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How have researchers studied multiracial populations: A content and methodological review of 20 years of research

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Abstract

The U. S. Census shows that the racial-ethnic make-up of over 9 million people (2.9% of the total population) who self-identified as multiracial is extremely diverse. Each multiracial subgroup has unique social and political histories that may lead to distinct societal perceptions, economic situations, and health outcomes. Despite the increasing academic and media interest in multiracial individuals, there are methodological and definitional challenges in studying the population resulting in conflicting representations in the literature. This content and methods review of articles on multiracial populations provides a comprehensive understanding of which multiracial populations have been included in research and how they have been studied both to recognize the emerging research and to identify gaps for guiding future research on this complex but increasingly visible population. We examine 125 U.S.-based peer-reviewed journal articles published over the past 20 years (1990–2009) containing 133 separate studies focused on multiracial individuals from primarily the fields of psychology, sociology, social work, education, and public health. Findings include (a) descriptive data regarding the sampling strategies, methodologies, and demographic characteristics of studies, including which multiracial subgroups are most studied, gender, age range, region of country, socioeconomic status; (b) major thematic trends in research topics concerning multiracial populations; (c) implications and recommendations for future studies.

Keywords

multiracial; racial-ethnic identification; content analysis; racial-ethnic context; study design

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According to the 2010 U.S. Census, over 9 million people (2.9% of the total population) identify with more than one race, having grown 32% since 2000 and expected to increase 180% by 2050 (Bernstein & Edwards, 2008). Despite this exponential population growth and increased academic and media interest in multiracial individuals, many methodological challenges remain for researchers to include multiracial individuals in their studies, particularly in how to define and study this population. The multiracial population is still only a small proportion of the general population and unevenly dispersed geographically, which makes sampling and recruitment difficult (Root, 1992) and expensive. The racial-ethnic¹ make-up of this population is also extremely diverse with multiracial individuals claiming membership in numerous combinations of racial-ethnic groups, each with unique social and political histories that may lead to distinct perceptions, economic situations, and health outcomes. The resulting decisions in data collection and analyses (e.g., not allowing participants to report a multiracial identity, not reporting data from multiracial participants, or combining data from all mixed subgroups together into a single “multiracial” category) have led to conflicting representations in the literature.

Given these inconsistencies, the goal of this review is to provide a comprehensive understanding of which multiracial populations have been included in research studies, methods employed in sampling, and research designs used in an effort to identify gaps in the literature and guide future research with this complex and increasingly visible population. This content and methods review is not intended to summarize the results of research on multiracial populations; rather, modeled after Edwards and Pedrotti’s (2008) review of articles about multiracial issues in counseling journals, it provides an overview of *what* has been studied among multiracial populations related to their well-being and *how* these studies were conducted.

Moving Target: Social Milieu and Racial-ethnic Identification

Racial categories have changed over the course of census-taking in the U.S. with implications for defining and counting racial mixtures (Hochschild & Powell, 2008). For example, in the 1850 Census, mulattos were enumerated as a separate category; in the 1890 Census enumerators were instructed to make distinctions among mulattos based on fraction of “black blood” (U.S. Bureau of the Census, 2002). By the time of the 1930 Census, Hochschild and Powell (2008) note that references to categories such as “mulatto” had disappeared. Recent growth of the population claiming two or more racial-ethnic backgrounds is partly due to increases in interracial unions and partly to the concomitant acceptance of a multiracial identification (Qian & Lichter, 2007). Both of these forces influenced the movement to change the way race was enumerated in the 2000 U.S. Census, when increasing comfort and political clout within multiracial populations led to a change in the Census questions (see Perlman & Waters, 2002). This growing clout is evident in Root’s (1996) “Bill of Rights” for racially/ethnically mixed people, which articulates the foundation

¹Although some researchers prefer to conceptualize race as distinct from ethnicity because of historical and contemporary racial hegemony related to privilege and power (e.g., Markus, 2008), both terms are acknowledged to be socially constructed (Helms, 2007; Markus, 2008; Omi & Winant, 1986). As described further in a previous article (Charmaraman & Grossman, 2010), we follow W. E. Cross and Cross’s (2007) recommendation to combine race and ethnicity not to assert that these constructs are conflated but that researchers cannot artificially isolate each from one another, particularly when referring to identity and identification.

for a multiracial movement that demanded the right to choose one's race-ethnicity and not be defined by others based on appearance or a predefined racial categorization system. For the first time, multiracial individuals were allowed to check more than one racial identification box on their Census form. Since this significant shift in identity politics, increasing numbers of individuals born to interracial unions are more likely to claim a mixed racial-ethnic heritage in the social atmosphere of increased acceptance. Data collected before the growing acceptance of multiracial people may represent an undercount of this population and may not reflect the racial-ethnic identification of contemporary multiracial cohorts across the U.S. This is evident in the recently released 2010 Census where the multiracial population has both decreased by 0.7% in New York and increased by 100.1% in South Carolina (Project Race, Inc., 2011).

In addition to shifting societal perceptions and acceptance of multiracial individuals, there are challenges in defining "multiracial" that make comparisons across research studies difficult. One challenge can be seen in the U.S. Census Bureau having to modify its original count of the population claiming two or more races: Even with specific instructions to report only *race* mixtures on the 2000 form, many people who checked off "some other race" were referring to Hispanic/Latino *ethnicity* (Farley, 2002). Whether Hispanic/Latino ethnicity should be included in enumerating race mixture (Brown, Hitlin, & Elder, 2007; Hitlin, Brown, & Elder, 2007) is but one of the challenges in defining who is multiracial. Moreover, self-claims do not necessarily coincide with others' designations of individuals' racial-ethnic identification (Herman, 2010) and in the same individual identification can differ across situations as noted by Harris and Sim (2002). Harris and Sim compared self-reports of race obtained in the in-school survey of the Longitudinal Study of Adolescent Health (Add Health) with interview responses from a subset of survey takers conducted in their homes several months later. They attribute the differences in adolescents' answers to the racial identification question given in school (higher numbers of multicultural answers) and at home (more single-race answers) to home environments reinforcing more traditional views of monoracial identity while school environments being conducive to "contemporary ideals of multiraciality" (p. 617). These findings illustrate the definitional challenges facing researchers in how to classify multiracial youth, including whether to rely on adolescents' own or on their parents' reports of the adolescents' heritage combinations, deducing adolescents' racial-ethnic identification from that of their birth parents, or using a combination of two or more methods. The adolescent fluidity of self-identification documented by Harris and Sim (2002) can be reflected among both adolescents and adults in the difference between racial identity (a private identity) and racial identification (a public categorization). One may have a private identity as a biracial or multiracial person but choose to identify publicly as a single-race minority due to political considerations and/or loyalty to a minority heritage.

A recent review by Woo and colleagues (2011) positions multiracial identity as a multidimensional construct consisting of (a) genealogic history, (b) self-reported racial-ethnic identification, and (c) outside perceptions of racial-ethnic identity from third party observers. The authors point out that these dimensions continue to be used interchangeably in research despite their distinctive contributions to defining who is multiracial. The lack of

consensus of definition has yielded inconsistent research findings regarding the social and psychological adjustment of multiracial groups, a topic that has had a long history in the study of multiracial individuals, dating back to the marginal man² hypothesis, the belief that multiracial individuals will experience social and psychological stress because of their marginal status between two racial groups (Park 1928, 1931; Stonequist, 1935). Shih and Sanchez' (2005) review of studies, some of which included Hispanic combinations in the definitions of mixed racial-ethnic heritage, have led them to conclude that multiracial individuals are as well-adjusted as their monoracial peers. Udry, Li, and Hendrickson-Smith's (2003) analysis of Add Health data where the definition of multiracial status excludes Hispanic ethnicity showed adolescents who checked more than one race to have more adjustment problems than adolescents who checked a single race. Tracy and Erkut's (2010) reanalysis of the Add Health data where Hispanic subgroups were included in the definition of mixed racial-ethnic heritage showed that not all but particular combinations have heightened social adjustment problems.

Current Study

We provide a review of U.S.-based peer-reviewed journal articles from interdisciplinary fields in the social sciences and public health spanning 20 years (1990–2009), focusing on multiracial youth and adults. The specific aims are to (a) determine which multiracial subpopulations are represented by the current body of literature, including descriptions of their racial-ethnic subgroups, age range, gender, geography; (b) describe recruitment methods and research designs used to study multiracial populations; and (c) locate which content areas are most and least studied. This review will help elucidate what is missing from the literature on multiracial populations to inform research and practice. We use the term “multiracial” to encompass the mixing of heritages from five pan-ethnic groups: four “races” (Black/African American, Asian, White, and Native American) plus Latino “ethnicity.” This is consistent with scholars of race who include Hispanic ethnicity alongside the more traditional racial categories to conceptualize the contemporary U.S. populations (Hitlin, Brown, & Elder, 2007; Itzigsohn & Dore-Cabral, 2000; Okamoto, 2006; Omi & Winant, 1986; Waters, 1990; Williams, 2005). We apply this umbrella term regardless of terminology used in specific papers included in this review (i.e., multiracial, mixed race) in order to remain consistent in our language.

Method

Inclusion Criteria

We included only empirical peer-reviewed journal articles published from January 1990 until December 2009, excluding books, chapters, dissertations, conference papers, and reports. A computer-based literature search of PsycINFO, Web of Science, Academic Search Complete, PubMed, and google.com was conducted in 2009 and updated in 2011 to be sure to capture all articles published by the end of 2009. We focused the search within social and health sciences, including the fields of psychology, sociology, public health,

²We assume that the term “man” is consistent with more sexist language used in a different era, thus assert that the authors intended this hypothesis to apply to both men and women.

education, and social work. Key search terms included *multiracial*, *multiethnic*, *biracial*, *biethnic*, *mixed race*, *mixed heritage*, *mixed parentage*, *interracial marriage*, including variations and alternative spellings of these key words (e.g., mixed-race). We also examined reference lists for major review articles to identify additional articles for inclusion, excluding studies that were conducted outside of the United States³. We did not limit the search to a specific age group. We included all racial combinations, including minority/White (i.e., Black/White, Asian/White, Latino/White, Native American/White) and minority/minority (e.g., Asian/Black, Native American/Latino, etc.).⁴

To be included in the database, the focus of each study was required to meet the following criteria: (a) one of the key search terms listed above is in the title or abstract of the article; (b) the primary participant population is multiracial (e.g., studies focusing on community perceptions of mixed-race people or parents of mixed-race children were excluded); (c) research questions probe experiences, identification, identity processes, educational, or psychosocial/health outcomes of persons of mixed-racial-ethnic background. We found 125 published peer-reviewed articles containing 133 separate studies that met the inclusion criteria for the content analysis. They ranged from single clinical case studies to large-scale nationally representative surveys. We obtained these articles from 73 different journals from a variety of fields, 35% of which from the following top eight journals (in descending order): *Cultural Diversity & Ethnic Minority Psychology*, *Women & Therapy*, *Journal of Social Issues*, *Social Forces*, *Social Science Research*, *American Journal of Orthopsychiatry*, *Ethnic and Racial Studies*, and *Journal of Adolescent Health*.⁵

Procedure

The classification system was developed inductively after a review of the articles' content, which was modeled after previously published content reviews (e.g., Edwards & Teramoto Pedrotti, 2008; Phillips, Ingram, Smith, & Mindes, 2003; Worthington, Soth-McNett, & Moreno, 2007). Articles were independently reviewed by at least two judges to ensure consistency in coding and development of a common codebook database. Discrepancies between judges were resolved through discussion and consensus. Seven content categories emerged.

1. *Types of datasets and study design*. Studies were coded as to whether they were derived from a nationally representative dataset [e.g., the National Longitudinal Study of Adolescent Health (Add Health), National Education Longitudinal Study (NELS:88)], and as quantitative (e.g., survey, cognitive tasks), qualitative (e.g.,

³Since the social and political histories of multiracial individuals in this country may be somewhat unique compared to the experiences of those in other countries, we limited our search to U.S.-based studies.

⁴We did not include multiethnic combinations within the same racial category (i.e., Irish/Italian, Chinese/Vietnamese) because these groups experience biculturalism/multiculturalism in unique ways compared to biracial/multiracial individuals, including racial exclusion (Waters, 1990).

⁵The journals mentioned above that make up the top 35% have published from three to eight articles about multiracial populations through 2009. It should be noted that two of the top eight journals had special issues devoted to the topic of multiracial research (*Women & Therapy* and *Journal of Social Issues*). The following journals have published two articles during the 20 year span of this review: *American Journal of Public Health*, *American Sociological Review*, *Child Development*, *Cultural Diversity and Mental Health*, *Ethnicity & Disease*, *Identity: An International Journal of Theory and Research*, *Journal of Counseling Psychology*, *Journal of Marriage and the Family*, *Journal of Multicultural Counseling and Development*, *Journal of Youth & Adolescence*, *Public Health Reports*, *Social Psychology Quarterly*, *Social Science Quarterly*, *Sociological Perspectives*, *Symbolic Interaction*, *The Sociological Quarterly*.

interviews, observations, case studies), or utilizing mixed methods. In addition, we noted whether the study was cross-sectional or longitudinal.

2. *Measurement of racial-ethnic identification.* We recorded how each study assessed multiracial identification, the content of the survey question eliciting the identification, and whether Hispanic/Latino heritage was treated as a component of multiracial designation.
3. *Multiracial combinations studied.* Studies were coded on whether the specific multiracial combination, for example Black/White, was reported. If so, the actual sample size was recorded into the following multiracial categories: Black/White, Asian/White, Latino/White, Native/White, Minority/Minority, 3 or more races, unknown combinations. If the study included a comparison group of single race groups, its sample size was also recorded.
4. *Geographic location.* Each study was coded for where participants were sampled from within seven categories: Midwest, South, East, West, more than one region, nationwide, and unspecified. Subcodes were given for state and city data when available.
5. *Recruitment/sampling methods.* Studies' description of sampling methods used to recruit participants was coded into representative sample or convenience sample. The latter was further categorized into one of the following subcategories: (a) targeted (e.g., recruiting directly from multiracial organizations) or (b) non-targeted (e.g., casting a wide net in hopes of recruiting any multiracial individuals using various snowballing strategies).
6. *Demographics.* Age range, gender, and socioeconomic indicators such as education and income level of the samples were coded.
7. *Constructs and themes.* Each measure, construct, or qualitative theme was coded and categorized into broad groupings and sub-themes.

Results and Discussion

Types of datasets and study designs

Out of 133 studies, 71% used original data collection, and the remaining were based on secondary analysis of national datasets, polls, and archival sources. Prominent among studies that used secondary analysis were 16 based on Add Health; 11 on U.S. Census data; and five on public birth records. With only 7% being longitudinal in nature, the vast majority of studies were cross-sectional.

More than two-thirds of the studies were quantitative (69%); qualitative studies (e.g., interviews, focus groups, ethnographies, case studies) accounted for 24%, and mixed-method studies rounded out the rest at 7%. Figure 1 shows that the number of all types of studies increased in the last decade, from a total of 26 between 1990 and 1999 to 97 between 2000 and 2009. While mixed-method studies on multiracial populations continue to be rare, there was a time trend in the proportion of qualitative and quantitative studies in each decade. As demonstrated in Figure 1, the vast majority of the quantitative studies (84%)

were published since 2000, likely due to the availability of and reliance on the Add Health dataset, with only 16% published in the previous decade. Whereas in the 1990s, qualitative studies were published almost as often as quantitative studies, they have steadily decreased in proportion after 2000. This trend may be indicative of the growing numbers of multiracial research participants in the U. S. population that make it increasingly possible to reliably study this segment of the population quantitatively. At the same time, hypothesis generating qualitative studies will continue to be necessary to understand the shifting cultural milieu for diverse subgroups since multiracial classification continues to be a moving target for researchers depending on the political, social, and geographic climate. As Root (1992) notes, using mixed designs of qualitative and quantitative measures and methods will increase researchers' confidence in their findings, particularly when research questions are of an exploratory nature.

Measuring racial and ethnic combinations

We found that 65% of the studies included in this review used a single measure or method to obtain racial-ethnic identification, 22% used multiple measures or methods, and 13% did not explicitly specify how race or ethnicity was systematically obtained (e.g., therapy case studies, interviews, and vague descriptions of “demographic measures” on a questionnaire). Out of the studies that used a single measure or method, the most frequently used was self-reported race by respondent (40% out of 133 studies), followed by parental race as reported by parent or child (23%), and finally race as reported by a researcher or observer (2%).

In addition to variation in the sources of identifying information, the reviewed studies also differed in the *format* of questions used to assess racial-ethnic identification. For example, of the 133 reviewed studies, 28% used a “check all that apply” option (which surfaced only in the studies in our review which were published in 2000 or later), where respondents were given a set list of racial-ethnic categories and were allowed to check all of the categories they identified with. This is mainly driven by the fact that almost half of these studies (47%) were from Add Health or Census data. Twelve percent of the studies identified race-ethnicity through qualitative interviews. Several survey studies offered a direct option to check for being biracial, multiracial, or mixed (8%). A few studies (7%) allowed respondents to indicate their racial-ethnic identification using open-ended responses using whatever categories they felt best identified them. In a few cases, researchers asked participants to select one racial group they most identified with (5%). Another 11% of the studies utilized more comprehensive racial-ethnic identification measures that were designed specifically for assessing multiracial identity. These measures included the Biracial Self-Identification Measure (Rockquemore & Brunσμα, 2002) and the Ethnic Identity Measure (Phinney, 1992) which were not only designed to assess the racial-ethnic groups multiracial respondents identify with, but also the level of closeness the participants feel to each of their component racial-ethnic groups. The rest of the reviewed articles did not specify their method or measure of racial-ethnic identification. In addition, 20% of studies included Latino heritage as a factor of multiracial identification while 15% excluded Latino heritage from the definition of multiracial.

Although these race-ethnicity measures may not appear to be dramatically different, when dealing with multiracial populations, small differences in racial-ethnic measures can result in widely different samples of the multiracial population. For example, studies have demonstrated substantial differences when data are collected by self-report compared to report of parents' race (see Parker & Madans, 2002; Phinney & Alipuria, 1996). In their study Phinney and Alipuria found that of all the respondents who reported that their parents were of different races, only 34% actually self-identified as being multiracial, demonstrating that having knowledge of one's own mixed ancestry does not guarantee that multiracial individuals will self-identify with multiple racial groups (Binning, Unzueta, Huo, & Molina, 2009). In order to establish the best indicators to identifying mixed race participants on research surveys, Tracy and colleagues (2010) used a latent variable approach to capture the different dimensions of the mixed ancestry experience, concluding that allowing for multiple ways of identifying oneself (e.g., direct question about mixed heritage, check all that apply, cultural practices, etc.) yielded the highest potential numbers of mixed race participants. However, if a survey permits only one format, they recommended using the Census "check all that apply" method and not exclusively using a fill-in/open-ended question, which produces a higher proportion of unusable responses and is also difficult to code. All in all, self-reported multiracial data from the Census and self-reports in national health surveys may actually provide an underestimate of the multiracial population, depending on how it is assessed.

Multiracial subgroups studied

The majority of studies reviewed (75%) delineated the specific multiracial subgroups of the participants. A few studies (5%) only partially described the multiracial subgroups, using terminology such as "mixed with Latino heritage" or "Black/Non-Black." The rest (20%) described their sample as an unspecified "multiracial" group without breaking the categories down into specific subgroups. As shown in Table 1, the most frequently investigated group was Black/White, included in 55% of the studies reviewed. The next most common multiracial subgroups studied were Asian/White (in 39% of the studies), followed by minority/minority (e.g., Black/Asian, Black/Native, Asian/Latino; 30%), Latino/White (25%), Native/White (20%), and three or more races (13%). Almost half (48%) of all studies in this review compared their multiracial participants to monoracial "controls."

According to the 2010 Census, Black/White subgroups are the most common combination in the multiracial population (20% of all subgroups) followed by Asian/White (18%) and Native/White (16%). Regardless of its relative size and diversity, to date, multiracial research has primarily focused on the Black/White population. This interest is most likely due to the strained and often fractious race relations that have existed between Blacks and Whites throughout United States history. However, as the multiracial population has grown and changed, more research is needed to focus on other multiracial combinations (e.g., Native/Black, three or more backgrounds, etc.) in an effort to understand subgroup differences within this diverse population. In particular, although the Native/White multiracial subgroup is among the most common combinations, it is also one of the least commonly studied compared to other subgroups. This is perhaps not surprising given that single race Native American populations are often overlooked in research despite

experiencing vast disparities in health and economic opportunities, perhaps due in part to their relatively small numbers. In the 2010 Census 0.9% of the U.S. population identified as American Indian Alaska Native alone (Norris, Vines & Hoeffel, 2012). However, since single race Native American populations report among the highest rates of intermarriage (Waters, 2000), it is important to include this population in future multiracial research.

Geographic location

The most widely researched region was the West coast (31%), followed by Midwest (15%), East (14%), and South (5%). There were about as many nationwide studies (29%) as there were studies originating on the West Coast. Nine percent of studies did not indicate the locations they were studying. With 25 studies, California was the most frequent venue for studies in our review. Only 10% of studies sampled from more than one state.

Challenges to studying multiracial individuals arise in part from the multiracial population being unevenly distributed across the 50 states (Jones & Smith, 2001). For instance, Hawaii has the largest *percentage* of multiracial individuals (24.1%) and California has the largest *numbers* of multiracial individuals living within the state (over 1.5 million), while Mississippi, West Virginia, Maine, Alabama, and South Carolina have less than 1 percent of their population claiming more than one race (Social Science Data Analysis Network, 2000). According to our review, the top two states from which multiracial studies have been sampled are California and Hawaii, reflecting the high racial-ethnic composition levels from each of those states, yet perhaps geographically over-representing the multiracial findings in the field. Studies among single racial-ethnic groups have shown that living in an area with a higher density of same racial-ethnic peers can be advantageous by buffering the adverse effects of negative exposures such as discrimination (Hunt, Wise, Jigguet, Cozier & Rosenberg, 2007). Comparative studies among multiracial groups living in states or areas with a lower and higher density of multiracial peers could also provide important insight into these pathways and determine whether outcomes, demographics, or perceptions vary by geographic area. Studies that compare social adjustment outcomes between regions of the country (or within states) that are high and low in exposure to cultural diversity are relatively rare (exceptions include Herman, 2004; Jaret & Reitzes, 1999; Rockquemore & Arend, 2002).

Recruitment/sampling methods

More than half of all studies (57%) made use of “casting a wide net” for recruitment in order to identify multiracial individuals, e.g., through recruiting the whole student body of a school or every student taking Introduction to Psychology. These large samples have enabled researchers to carry out studies in which multiracial individuals are compared to single-race individuals, making up 42% of the studies reviewed. Casting a wide net also made it possible for researchers to focus only on multiracial populations by screening out single-race individuals. We found that 15% of the reviewed studies had recruited large samples to be able to screen-in only multiracial individuals.

Researchers who wanted to study only multiracial individuals also made use of convenience sampling methods such as snowball sampling, advertising on websites that cater to

multiracial populations, presentations at community organizations, and referrals. Convenience sampling methods, which also included case studies, accounted for 30% of the studies reviewed. A smaller percentage of studies (10%) recruited multiracial individuals by targeting minority populations. For example, researchers contacted all students at several colleges who registered as Black, Other, or left race blank to screen in Black/White subgroups (e.g., Brunsmas & Rockquemore, 2002; Rockquemore & Arend, 2002). A small number of studies (3%) did not specify how they recruited their sample or used an ethnographic method that did not specify recruitment.

Gender

Besides mentioning that the study included both men and women, forty-one percent of the studies did not report gender breakdowns, either in actual numbers or as percentages of the total sample. As shown in Table 1, among the studies that did report on gender, females made up 65% of all the study participants. Out of the 14 studies that focused exclusively on one gender in their recruitment and analyses, 13 were all female, indicating that studies of exclusively multiracial males are rare. The majority of the studies that did not delineate the gender breakdowns of their samples were those based on U.S. Census data or National Centers for Health Statistics linked live birth-death infant records (e.g., Collins & David, 1993; Getahun, Ananth, Selvam, & Demissie, 2005; Polednak & King, 1998; Saenz, Hwang, Aguirre, & Anderson, 1995). Some were based on national datasets such as Add Health (e.g., Quillian & Redd, 2009; Udry, Li, & Hendrickson-Smith, 2003). Gender data are, however, publicly available within the datasets or public data records for these large-scale studies. A few were qualitative case studies in which the contextual lens of a setting was the focus of the analysis for multiracial individual well-being (e.g., Pollock, 2004).

Age

Between 1990 and 2009, studies examining multiracial populations have spanned the life-course from in utero to old age. However, high school-aged adolescents (aged 14–18, 32%) and young adults/college-aged adults (approximately aged 18–25, 38%) were the most commonly examined age subgroups. In total, 70% of the examined studies incorporated one of these two age groups. Studies of multiracial respondents in middle school (ages 10–13) were the next most commonly examined subgroup (24%), followed by adults between the ages of 25–49 (18%) and aged 50+ (6%). Fewer studies concentrated on younger children, with 11% of the reviewed studies focusing on the ages of 0–4 and 5% on ages 5–9. Finally, some of the examined studies did not specify the exact age group of the study respondents, beyond mentioning whether or not the sample included children (4%, children's age unspecified) or adults (18%, age unspecified).

The emphasis on 13 to 25 year-old age groups can be attributed to the relative ease of data collection in high schools and colleges. Given that adolescence and young adulthood are periods of change in the realm of identity development (see Erikson, 1968 and Marcia, 1966), in ethnic identity development (see Phinney, 1992; Phinney & Ong, 2007), and in racial identity development (see Worrell, Vandiver, Cross, & Fhagen-Smith, 2004; Scottham, Sellers, & Nguyễn, 2008; Sellers, Smith, Shelton, Rowley, & Chavous, 1998), the

focus on 13–25 year-olds can be interpreted in part by researchers' interest in studying multiracial identity development over pivotal transitional years.

Socioeconomic status

When SES was measured, the most frequently used methods were participant educational level (21%) or household income (20%). The remainder of studies measured SES through parental educational level (12%), employment status (5%), or other methods (2%) such as number of household rooms, percent living in public housing, or the Watt's (1976) adaptation of the Hollingshead and Redlich (1958) Index of Social Position. Forty percent of the studies did not specify the socioeconomic status of its participants. This is a significant omission considering the recent scholarship that has associated the "choice" of a multiracial identification with such middleclass values as autonomy, independence, uniqueness, and differentiation (Fhagen-Smith, 2010; Korgen, 2010; Stephens, Markus, & Townsend, 2007).

Constructs and themes⁶

When coding each study for topics researchers focused on, we generated categories and subcategories that reflected the range of qualitative constructs and quantitative measures across all studies (see Table 2). Our primary goal here is to elucidate the broad range and scope of the constructs researchers have focused on in the multiracial population, in hopes of setting the stage for a potential systematic meta-analytic review. The percentages calculated refer to the proportion of the studies that examined a particular theme in their findings. Although each study typically involved many different constructs and themes and thus was given multiple codes making percentages add up to more than 100, a study with multiple subcategories was reported once under the main overarching theme. For instance, depression and anxiety, although coded separately, was reported once under the main theme of "negative mental health and risky behaviors."

The most frequently researched construct was identity and within it, the theme of exploring racial-ethnic identity, examined in 55% of the studies reviewed, followed by gender identity (10%) and religious identity (8%). The impact of physical appearances and phenotype was examined in 43% of the studies, particularly in terms of how others categorize mixed individuals based on looks and how one self-categorizes based on phenotype and resemblance to family members. The next most frequently examined construct, proximal context, involved themes of exposure to racial-ethnic/cultural diversity within one's community (33%) and peer influences (32%). Perceptions of racial diversity and race relations were examined mainly through themes of (a) sense of acceptance or exclusion from racial groups (30%), (b) prejudicial treatment (29%), or (c) interracial comfort and appreciation for diversity (23%).

The family characteristics construct was examined most frequently through the family racial socialization theme in 26% of the studies. Researchers have focused on negative mental health of multiracial individuals in examining the themes of self-reported negative affect in 32% and risky behaviors in 16% of the studies, while positive mental health studies, (e.g.,

⁶We have provided a bibliography of reviewed studies in Appendix A.

self-esteem, self-worth, ability to switch identities according to contextual cues) were examined in fewer studies. The distal contexts that shape multiracial individuals, (i.e., political beliefs about race) were the focus in 20% and geographic location in 15% of the studies. Finally, physical health and well-being examined in 11% of the studies was the least commonly researched construct.

In terms of general trends by subgroups, constructs such as appearance, sense of belonging, interracial comfort, and peer influences were more prevalent in studies with Black/White and Latino/White combinations. Studies about cultural practices were more frequent with Asian/White and Latino/White subgroups. Asian/White subgroups had fewer studies analyzing prejudice and discrimination than the other combinations. Native/White subgroups tended to be involved in more studies exploring the impact of geographic region and political beliefs about races than the other multiracial counterparts (see Table 3 below).

Our finding that some content areas are more heavily researched within particular multiracial subgroups may reflect a preference for studying particular constructs within monoracial minority populations, suggesting a bias toward studying the multiracial experience through the lens of the minority component of their heritage. We also found that multiracial studies have generally concentrated more on negative affect and risky behaviors compared to positive mental health and resilience, which is also true of monoracial minority research possibly due to health-related research funding priorities, but also possibly due to the lingering “deficit” approach that has plagued social science research where mainstream society’s patterns are taken as the norm and minority groups’ patterns are viewed as deviant or lacking. The marginal man theory is an early example of the application of the deficit model to multiracial individuals. The subsequent research has questioned the generalizability of the theory to all or most multiracial individuals (e.g., Campbell & Eggerling-Boeck, 2006; Cooney & Radina, 2000; Miville et al., 2005; Tracy & Erkut, 2010). While Cheng and Lively (2009) contend that the marginal man theory is partially illustrated in their analyses of multiracial adolescent educational, behavioral, and psychological outcomes, they, too, are quick to note that some multiracial subgroups have fewer difficulties than expected given their monoracial counterparts and that difficulties vary widely by subgroup (e.g., American Indian/Black adolescents fare better than Asian/Black).

Implications and future directions

The results of this review demonstrate the great diversity present in the multiracial literature. Racial-ethnic data have been collected using different methods, diverse subgroups were sampled in different regions of the country, and many content areas were examined. However, there are patterns regarding which multiracial subgroups and which of their characteristics were most likely to be studied. We found that populations in the West, women, young adults and adolescents, college-educated households, and Black/White subgroups have been studied most frequently, often selected with non-random sampling techniques. Overall, racial-ethnic identity and cultural practices are the most commonly examined constructs in studies of multiracial populations, which may reflect similar trends in minority research in general. Although research among multiracial populations is

growing, in fact, only small subsamples are being represented in the literature and the findings of our review highlight substantial gaps in knowledge.

Measurement difficulties

In the future, it is imperative that studies provide information on how they assessed racial-ethnic identification. Moreover, more research is needed to develop comprehensive measures of multiracial identification. For example, Rockquemore (1999) has created a multiracial identification scale based on a taxonomy of racial identification options that attempts to more accurately assess the multidimensional nature of multiracial status than existing racial-ethnic measures. Specifically designed for Black-White biracial populations, respondents are able to select one of four different racial identification options: 1) singular identity (exclusively Black or exclusively White); 2) border identity (exclusively biracial); 3) protean identity (sometimes Black, sometimes White, sometimes biracial); and 4) transcendent identity (no racial identity) (Rockquemore, 1999). Because Rockquemore's taxonomy was developed to describe the racial identification options for Black and White subgroups and may not be applicable for multiracial groups that have a different history of race relations in the US, to further advance this field, the taxonomy should be validated across other multiracial subgroups and new measures should be developed.

Inclusion of Latinos

The U.S. Office of Budget and Management (OMB), which establishes racial-ethnic categories for all U.S. government agencies including the U.S. Census, has classified Hispanics/Latinos as an ethnic group, rather than a racial category with the additional clarification that persons of Hispanic origin may be of any race. However, even with clear instructions to report only *race* mixtures on the 2000 form, many people who included "some other race" in their mixture referred to Hispanic/Latino *ethnicity* (Jones & Smith, 2001). This lack of consensus on whether Latino heritage is a race or ethnicity is reflected in the treatment of Latino heritage in the studies reviewed. As we reported in the study findings, 26% of the studies did not follow OMB guidelines and included Latino ethnicity as a racial category. Moreover, the majority of studies did not specify how Latino heritage was dealt with in the study population. As a result of the inconsistency in measurement across studies and the categorization of "Latino" as an ethnicity in the U. S. Census, many unanswered questions remain about the size and general characteristics of Latino mixed race populations. In particular, little is known about Latino/White mixed populations which may very well be among the largest multiracial subgroups given that Latinos are among the fastest growing racial-ethnic groups (U.S. Census Bureau, 2011) and among the most likely to intermarry (U.S. Census, 2012). Only by improving the racial classification systems used to identify Latinos in the US can we improve our understanding of this growing population.

Woo et al. (2011) recommend that re-classifying Latino/Hispanic as a racial category could be one methodological strategy for better incorporating Latinos into studies of multiracial populations. Due to the fact that the majority of the U.S. Hispanic population already regards Hispanic/Latino origin as a racial category (Hitlin et al., 2007), this revision would be consistent with commonly held beliefs about race and Latino ethnicity. Given the current OMB directive to check as many categories as apply, special outreach efforts to the Latino

population to always check Hispanic/Latino as well as any other applicable racial category could ensure that this approach does not lead to an undercounting of the Latino (or multiracial Latino) population. This strategy is in line with a growing movement in the social science literature that views race as capturing ethnicity and encompassing common geographic origins, ancestry, family patterns, cultural norms, and traditions (Williams, 2005).

Commonalities versus differences

Despite extensive racial diversity that is present within the multiracial population, the practice of combining all multiracial subgroups into one “multiracial” category continues into the present time and seems to occur across multiple disciplines, from psychology to sociology to public health. However, evidence suggests that health outcomes for multiracial subgroups are not the same and combining all subgroups into one multiracial category can lead to an overgeneralization of health concerns. For instance, Campbell and Eggerling-Boeck (2006) found that when all multiracial groups are consolidated, researchers often find negative mental health and social adjustment outcomes for multiracial youth as a whole. However, Campbell and Eggerling-Boeck claim that the disadvantages of the Native/White individuals significantly drive this finding. Indeed, Pleis and Barnes (2008) found that Native/White multiracial adults reported higher rates of respiratory conditions than single-race Native American and White adults, further suggesting that Native/Whites are uniquely at risk for poor health, and information about their health status should not be hidden in the catch-all category of multiracial individuals. This issue is particularly concerning given that the Native/White population is among the three largest multiracial subgroups in the United States (U. S. Census Bureau, 2011). Combining all subgroups can also obscure subgroups in need of services; for example, Tracy and Erkut (2010) found that part-Asian American male adolescents are likely to be a hidden at-risk population for drug use. Given research findings that Asian Americans have the lowest reported drug use among all racial-ethnic groups (Office of Applied Studies, 2000), multiracial Asian adolescents’ high levels of drug use (Price, Risk, Wong & Klinge, 2002; Tracy & Erkut, 2010) is unexpected.

This is not to imply that examining multiracial populations as one combined group is not without merits. Regardless of their specific racial-ethnic combination, multiracial individuals share universal experiences as a result of living in U. S. society that may lead to common outcomes. If the research question is an examination of common experiences of all multiracial individuals, analyses that examine multiracial individuals as a monolithic group can provide important information on overall trends. Such a practice would be similar to analyses of Latinos and Asians as singular groups, which can provide important trend data on these populations (despite growing consensus of the great variability present within these diverse racial-ethnic categories). However, we argue that summary analyses that lump multiracial populations into one group should only be a starting point examining this population. When the data are available (e.g., when permitted by adequate sample sizes), we encourage researchers to delve further and examine whether overall trends are masking important subgroup differences. Finally, these important subgroup analyses cannot be examined if these data are not available. Therefore, greater education and advocacy is needed in order to improve the availability of sufficiently collected racial and ethnic data.

The exploration of multiracial subgroup health outcomes is an emerging and critical future direction for multiracial research. Increased professional training regarding the hidden health needs of multiracial people would benefit patients who are often subjected to assumptions about their race based on physical appearance by their healthcare providers. Similarly, educational practitioners trained in the unique experiences of their multiracial students could provide a more inclusive, welcoming, and informed educational climate for students who may be struggling to find a “home” for their particular needs, (e.g., race/culture-based clubs and organizations, historical role models in the curriculum, etc.).

Multiracial sampling biases

While it is well understood that racial identity is an inherently developmental process, what is less widely recognized is that racial-ethnic identification also can change over time and place, particularly among multiracial populations, a phenomenon documented by Harris and Sim (2002) in their analysis of the Add Health data. Because the Add Health dataset did not include detailed questions about identity processes, it has not been possible to examine the interrelationships between a change in identification and changes in identity processes utilizing the parameters of this and other datasets. For example, what are the identity implications of labeling oneself as Black woman compared to identifying as a biracial woman? Brunsma (2006b) estimated that about 1 million Black/White biracial Census takers may have checked “Black” alone on their Census forms (and another 88,000 may have checked off “White” alone) potentially due to the social, political, geographic context, and the household member who actually checked off the Census boxes. Longitudinal studies can extend understanding of trajectories of stability and change in identification among older multiracial populations when identities are expected to be less volatile.

Researchers have used large datasets such as Add Health (e.g., Cooney & Radina, 2000; Harris & Sim, 2002; Milan & Keiley 2000; Tracy & Erkut, 2010; Udry et al., 2003) and NELS:88 (Kao, 1999) to study multiracial adolescents, even though these national datasets were not designed with nuanced methods to identify race-ethnicity in a way that is relevant to the lives of multiracial adolescents. Pre-existing datasets that do not identify the racial-ethnic background(s) of its participants in a way that fully acknowledges every salient heritage of the individual are problematic because the heterogeneous multiracial population consists of diverse racial-ethnic groups each associated with unique social and political factors that can impact perceptions, economic situations, and health outcomes. In addition, assuming that racial identity (a private identity) and racial identification (a public categorization) are interchangeable perpetuates the political systems that shape opportunity and resource distribution in the U.S. (Bonilla-Silva, 2001; Brunsma, 2006a). This is because racial identification and its enumeration has been an important element in civil rights enforcement, relevant to the operation of public education, public contracting and employment and voting rights (Yamamoto, et al. 2001). A future nationally representative study about multiracial and/or minority populations should place racial-ethnic identification at the center of the study design and sampling process. Stratified sampling on the basis of racial-ethnic identification would allow into the study population large enough subsamples to assess the implications of different identification labels, their relationship with social, behavioral, and psychological processes, and changes in their relationship over time.

Future directions and recommendations

Future research that specifies components of the racial-ethnic subgroups can help break down societal stereotypes of a “general multiracial group” in order to ascertain unique and shared challenges in identifying and supporting the public health and mental health resource needs of particular multiracial subgroups. Moreover, solidifying clearer guidelines for effectively and efficiently identifying multiracial individuals will have significant practical implications for health and social service delivery for identifying groups of hidden, hence underserved, multiracial individuals with high risk profiles. Future studies should explore the strengths and adaptive mental health outcomes such as “code-switching” of multiracial individuals in different contexts. Code switching can arise when people highlight one aspect of their cultural heritage that they perceive to be more advantageous in a particular social situation (Cross, Smith, & Payne, 2002; Renn, 2000, 2008; Rockquemore & Brunsma, 2002; Shih, Pittinsky, & Ambady, 1999). Fhagen-Smith (2003) argues that a situational identity can be a conscious, adaptive choice to identify with a different single race or as multiracial depending on the situation and is unlikely to be associated with poor social adjustment outcomes.

Studies examining the impact of geographical location of multiracial individuals may have health delivery and education implications, in terms of training healthcare personnel and teachers about multiracial identification, which can be heavily influenced by one’s social and political milieu. For instance, in some areas of the country being of mixed race heritage is relatively rare and often means that one is forced to choose between two identities and two support networks that are often racially segregated. But in other areas of the country, there may be multiracial communities that are already established as critical resources for social, emotional, and educational support. Future studies can also focus on different age groups and transitional identity development periods between high school and college or in the middle-age years after one has either married or has had children. Longitudinal studies can track whether multiracial identity integration becomes more or less stable in these later years.

We propose that, consistent with Root’s (2002) recommendation, the nature of the research question(s) being studied and the theory from which they emerge should guide the ways racial-ethnic identity is operationalized. For example, investigations of intergenerational acculturation may be best undertaken through an examination of parental race-ethnicity. On the other hand, a study of adolescent adjustment and racial-ethnic identity may best be examined by assessing adolescents’ own private self-report of race-ethnicity as well as the centrality of racial-ethnic identity in general self-concept (see Charmaraman, Grossman, Erkut, Ceder, & Tracy, 2011; Erkut & Tracy, 2003; Stephan & Stephan, 2000). Additionally, the developmental level of the sample should guide the way race and ethnicity is assessed. Given that children’s understanding of racial-ethnic categories for self-identification is not fully developed (Quintana, 1998), if the research question is one of parental racial-ethnic socialization, parents’ own racial-ethnic identification may be the appropriate measure. Again with a child sample, if the research question is an examination of experiences of racially motivated mistreatment, other’s attribution of racial classification

or others' perception of racial phenotype may be useful ways of assessing a child's race-ethnicity.

At different life stages, multiracial individuals are locating their racial-ethnic identity in various contexts, often being forced to choose a monoracial identification by external sources, and once deciding an identity, questions arising on issues of group belongingness, loyalty, and social validation (Hall, 1992; Herman, 2004; Kich, 1992; Nakashima, 1996; Root, 1994). During adolescence and early adulthood when racial-ethnic identity processes can be a major preoccupation (Sellers & Shelton, 2003; Sellers, Smith, Shelton, Rowley, & Chavous, 1998), researchers who have studied biracial and multiracial adolescents have noted that all adolescents' racial-ethnic identity, and particularly that of multiracial adolescents', can be fluid and situational (Harris & Sim, 2002; Root, 2002; Stephan & Stephan, 2000). This phenomenon suggests that the assessment of racial-ethnic identity should resemble what personality theorists call a "state" (what one thinks, believes, or feels *now*) rather than a "trait," which is more enduring. Similarly, the multiracial movement is not only about individuals, but about families and communities – cultural categories and not static institutions. The flexibility of describing, displaying, and performing one's ethnic-racial identity when given multiple possibilities demonstrate how malleable these identifications can be for multiracial individuals (DaCosta, 2007). At the same time, the practice of providing multiple options to identify on surveys opens up possibilities of research questions that would not be appropriate otherwise if the identification options were more limited, i.e., asking if participants would check a "biracial/multiracial" category versus checking single or multiple racial-ethnic categories to define their personal and community identities.

The theory and research questions deriving from it can also help determine the appropriate sample to study. For example, in a study that is designed to expand the research on the advantages of being bilingual (e.g., Adesope, Lavin, Thompson, & Ungerleider, 2010; Hakuta & Diaz, 1985) to encompass being biracial, it would be appropriate to combine all biracial individuals into a group to compare them to single-race identifying peers on such qualities as cognitive flexibility and adaptability.

Overall, we recommend assessing multiple dimensions of racial-ethnic identity as put forth by Woo and colleagues (2011) consisting of (a) genealogical history, (b) self-reported racial-ethnic identification, and (c) outside perceptions of racial-ethnic identity from third party observers, and to which other dimensions such as cultural heritage can be added depending on the research questions at hand. Assessing multiple dimensions of racial-ethnic identity can help answer the empirical question of which method of obtaining racial-ethnic identity is most relevant for examining a given research question. Using a combination of methods can also be one of the ways to deal with the issue of people who report their racial-ethnic background as "other" or identifying multiracial individuals who may identify with a monoracial identity depending on the context or if a question is phrased in a particular way (e.g., forced to choose instead of check all that apply). Similarly, the inclusion of a cultural heritage⁷ measure alongside standard racial-ethnic identification questions could ensure to capture the multiple worlds that transracial adoptees may be navigating (see Baden, 2002; Ung, O'Connor, & Pillidge, 2012).

This review of 20 years of research on multiracial individuals provides a broad-based understanding of what is known and unknown regarding the multiracial population and this how research was conducted. There has been a three-fold increase in the number of studies focusing on multiracial individuals, however less is known about older, male, less educated, non-Black/White subgroups living in non-western states. Just as, many years ago, it was time to recognize the importance of including multiple races and ethnic groups as standard practice, it is now time to view the inclusion of multiracial populations as something that should be standard. We hope that our study has illuminated not only this necessity but also some of the ways to do this effectively. Our review can serve as a guide for researchers in the field to address the many study topics and subgroups that have been explored (or neglected) thus far, in an effort to address new trends as well as gaps in the multiracial literature in hopes of continuing to address what it means to be categorized as “multiracial.”

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⁷The scope of our content and methodological review did not include the search terms of “bicultural” or “multicultural,” therefore we did not have any articles that were focused on primarily transracial or transnational adoptees or individuals who identify with two or more cultural heritages.

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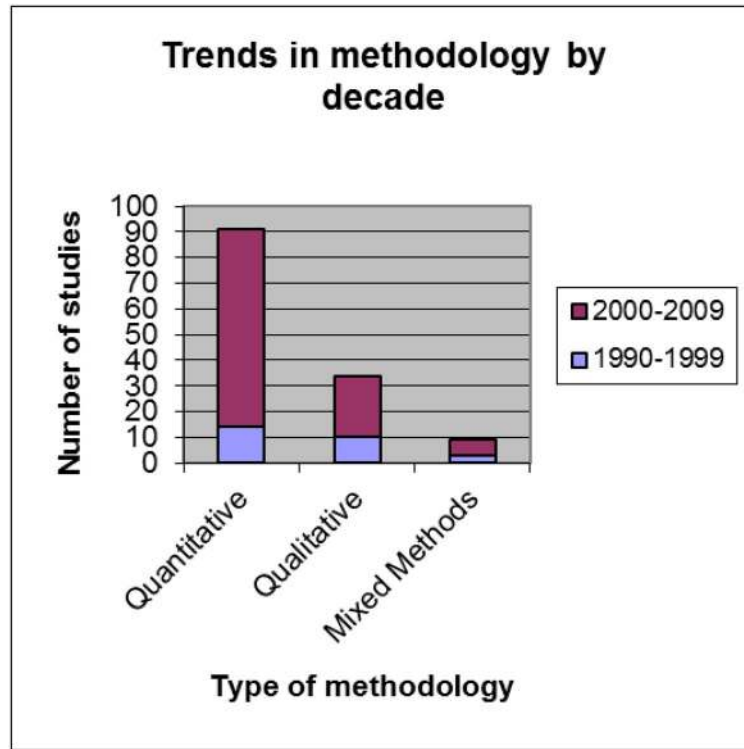


Figure 1.

Table 1

Review sample demographics

Characteristic	%
<u>Race</u>	
Black/White	55%
Asian/White	39%
Latino/White	25%
Native/White	20%
Minority/Minority	30%
3+ races	13%
Unknown mix	38%
<u>Gender</u>	
Female	65%
Male	35%
<u>Age</u>	
Young Child (ages 0–4)	11%
Child (ages 5–9 or K-5th grade)	5%
Pre-Adolescent (ages 10–14 or 6–8th grade)	23%
Adolescent (ages 14–18 or 9th–12th grade)	31%
Young adult (ages 18–25)	39%
Adult (ages 26–49)	18%
Older adult (age 50+)	6%
Unspecified age	22%

Note: Some studies did not report on all demographic data included in this table.

Table 2**Constructs and Major Themes**

Constructs and Themes	N (%)
Family characteristics	
Family racial socialization	35 (26%)
Cultural practices/traditions	32 (24%)
Quality of family relationships	26 (20%)
Perceptions of racial diversity and race relations	
Sense of belonging/acceptance to racial groups or sense of exclusion	40 (30%)
Perceptions of other's interracial comfort, including prejudice, discrimination	38 (29%)
Personal interracial comfort and appreciation for diversity	30 (23%)
Beliefs about race, e.g., race as a social construction, colorblindness	25 (19%)
Community support/sense of community	15 (11%)
Proximal contexts (peer, school, neighborhood)	
Exposure to racial-ethnic/cultural diversity in schools, neighborhoods, peers	44 (33%)
Peer Influence	43 (32%)
Sense of belonging to school	25 (19%)
Educational experiences/academic achievement/skills	24 (18%)
Identity	
Racial-ethnic identity	73 (55%)
Gender identity/awareness, sex roles	13 (10%)
Religiosity	11 (8%)
Sexual orientation	4 (3%)
Negative mental health and risky behaviors	
Self-reported negative affect, e.g., depression, stress, anxiety, internal conflict	43 (32%)
Risky behaviors, e.g., substance abuse, aggression, smoking	21 (16%)
Physical appearance and phenotype	
Includes how others categorize multiracial individuals, self-categorization, body dissatisfaction, attractiveness	57 (43%)
Sociopolitical milieu and distal contexts	
Political beliefs about race, e.g., affirmative action	26 (20%)
Geographic location, e.g., urbanicity, multicultural location	20 (15%)
Political affiliations, memberships/clubs	8 (6%)
Media, celebrity identification	7 (5%)
Positive mental health and resilient/adaptive behaviors	
Self-esteem/self-worth	21 (16%)
Switching identities according to contexts and situational gain, "code-switching"	15 (11%)
Positive affect and adjustment, e.g., optimism, satisfaction with life, open-minded	11 (8%)
Resilient behaviors/abilities, e.g., social-emotional skills, cued to cultural clues	8 (6%)

Constructs and Themes	N (%)
Physical health and well-being	
Medical information, e.g., birth-weight, prenatal care, health status, birth defects	15 (11%)
Health behaviors, e.g., dietary patterns, nutrition, exercise frequency, somatization	14 (11%)
Professional help-seeking, e.g., psychological, physician-patient contact	9 (7%)

Note: We purposely separated out the demographic variables of gender (unless it pertained to gender ideology or sex roles), age/grade level, socioeconomic status, family characteristics/national origins, and racial-ethnic identification since these were often used as control variables and would skew the findings. Percentages were calculated out of a possible 133 studies and add up to more than 100%, because the majority of studies included multiple content areas.

Table 3

Percent of total studies by specific multiracial subgroups and major constructs

	Black/White	Asian/White	Latino/White	Native/White
Racial-ethnic identity	61%	56%	62%	59%
Appearance/how others categorize	47%	36%	41%	32%
Appearance/how self-categorize	39%	24%	35%	23%
Sense of belonging	39%	29%	35%	27%
Interracial comfort	30%	22%	35%	23%
Prejudice and acceptance	36%	27%	41%	36%
Geographic location	15%	16%	14%	23%
Political beliefs about race	21%	20%	24%	32%
Cultural practices	15%	31%	35%	32%