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UNIVERSITY OF CALIFORNIA, SAN DIEGO

Trends in the use of racial terminology in biological anthropology, 1946 – 2015

A Thesis submitted in partial satisfaction of the requirements for the degree Master of
Arts

in

Anthropology

by

Elizabeth S. Clausing

Committee in charge:

Professor Amy Non, Chair
Professor Margaret Schoeninger
Professor Nancy Postero

2017

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The Thesis of Elizabeth S. Clausing is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

Chair

University of California, San Diego

2017

DEDICATION

I dedicate this thesis to my family, the Colliers, for their unfailing support and love. I appreciate their sacrifices and I would not have been able to get to this stage without them.

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ABSTRACT OF THE THESIS

Trends in the use of racial terminology in biological anthropology, 1946 – 2015

by

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Master of Arts in Anthropology

University of California, San Diego, 2017

Professor Amy L. Non, Chair

The discipline of biological anthropology has historically been fraught with problematic approaches to the study of human race. In recent history, biological anthropologists have been engaged in an ongoing debate over the role of racial and ethnic classification in anthropological research. Here we contribute to that debate by examining the use of racial terminology in biological anthropology research in order to determine how concepts of race and ethnicity have been applied by biological anthropologists over

time in the United States. We present a content analysis of the *American Journal of Physical Anthropology*, based on a systematic review of empirical research articles. We conducted two searches of this journal in PubMed using MeSH terms related to Americans of European descent (e.g., white, Caucasian, Euro-American etc., 1946-2015, n=100) and terms related to Hispanic populations (e.g. Hispanic, Mexican-American, Latino/a, etc., 1954-2015, n=75). We identified both differences and similarities in the ways that the concepts of race and ethnicity have been used in biological anthropology to refer to Hispanic and European American populations. For instance, articles referring to Hispanic populations tended to use the term “ethnicity,” while articles referring to European American populations tended to use the term “race.” Additionally, we identified noteworthy diachronic trends in the identification of race and ethnicity, including an increase in self-identified race through time. Finally, we offer recommendations for ways that biological anthropologists can engage with concepts of race and ethnicity in a consistent way that promotes greater equality and avoids promoting racial bias, both in anthropology and in other fields.

Introduction

The sub-discipline of physical anthropology has historically been fraught with problematic approaches to the study of human race, from polygenism as an explanation of human origins, to exploitation of minority populations. Race can be defined as a system of categorization of individuals based on socially defined divisions which are frequently determined by visual assessment of phenotypic traits. Our use of the term race refers to this socially constructed concept and does not imply support for a biological race concept. Initially, the discipline of physical anthropology was focused on the study of physical variations between humans in an attempt to investigate human origins. In this manner, contrasting humans and classifying them into groups caused many to believe that modern humans with different skin pigmentation arose from several different points of ancestry. This idea was known as polygenism, which suggested that each “race” came from a different common ancestor and should be treated as a different species or sub-species. Polygenism, which was part of the foundation of physical anthropology, was developed to justify slavery and racism. Polygenists such as Josiah Nott (1804 – 1873), George Gliddon (1809 – 1857), and Louis Agassiz (1807 – 1873) saw human races as separate species. Meanwhile monogenists like Charles Darwin (1809 – 1882) proposed that races represented variation within a single human species. However, skin pigmentation is a single trait that does not accurately encapsulate human variation. This hierarchical method of classifying humans could have just as easily been applied to any number of traits, like eye color or hair texture, that vary across *Homo sapiens*. By relying on skin color as the primary trait of distinguishing human populations and the focus on

measurement of physical differences between races, physical anthropology began as a racist science.

The foundation of biological anthropology stemmed from physical anthropology to direct the field away from its racist past. Sherwood Washburn (1911 – 2000), attuned to the shifts in evolutionary theory and advances in the biological and social sciences, critiqued the practice of physical anthropology as primarily descriptive and classificatory. In 1951, Washburn called for a New Physical Anthropology, one that moved away from measurement and classification in relation to race toward processes and mechanisms of evolutionary change (Washburn 1951; Strum et al., 1999). This shift would allow for a more multidisciplinary and interdisciplinary approach to understanding human behavior and biology (Washburn, 1951). Washburn suggested:

“The new physical anthropology has much to offer anyone interested in the structure or evolution of man, but this is only the beginning. To build it, we must collaborate with social scientists, geneticists, anatomists, and paleontologists. We need new ideas, new methods, new workers. There is nothing we do today which will not be done better tomorrow” (Washburn, 1951).

From the time of its foundation, American physical anthropology has been a discipline particularly concerned with the concept of human race based largely on cultural and sociopolitical factors at play in the U.S. In the mid-1800s, Samuel George Morton (1799-1851) began his pioneering work on skeletal remains. While many

anthropologists presently disavow the idea of race as a biological concept and encourage the recognition of sociocultural factors affecting racial categorization and experience (AAPA, 1996; Cartmill, 1998), the use of the terminology that links the discipline of anthropology to its history of involvement in race science continues (Armelagos and Van Gerven, 2003). In the 21st century, the usefulness of describing human variation with the race concept is still a matter of contention as biological anthropologists are still divided over the concept of race. For example, American anthropologists increasingly reject race as a biological concept with 17 percent of queried biological anthropologists rejecting the race concept in 1975 (Stark et al., 1979), 41 percent in 1985 (Lieberman and Reynolds, 1996), and 69 percent in 1999 (Lieberman and Kirk, 2002). Although Cartmill and Brown suggest that this decrease possibly is not as large nor as rapid as the authors have claimed, the notion of race as a biological concept is far from universally accepted (1998).

Controversies over race conceptualizations have been ongoing for centuries and have been shaped by anthropologists. Although discussions on race are so very prevalent in biological anthropology, racial terminology is heavily used but rarely defined. In general, racial terminology includes vocabulary suggesting that race is the primary determinant of human variation and that racial differences produce an inherent superiority of a particular race. Biological anthropologists that use racial terminology have historically placed humans into a racial hierarchy with “white” ranking at the top. In 1983, Molnar suggested that for each application of the term race, a definition should be provided so that the reader may understand in which context the term is being used. And yet, terms related to “white” and “Caucasian” are hardly ever defined while definitions of

terms related to Hispanic or Latino ancestry have been defined inconsistently over time. White privilege still exists and affects anthropologists' views on race, which underscores the importance that anthropologists must be vigilant of biases in the profession and practice of anthropology (Wagner et al., 2016).

Well into the 21st century, there has been no systematic evaluation of how the terms “white” or “Hispanic” (or related terms) are being used in anthropological scholarship or how they are conceptualized by authors who use them. Our goal in this research article is to present such a review. We use a systematic literature review or bibliometric approach to ascertain patterns of the terms “white” or “Hispanic” (or related terms) in articles in the most prominent journal in biological anthropology, the *American Journal of Physical Anthropology*, from 1946 to 2015. Bibliometry, the quantitative analysis of academic literature can be used to identify trends in published scholarship. We used bibliometry to identify shifts or variation in topics, article types, terminology, or theoretical approaches among many others (Hood and Wilson, 2001). Our approach follows that of Gravlee and Sweet (2008), who evaluated trends in racial terminology including race, ethnicity, and racism being applied in medical anthropology journals from 1977 to 2002.

Our intent in writing this article is to offer a descriptive analysis of how these racial terms are being employed. Our goal is explicitly nonprescriptive; we will not offer normative definitions for either set of terms. We first provide a brief history of understandings and trends in usage of racial terms in the 20th century and then outline our methodology and results, finishing with a discussion of how these terms are currently

being used and whether there exists some consensus around the terms within biological anthropology.

Study Objective:

In this study, we examined the use and application of racial terminology over time to describe white and Latino populations in the United States, through systematic review of the *American Journal of Physical Anthropology* (AJPA).

History of the use of “Caucasian” in Biological Anthropology

The term “Caucasian” was originally developed to refer to individuals from the Caucasus Mountain region of Georgia. It was first used by Friedrich Blumenbach (1752 – 1840) in the 1800’s to refer to “the white race” based on the writings of Sir John Chardin (1643 – 1713), who asserted that the people of the Caucasus Mountain region of the Republic of Georgia represented the most beautiful human beings on the planet (Blumenbach et al., 1865; Brace, 2005; Freedman, 1984). Since this time, the term “Caucasian” was not used only to refer to individuals from the Caucasus, but was understood to refer to people of European descent throughout scientific literature and social discourse. According to Blumenbach, the Caucasian race represented God’s intended physical form for human beings, and that non-white human beings existed due to a gradual “degeneration” from this original form as humans moved geographically further away from the Caucasus Mountain region (Brace, 2005; Freedman, 1984).

Using Blumenbach’s concept of “The Five Races of Men” in order to classify individuals by race, Samuel Morton wrote on human evolution through his examinations

of human skeletal remains. These races included Mongolian, Malayan, Ethiopian, American Indian, and Caucasian (Blumenbach et al., 1865). While Blumenbach was a monogenist who believed that all human beings had a common evolutionary origin regardless of race, Morton was a polygenist, meaning he believed that human races had always existed and that each human race represented a distinct species which had evolved separately. Morton claimed that Caucasians had the greatest cranial capacity and were thus the most intelligent of the human races, a conclusion which was reached by excluding the craniometric measurements that fell outside of his realm of expectations (Goodman et al., 2012). These assumptions about the intellectual superiority of individuals of European ancestry were based largely at the time of white colonialism and were used in the American justification of African slavery. Furthermore, the findings of such early biased “race science” served to reinforce the sociopolitical power of whites in the United States.

When Darwinian evolutionary theory came about in 1859, it played a significant role in the understanding of race and the formation of the Caucasian category in biological anthropology. Rather than viewing racial differences as “degeneration” from the Caucasian form, scientists began to adopt the idea that the Caucasian race represented the “most evolved” form of humanity while other races were viewed as more primitive (Armelagos and Van Gerven, 2003). Biological anthropologists began to understand the history of human evolution as the history of racial evolution. Thus, the discipline became concerned with the quantification of racial differences through the development of complex anthropometric tools and standards.

During the late 19th and early 20th century, conceptions of race in American science were significantly impacted by immigration patterns. New immigrants from Ireland, Scandinavia, and Eastern Europe were begrudgingly granted the title of “Caucasian” only when it suited the sociopolitical aims of the government at the time (Mukhopadhyay, 2012). The term Caucasian was used to grant naturalized citizenship to Anglo-Saxon Christians immigrating to the U.S. through the Naturalization Act of 1790. However, Caucasian as originally defined by Blumenbach included individuals of Persian, North Indian, and North African descent. The U.S. government did not wish to include these individuals in their definition of “whiteness” for the purposes of naturalization, and began to re-define the term Caucasian. By the 1920’s, the eugenics movement advocated for a further subdivision of Caucasians into stratified racial categories with Nordics representing the most intellectually and morally advanced group (Mukhopadhyay, 2012). Regardless of these subdivisions, Caucasians were still regarded as the superior racial group. U.S. Census racial categories have continuously shifted through time to reflect sociopolitical attitudes surrounding race; often including new categories such as “quadroon” and “octaroon” to attempt to quantify the amount of Caucasian ancestry in non-Caucasian individuals (Freedman, 1984).

In the early 1900’s, the skeletal biology studies of Aleš Hrdlička (1869-1943) and Earnest A. Hooton (1887-1954) were deeply influenced by the early history of race-based science and Caucasian superiority. Both scientists viewed the biology of Caucasians as the standard by which all other races were to be compared and reinforced racial typologies in their research. Hrdlička became the first editor of the *AJPA* (Armelagos and Van Gerven, 2003). The assumption of Caucasian superiority and focus on racial

comparison in biological anthropology did not go unchallenged at this time. Franz Boas (1851-1942) was among the first to propose that differences between human racial groups were relatively modest and did not fit assumptions about racial hierarchies (Boas, 1918). Nonetheless, racial categorization and comparison remained a central focus of biological anthropology during this time period.

The acceptance of the race concept and the classification of individuals into discrete racial categories continued to be broadly accepted in biological anthropology throughout the early 20th century. Racial essentialism, the idea that there were innate characteristics of each race that were unchangeable, was assumed in early racial definitions. This fact is evidenced by the 1950 UNESCO “Statement on Race”: “At the present time most anthropologists agree on classifying the greater part of present day humanity into three major divisions, as follows: the Mongoloid Division, the Negroid Division, the Caucasoid Division. The biological processes which the classifier has here embalmed, as it were, are dynamic, not static. These divisions were not the same in the past as they are at present, and there is every reason to believe that they will change in the future” (UNESCO, 1950). While this statement did acknowledge that racial categories were not immutable, it maintained the existence of biological race categories and the significance of a “Caucasoid” division. The term Caucasian or “Caucasoid” in particular has seen continued use despite its harmful origins in race science despite the appearance of AAPA’s statement on the biological aspects of race (Mukhopadhyay, 2008). Additionally, the term Caucasian is often used in conjunction with problematic terms which have also been historically associated with race science such as “Negro” and “Mongoloid” in the context of Forensic Anthropology (Ousley et al., 2009).

History of the term “Hispanic” in Biological Anthropology

The term “Hispanic” has a much younger history than the term “Caucasian.” “Hispanic” was first used officially by the U.S. government in the 1970 Census to refer to “a person of Mexican, Puerto Rican, Cuban, South, or Central American, or other Spanish culture or origin, regardless of race” (U.S. Census Bureau, “Hispanic Origin” 2014). Although they are often used interchangeably, the terms “Hispanic” and “Latino” are not identical in meaning. According to the U.S. Census Bureau, the terms “Hispanic” and “Latino” refer collectively to the inhabitants of the U.S. who are of Latin American or Spanish origin; however, “Hispanic” is not used to classify persons of Portuguese or Brazilian descent. “Hispanic” has broader references than Latino, potentially encompassing all Spanish-speaking peoples throughout the world and emphasizes the commonality of language, even if that is all that is similar. “Latino” refers exclusively to Spanish-speaking persons of Latin American origin.

The contemporary United States Census Categories for race include American Indian or Alaskan Native, Asian, Black or African American, White, Native Hawaiian or Other Pacific Islander, and some other race. Hispanic or Latino are not considered races but ethnicities (U.S. Census Bureau, “Race”). To be considered Hispanic or Latino, a person must be of “Cuban, Mexican, Puerto Rican, or Central American, or other Spanish culture of origin, regardless of race” (U.S. Census Bureau, “Hispanic Origin”). Those that consider themselves “Hispanic” may also identify themselves as any race. This classification scheme has changed many times in the history of the US Census. For example, Mexicans have been differentially classified over time in the census. In the

census prior to 1930, the only racial identifications you could choose were white, black, or mulatto (definitions varied over census years, but this term generally means someone who is black and at least one other race), other (this category included smaller racial groups not specified on the census form), Indian, Chinese, Japanese, Filipino, Korean, and Hindu (referred to as Asian Indians regardless of religion) (U.S. Census Bureau 2009).

It was not until 1930 that the term “Mexican” appeared on the U.S. Census as a distinct racial group. Mexicans were counted as a separate race in 1930 for the first and only time (U.S. Census Bureau 2009). The following census counted Mexicans as white unless they were clearly Indian or some race other than white. Prior to this point, an individual with ancestral origins in Latin and South American could only identify as white or other. In 1970, the categories for those with Latin American and/or South American ancestries included Central or South American, Mexican, Puerto Rican, Cuban, and Other Spanish. The term “Hispanic” did not appear in the census until 1980 as a separate race. The other categories include Mexican, Mexican American, Chicano (a variation of “Mexican American” commonly used in Western and Southwestern states), Puerto Rican, Cuban, and Other Spanish/Hispanic. These categories exist currently and appeared in the 2010 Census Categories. The U.S. Census Bureau does not currently consider Hispanic/Latino identity to be a race, but classifies it only as an ethnicity. The U.S. Census Bureau explains that “[o]rigin can be viewed as the heritage, nationality group, lineage, or country of birth of the person or the person’s ancestors before the arrival in the United States. People who identify their origin as Hispanic, Latino, or Spanish may be of any race” (U.S. Census Bureau 2009). Ethnicity is asked as a separate

question. Today, Hispanics would be classified as having a Hispanic ethnicity and a white race (U.S. Census Bureau, “Hispanic Origin”).

Although there has been continued discussion about the non-biological bases of race (AAPA, AJPA, etc.), to date there has been no systematic survey of how racial terms have been employed. Thus, we undertook a review of the usage of “white” and “Hispanic” terminology in a biological anthropology journal from 1946 to 2015 to assess the state of usages of each set of terms and ascertain patterns of use and understandings of the terms in light of its historical development. The following questions guided our research:

- Q1: Among my random sample of articles in the *AJPA* using at least one racial term related to white or Hispanic populations, what is the frequency of each term of interest (e.g., white, Caucasian, Hispanic, Latino) in my random sample?
- Q2: Are there trends in use of these terms across its near 70-year span?
- Q3: Are the terms of interest defined?
- Q4: Are the terms of interest categorized as ethnic or racial?
- Q5: Are there patterns in how the racial terms were used by each subfield of bioanthropology?
- Q6: Are there patterns in how race was defined over time – other vs. self-identified, or through genetic ancestry testing?

Methods

Samples

We performed a systematic analysis of articles published within *AJPA* between 1946 and 2015 in two separate searches using terms related to either Hispanic or white. This particular journal was chosen due to its status as a leading publication within the field of biological anthropology and its broad appeal to all types of biological anthropologists. Articles were included in the review if the terms of interest were found within their titles and/or abstracts (Table 1). Articles were excluded if the racial term was applied to something other than humans (e.g. nonhuman primates, ancient hominins, pre-Hispanic contact, or white-tailed deer), if the study was anything but an original, empirical study (all review articles were excluded). Because our interest was how races have been classified in the US over time, we also excluded any studies of only populations outside the US.

The initial PubMed search using the terms related to Hispanic populations returned 98 articles. After applying exclusion criteria, 75 articles remained. For the PubMed search using terms related to white populations, 784 articles were initially identified. After applying exclusion criteria, 515 articles remained. In order to reduce this pool of articles to a feasible number for careful review, and to ensure representation from varying time periods, a systematic random sample was drawn by sorting the articles into chronological order and including every other article. From this pool of articles, a random sample of 100 was selected for analysis. A total of 175 articles from both searches were

analyzed in the present study. An appendix containing all articles used can be found in the supplemental material.

Assessment

Articles from both searches were coded in order to assess the frequency of the use of these terms and diachronic changes in terminology. For each article we recorded: 1) the inclusion of other racial terminology (e.g. “Black,” “Native American,” etc.), 2) which area of biological anthropology (e.g. Forensic Anthropology, Human Osteology) was represented in the focus of each study, 3) the definition (or lack thereof) of racial terminology, 4) whether the terms of interest were classified as races or ethnicities (Table 2), 5) how the term was used, 6) secondary reason for how the term was used if applicable, 7) if genetic ancestry was assessed, and 8) whether race was self-identified or identified by the author. To determine whether the terms of interest were classified as races or ethnicities, the terms included in Table 2 were searched in the entire articles in relation to the terms of interest. Trends over time were visually assessed.

The initial total sample of articles was reviewed by three independent coders to assess inclusion/exclusion criteria; any disagreements were resolved by a third coder. The final sample of articles was then divided between two coders, and a random subset of one third of the articles were reviewed by a third coder to ensure reliability of the data. Difficulties in coding arose when determining whether the racial identities of study subjects were self-identified or scientist identified. This is largely due to the fact that many of the studies made use of museum skeletal collections from the early 1900’s or willed to museum collections by individuals following their deaths. Because self-

identification is often used in life while scientist identification is frequently used in death certificates, post-mortem examinations, and archaeological populations (Sandefur et al., 2004), it is often unclear whether the racial categorization of individuals involved in such studies reflects their self-determined identities or those assigned by scientists.

Additionally, it is possible that scientists assigned racial categories to living individuals in earlier studies based on phenotypic traits and did not collect self-identification data.

Because this information is absent from many of the studies, self-identification and scientist identification were only noted when explicitly referenced within the text of the article (6% of white search articles and 23% of the Hispanic search articles). When details about determination of racial categories was absent, the method of identification was marked as “unclear.”

Coders also had difficulty determining the subfield focus of each study, which was not always explicitly or correctly defined. For instance, early studies which made no use of genetic data were occasionally labeled as “genetic.” When the focus of each study was labeled incorrectly or was not explicitly stated, the study was assigned to a particular category reflecting my own understanding of the subfields of biological anthropology. These categories include Forensic Anthropology, Genetics, Human Biology, and Human Osteology.

Statistical analyses

Statistical analyses were performed using R v.3.3.3. In order to assess how the use of terminology has changed over time, Pearson’s chi-squared test was performed to determine whether the proportion of terms of interest (white, Caucasian, or European

American in the white search; Hispanic, Latino/a, Mestizo, Mexican American, and South American in the Hispanic search) varied across years. When the Chi-Squared analysis returned with a warning that the approximation may be incorrect, Fisher's exact test was used instead to determine whether there was a significant association between the year of publication, subfield, term of interest used, how the term was used, and self or other identified. The chi-squared test was also carried out to test for significant differences in proportions of articles that used self-identification or used different racial categories across years. When the initial chi-squared tests returned warnings, the categories that had counts of less than five were collapsed into other categories. The articles classified in subfield of forensics was removed entirely from the statistical analysis due to the fact that there were not enough forensic articles, so they were classified as osteology instead.

Table 1: PubMed search terms and terms of interest in the title and/or abstract of the article.

PubMed Search Terms (White Search)	PubMed Search Terms (Hispanic Search)
Anglo*	Latino/a/os/as
Caucasian*	Chicano/a/os/as
“European American”	Mexican*
“European Americans”	Hispanic*
European white*	Mestiz*
European Continental Ancestry Group (MeSH term)^A	Hispanic American (MeSH term)⁺

Terms in asterisks () signify potential variants of the term, and terms in quotation marks signify exact wording in the search. The search using MeSH terms included a list of sub-terms that were simultaneously searched throughout the articles (not just in the title*

and/or abstract). The European Continental Ancestry Group MeSH term (represented by delta or Δ) includes the terms *white/s*, *Caucasoid race/s*, *Caucasoid*, *Caucasian race/s*, and *Caucasian*. The Hispanic American MeSH term (represented by plus-sign or +) includes the terms *American/s (Hispanic)*, *Hispanic American*, *Spanish American/s*, *Puerto Rican/s*, *Latino/a/os/as*, *Cuban American/s*, *Cuban*, and *Hispanic/s*.

Table 2: Search terms related to race and/or ethnicity as originally categorized by Gravlee and Sweet 2008. It was determined whether the terms of interests were classified as racial and/or ethnic by search these terms throughout the body of the articles in relation to the terms of interest.

Selected terms and phrases used in reference to concepts of race or ethnicity	
Cultural or ethnic background	Ethnic populations
Ethnicity	Ethnolinguistic groups
Ethnicities	Minority
Ethnic	Minority group
Ethnic and race relations	Minority populations
Ethnic background	Peoples of color
Ethnic or cultural group	Race
Ethnic group	Racial identity
Ethnic heritage	Racial group
Ethnic identity	Racial and ethnic minorities
Ethnic minorities	Race/ethnicity
Ethnic minority populations	Race/ethnic
Ethnic heritage	Racial/ethnic

Results

Definitions of Racial Terms

Of the 75 articles in the Hispanic search, 61 articles did not explicitly define the term of interest. Definitions of the terms were rare, and when available, focused on surnames (n=1), features or physical attributes (n=6), geography (n=3), and genetic ancestry (n=4). In the late 1970s, the term “Hispanic” first appeared in the articles (Figure 1). Of the 100 articles sampled from the “white” search and the 75 articles in the “Hispanic” search, 10 articles explicitly defined the racial terminology referring to “whiteness” (Table 3). Six of the 10 studies used and defined the term “white,” and when other racial groups were mentioned, they were defined to the same degree of specificity as the term “white.” Definitions, when available, were often simple and vague and only infrequently associated with “whiteness” and particular phenotypic traits, thus supporting the view that “white” is an understood, unmarked, default racial category against which all others are measured. The 89 articles lacking a definition of white-related terms failed to define terms such as “Caucasian,” “white,” or “European American” even when other racial categories were defined. The term “white” was most frequently used (60%) followed by “Caucasian” (14%) , and “European American,” (17%) , with “white” and “Caucasian” being frequently paired and used interchangeably in the same article (Figure 2). The term “European American” first appeared in our dataset in an article from 1980. Many of the articles used phrases such as “having European ancestry/descent.” The proportion of each racial term used significantly varied across years (p-value is less than 0.001) in both the white search and Hispanic search.

How terms were used

Approximately 68 percent of the articles referred to “white” populations primarily when comparing to other racial groups. Of the 89 studies that compared “white” populations to at least one other non-white population, 65 (73%) were comparing “whites” to individuals of “black/Negro/African American” descent. The proportion of each racial term used significantly varied by how the terms were used (p-value is 0.01462) in the white search and but not in the Hispanic search (p-value is 0.05914). The way in which the terms were used were significant in the white search (p-value is less than 0.001) and significant in the Hispanic search (p-value is 0.01363). In 34 articles, they provided a secondary reason for using the racial terms, with 16 of the studies using the terms to segregate the analyses into racial categories.

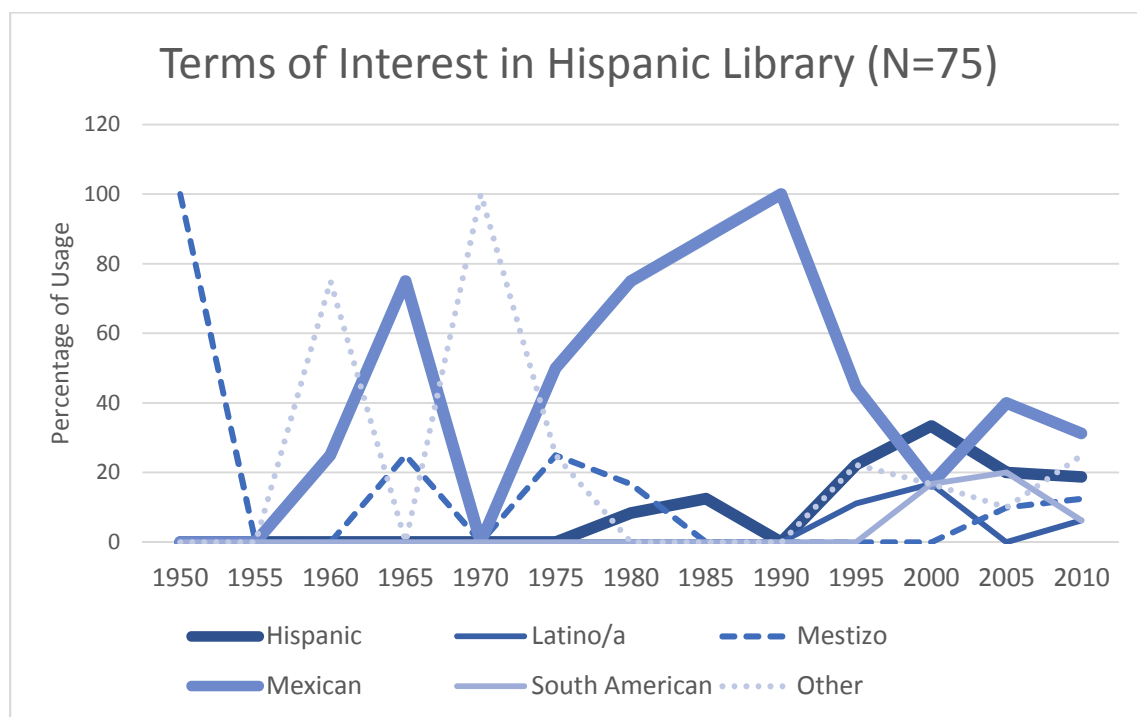


Figure 1: Terms of interest over time in the "Hispanic" search.

Table 3: Articles defining racial terminology referring to "whiteness" as a social construct (white search).

Article	Year	Term Used	Definition
Saksena. A quantitative method of morphological assessment of hybridization in the U. S. Negro-White male crania.	1974	White	“British ancestry”
Garn et al. The effect of prenatal factors on crown dimensions.	1979	White	“European ancestry”
Katz and Suche. Race differences in pubic symphyseal aging patterns in the male.	1989	White	“Whites were characterized by light skin color, straight or wavy hair, orthognathism, projecting nasal bones, thin lips, and moderate to heavy body hair.”
Russell et al. Independent test of the fourth rib aging technique.	1993	White	“European descent”
Pfeiffer et al. Cortical bone histomorphology of known-age skeletons from the Kirsten collection, Stellenbosch university, South Africa.	2016	White	“European descent”

Table 4: Articles defining racial terminology referring to "whiteness" as a social construct (Hispanic search).

Article	Year	Term Used	Definition
Martinez-Cortes et al. Maternal admixture and population structure in Mexican-Mestizos based on mtDNA haplogroups	2013	Mexican-Mestizo	"All individuals were self-classified as Mestizos because their parents and grandparents are Mexicans, speak Spanish, and do not belong to any specific ethnic group"
Martorell et al. Short and plump physique of Mexican-American children	1987	Hispanic	"Hispanics were overwhelmingly classified as white, and, other than members of our group, no one has selected the Hispanic cases in HANES and examined the anthropometric characteristics of this group."
Lasker. Photoelectric measurement of skin color in a Mexican Mestizo population	1954	Mexican Mestizo	"the students in the Internado are known to possess, on the average, a smaller fraction of Spanish ancestry; they were selected for this 'Indian,' a term, it is true, which in Mexico may have more to do with socio-cultural factors than with biologic race" "American Indian physical traits predominate, however, although clear evidence of European admixture is also apparent"
Zavaleta et al. Growth and body composition of Mexican-American boys 9 through 14 years of age	1982	Mexican-American	used "American White boys" as comparison because "since individuals with Spanish-surnames are commonly included (until recently) as White in health surveys"
Snyder et al. Trait analysis of the dentition of the Tarahumara Indians and Mestizos of the Sierra Madre Occidental, Mexico	1969	Mestizo	Mestizo refers to individuals one or both of whose parents are described as white, Spanish, or Mestizo Tarahumara Indians of southwestern Chihuahua, Mexico

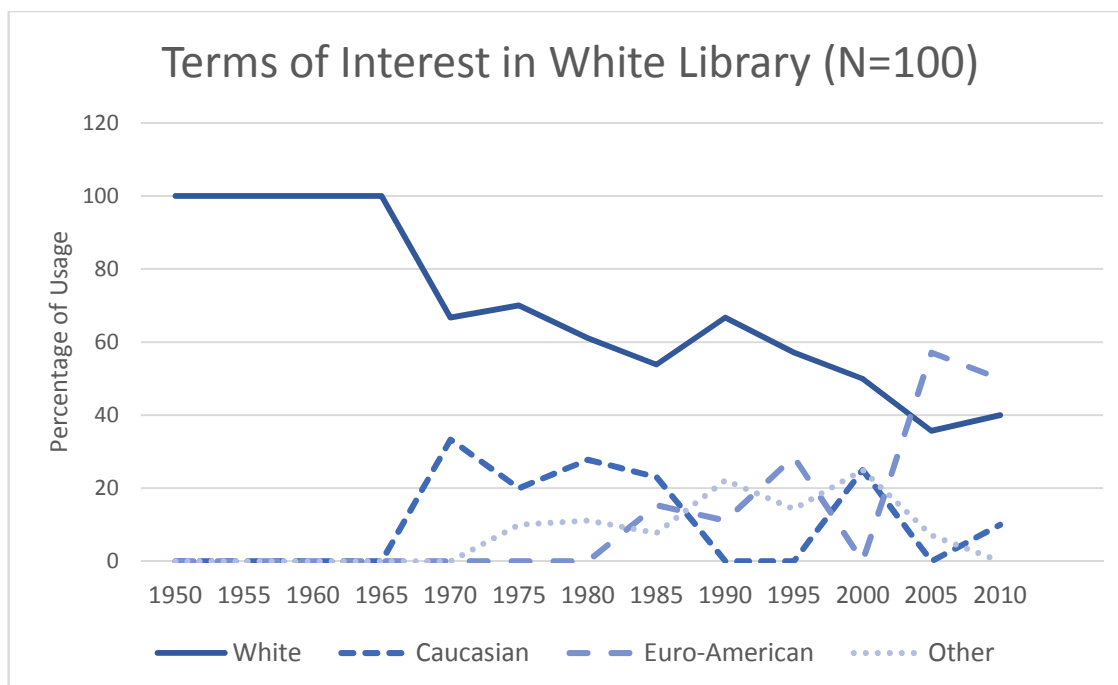


Figure 2: Terms of interest over time in the "white" search.

Race vs. Ethnicity

In articles that describe Hispanic populations, the terms of interest were predominantly classified as ethnic as opposed to racial (66%) (Figure 3). Of the terms of interest classified as racial, 13 percent defined what was meant by “race.” Similarly, the terms classified as an ethnicity only defined “ethnic” or related terms in 14 percent of the articles. The difference between the race and ethnicity usage in the Hispanic search was not significant (p-value is 0.658). In articles that describe “white” populations, the terms race and ethnicity were used at similar frequency (Figure 4). Of those that used “race,” approximately 22% defined what they meant by race, whereas, in the studies that used “ethnicity,” only 12.5% defined it. Approximately 27% of the articles used neither race nor ethnicity (Figure 4). The difference between the race and ethnicity usage in the white search was not significant (p-value is 0.480). There was a shift in the late 1970s towards

using the term “race” rather than “ethnicity, and to using the term “Hispanic” rather than Mexican-American (similar to changes in Census Data). In the Hispanic search, mostly ethnic as opposed to race were used (Figure 3); very few studies used neither term to describe Hispanics (3%). None of the articles justified the usage of the terms, and only four offered a definition of race and/or ethnicity:

- “Race/ethnicity changes according to historical periods, social structure, and as individuals become more admixed” (Casazza et al., 2011).
- “Ethnicity/ancestry is socially perceived and determined via phenotypes, language, and culture... although skin color is commonly used as a marker of ethnicity in many societies, this study shows it to be of minimal reliability in predicting admixture proportions, especially within ethnic groups. Ancestry as determined by AIMs is a more accurate indicator of ancestry than skin color because AIMs sample many loci, whereas skin color may depend on just a handful of loci” (Klimentidis et al., 2009).
- “Ethnicity is the incorporation of 'collective cultural practices, language use and community membership’” (Hughes et al., 2013).
- “Race [is] characterized by skin color, hair type, nasal bones, lip thickness” (Katz and Suchey, 1989).

Context is essential in determining the meaning of these terms. Of the 75 articles, only four articles that used race and/or ethnicity defined the terms. None of the articles justified the usage of the term. Three did not mention physical biological variation in their definitions:

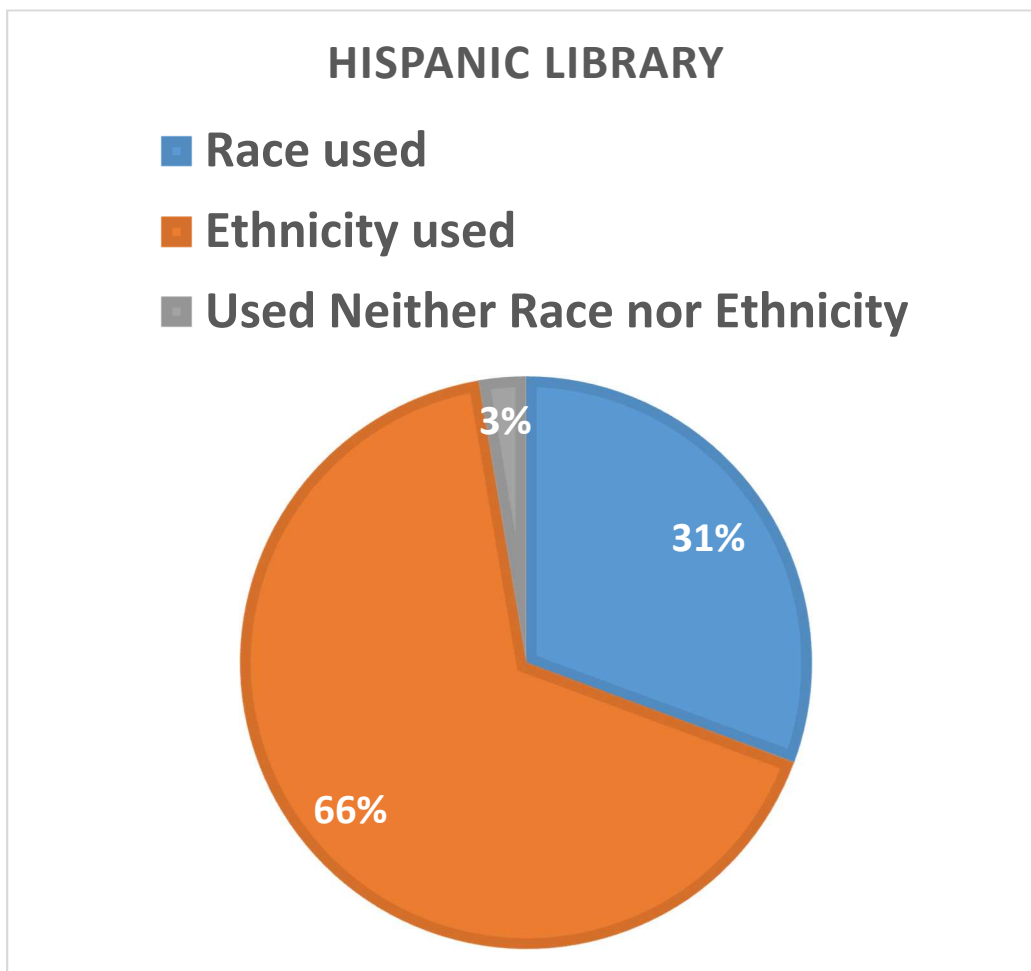


Figure 3: Classification of the terms of interest in the Hispanic search.

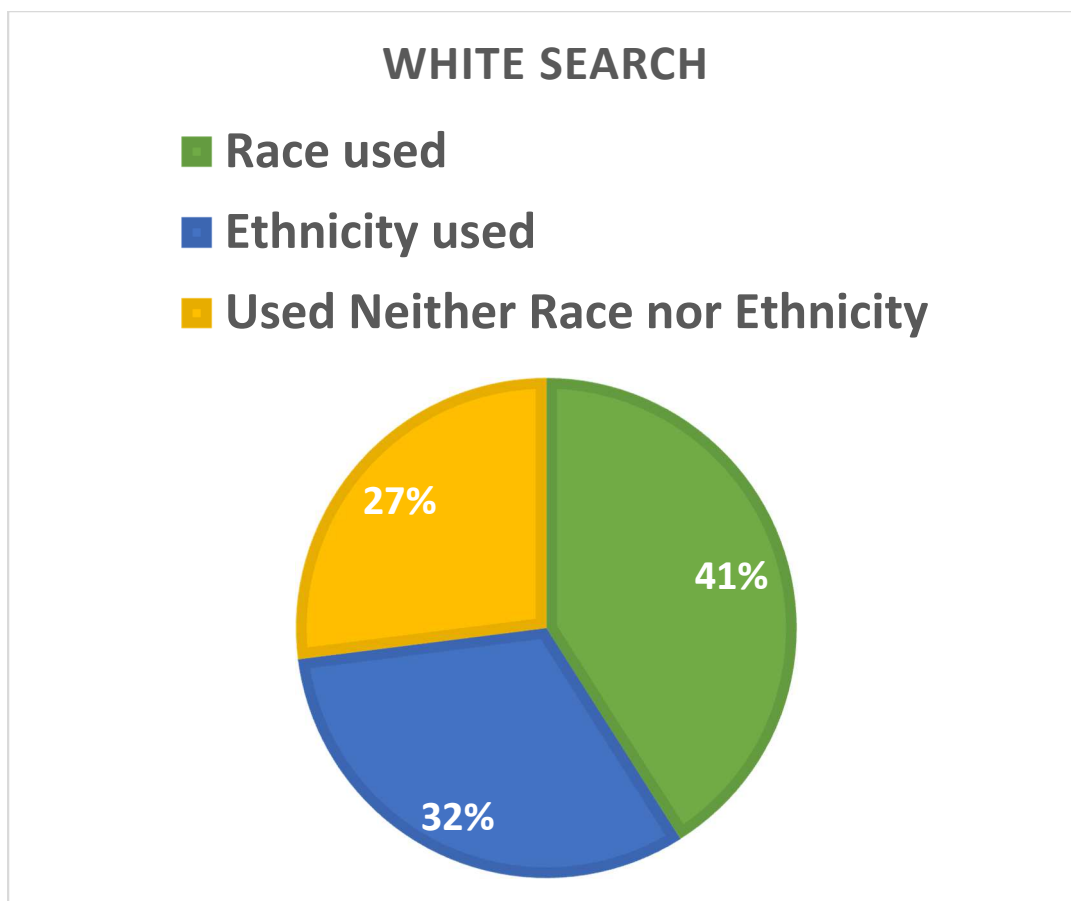


Figure 4: Classification of the terms of interest in the white search.

Variation across subfields of Biological Anthropology

In the articles that describe Hispanic populations, the term “Mexican-American” frequently appeared more so than any other term in the subfields of genetics, human biology, and osteology (Figure 5). The term “Hispanic” was the only one that appeared in the subfield of forensics. Osteology only used the terms “Mestizo/a” or “Mexican-American.” The proportion of each racial term used did not significantly vary across subfields (p -value is 0.09744) in the Hispanic search. There was also not an association between how the term was used and subfield (p -value is 0.2601) in the Hispanic search. In the articles that describe white populations, across all but three subfields, the term

“white” is used the most with “white” being the only term used in forensics articles (Figure 6). “European-American” is used more often than any other term in the subfield of genetics. The proportion of each racial term used did significantly vary across subfields (p-value is 0.007762) in the white search. There was also an association between how the term was used and subfield (p-value is 0.001075) in the white search.

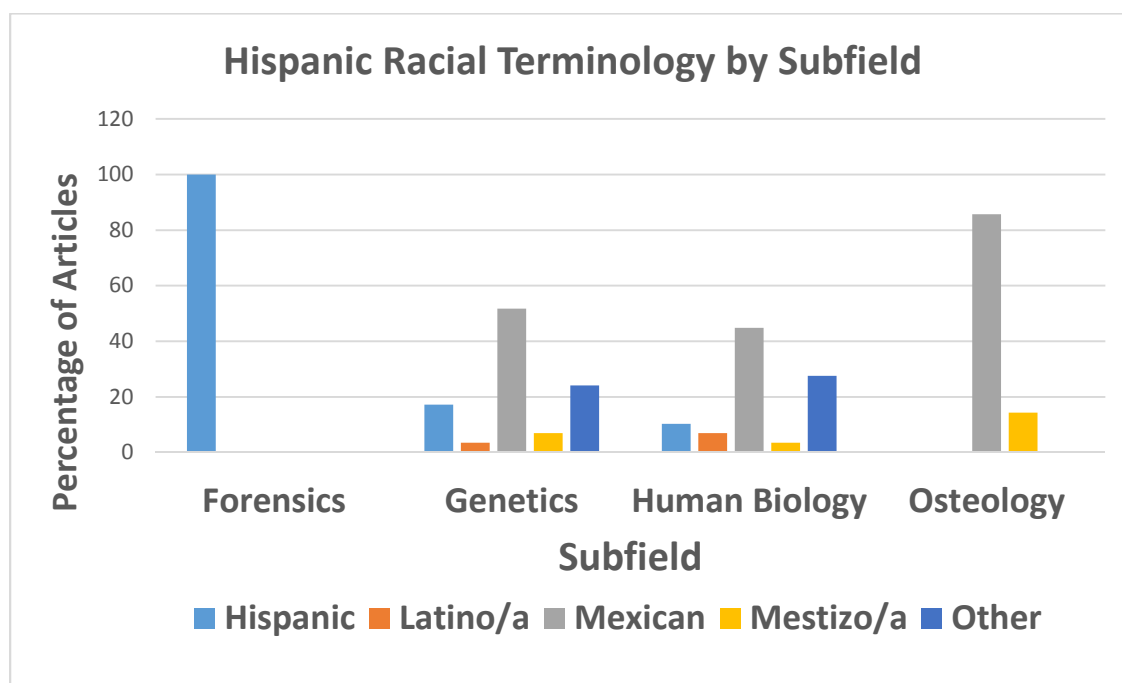


Figure 5: Hispanic racial terminology by biological anthropology subfield.

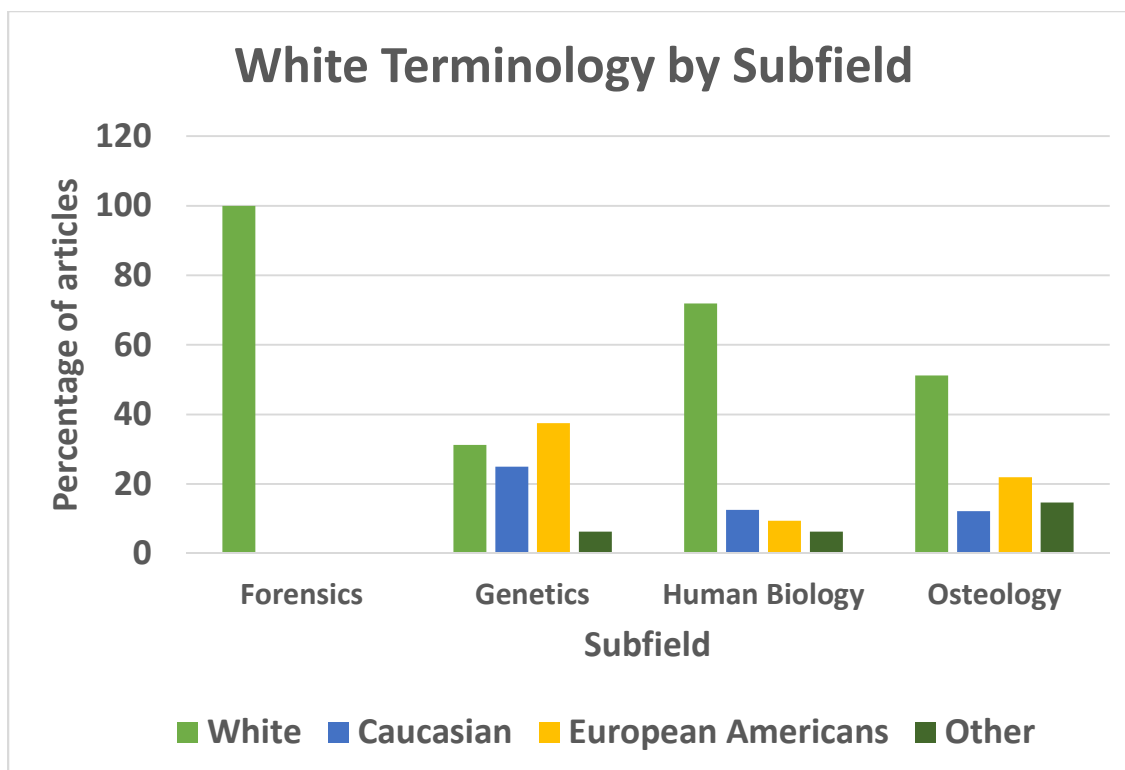


Figure 6: White racial terminology by biological anthropology subfield.

Genetic Ancestry Tested?

In the articles that describe “white” populations, 14 of the 100 study sample tested genetic ancestry, 86% of these articles being classified in the “Genetics” subfield (n=12). The other two articles were classified under “Osteology” and “Human Biology.” Of the articles that were classified in the “Genetics” subfield (n=16), only 12 articles (75%) tested for genetic ancestry. Eleven articles specifically mentioned how testing genetic ancestry would be beneficial but was never tested, and 75 articles did not test nor mention testing genetic ancestry. In the Hispanic search, 21 articles (28%) genetically tested ancestry, with 86% of articles being classified in the “Genetics” subfield. The remaining

articles were classified as Human Biology. Of the articles that were classified in the “Genetics” subfield (n=29), only 18 articles (62%) tested for genetic ancestry.

Self-Identification

In the Hispanic search prior to 1991, race was self-identified in 24% of the articles, while in the white search, race was self-identified in only 6% of the articles, and 11% were identified by both self and other. The year 1991 marks the first article in our dataset to use self-identified ethnicities. After 1991 in the Hispanic search, 40 percent of the ethnicity data were self-identified. The type of definition for each racial term (self vs other identified) also did not vary significantly across subfields. An inverse relationship was significant between self-identification and scientist-identification through time (p-value is less than 0.001); with self-identification gradually increasing and scientist-identification gradually decreasing as we move forward in time in both searches. In the white search, there was a significant trend of self-identification increasing over time (p-value is less than 0.001). In the Hispanic search, there was an association of self-identification over time (p-value < 0.001).

Discussion

The content analysis we present here allows for direct comparisons between the role that the concepts of race, ethnicity, and racism play in biological anthropology. The results point to differences and similarities between the uses of white and Hispanic terminology. Anthropologists are highly influential on common conceptualizations of race (Smedley, 1993), and our findings call attention to potential pitfalls that could hinder biological anthropologists' contribution to literature surrounding racial and ethnic inequalities in health.

Racial Terms of Interest

In the analysis of frequency of terms over time, we found that there was a transition to a greater diversity of terms being used as time went on. Specifically, there was a decrease in usage of the term “white” between 1980 through 2000, and a rise in the term European American since 2000, which could be explained in the increase of ancestry-related genetics studies that have become more population-based in biological anthropology. The increased use of European American probably most likely is due to making studies more uniform, so it is more comparable to African American and Mexican American, the populations most commonly studied in comparison to white populations among genetics studies. My review of the literature suggests that the term “white” was used more historically than other terms related to white (e.g., Anglo-Saxon, European American, Caucasian).

We found that the vast majority of studies using the term white in relation to another population, were comparing white to populations of “black/Negro/African American” individuals. This tendency to compare “black” and “white” as dichotomous racial categories could be to track inequalities over time, inequalities rooted in the history of slavery and justification for racial segregation and oppression in the United States. The U.S.’s founders placed a hierarchical racial classification into every aspect of society to allow for having white supremacy, to justify the enslavement of Africans, the violent removal of Native Americans from their land, the colonization of islands, Jim Crow subjugation, and the importation of cheap labor from China and Mexico. This is not only a historical problem but a perpetual one that needs to be addressed more directly.

The trend in the Hispanic search was to compare Hispanics to only one other racial group, and usually this was to a white or black population. In the Hispanic search, there is more variation in the comparison populations than in the white search, suggesting that researchers consider white and black populations homogeneous and those with Hispanic descent heterogeneous (Gonzalez Burchard et al. 2005). From a genetic perspective, those with a Hispanic ancestry are descended from indigenous American, European, and African populations.

How terms were used

In addition to a comparing to other populations, many of the studies (n=16) used the racial categories to segregate the data for analyses of differences between groups in the Hispanic search. The segregation of the data into racial categories was usually done *a priori* based on hypotheses of racial differences. Amongst those that segregated the data

into racial categories up front, 31 percent of the articles explained these differences as genetic with only 12.5 percent of the articles testing these genetic differences. The articles within this pattern occurred between years 1947 and 2011, the mode year being approximately in 1997. In the white library, 68 percent used the terms to racially compare group. The segregation of the data into racial categories was usually done *a priori* based on hypotheses of racial differences. Amongst those that segregated the data into racial categories up front, 15 percent of the articles explained these differences as genetic with only 5.9 percent of the articles testing these genetic differences. The articles within this pattern occurred between years 1946 and 2014, the mode year being approximately in 1980.

Race vs. Ethnicity

Although the relationships between the usage of race and ethnicity in both searches were non-significant, there still a trend between the two searches. There was a similar frequency of use of the terms race and ethnicity in white articles, which suggests lack of clear distinction between these terms, but ethnicity was highly favored for articles that discussed Hispanic populations. High frequency of articles about white populations without terms race or ethnicity in suggests white populations treated as the default, but very few Hispanic articles fail to define population as either a race or ethnicity. This is not surprising as the term “Hispanic” was first established in the U.S. Census, under either “race” or “ethnicity,” depending on the year of the census. Despite large fluctuations from year to year, the role of race and ethnicity appears to have grown over time. As compared to Gravlee and Sweet which found that one third (32.9%) of the

articles in medical anthropology journals used the concepts of race or ethnicity (2008), biological anthropology used the concepts of race or ethnicity in 78.6% of the articles in the Hispanic search and 62% in the white search. Constructions of “whiteness” have changed over time to accommodate the demands of social change. As the term “Hispanic” is considered an ethnicity rather than a racial category in the U.S. Census, the majority of Hispanic respondents in the 2010 census said that they were white with two and a half percent reporting that they were black and more than 35 percent choosing a category other than black or white with some choosing “Hispanic” or their national origin as their racial classification (U.S. Bureau, 2010). Per the U.S. census, to be white, one is “a person with origins in any of the original peoples of Europe, the Middle East, or North Africa,” which includes “people who indicate their race as ‘White’ or report entries such as Irish, German, Lebanese, Arab, Moroccan, or Caucasian” (2010). There is a preference for whiteness predating the recent influx of Hispanic migration into the U.S., and it is a preference that exists in their countries of origin. For example, in a survey by Darity et al., the vast majority of Hispanics coded as medium to very dark said that their race was white, and even among the dark and very dark respondents, less than five percent said that they are black (2005).

Variation across subfields of Biological Anthropology

The majority of the studies about white populations tended to be in the subfields of osteology and human biology, possibly due to their historical presence in forensics, and the majority of the studies about Hispanic populations tended to be in the subfields of human biology and genetics, possibly due to the status of the terminology focused

primarily on ancestry. In the subfield of forensics, the terms “Hispanic” and “white” were used one hundred percent of the time, potentially because they ultimately want to make a translatable assessment for the public, and these are the terms best understood by police and lay people. Forensic anthropologists answer practical questions of age, sex, and ethnic identity to construct the biological profile and to narrow down possible identifications with ethnic identity being the least reliable. Sauer (1992) recognized that there was theoretical tension between forensic and biological anthropology in his article, “If races don’t exist, why are forensic anthropologists so good at identifying them?” Although there is no biological basis for race, any information on what the victim might have looked like must be considered including markers of a certain ethnicity or geographic origin. By assigning an individual a group identity, forensic anthropologists are influencing the conceptualizations of race.

The term “white” was frequently used within sub-fields of biological anthropology which were concerned primarily with the categorization and comparison of individuals of different races (e.g. osteology, forensics, and human biology). The terms of interest did not vary across subfields in the Hispanic search, as well as with how the terms were used did; however, they did significantly vary across subfields in the white search. There was an unequal sample size in each search, so more articles are needed to better understand what is happening in the Hispanic search. There was also issues with having enough data suitable for statistical tests, so collapsing the terms of interest even farther may also help to better understand what is happening in the data.

Genetic Ancestry Tested

Several articles suggest that racial differences occur by genetic adaptive traits but did not produce genetic data to back these claims (only 14% in white search and 28% in Hispanic search tested for genetic ancestry). This most likely coincides with the fact that the terms in the Hispanic search were associated with ethnic classification rather than racial classification. Genetic ancestry was rarely tested (n=14) but was mentioned in terms of the racial classification in many (n=25) of the 100-article sample in the white search. With the fact that only 11 articles explicitly define the terms of interest in the white search, this is a rather large assumption of the social construction of whiteness. In the Hispanic search, 21 articles (28%) tested for genetic ancestry, with two articles mentioning genetic ancestry testing but not conducting it.

Self-Identification

In the white search, 83 articles (83%) that used racial or ethnic classification for the terms of interest did not use self-identified populations or did not specify if the data was self-identified or other identified. In the Hispanic search, 58 articles (76%) used racial or ethnic classification for the terms of interest did not use self-identified populations or did not specify if the data was self-identified or other identified. As the first study to use self-identification classifications in our sample was not until 1991, more research needs to be conducted in exactly how self-identification plays into racial terminology in biological anthropology. After 1991, in the white search there was a shift from being all other identified to being one third self identified. In the Hispanic search, there was a shift from zero percent self-identified, to 39% self-identified.

These results are somewhat unsurprising as historical race science often relied on the idea that scientists were uniquely qualified to identify race, thus scientist-identified race was more popular in older studies than in new ones. While this belief still prevails, self-identification of race has become more common in scientific research, biological anthropology not being an exception.

Recommendations

Biological anthropologists and other scientists can engage with concepts of race and ethnicity in a consistent way that promotes greater equality and avoids promoting racial bias. They can do this by always defining the terms race and ethnicity when used, defining the terms used to refer to a racial and/or ethnic group and justify their terminology, and where possible, use terms that refer to geographic ancestry. As Wagner et al. suggested, “Anthropologists must mitigate racial biases in society wherever they might be lurking and quash any sociopolitical attempts to normalize/promote racist rhetoric, sentiment, and behavior” (2016). A more specific, geographically accurate terminology to refer to “whiteness” in studies must employ terminology with ancestry. Dropping terms such as “Caucasian,” which are based in race science and are inadequately defined, can immensely improve the way the field engages in concepts of race and ethnicity and can set a good example for other scientific fields. It is important to ensure that comparisons across racial/ethnic groups are well justified (e.g. for assessing socioeconomic and health disparities between groups, and only after testing for other important variables among the full dataset first). Further, “white” populations should not

always be used as a “default” or “normal” population against which to compare other groups. Finally, terminology associated with race should be explicitly defined.

Future studies could seek to understand how other terms referring to “whiteness” (e.g. “Anglo”) have been used within biological anthropology, and to understand how these terms have been defined in conjunction with racial terminology referring to “non-white” individuals, particularly within the context of comparative analyses. The diachronic analysis of changes in terminology should be extended further into the past to clearly determine how racial terminology has emerged and changed throughout the history of the discipline as the oldest article found online dated to 1946. A deeper investigation is needed of how racial terminology has changed significantly during the 1960s or the late 1980s to early 1990s as a result of the Civil Rights Movement or the United States trade agreements under President Clinton, respectively. Also, as more articles are produced, a more intensive look into how racial terminology is being transformed under our current political climate might be especially insightful. I would also like to expand upon this research to other search terms that frequently are used to describe groups of people in the United States, such as the top largest Hispanic Origin Groups: “Cuban,” “Salvadoran,” “Dominican,” “Guatemalan,” “Colombian,” “Honduran,” “Ecuadorian,” and “Peruvian” (Motel and Patten, 2012).

Limitations

Even though my analysis only examines the use of these terms in the history of the *AJPA*, it would be interesting to examine other biological anthropology journals in the future. I acknowledge five important limitations of my study. First, I can only make

generalizations about the research reports in *American Journal of Physical Anthropology*. In keeping consistent in other similar studies, I have excluded review articles, commentaries, and theoretical pieces that do not present new findings, which allows for no duplicate article topics, but some relevant commentaries are omitted from my sample. Second, although the articles I selected are important and span much of the length of the journal's history, they do not represent the full reach of the sub-discipline of physical anthropology. Physical anthropologists who study racial inequalities may be placing their work in other journals, especially interdisciplinary journals. Additionally, for the sake of feasibility, our sample of articles that contained racial terms related to 'white' populations were reduced to 100 out of the 515 that contained our search terms, so we may have missed some relevant articles that might have altered some of the trends we noted. Third, as so many terms were rarely present in the title/abstract but did appear in the body of the article, we could have missed a lot of articles in our search. I recorded the other terms that were used throughout the body of the articles, but I did not analyze how the other terms were used. Finally, because only a subset of the articles was coded by two independent researchers, there inter-coder reliability may be higher than it could have been if the full dataset had been reviewed by both researchers.

Conclusion

Although most biological anthropologists do not believe there is a biological basis to race, and many in the field hope to distance themselves from its historical association with race science, the use of racially charged terminology continues. Terms such as “white,” “Caucasian,” and “European American” have typically been undefined, and have been used as racially default categories to compare against racialized “others.” The term “Caucasian” has remained in the literature possibly due to its presumed status as a pseudoscientific designation for “white” people. In modern usage, the term “Caucasian” is no longer linked to ideas of “white” superiority; however, the combination of its history and its lack of true geographic or ethnic specificity make the term inappropriate to employ in the context of scientific studies. In a similar sense, the term “white” is a non-specific and frequently used term in analyses associated with questions of “black versus white.” The rise in the use of the term “European American” in recent years suggests that this change may already be taking place within biological anthropology. Despite its continued representation in biological anthropology, the use of the word Caucasian has not gone uncontested. Carol Mukhopadhyay (2008) proposes that the term Caucasian is not based only in race science and eugenics, but that unlike other racial categories such as “African -American” or “Asian-American,” it is a term that implies some natural division and biological reality rather than a geographic location, language, or cultural affiliation. She also argues that the term Caucasian lacks geographic specificity as it is commonly used to refer to “white people” from all areas of the world. Thus the term carries with it an implication that Caucasians are just “regular Americans”

and conceals their foreign origins. In contrast, hyphenated designations such as African-American and Asian-American subtly situate individuals from these categories as immigrants who may not be considered “fully American” (Mukhopadhyay, 2008). Shaila Dewan (2013) proposed that the term Caucasian remains popular in scientific literature because it holds a “pseudoscientific sheen that preserves its appeal.” In other words, despite its lack of accuracy or precision, the term “Caucasian” remains popular simply because it sounds more scientific than other available terminology.

Examining how the use of terms related to ethnic groups have transformed over time is essential as many of the trends tracked changes in the Census data. Beginning in 1790, and every ten years after, the United States census has sorted the American population into distinct racial groups. Today the census labels the “five races of mankind” to be: white, black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or other Pacific Islander. Historically, the unscientific census categories have not fit with the rapidly changing composition of the population of the U.S. This mismatch prevents us from being able to understand the actual population dynamics taking place in the U.S. The inappropriate choices faced by many individuals, especially immigrants and the children of multiethnic families, when trying to fill out the census questionnaire does not allow for a complete picture of the diversity in the United States. A possible improvement might be to include parental place of birth and/or create a separate nationality question. There has been a political push since the Clinton Administration to both add racial categories (e.g., Middle East and North Africa) as well as eliminate the second question in the census that allows the 56 million Americans who classify themselves as “Hispanic” ethnically to choose their race (Mateos et al. 2009).

Both options would potentially normalize the data against a white majority. In 2010, more than half of those that identified as Hispanic also identified as white, and by eliminating the second question would effectively make “Hispanic” their sole racial identifier.

There is a desperate lack in defining racial terms, which suggests that these terms are considered so commonplace that a definition is not believed to be necessary. This is when miscommunication occurs. It is the responsibility of the scientists to convey their ideas for the public to understand not for only other scientists to understand. It is far too common for scientific articles to be brimming with jargon specific to that field. It isolates ideas and discoveries as well as scientists. Marks said that there is a “greater measure of responsibility on the part of the scientific community toward the public, the responsibility to differentiate among the various invocations of Darwinism so that the public knows what it is accepting or rejecting” (2015).

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