequities, clinical decision making for patient

care, and the public health systems behind the dental care delivery system. Oral diseases do not

emerge from a singular act of self-neglect. Oral manifestations of dental caries, periodontal

diseases, and oral cancers intertwine with systems of poverty, access to care, health literacy, and

other social determinants of health. With race and racism as key determinants of health inequities

(Krieger, 2014), contextualizing racism through the lens of the institutions related to oral health

is necessary for dental hygiene education. With the existence of color-blind racial attitudes at

moderate levels among dental hygiene educators when teaching about the systems of oral health delivery and public policies, it is prudent to hypothesize that there are varying degrees of the presentation and discussion of institutional discrimination and little standardization.

When respondents were asked how strongly they agreed or disagreed with "Race plays a major role in the type of social services (such as type of health care or day care) that people receive in the U.S.," the responses were mixed, with a mean score of 3.2. Only 16.9% of respondents indicated they strongly agreed, and 45% of respondents chose 3 or 4 on the Likert scale. This suggested that almost half of the respondents could not identify their beliefs with more certainty as being related to this statement. For clinicians and educators responsible for the delivery of primary preventive oral services within the healthcare system, it is alarming that this high number of respondents could not identify race as a determinant of health services. In an additional statement related to American identity, respondents were asked the level to which they agreed with the statement "It is important for people to begin to think of themselves as American, and not African American, Mexican American, or Italian American." The mean score for this question was 3.12 and again yielded varying responses. While 44.9% disagreed or strongly disagreed with the statement, 25.9% of the respondents agreed or strongly agreed. With just over a quarter of respondents failing to recognize this bias related to institutional discrimination within "American" identity, this become an example of the deep-rooted, multidimensional complexity of power evasion, where the existence of identifying as "American" means that some groups must disconnect from the historical, social, and psychological lived experiences of their specific racial and ethnic identities.

Accreditation standards outline the necessity for all dental hygiene graduates to reach competence in interprofessional communication for comprehensive patient care. "Dental

hygienists should recognize cultural influences impacting the delivery of health services to individuals and communities (i.e. health status, health services, and health beliefs)" (CODA). This description alone identifies a weakness in the current standards guiding dental hygiene education. Culture is often used as a chief characteristic to analyze and explain health behaviors, disease prevalence, and inequities, yet it blurs the relationship between experienced discrimination, systemic disadvantage, and individual choice (Blachet-Garneau et al., 2018). This dominant theme in health care education stifles the potential for critical thinking among future health professionals and limits the exploration of health and culture beyond the individual level.

To provide evidence of experiential learning related to interprofessional collaboration for accreditation standards, 76% of dental hygiene programs reported their students participate in some type of community outreach/service-learning programs (Ocegueda et al., 2016). Service learning provides valuable opportunities for students to critically evaluate the multifactorial system impacting the delivery of oral health care. However, the insertion of a predominantly White student body, taught by a predominantly White faculty, into settings for "exposure" to populations from diverse racial and ethnic—and often socioeconomically disadvantaged— backgrounds merely serves to check the box for accreditation standards if these experiences are not contextualized through the lens of social inequities, systemic racism, and historical perspectives of race relations in the United States. It also serves as potential means for further racial stereotyping, where students witness poverty and structural inequity but lack any background behind such inequity, especially as related to race.

Clinical practice in these settings requires significant preparation involving guided self-reflection, with structured feedback related to diverse intersectionality in the curricula to develop

communication skills, foster empathy, and build the critical thinking skills necessary for clinical practice (Cordes, 2021). It is unlikely that a dental hygiene faculty member with moderate to high levels of color-blind racial attitudes will conceal and compartmentalize these attitudes while interacting and educating students during these reflective experiences. Significant evidence of the faculty "role model" was presented in Chapter 1 of this study, especially in relation to future perceptions of clinical practice from developing clinicians. Crucial data describing racial inequities in oral disease were presented in Chapter 2. If the faculty responsible for guiding this reflective and educational process themselves possess levels of color-blind racial attitudes that promote racism and discrimination, it is unlikely students are developing the self-actualization and critical thinking skills necessary to tackle race and racism within oral health.

Analysis of institutional discrimination requires both self-reflection of existing as a clinician with personal implicit biases and reflexive evaluation of being a clinician within an inequitable healthcare system. While self-reflection is a valuable aspect of professional development, without contextualization do these reflections promote sympathy rather than empathy and perpetuate stereotypes on behalf of the provider to those in marginalized communities? Blachet Garneau et al. (2018) described effective critical pedagogy as the analysis of the systems of power and the challenging of individual thought in relation to social, cultural, political and historical context, requiring meaningful dialogue with faculty.

Holland's (2015) qualitative study found that well-intentioned White nursing faculty educating about cultural competence and healthy equity were not immune to the systemic cultural forces existing with race relations. Thus, this concept requires explicit discussion about race, racism, and racial privilege, especially among the dominant White population of educators, within oral health and oral health education at the professional development and continuing

education levels. This multifactorial approach calls for collaborative self-reflective practices from both institutions and the individuals they employ to promote equity within the educational system. It also requires a shift in dialogue within the curricula. The discussion of social policies, unequal allocation or resources, and historical actions resulting in current oral health inequities normalized as part of the curricula has the potential to enhance the critical thinking capabilities of new health providers entering the workforce (Sharda et al., 2021). Dental hygiene faculty will be more prepared to guide these reflections if they themselves participate in self-reflective practices and professional development related to race and race relations.

With race as a significant variable in this study, the racial and ethnic makeup of this sample of dental hygiene educators strongly accentuates the need for greater diversity related to race among dental hygiene faculty. The racial and ethnic diversity of faculty directly relates to learning outcomes for future practicing dental professionals (ADEA, 2022). Strategies related to recruiting faculty from these specific underrepresented racial and ethnic groups should be a priority for dental hygiene education as dental hygiene educators harness power and responsibility in shaping the future profession. Access to affordable preventive dental care remains a need across the nation. The cost of dental school continues to limit those who enter the profession (Bianchi et al., 2022). Dental hygiene existing as an undergraduate degree program with less financial costs to students carries the ability to fill these voids. The most potential future success in reducing costs for patients and increasing dental hygiene providers from HURE requires dental hygiene education to seek out the needs of communities historically most impacted by a lack of dental care (Bianchi et al., 2022). Future providers ought to look like those most in need of care, come from historically marginalized racial and ethnic backgrounds, and identify with the communities they then treat. This requires direction, support, and resources for

department chairs and program directors who previously may not have viewed the specific recruitment of HURE as a priority or have the allocated resources for such recruitment (Swann et al., 2022).

The strategies necessary to recruit dental hygiene students and faculty from underrepresented racial and ethnic backgrounds to higher education requires more than increased funding. Changes in fundamental ideologies and structural shifts in the educational culture are necessary to create an educational workforce that models the diversity of our nation's population. First, professional development among existing dental hygiene educators is needed to help educate on the necessity of increasing a diverse dental hygiene workforce and the harms of more subtle forms of racial discrimination. Second, the onus of increasing and strategizing on diversity, equity, and inclusion (DEI) should not fall solely on the few faculty from HURE backgrounds. This calls on institutions to promote and foster environments supportive of educators from diverse backgrounds. How will institutions incorporate the importance of DEI into faculty professional development within their existing promotion processes? What supportive processes will be put in place to prevent fatigue and burnout from those already in academia from historically marginalized racial and ethnic backgrounds living with the experiences of implicit bias and racial microaggressions?

For true faculty development and meaningful engagement, institutions must embrace DEI initiatives and begin to set measurable objectives into the educational structure. The implementation of self-reflection, a core component of the student curriculum for developing health professionals, is necessary for educators, given that they continue to have experiences that shape and challenge their professional development. Reflective practices for faculty should be facilitated and structured to explore each individual's racial identity, feelings of discrimination,

implicit bias, and experiences with microaggressions (Sue et al., 2007). Sue et al. (2007) delineated a "prerequisite for culture competence has always been racial self-awareness" (p. 283). For true attainment of cultural sensitivity and for dental hygiene curricula to truly embrace cultural competency and DEI initiatives, the first course of action must come from faculty education and training. These are the challenges ahead that require much more extensive research related to dental hygiene education and diversity, equity, and inclusion.

Conclusion

To prepare future dental hygienists for practice in diverse communities with meaningful training in cultural dynamics and interprofessional healthcare collaboration abilities, the researcher recommends the establishment of a fifth core pillar of the educational structure integrating cultural sensitivity and professional advocacy in health related to race and ethnicity. Dental hygienists must possess abilities to communicate effectively with patients and other health providers, regardless of cultural backgrounds. There is a deficiency in the current dental hygiene educational structure regarding the development of culturally sensitive providers. Neville et al.'s (2014) study related to color-blind racial ideologies in students detailed the significance of collegiate experiences with diverse social and racial justice happenings. Students exposed to more diversity courses and collegiate diversity activities exhibited progressive change in color-blind racial attitudes related over time.

For a collegiate degree program in a health profession such as dental hygiene, the establishment and integration of specific cultural diversity and sensitivity coursework are imperative for true preparation of the workforce. Proposed subject matter for this facet of the curricula relates to the study of cultural sensitivity, the psychology of racism, the history of racial dynamics and racism within oral health delivery systems, and professional advocacy in oral

health related to historically marginalized racial and ethnic populations. These standards must be delineated from the CODA with dental professionals and researchers from diverse racial and ethnic backgrounds at the forefront of their establishment. Without such formal designation, their level of significance—or lack thereof—may be attributed to "institutional academic freedoms," and no real change to the educational structure is expected.

Void Holmes (2021) argued in her recent editorial that instead of identifying diversity as a "dirty word," we should identify the strength behind diversity as the "enhanced capacity for problem solving and creative thinking" (p. 5). With today's tense cultural climate related to race and racism in the United States, the term *diversity* has been met with hostility in professional circles, especially in education where faculty pause before identifying the concept's alignment with social justice causes related to racial equity. It has already been noted that some faculty may not have responded to the survey for this study because of its content of race and racism. Yet this avoidance of social issues related to health, such as racial injustice, is antithetical to the values of a healthcare provider.

The development of the future oral health professional begins with the educational experiences delineated to meet specific learning objectives within the curriculum. The presence of moderate color-blind racial attitudes among dental hygiene educators found within this study, the evidence of racial microaggressions in higher education, and oral health inequities related to race and racism collectively call for a rebuilding of the dental hygiene education system. The current educational structure lacks the diversity necessary to break the cycle of systemic racism. To rebuild a new educational structure requires the acknowledgment of the inadequacies of the systems in place, reflection and accountability among current educators, a willingness to unlearn the harmful ideologies associated with modern racism, and support structures within the

educational system to build a true culture of diversity, equity, and inclusion with a foundation in antiracist practices. The results from this study and the supporting research provide a baseline for future research of racial dynamics within dental hygiene education. Thus, it is critical that dental hygiene educators continue the arduous work of self-analysis that can help improve our educational systems and healthcare systems, and perhaps revisit our own inner personal thoughts and beliefs related to race and racism in the service of advancing our profession.

A Self-Reflection from a White Dental Hygiene Educator

As I have called on my fellow educators to engage in meaningful self-reflection, I find it necessary to end this doctoral process and written dissertation with my own reflection. I have many similarities as the majority of the respondents from my research study, as I am part of this dominant group in society. I am White, female, and from the Northeast. I grew up in a home with first-generation medical professionals in a state with deep-rooted racial tensions, muddied by the claim of color blindness as an achievable trait, capable of erasing racial history. For example, only recently has meaningful discussion occurred for renaming a neighborhood within the county where I grew up, originally named for a serial killer with a horrendous history of murdering, torturing, and selling free Black Americans back into slavery after the Civil War (MacArthur, 2018). Thus, my upbringing related to racial equity comes from a tainted, false narrative of safety and equality for all, with some in the population who educated me arguing to keep these histories of our residence neatly and conveniently tucked away. I understand my world view comes from a place of privilege, my problem-solving capabilities come from a place of privilege, and my relationship to societal cause and effect come from a place of privilege.

My perceptions of racial inequities truly began to evolve in adulthood as I became more intentional and responsible for my own education, seeking out resources away from my

mainstream instruction. My own self-evaluation and *well-intentioned* Whiteness reached a crossroads after the murder of George Floyd. Like millions of other Americans, I watched the abhorrent video of the murder of a human being as he gasped for air. The morning after the murder occurred, I was scheduled to lecture to my undergraduate students in a general dental hygiene seminar, and as I prepared, I remember the heaviness I felt. The details of the lecture felt meaningless and arbitrary, especially within the context of human life. Yet, in the context of training future healthcare providers, is human life and respect for it not at the core of our daily work? I remember texting fellow faculty members asking how they were going to handle instruction after such a monumental public viewing of racial injustice that ended with the death of a young father.

When I opened my Zoom link to begin my lecture, only one student was visible on the screen. A young Black male, to whom I refer to as Shaun, sat slumped down on my screen. The welt in my throat was palpable. He wore a hoodie covering his eyes. His face looked lifeless, his body exhausted. There was no denying the differences in our lived racial realities at this moment. On seeing my name appear in the virtual room, he immediately sat up and readjusted his posture. What was I to do, turn on my camera and smile? How many White women have smiled away racism at this young man? I felt shame, shame for saying nothing, shame for thinking about myself and centering my own feelings around the murder of George Floyd, not centering those truly impacted from another act of racial injustice. At that moment, I realized, I truly did not know how to center his feelings in this.

I contemplated Shaun's attendance in class that day. Why was Shaun present in my class that day? I would have surely excused him from the class. My own discomfort and fragility kept me from asking him outright, but my conjecture was based on the history of penalties for

students missing courses and strict institutional policies associated with attendance and participation. Any unexcused absence may result in deductions from the final course grade. Students often must provide documentation related to absence. In my experience, other institutions have similar policies. Missing a day's worth of classes not only may result in deductions from his grade but would also put him significantly behind in coursework. Unexcused absences also may be used against students when or if appealing grades. I have sat in numerous meetings where "unexcused absences" were viewed as a lack of interest or unprofessionalism. Shaun had aspirations of applying to dental school after becoming a dental hygienist, an extremely competitive process where GPAs and test scores are often used to disqualify candidates immediately. Deductions potentially impacting Shaun's GPA were not an option. Perceived unprofessionalism for a Black male applying to a predominantly White occupation was not an option. There lay the intricacies of racial microaggressions in his daily life.

I have often thought of Shaun during this dissertation process. As I have traveled the country sharing portions of this work and creating workshops for dental and dental hygiene faculty, countless stories of both overt racism and racial microaggressions have been shared with me. I have also been met with resistance and feelings of personal resentment for this work. The most "successful" workshops to date came from using myself and my actions as the evidence of White supremacy and racism existing in education. Rather than spouting theory and statistics or promoting myself as a complete antiracist, I speak truthfully about my own racist actions and learned ideologies. This method has cracked some of the barriers set up by other White educators ready to defend themselves. Healing, growth, and personal reflection are forms of education that manifest away from textbooks. These facets of learning must be normalized within the culture of educators by educators to break down the walls of racism built into the current structure.

One weakness I detect within the necessary self-reflection of White educators is the decentering of the marginalized individual at the core of the continued occurrences of racism. If the dominant group and those in power continue to center ourselves, and not those afflicted by the real harms of racism, are we truly moving towards antiracism? How do we hear their stories without centering them under the lens of Whiteness? How do we embrace their narratives and acknowledge this as a component necessary for healing? Thus, my self-reflection process with my own racism and role in seeking racial equity continues to evolve.

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Appendix A: IRB Approval

TEACHERS COLLEGE
COLUMBIA UNIVERSITY

Teachers College IRB	*Expedited Approval Notification*

To: Marija Cahoon
From: Amanda O'Hara
Subject: IRB Approval: 22-044 Protocol
Date: 11/15/2021

Please be informed that as of the date of this letter, the Institutional Review Board for the Protection of Human Subjects at Teachers College, Columbia University has given full approval to your study, entitled *"Dental Hygiene Faculty Perspectives of Diversity, Equity, and Inclusion,"* under **Expedited Review** on 11/15/2021: Category (7) Research on individual or group characteristics or behavior

The approval is effective until **11/14/2022**.

The IRB Committee must be contacted if there are any changes to the protocol during this period. **Please note:** If you are planning to continue your study, a Continuing Review report must be submitted to either close the protocol or request permission to continue for another year. Please submit your report by **10/31/2022** so that the IRB has time to review and approve your report if you wish to continue your study. The IRB number assigned to your protocol is **22-044**. Feel free to contact the IRB Office (212-678-4105 or irb@tc.edu) if you have any questions.

Please note that your Consent form bears an official IRB authorization stamp and is attached to this email. Copies of this form with the IRB stamp must be used for your research work. Further, all research recruitment materials must include the study's IRB-approved protocol number.

As the PI of record for this protocol, you are required to:

- Use current, up-to-date IRB approved documents
- Ensure all study staff and their CITI certifications are on record with the IRB
- Notify the IRB of any changes or modifications to your study procedures
- Alert the IRB of any adverse events

You are also required to respond if the IRB communicates with you directly about any aspect of your protocol. Failure to adhere to your responsibilities as a study PI can result in action by the IRB up to and including suspension of your approval and cessation of your research.

You can retrieve a PDF copy of this approval letter from Mentor IRB.

When your study ends, please visit the IRB Mentor site. Go to the Continuing Review tab and select "terminate" from the drop-down menu.

Best wishes for your research work.

Sincerely,
Amanda O'Hara

IRB@tc.edu

Appendix B: Study Email

Dear_____,

My name is Marija Cahoon, RDH, MS. I am currently a Clinical Assistant Professor in the Department of Dental Hygiene and Dental Assisting at the New York University College of Dentistry. I am also a doctoral candidate at Teachers College, Columbia University, where I am undertaking my dissertation research project under the supervision of Professor John Allegrante and Dr. Cheryl Westphal Theile, Professor Emerita of Dental Hygiene at New York University. My dissertation seeks to investigate issues of cultural competency, diversity, equity and inclusion in dental hygiene. This study has been approved by the Teachers College Institutional Review Board.

The dental hygiene program faculty from your institution have been randomly selected to participate in a study to assess perceptions of diversity, equity, and inclusion among faculty members. Your program was chosen among a pool of other dental hygiene schools across the nation that have displayed interest in these critical areas. **Your participation in this study and completion of the survey will contribute vitally important information for future professional development and curricula planning related to diversity, equity, and inclusion in dental hygiene.**

The study should take approximately 15-20 minutes to complete and must be completed in one sitting. You may access the survey here: [insert link]

Please be assured your responses will be kept completely confidential. You will not be asked your name. Your participation in this study is voluntary and you have the right to withdraw at any point. Your responses will be compiled with others' responses for data analysis purposes and will be password protected. By completing the study in its entirety, you will be entered into a drawing for (up to 3) $100 Amazon gift cards.

The data collected from this study are intended for use for professional development programs aimed at increasing diversity, equity, and inclusion among the dental hygiene educators. There are no known risks to participation in this study. It is not possible to identify all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known and potential, but unknown, risks. By clicking on the link, you acknowledge that your participation in this study is voluntary and that you are a legal adult.

If you have any questions please contact Marija Cahoon at mlc2251@tc.columbia.edu. Otherwise, I greatly appreciate your consideration of my request.

With appreciation of your interest and best regards,

Marija Cahoon, RDH, MS

Appendix C: Email to Program Chairs/Directors

Dear Program Director/Department Chair,

My name is Marija Cahoon, RDH, MS. I am currently a Clinical Assistant Professor in the Department of Dental Hygiene and Dental Assisting at the New York University College of Dentistry. I am also a doctoral candidate at Teachers College, Columbia University, where I am conducting my dissertation research project under the supervision of Professor John Allegrante, Ph.D. and Dr. Cheryl Westphal Theile, Professor Emerita of Dental Hygiene at New York University that will investigate issues of cultural competency, diversity, equity and inclusion in dental hygiene.

Your program has been chosen at random from a pool of dental hygiene programs across the country to participate in a survey of perceptions of diversity, equity, and inclusion among dental hygiene educators. Each of your faculty will receive a recruitment letter describing the study, inviting them to participate. Participation in this study and completion of the survey are vitally important information for future professional development and curricula planning related to diversity, equity, and inclusion in dental hygiene.

Please be assured all responses will be kept completely confidential. Participants will never be asked their names or the names of the institutions where they teach. Participation in this study is voluntary and they have the right to withdraw at any point. The responses will be compiled with others' responses for data analysis purposes and will be password protected.

The data collected from this study are intended for use for professional development programs aimed at increasing diversity, equity, and inclusion among the dental hygiene educators. There are no known risks to participation in this study. It is not possible to identify all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known and potential, but unknown, risks.

If you have any questions, please contact mlc2251@tc.columbia.edu.

With appreciation of your interest and best regards,

Marija Cahoon, RDH, MS

Appendix D: Informed Consent

Teachers College, Columbia University
525 West 120th Street
New York NY 10027 212 678 3000

Title: Perceptions of Diversity, Equity and Inclusion of Dental Hygiene Educators

Principal Researcher: Marija Cahoon, RDH, MS, Doctoral Candidate

You are invited to participate in a research study on faculty perceptions of diversity, equity, and inclusion. We are interested in current full-time, part-time, and adjunct dental hygiene faculty. The study consists of completing a questionnaire and brief demographic information. It will take approximately 15-20 minutes to complete.

We are interested in identifying baseline faculty perceptions of diversity, equity and inclusion for future planning of dental hygiene faculty recruitment, professional development, and curricula planning.

If you agree to participate in this study you will be asked to complete:
-The first section includes eight demographic questions (i.e. what is your identified gender?)
-The second section includes twenty survey questions using a Likert scale assessing perceptions of diversity, equity, and inclusion in the United States (i.e. Racism is a problem in the U.S.)

The study has minimal risk, meaning no more risk than adults would encounter in their normal, daily online activities. Your responses will be confidential, and you will not be asked to provide any personal identifying information. Your participation is voluntary. You may skip any question that you do not want to answer, and you may leave the study at any time.

There is no direct compensation for this study. You will have the chance to enter your name into a drawing for (up to3) Amazon gift cards valued at $100 at the end of the survey. Your chances of receiving the gift card are approximately 1/200. You do not have to enter the drawing to complete the survey. If you would like to enter the drawing, you will be asked to list your email address at the end of the survey. You can use a generic email address instead of a primary one, if you prefer (e.g., genericemail@gmail.com). Your contact information will not be associated with your survey responses. Your contact information and survey responses will be stored separately. Only the person whose name is drawn will be emailed.

The study is over when you have completed the survey. However, you can leave the study at any time even if you have not finished.

Any electronic or digital information will be stored on a computer that is password protected. There will be no record matching your contact information with your data.

All collected data will be analyzed and used solely for professional purposes such as journal articles or programs to be used for educational purposes.

Should you have any questions or concerns regarding the research or your role as a participant in this study, please contact Marija Cahoon at mlc2251@tc.columbia.edu

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If at any time you have comments or concerns regarding the conduct of the research or questions about your rights as a research subject, you should contact the Teachers College, Columbia University Institutional Review Board /IRB. The phone number for the IRB is (212) 678-4105, and our email is IRB@tc.edu. Or, you can write to the IRB at Teachers College, Columbia University, 525 W. 120th Street, New York, NY, 10027, Box 151.

Participants' Rights

- I have read and discussed the informed consent with the researcher. I have had ample opportunity to ask questions about the purposes, procedures, risks and benefits regarding this research study.
- I understand that my participation is voluntary. I may refuse to participate or withdraw my participation at any time without penalty.
- The researcher may withdraw me from the research at his or her professional discretion.
- If, during the course of the study, significant new information that has developed becomes available which may relate to my willingness to continue my participation, the investigator will provide this information to me.
- Any information derived from the research study that personally identifies me will not be voluntarily released or disclosed without my separate consent , except as specifically required by law.
-I should receive a copy of the informed consent document.

Having read the information given above, if you are willing to participate in the survey, please continue on to the next page.

By clicking 'I agree,' you agree to participate in this study. You also confirm that you are

18 years or older and a dental hygiene educator.

Appendix E: Study Questions

Part 1: Demographic Questions

1. Please indicate the gender you identify with:

a. Female

b. Male

c. Non-binary

d. Prefer to self-describe: _____

2. Please select the category that includes your age:

a. 29 and under

b. 30-39

c. 40-49

d. 50-59

e. 60-69

f. 70 and above

3. Please indicate the race you identify with:

a. White/Caucasian

b. Black/African American

c. Latino(a)/Hispanic

d. Asian

e. Native Hawaiian/Pacific Islander

f. American Indian/ Alaska Native

g. Two or more races

h. Prefer not to answer

Part 2: Educational Setting

4. Please identify your rank as faculty:

a. Professor

b. Associate Professor

c. Assistant Professor

d. Instructor

e. None of the above

e. Prefer not to answer

5. Please identify which setting best describes your educational institution:

a. Community college/Technical college

b. University/College with affiliated dental school

c. University/College without affiliated dental school

d. Vocational school

6. Please indicate your teaching status as an educator:

a. Full-time

b. Part-time

c. Prefer not to answer

7. Please indicate the types of dental hygiene degree programs offered at your institution: (Choose all that apply)

a. Associates degree

b. Bachelor's degree

c. Bachelor's degree completion

d. Master's degree

e. Certificate

8. Please indicate the region of the U.S. where your institution is located:

a. Northeast

b. South

c. Central

d. West

e. Prefer not to answer

Part 3: COLOR-BLIND RACIAL ATTITUDES SCALE SCORING INFORMATION Neville, H. A., Lilly, R. L, Duran, G., Lee, R. M., Browne, L. (2000). Construction and initial validation of the Color-Blind Racial Attitudes Scale (CoBRAS). Journal of Counseling Psychology, 47, 59-70.

Directions: Below is a set of questions that deal with social issues in the United States (U.S.). Using the 6-point scale (1=Strongly Disagree to 6= Strongly Agree), please give your honest rating about the degree to which you personally agree or disagree with each statement. Please be as open and honest as you can; there are no right or wrong answers.

1. _____ Everyone who works hard, no matter what race they are, has an equal chance to become rich.

2. _____ Race plays a major role in the type of social services (such as healthcare or daycare that people receive in the U.S.).

3. _____ It is important that people begin to think of themselves as American and not African American, Mexican American or Italian American.

4. _____ Due to racial discrimination, programs such as affirmative action are necessary to help create equality.

5. _____ Racism is a major problem in the U.S.

6. _____ Race is very important in determining who is successful and who is not.

7. _____ Racism may have been a problem in the past, but it is not an important problem today.

8. _____ Racial and ethnic minorities do not have the same opportunities as White people in the U.S.

9. _____ White people in the U. S. are discriminated against because of the color of their skin.

10. _____ Talking about racial issues causes unnecessary tension.

11. _____ It is important for political leaders to talk about racism to help work through or solve society's problems.

12. _____ White people in the U.S. have certain advantages because of the color of their skin.

13. _____ Immigrants should try to fit into the culture and adopt the values of the U.S.

14. _____ English should be the only official language of the U.S.

15. _____ White people are more to blame for racial discrimination in the U.S. than racial and ethnic minorities.

16. _____ Social policies, such as affirmative action, discriminate unfairly against White people.

17. _____ It is important for public schools to teach about the history and contributions of racial and ethnic minorities.

18. _____ Racial and ethnic minorities in the U.S. have certain advantages because of the color of their skin.

19. _____ Racial problems in the U.S. are rare, isolated situations.

20. _____ Race plays an important role in who gets sent to prison.