Published in final edited form as:

Soc Psychol Q. 2007 December 1; 70(4): 405–423.

Are Racial Identities of Multiracials Stable? Changing Self-Identification Among Single and Multiple Race Individuals*

Jamie Mihoko Doyle and Grace Kao

University of Pennsylvania

Abstract

Using the National Longitudinal Study of Adolescent Health (Add Health), we estimate the determinants and direction of change in individual racial identification among multiracial and monoracial adolescents as they transition to young adulthood. We find that while many multiracials subsequently identify as monoracials, sizable numbers of monoracials also subsequently become multiracials. Native American-whites appear to have the least stable identification. We find strong support that socioeconomic status, gender, and physical appearance shape the direction of change for multiracials, and that black biracials are especially compelled to identify as monoracial blacks.

INTRODUCTION

In a society where traditional racial markers of white, black, Asian, and Native American are well established, where do multiracials fit? Can they maintain a distinct multiracial identity that bridges their racial ancestries, or are they forced to choose one? Moreover, are those identities that shift over time different from those that remain stable? It is likely that some groups have more “options” to change over time. Studies of white ethnics in the United States suggest that, for instance, one can emphasize one’s Irish ancestry over one’s Italian ancestry (and vice versa) depending on the situation (Waters 1990). However, when crossing lines that are important demarcations in U.S. society, individuals may have fewer choices. In a society where racial boundaries are meaningful, multiracials directly challenge common understandings of race.

The presence of multiracials in the U.S. is not a new phenomenon. Historically, blood quantum was the primary method for classifying multiracials. Rights and privileges were granted and withheld depending on an individual’s ancestral proximity to a minority group. For example, black-white multiracials were defined as “mulattoes” if one parent was black and “quadroon” if they had one grandparent who was black (Higginbotham and Kopytoff 2003; Snipp 2003). An individual was considered a mulatto or quadroon based largely on his or her physical appearance (Higginbotham and Kopytoff 2003). Unlike multiracial blacks, multiracial Native Americans and Asians assessments of mixed-racial lineage were categorized almost exclusively by their family ancestry rather than appearance. For example, during World War II Japanese multiracials were required to relocate to internment camps if one parent was of Japanese ancestry (Williams-Leon and Nakashima 2001). In this case, rights were denied based

*This research was supported by a grant from the NICHD (#R01 HD38704-01; PI: Grace Kao). This research uses data from Add Health, a program project designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris, and funded by grant #P01-HD31921 from the National Institute of Child Health and Human Development, with cooperative funding from 17 other agencies. Special acknowledgement is due to Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Persons interested in obtaining data files from Add Health should contact Add Health, Carolina Population Center, www.cpc.unc.edu/addhealth/contract.html.

Direct correspondence to Jamie Mihoko Doyle, Population Studies Center, University of Pennsylvania, 3718 Locust Walk, Philadelphia, PA 19104; jmidoyle@mail.med.upenn.edu.

on an individual's ancestral proximity to a minority race. Unlike multiracial Asians and blacks, having a Native American heritage often confers specific privileges, such as access to tribal lands (Thornton 1998). In fact, individuals were (and still are) required to provide proof that they have Native American ancestry.

Despite the divergent social histories of the multiracial groups discussed above, all Americans are allowed to identify with the races that they feel best describe them. The most recent revisions to data collection standards occurred in 1997 by the Office of Management and Budget (OMB 1997), which prompted a momentous shift from limiting individuals to report a single race to allowing them to self-identify with multiple racial groups. Results from the 2000 Census indicate that 2.4%, or nearly one in forty Americans, self-identified with more than one race (Lee and Bean 2004; Grieco and Cassidy 2001). In addition, the number of multiple-race births is on the rise. From 1968 to 1998, the proportion of all births that were multiracial increased nearly four-fold, from 1.03% of all births to 3.79% (Parker and Madans 2002). Clearly, in an era where interracial marriage is becoming more common, the move to recognize multiracials officially is well justified.

This analysis examines the factors that affect the change in the racial identity of individuals over time using nationally representative, longitudinal data. We recognize that different social histories of multiracial subgroups can influence conclusions about identity development; therefore, we focus our examination on the three largest multiracial groups: Native American-whites, Asian-whites, and black-whites. We also draw from identity development models and social psychological theory to bring depth and introduce multiple dimensions to interpret our empirical findings.

This paper is organized as follows. First, we give a general overview of the extant literature on multiracials and identity. Next, we further describe our data, the National Longitudinal Study of Adolescent Health (or Add Health). Third, we examine the magnitude of identity shifts and explore the direction of the shift for both monoracials and multiracials. Lastly, we present our findings using logistic models to predict identity change from Wave I to Wave III of the Add Health dataset (1994–1995 and 2001). The analysis takes into account individual-level characteristics, parental characteristics, and external perceptions.

BACKGROUND

Studies of multiracial identity are burgeoning in demography, sociology, and psychology. Researchers use a wide variety of data sources to examine the multiracial population. From narratives (Renn 2000; Nakazawa 2003; Gaskins 1999), to large-scale health surveys (Hitlin, Brown, and Elder 2006; Harris and Sim 2002; Parker and Madans 2002), to vital statistics (Heck, Parker, and McKendry 2004; Heck et al. 2001), to the U.S. Census (Jones and Smith 2001; Goldstein and Morning 2000; Committee on National Statistics 2004), investigators are beginning to grapple with the mechanisms that shape race reporting and change. Two motifs are apparent in these studies. First, remnants of the One-Drop Rule persist as a powerful force that truncates identity options for multiracials who have a black parent. The One-Drop Rule (or the logic of hypodescent) was a political pseudo-measurement of racial blood quantum used to differentiate blacks and whites in the general population. In other words, “a single drop of Black blood” identifies someone as black (Spickard 1991). This archaic and stigmatized term faded from political and social discussions after World War II. However, evidence suggests that remnants of this conceptualization of race are still present in U.S. society due to the resonance of legal sanctions in history that legitimized this practice (Bean and Stevens 2003; Root 1992; Waters 1990). As a result, the repertoire of racial options available to black-white multiracials is limited. Prior studies find that very few describe themselves as exclusively white (Herman 2004; Harris and Sim 2002). Many cite their physical appearance as a significant

restriction to how they can identify (Xie and Goyette 1997; Brunsma and Rockquemore 2001; Russell, Wilson, and Hall 1992). Most of these multiracials identify with their minority peers, adopt a blended multiracial identity, or discard racial labels all together (Renn 2000; Gaskins 1999).

A second related theme is the flexibility of racial identity for Asian-white and Native American-white multiracials as compared to other racial groups. The concepts of “Situational Ethnicity” and “Symbolic Ethnicity” are often applied to these multiracials. Situational Ethnicity is the idea that contexts determine what identities or loyalties a person chooses to declare at a specific moment (Okamura 1981; Renn 2000; Stephan and Stephan 1989). Other than White ethnics, the phenomenon of symbolic ethnicity is also applied to multiracial Native Americans to explain drastic fluctuations in the number of Native Americans reported in the U.S. Census. Symbolic ethnicity refers to a subjective assessment of one’s ancestry that is not based on membership in an organized community or reflects attachments to a specific culture or experience (Eschbach 1993; Snipp 1992, 2003; Waters 1990). Fogelson (1998) colloquially refers to Native Americans who invoke a symbolic ethnicity as “wannabes.” The presence of “wannabes” is the standing explanation for the surge in counts of Natives in the U.S. For instance, from 1960 to 1990 the number of American Indians reported in the Census more than tripled, from 523,591 to 1,878,285 (Nagel 1995; Harris 1994; Eschbach 1993). After careful analysis of fertility, mortality, and migratory trends of this group, the consensus among researchers is that the expression of Native American ancestry among those with distal ties was the underlying cause for the unprecedented growth of Natives in the U.S. (Nagel 1995; Passel 1976). Still, census data do not provide explanations for how and why individuals changed their identification over time.

Population-based Studies on Racial Identification

Thus far, large-scale empirical studies of racial identification come from two sources: the Census Bureau and the National Longitudinal Study of Adolescent Health. Researchers from the census fielded two surveys: the National Content Reinterview Survey (CRS) in 1990 to analyze the consistency of responses and the Racial and Ethnic Targeted Test (RAETT) in 1996 to assess an appropriate format, wording, and order of these questions for the 2000 Census (U.S. Bureau of the Census 1997; Thomas and Dingbaum 1992). A random sample of 24,539 households who completed the long form of the 1990 Census was asked to be re-interviewed for CRS. They found that race responses were most inconsistent among Native Americans (58%) and those selecting other race (28%) in the census. While the strength of this study was a direct comparison of responses at two points in time that utilizes a large random sample, it has several limitations. First, the published results do not attempt to explain why respondents reported differently—only that it occurred. Second, the 1990 Census only allows one response to the race question and does not consider the presence of multiracials in their sample. Third, the household head reports the race(s) for the entire household and does not reflect changes in an individual’s response.

In 1996, investigators from the Census Bureau sought to address the first limitation to the National Content Re-interview Survey by conducting the Racial and Ethnic Targeted Test. Why were responses to the race question inconsistent? The RAETT was a mailout/mail-back, randomized experimental survey of households testing eight different formats, wording, and order for questions on race and ethnicity. Hirschman, Alba, and Farley (2000) outlined key findings from the RAETT; we will discuss three. First, 1.1% of respondents elicited multiple responses to the race question even when asked to only mark one race. Second, when a multiracial category was added to the racial options, this percentage shrunk to only 0.4% of respondents. Third, the largest multiracial response occurred when the race and Hispanic origin were combined. When asked in this format, 1.7% of respondents could be considered

multiracial. Overall, how individuals report their racial and ethnic origin is sensitive to how the questions are asked, and people change responses based on the format of the question. Clearly, some will assert their multiracial heritage regardless of whether there are instructions to mark only one race. While this study is insightful, it does not address the question of how individual identity changes over time.

Studies by Harris and Sim (2002) and Hilton, Brown, and Elder (2006) address the limitations of using household-based questionnaires and cross-sectional data by examining shifts in identity using the National Longitudinal Study of Adolescent Health. Harris and Sim (2002) address the limitations of the former by comparing responses from the In-school and In-home (Wave I) questionnaires from Add Health. They find that 12% of all youth provide inconsistent responses to nearly identical questions on race depending on whether they were asked at school or at home. The percentage of youth who are multiracial can vary from 3.6% to 6.8% depending on whether the respondents were asked the question at home or at school, respectively. The analysis by Harris and Sim is particularly informative for understanding how different contexts can influence how respondents report his/her race, and maybe even how individuals see themselves. However, their analysis only shows how self-identification can vary from place-to-place rather than time-to-time. Since Wave III of Add Health only recently became available, Harris and Sim were not able to utilize the question of identity shift over time.

Hilton, Brown, and Elder (2006) use Waves I and III of Add Health to examine changes in racial identification of multiracials over time. They find that multiracial adolescents are four times more likely to change their racial identification between the two interviews than report consistently. Yet, a significant shortcoming to their analysis is how they analyzed the multiracial population. Respondents are categorized as multiracial if they self-identified with more than one race, irrespective of their specific racial ancestry. Their analysis does not emphasize the difference between Asian-whites and black-whites, for instance. Since multiracials can have drastically different racial experiences and integrate into single-race peer groups in different ways (Doyle and Kao 2007), they are not widely perceived as an amalgam in U.S. society. It is important to give some consideration to these differences in analyses.

Critical components lacking in some of these studies are the influences of time on an individual's racial/ethnic identity. In others, it is the consideration of the heterogeneity of multiracial subgroups. The current study addresses limitations of prior studies by using longitudinal data that collects self-reported race and we also disaggregate multiracials into subgroups. Furthermore, we uncover why changes in racial identification occur. This analysis is unique compared to the aforementioned studies in that we consider the association between phenotype, the perception of outsiders, and how interactions influence change in racial identification.

Models of Identity Development

Individuals are not born with a racial identity. Instead, racial identity develops through an iterative process of social interaction. In the following section, we give an overview of identity development models that our upcoming empirical findings will directly address. Since our approach is two-tiered, moving from whether multiracials change their identity to determining the direction of the change, the overview of theories will be presented accordingly.

Stages of racial development: Will multiracials change how they self-identify?

—Some researchers argue that by late adolescence, identities are more or less stable. Erikson (1968) contends that a person's final identity is fixed at the end of adolescence. While an individual may stagger on various racial choices in early years, he/she ultimately arrives at a single choice as a young adult.¹ However, in critiquing the lack of universality of Erikson's identity development model, Poston (1990) creates a model that can be applied specifically to

multiracials. In *Biracial Identity Development Model* (1990), Poston divides the identity development of multiracials into five stages, beginning with *personal identity*, when individuals do not yet associate themselves with a particular racial group, and ending with *integration*, when multiracials embrace their multiple heritages simultaneously. From this perspective, adolescents who identify with multiple races have already passed through moments of uncertainty about their racial ancestry and the need to conform to prescribed single-race designations. In other words, this perspective would suggest that individuals who self-identify with more than one race as adolescents will also do so as adults.

The specific models outlined by Erikson and Poston are in alignment with a broader theoretical concept called *self-consistency*: once an individual develops a specific view of himself/herself, he/she is reluctant to change it (Baumeister 1998). These individuals are receptive to positive feedback that verifies how they see themselves, and they filter out feedback that goes against self-perception (Baumeister 1998). Multiracials, therefore, may be resistant to changing how they self-identify once they reach the integration phase to maintain self-consistency. Once a multiracial identity has been established, these individuals could employ strategies that continually verify their self-concept. Some examples include associating with peer networks that are more accepting of their racially blended heritages and conveying authenticity through cultural cues (i.e. bilingualism, knowledge of foods and traditions, etc.). In sum, multiracials will express a mixed-racial heritage through how they self-identify and will actively transmit social cues that verify this self-perception to influence how others see them.

In contrast to the notion that identity development is complete by the end of adolescence, contemporary identity models do not assume that racial identity is fixed by then. Instead, they emphasize the idea that the race(s) an individual declares at any moment in time can change throughout the life course—even in different situations (Rockquemore and Laszloffy 2005; Root 2003; Harris and Sim 2002). Brunson and Rockquemore (2001) refer to this as a *Protean identity*. Political movements, intraethnic prejudices, socialization, and major life transitions are only a few moments in an individual's lifetime when his/her identity might undergo revisions (Root 2003). Shifts may be toward a monoracial or multiracial identification. From this framework, whether an individual of any race will change how they self-identify cannot be ascertained only by the races they elicit as adolescents. The Protean identity idea can also be embedded in one basic social psychological tenet: self-concepts can change. More specifically, an individual's self-concept can be revised due to the expectations of others (Baumeister 1998).

Direction of identity change—The Marginal Man framework predicts that multiracials will have the tendency to reject racial labels completely. The Marginal Man paradigm was originally conceptualized by Robert Ezra Park to describe the precarious position of immigrants in the U.S., but his student, Everett Stonequist, popularized its application to multiracials. According to this perspective, the multiracial person straddles two social worlds due to his/her ancestry, but is never fully accepted by either race (Stonequist 1937). Multiracials may respond to these imposing social forces by not identifying with any race. In the context of the current study and identity development, we might see individuals who self-identify as multiracial as adolescents, then do not identify with any race as young adults.

In contrast to the Marginal Man hypothesis, social identity theory would predict that multiracials will tend to simplify their identity. The position of discrepancy theorists is that revisions to identity are responses to discrepancies in how the individual sees himself/herself and how others perceive them. To respond to feelings of discomfort, individuals will seek ways to cope with the discrepant identities. While multiracials may initially express a multiracial

¹For a comprehensive review of different psychological identity models, see Phinney 1990.

identity, external pressures to conform to single-race designations will compel them to simplify their identity. Therefore, this perspective predicts that adolescents who self-identify with more than one race will be compelled to identify with only one race by adulthood.

DATA

This analysis is based on Waves I and III of the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative sample of 20,743 students from 80 high schools in the U.S. The first wave was conducted from 1994–1995 (when the respondents were in Grades 7–12, and aged 12–18) and the third wave was conducted in 2000–2001 (when the respondents were ages 18–25). This study takes advantage of the large overall sample size, which enables the estimation of stable statistical results for multiracial subgroups that are a relatively small fraction of the total U.S. population. We identify 371 multiracials in our primary analysis, which includes 89 black-whites, 88 Asian-whites, and 194 Native American-whites. Other multiracial groups were too small to analyze separately. Among single race groups, 7,864 whites, 3,079 blacks, 996 Asians, and 83 Native Americans are also considered. More detailed information on how we derived our racial/ethnic coding scheme is available in Appendix A. In this paper, we only examine non-Hispanics for two reasons. First, Hispanic is not a racial category.² It is also unclear whether Hispanic immigrants become racialized into categories of white, black, or other or if they view Hispanic origin as a “race” in itself (Landale and Oropesa 2002; Vaquera and Kao 2005). Second, and related, individuals who are biethnic (i.e. who are products of intermarriages of Hispanics and non-Hispanics) cannot be identified in the dataset. Respondents are allowed to mark more than one race, but only one ethnicity: they are either Hispanic or non-Hispanic—not both.

Since Add Health utilizes a longitudinal design, we also address sample stability between these panels of data. Attrition is common in this type of study design. Of the original 20,745 adolescents in Wave I, 5,548 respondents (or 27%) are lost between Waves I and III. Considering that more than half a decade elapsed between the two interview dates, the retention is quite high. The loss of respondents between Waves I and III also does not appear to differ by race (with the exception of black-whites). All groups experience between 24% and 28% attrition. For more information regarding attrition by race of respondents, please see Appendix B.

VARIABLES

We include a number of covariates that may affect individual change in racial identification including socioeconomic status, measures of phenotype, and what we call racial concordance. *Racial concordance* is a proxy for the degree to which individuals identify in a way that is similar to how others view them. This is the extent to which their racial self-perceptions are consistent with the perceptions of others. We also control for age (which is coded as a continuous variable) and gender. One can argue that language is an important indicator of cultural attachment, which may result in the tendency of multiracials who speak a foreign language to identify with their foreign ancestry. Add Health has indicators for the language most frequently used in the household; however, nearly all multiracials in our sample spoke only English at home so we did not include this measure in our analysis.

Individual

Gender—Prior studies find women to be more likely than men to self-identify with more than one race (Harris and Sim 2002). Researchers contend that this does not suggest a skewed sex ratio at birth, where interracial couples are more likely to give birth to females. Rather, females

²For more on Hispanic identification issues see Ruiz 2004; Amaro and Zambrana 2000.

tend to be more cognizant of their racial status and internalize race-related experiences differently than males (Piper 1999; Gillem and Thompson 2004; Russell, Wilson, and Hall 1992; Root 2004). For example, criticisms surrounding hair and skin color for multiracial black females are internalized more frequently than for males (Gillem and Thompson 2004; Russell, Wilson, and Hall 1992) and the interpretation of such encounters differs by gender. Gillem and Thompson (2004) find that although all participants in their qualitative study of black-white biracials received some criticism based on their phenotypic traits, “females tended to initially internalize this feedback and believe that there was something wrong with them, whereas males were more likely to attribute negative comments to jealousy or ignorance on the part of the other person” (9). Because males tend to be less sensitive to external criticisms than females, we can expect that they are less apt to change their racial self-identification over time. We code gender as a dichotomous independent variable with “male” as the reference category.

Household

Socioeconomic status—For the current study, we measure socioeconomic status (SES) via mother’s education. We suspect that respondents who have a college-educated mother may be more cognizant of nuances and meanings attached to their racial identity. We also believe that socioeconomic status can protect youth from outsiders who question the legitimacy of a multiracial household. Higher levels of SES can foster a stable and confident identity among multiracials. We use maternal education as the only socioeconomic indicator, even when educational status for both parents and household income is available for two reasons. First, there are fewer missing responses for maternal education than paternal education. This is likely due to the fact that the Parent Questionnaire was completed by the primary caregiver of the respondent (which in 85% of the cases was the biological mother). Since education is self-reported by the mother, we circumvent the likelihood of inaccuracies and non-response. Second, while household income is also available in the Parent Questionnaire of Add Health, nearly 13% of the entire sample has information missing on total household income. Furthermore, 21% of the sample we use for the current study—which only includes non-Hispanics and respondents who are in both Waves I and III—have data missing on household income (not shown).

Societal

Racial concordance and skin color—While the fact that race is a social construct applies to all individuals, U.S. society expects individuals to choose a single racial identification. This norm is problematic for multiracials not only when they choose two or more, but when they assimilate and choose only one of their racial ancestries. Their physical appearance can limit their choices and their own identifications are likely to be affected (but not determined) by the perceptions of others. Hence, we use interviewers’ remarks on the race and skin color of respondents to proxy for the perception of others.

We include a dummy variable called racial concordance. Since racial concordance is a product of underlying processes, and we are limited to two points in an individual’s life (i.e. two waves of data), we are in essence trying to capture the cumulative effects of “reflective appraisals” (Cooley 1902). The role of reflective appraisals is particularly important since racial identity does not develop in a vacuum. This position is advocated by scholars who examine mixed-race youth. In a qualitative study of multiracial Asians by Khanna (2004), she finds that phenotype and cultural exposure were the strongest and most significant predictors of racial identity, which supports the reflective appraisals perspective. While phenotype and cultural exposure are important in forming a racial identity, Kao (1999) argues that they do not cause multiracials to choose specific identities (such as Asian or multiracial Asian)—it is something that all multiracials refer to no matter with which groups they choose to identify. Low levels of agreement between assessments of a respondent’s race by outsiders’ race and

how he/she sees himself (though a single-race lens) should result in a change in the racial identity individuals report between the two waves. The discrepancy in how they see themselves (or wish to be seen) and how others see them produces feelings of discomfort that may motivate individuals to change their self-conceptions to fit others' perceptions.

To construct this variable, we use interviewer's remarks about the respondent's race, the race an individual chooses for himself/herself, and the single race that best describes them. At the end of each interview, interviewers are asked to mark the respondent's race based on their judgment alone. They choose the one race best describing the respondent. Alternatively, for the respondent questionnaire, individuals can identify with single or multiple races. In the event that there are multiple responses to the race question, the respondents are asked a follow-up question: "What one race best describes you?" For monoracials, racial Concordance is coded as 1 if how he/she racially identifies matches the respondent's assessment of his/her race. For multiracials, this variable is coded as 1 if their best single-race designation (the follow-up question) is in agreement with the assessment of the respondent's race by the interviewer. In a binary sense, it is whether they are conscious of their racial appearance; we use this interpretation. Further details about the questions used to construct this variable can be found in Appendix A.

METHODS

The In-home component was designed as a cluster sample with an unequal probability. To address this issue, we use Generalized Estimating Equation models to correct for lack of independence among observations (Allison 2001). The Primary Sampling Units (schools) are nested within regions in the statistical models. Furthermore, we add Grand Sample Weights to the models to adjust for differences in selection probabilities and response rates. Failing to account for these complexities would have resulted in biased parameter estimates and incorrect variance estimates (Chantala and Tabor 1999; Chantala 2003).

RESULTS

Descriptive Statistics

Table 1 provides glimpses at the dynamic nature of racial identity. Changes in racial identity are exceptionally high for multiracials, and relatively stable for single race groups, with the exception of Native Americans. About 33% of Native Americans identified in Wave I changed their self-identification in later years. An even more dramatic change occurs among the Native American-whites, with 81% of respondents shifting their racial identification by the third wave. We also note that all monoracial groups experience some change over time as some of these individuals are multiracials.

Socioeconomic status is an important consideration for how consistently individuals identify. Multiracial adolescents generally have more educated mothers than their monoracial counterparts; this suggests that there is a greater tendency to reside in higher income areas that are more likely to be predominantly white, which may result in a greater propensity to assert whiteness either through a biracial or monoracial white identity. Black-whites in Wave I appear to have a higher socioeconomic background compared to whites. About 53% of these multiracials have a mother with at least a college education, which exceeds that of single race whites at 45%. At Wave III, all of the respondents are adults aged 18–25 who may or may not be living with their par-ents; by this age, respondents are likely to have explored different options for their racial identity.

Unlike other datasets, Wave III of Add Health also asks interviewers to categorize the respondent's skin color. Traits other than skin color are undoubtedly important indicators of

race. However, in the U.S and many other racialized societies, privilege is attached to whiteness and may signal the degree to which a person is able to “pass” for another race. From the results displayed in Table 1, we find no evidence of end-aversion or skew bias in the interviewers’ responses.³ Interestingly, we find wide variation in skin color of monoracial Native Americans as compared to their mixed racial counterparts. Single-race Native Americans appear to be a fairly heterogeneous group in terms of skin color, and have representation in just about every shade in the color spectrum. On the other hand, the distribution for Native American-whites is concentrated toward the white category with a relatively small percentage in the light brown and medium brown categories. It must be noted that the observations about the respondent reported by the interviewer may be affected by what the interviewer knows about the respondent, since these data were collected after the interviews. Nevertheless, Native American ancestry may still be a symbolic distinction for these multiracials, and this flexibility may not apply to their single-race counterparts.

Next we turn to Table 2, which presents cross tabulations of self-reported race at Wave I by the race respondents report at Wave III. Column percents are displayed. In addition to the categories we use in the analysis, we added “did not identify with a race” as a category. The numbers on the diagonal (which are outlined in bold cells) are the percentage of each group who reported the same racial background in Wave I vs. Wave III. The only cells not on the diagonal are those who did not identify with a race, persons in the residual category, and Native American-whites.

One salient pattern is the relative stability of racial identification for whites, blacks, and Asians, and the relatively unstable racial identification among multiracials. Single-race whites and blacks appear to have the highest consistency in race reporting for both waves (96% for both groups). Multiracials, on the other hand, elicit varied degrees of dissimilar responses depending on the subgroup in question. About 57% of black-whites and 53% of Asian-whites at Wave I self-reported the same racial combination at both times. Conversely, there is little concordance among Native American-whites. Only 19% of this group reported a consistent race.

In addition to examining change, we are also interested in the direction of change in racial identity. Among single-race groups, this change is often toward a multiracial identity (and not to another single-race identity). This pattern particularly applies to whites, Asians, and Native Americans. Whites and Native Americans tend to identify as Native American-white, while Asians change their self-identification to Asian-whites. Single-race Native Americans show a more perplexing pattern. While only 67% express a consistent identity, the distribution of alternative racial options for Native Americans does not exhibit a uniform and universal pattern. The majority of these respondents report either a single-race white identity in the second period (14%) or a multiracial Native American-white identity (12%). The remainder of this group is quite diffuse, with representation among groups such as single-race blacks (2%), Asians (0.4%), and multiracial black-whites (0.3%).

The most interesting finding, and perhaps the most relevant to census analyses, is the direction of identity shift for multiracals. The elasticity of choices for some groups and the limited array of options for others are best displayed here. Consistent with Xie and Goyette’s (1997) findings, Asian-whites appear to have little constraints in how they choose to identify. While 27% of Asian-whites choose single-race Asian by the second period, about 15% choose white. A plausible explanation could be that children in multiracial households are compelled to identify in different ways, since both heritages are readily visible in the household. However, increases in education and the transition to independent living may catalyze a sense of pride and interest

³End-aversion bias refers to the reluctance of some respondents to elicit answers at the extremities of a given scale. For more information, see Streiner and Norman (2003).

in the minority culture. Similarly, feelings of “otherness” in the broader society, outside of their childhood neighborhoods, may spark changes toward a minority identity as they become racialized in U.S. society.

Native American-whites also have flexible racial options, yet a similar racialization process may not readily apply. Only 19% of this group expressed the same race at Wave III. An overwhelming majority of Native American-whites chose single-race white in the second period. Perhaps we can apply a similar explanation to the pattern for Native American-whites as we did for Asian-whites. Given that 91% were reported to have a white skin color at Wave III, their ability to pass for white in a broader society may influence their choices later in life. Put simply, the lived racial experience for Native American-whites may resemble that of whites, where they do not experience similar disadvantages and discriminatory practices compared to their Native American counterparts.

The results shown here also find little support for the Marginal Man hypothesis. Recall that the Marginal Man concept predicts that multiracials will reject racial labels altogether. However, the vast majority (over 73%) of those who did not identify with a race at the first wave self-identified as white in the third wave. Only 2.6% of Asian-whites did not respond to the race question as young adults and all other multiracials groups considered chose at least one race. These patterns suggest that multiracials may experience feelings of rejection by single-race groups, but these feelings of isolation do not necessarily lead to refusal to identify themselves racially.

Turning to our results in Table 2, the “percent concordant” cells for multiracials require some clarification before we proceed further. This row illustrates the percent for which the single best race response reported by the multiracial respondent agrees with the interviewer’s assessment of the respondent’s race. For example, for black-white multiracials, 75% of those who reported black as the best race describing them had interviewers who also reported black as their assessment of the respondent’s race. In order to cross-compare the percent agreement of multiracials to monoracials, we combined the numerators and denominators from the percent concordant row to form total percent concordant. So while these were only 75% and 17% for black and white, respectively, the overall concordance is 92%.

From the results on the bottom of Table 2, we find evidence for the phenomenon of “passability” among multiracials. From the percent concordant row, black-white and Asian-white multiracials exhibit interesting trends. Of self-identified black-white multiracials, 17% were described as white, while 45% of Asian-whites were considered white by interviewers. Although interviewers were asked to report their assessment of the respondent’s race after the respondent’s self-report, it appears that outsiders may not agree with how a multiracial individual sees himself/herself. We believe that while some multiracials may see themselves as able to “pass” for one of their constituent races, these results suggest that their treatment in society may be similar to from their minority counterparts.

The most striking result among multiracials is the percentages for racial concordance for Native American-whites. As mentioned previously, scholars attribute the adoption of a symbolic ethnicity to the peculiar trends in the U.S. Census for the Native American population. Two observations from this table support the symbolic ethnicity hypothesis of prior studies. First, only 5% of those who elicited Native American and 87% who reported white as the single best racial description had interviewers who agreed with their self-report. Second, among self-identified Native American-whites at Wave I, nearly 67% change their self-identification to white six years later. The extensive history of interracial relations between Native Americans and whites, coupled with the small numbers of Native Americans in the U.S., could make Native American-whites more inclined to identify with their white ancestry as young adults.

This possibility is only speculative. We contend that the motivations for why a large number of Native American-whites do not self-identify as Native American as adults are complex and require more focused research.

Results from Logistic Models—Generalized Estimating Equations

Because we are interested in the correlates of change in identity, Table 3 provides estimates of five logistic regression models that predict the (log) odds of changing between the two waves. These estimates correct for the clustering of samples and the unequal probability of selection into Add Health. Model 1 considers only race as a categorical independent variable, with change/no change as the dichotomous dependent variable. Multiracials overall have the largest proclivity towards change. However, single-race groups also experience some volatility in self-identified race. Native Americans, in particular, are more apt to change than any other single-race group considered (odds ratio or OR = 15.12), followed by single-race Asians (OR = 2.46). Interestingly, after adding gender and age (Model 2), there seems to be little change in the coefficients for race. As shown in Table 1, gender does not appear to be distributed in a similar fashion across groups. Given the association between identity and gender, we expected larger changes once differences in gender were taken into account.

Model 3 adds maternal education. Overall, there tends to be a positive association between mother's education and the stability of race reports. Respondents whose mothers have less than a high-school education are 22% more likely to change, while respondents whose mothers have more than a high-school education are 12% less likely to change compared to those with high-school educated mothers. While the direction of the coefficients is clear, it is important to note that none of the categories are statistically different from one other, according to the displayed results and likelihood ratio chi-square tests (not shown).

The most provocative findings stem from the addition of interviewer's remarks on respondent's physical appearance. While this may be imperfect, it does provide an external measure of how adolescents may be treated by others. With this measure, our model estimates how societal perceptions of the respondent influence how they self-identify. From Model 4, we can see that appearance is a powerful mediator of identity change, particularly for Native American-whites, Asian-whites, and single-race Native Americans. Two observations support this notion. First, the odds ratio for racial concordance indicates that individuals who had interviewers agree with what they self-report are 87% less likely to change how they self-identify in later years. Second, after controlling for differences in skin color and the agreement between interview perception of the respondent's race and his/her self-report, the differences between whites and the three aforementioned groups only become smaller. These findings suggest that racial identity is more fluid for Asian-whites and those of Native American ancestry.

These findings also indicate that racial ambiguity in appearance may be an important factor contributing to the volatility of identity for Black-white multiracials. After taking phenotypic traits into account, differences between Black-whites and whites decline by nearly 7%. Given the same gender, age, socioeconomic status, and similar phenotypic traits, the stability of racial identification among black-whites remains the highest compared to other multiracials.

Next we turn to Model 5, which adds interactions of skin color with self-identified race at Wave I. We are interested in whether the odds of changing identity among a particular race depend on the level of skin color. The most striking change after adding the interaction is not among multiracials, but rather among monoracials. For Native Americans, the stability of racial identification depends heavily on the level of skin color. Taking the parameter estimates (the natural log of the odds ratio) and differentiating Y with respect to Native Americans (to get the change in Y per change in X) or:

$$\frac{\partial Y}{\partial \beta^{\text{NatAm}}} = 9.93 - 2.01 \times \text{skinclr},$$

we get $9.93 - 2.01 \times \text{Skin Color}$. A two-level increase in skin color for Native Americans yields a predicted odds ratio that is fifty times higher than that of whites ($\text{OR} = 50.33$).⁴ Native Americans who have a phenotype similar to that of whites may have greater latitude over racial choices than those who have darker skin tones.

Overall, we show that for all racial groups considered phenotype tends to augment or truncate the list of racial options. The degree of passability—using skin color as a proxy—seems to be intimately tied to levels of volatility and stability in choosing a race. After adding the interaction term, the odds ratios for all groups—with the exception of black-whites and Native American-whites—rise, but at different magnitudes. This suggests that while phenotype is an important factor for changes in racial identification, it functions differently depending on the group(s) in question.

CONCLUSION

Add Health's unique design enables us to capture the individual, household, and societal factors that may explain why changes in self-identification occur over time. This analysis takes advantage of the multi-dimensional construction of Add Health, adding greater depth to the extant literature on racial identification. We use longitudinal and nationally representative data that collects information on self-identified race from the respondent and also third party remarks on the respondent's phenotype by the interviewers.

Our first research question examines the magnitude of identity change over time and also the direction of shifts. In general, the racial choices of multiracials tend to be volatile as compared to single-race groups, which is counter to what is predicted by Poston's *Biracial Identity Development Model* (1990). According to his model, individuals who self-identify with more than one race are in the final stage of identity development: *integration*. In the integration stage, multiracials have already passed through stages of self-doubt and introspection to embrace their multiple heritages simultaneously. Particularly, the pattern among Native Americans is counter to what one would expect from Poston's model. Only 19% of Native American-Whites self-identified consistently between Waves I and III, making this group the most inconsistent in their race responses between the two waves.

The agreement in racial identification for other multiracial groups hovers between 53% to 57%, which provides support for the Protean identity model of Rockquemore and Laffosy (2005) and contemporary models of identity theory. According to these perspectives, identity develops out of social interactions and is constantly revised over the life course. However, what is also consonant with social identity theory are trends among single-race groups. In other words, single-race groups show similar diversity. While 96% of whites reported the same race during both interviews, only 67% of Native Americans did so. In sum, multiracials become monoracials, but monoracials also become multiracial.

We were also interested in the direction of changes among the multiracials who change between Waves 1 and 3. Are they more likely to choose a minority or majority monoracial identity?

⁴To do this calculation, we took the natural log of the odds ratios for Native Americans and the interaction between Native Americans and skin color (or $\ln(355.23) = 5.93$ and $\ln(0.14) = -2.01$). From here, we differentiated y with respect to Native Americans. We then substituted "2" for "skinclr" to get the predicted value, which is $5.93 - (2.01 \times 2) = 3.92$. To obtain the new odds ratio, we exponentiated 3.92 to obtain an odds ratio of 50.33.

Furthermore, do some respondents who view themselves as monoracial at Wave I have a newfound multiracial identity as they grow older? The results are certainly mixed. Among multiracials, part Asians and part Blacks tend to have an affinity for their respective minority race if they change how they identify. On the other hand, Native American-whites at Wave I have a greater tendency to self-identify as white by the next interview. Among monoracials, Native Americans are by far the most inconsistent in their racial choices. Responses at Wave III for this group varied from white to black to Asian to a multiracial combination.

Results from this analysis also do not support the prediction by Park's Marginal Man theory that multiracials would be left in the "racial hinterlands." In other words, this theory predicts that multiracials will reject racial labels during the second wave. However, over 73% of those who did not identify with a race during adolescence self-identified as white in young adulthood. Only 2.6% of Asian-whites did not respond to the race question at the reinterview. The remaining multiracials groups chose at least one race. These patterns suggest that multiracials may experience feelings of rejection by single-race groups, but these feelings of isolation do not necessarily lead to the refusal of racial identification.

Our second question relates to disentangling the factors that account for racial identity and its changes over time. The stability and volatility of racial self-identification are firmly rooted in differences in two factors: socioeconomic status and physical appearance. Increases in maternal education are associated with elevated odds of reporting the same race over time. We believe that more educated mothers may be better attuned to how their children will be situated in a society demarcated by rigid racial lines. In addition, they perhaps have the financial flexibility to choose neighborhoods and schools that are racially integrated. However, there are limits to what parents can do to shelter their children from the racial experiences that occur in children's daily lives.

Phenotype is still an important factor that shapes racial self-identification in U.S. society, and our results lend strong support to this idea. Native American-whites, Asian-whites, and single-race Native Americans tend to have more latitude in how they identify themselves than other groups. The odds of change in racial identification increase after accounting for differences in phenotypic traits. Perhaps their ambiguous physical appearance or tendency to adopt a more symbolic identity makes racial lines more permeable for these groups, particularly for Native American-whites—nearly 81% of whom change how they identify as adults. Alternatively, Native American-whites could be self-identifying with a part minority ancestry in order to gain acceptance into peer groups during adolescence. For instance, Doyle and Kao (2007) find that Native American-whites are far more likely than any other racial group to choose a multiracial best friend in high school. They speculate that they might identify as multiracial because they have a multiracial best friend—not necessarily because they have one parent who is Native American.

For persons having black ancestry, phenotypic traits account for a significant difference between races. After controlling for interviewers' perceptions, single-race blacks have a significantly stable identity over time, while for black-white multiracials differences in phenotypic traits explain their volatility almost entirely. Xie and Goyette (1997) would suggest that this may be due to a "constraining effect." That is, for persons who have a black ancestor, there is an emphasis on their minority ancestry, which supersedes the fact that they may also be of another race. Our results suggest that physical appearance accounts for the change of identity over time among black monoracials and multiracials.

Our findings make significant contributions to the social psychological understanding of multiracial identity and its development. First, expressing a mixed-race identity during adolescence does not signal the completion of an identity process. In addition, these shifts differ

significantly depending on the multiracial subgroup. Second, Asian-whites were the only multiracial subgroup to show any evidence of rejecting racial labels in the third wave by not responding to the race question. This should be interpreted with caution. While Stonequist suggests that this is an indication of isolation and resentment due to a Marginal Man status, other researchers would argue that it is only one of the many options that multiracials choose as part of a healthy identity development, that it may indicate that racial labels do not adequately describe their social experience. Third, our findings about the significance of skin color on identity are consistent with prior literature. Interestingly, the interaction between skin color and identity stability seems to play a more important role for monoracials than multiracials. Moreover, similar to results by Khanna (2004), reflected appraisals (as captured by racial concordance) seem to be important considerations for identity choice—specifically for its stability over time. Those who are more aware of how they look (racially) in the eyes of others are more likely to be consistent in how they identify.

While our results clearly show that many adolescents (especially multiracials) change their racial identity in their transition to adulthood, we cannot assume that this magnitude of change will continue to occur over the life course. It is likely that adolescence and early adulthood is a time of intense self-revelation and changing self-identity for individuals. Still, our results suggest that change is not random and that social demographic characteristics are linked to the stability of racial self-identification over time.

REFERENCES

- Allison, Paul D. *Logistic Regression Using the SAS System: Theory and Application*. Cary, NC: Wiley-SAS Institute; 2001.
- Amaro, Hortensia; Zambrana, Ruth E. Criollo, Mestizo, Mulato, Latinegro, Indigena, White, or Black? The US Hispanic/Latino Population and Multiple Responses in the 2000 Census. *American Journal of Public Health* 2000;90:1724–1726. [PubMed: 11076239]
- Baumeister, Roy F. The Self. In: Daniel, T Gilbert; Susan, T Fiske; Gardner Lindzey, editors. *Handbook of Social Psychology*. Vol. 4th ed.. New York: McGraw-Hill; 1998. p. 680-740.
- Bean, Frank D.; Stevens, Gillian. *America's Newcomers and the Dynamics of Diversity*. New York: Russell Sage Foundation; 2003.
- Brunsmma, David L.; Rockquemore, Kerry Ann. The New Color Complex: Appearances and Biracial Identity. *Identity: An International Journal of Theory and Research* 2001;3(1):29–52.
- Chantala, Kim; Tabor, Joyce. *Add Health User Guides*. Chapel Hill, NC: Carolina Population Center; 1999. *Strategies to Perform a Design-based Analysis Using the Add Health Data*.
- Chantala, Kim. *Add Health Users Workshop*. Bethesda, MD: National Institutes of Health; 2003. *Introduction to Analyzing Add Health Data*.
- Committee on National Statistics. *The 2000 Census: Counting Under Adversity*. Washington, D.C.: National Academy Press; 2004.
- Cooley, Charles Horton. New York, NY: Schocken Books; 1902. *Human Nature and the Social Order*.
- Doyle, Jamie Mihoko; Kao, Grace. Friendship Choices of Multiracial Adolescents: Racial Homophily, Blending, or Amalgamation? *Social Science Research* 2007;36:633–653. [PubMed: 19727415]
- Erickson, Erik. *Identity Youth and Crisis*. New York, NY: Norton; 1968.
- Eschbach, Karl. Changing Identification among American-Indians and Alaska Natives. *Demography* 1993;30:635–652. [PubMed: 8262285]
- Fogelson, Raymond D. Perspectives on Native American identity. In: Russell, Thornton, editor. *Studying Native America: Problems and Prospects*. Madison, WI: University of Wisconsin Press; 1998. p. 41-59.
- Gaskins, Pearl Fuyo. *What Are You? Voices of Mixed-Race Young People*. New York: Henry Holt; 1999.
- Gillem, Angela R.; Thompson, Cathy A. Introduction: Biracial Women in Therapy: Between a Rock of Gender and the Hardplace of Race. *Women in Therapy* 2004;27:1–18.

- Goldstein, Joshua R.; Morning, Ann J. The Multiple-race Population of the United States: Issues and Estimates. [Proceedings of the National Academy of Sciences](#) 2000;97:6230–6235.
- Grieco, Elizabeth M.; Cassidy, Rachel. Census 2000 Brief. Washington, DC: US Bureau of the Census; 2001. Overview of Race and Hispanic Origin.
- Harris, David R. The 1990 Census Count of American Indians—What Do the Numbers Really Mean. *Social Science Quarterly* 1994;75:580–593.
- Harris, David R.; Sim, Jeremiah J. Who is Multiracial? Assessing the Complexity of Lived Race. [American Sociological Review](#) 2002;67:614–627.
- Heck, Katherine E.; Parker, Jennifer D.; Jane, McKendry; Schoendorf, Kenneth C. Multiple-race Mothers on the California Birth Certificate, 2000. [Ethnicity and Disease](#) 2001;11:626–632. [PubMed: 11763287]
- Heck, Katherine E.; Jennifer, Parker D.; McKendry, Jane C. Multiple-race Mortality Data for California, 2000–2001. [Public Health Reports](#) 2004;119:187–191. [PubMed: 15192906]
- Herman, Melissa. Forced to Choose: Some Determinants of Racial Identification in Multiracial Adolescents. [Child Development](#) 2004;75:730–748. [PubMed: 15144483]
- Higginbotham, Leon; Kopytoff, Barbara K. Racial Purity and Interracial Sex in the Law of Colonial and Antebellum Virginia. In: Kevin, R Johnson, editor. *Mixed Race America and the Law*. New York: New York University Press; 2003. p. 13-27.
- Hirschman, Charles; Alba, Richard; Farley, Reynolds. The Meaning and Measurement of Race in the U.S. Census: Glimpses into the Future. [Demography](#) 2000;37:381–393. [PubMed: 10953811]
- Hitlin S, Brown JS, Elder GH. Racial Self-categorization in Adolescence: Multiracial Development and Social Pathways. [Child Development](#) 2006;77:1298–1308. [PubMed: 16999799]
- Jones, Nicholas A.; Smith, Amy Symens. Census 2000 Brief. Washington, D.C.: The US Bureau of the Census; 2001. The Two or More Races Population: 2000; p. 1-10.
- Kao, Grace. Racial Identity and Academic Performance: An Examination of Biracial Asian and African American Youth. *Journal of Asian American Studies* 1999;2(3):223–249.
- Khanna, Nikki. The Role of Reflected Appraisals in Racial Identity: The Case of Multiracial Asians. [Social Psychology Quarterly](#) 2004;67:115–131.
- Landale, Nancy S.; Oropesa, RS. White, Black, or Puerto Rican? Racial Self-Identification among Mainland and Island Puerto Ricans. [Social Forces](#) 2002;81:231–254.
- Lee, Jennifer; Bean, Frank D. America's Changing Color Lines: Immigration, Race/Ethnicity, and Multiracial Identification. *Annual Review of Sociology* 2004;30:221–242.
- Nagel, Joane. American Indian Ethnic Renewal: Politics and the Resurgence of Identity. [American Sociological Review](#) 1995;60:947–965.
- Nakazawa, Donna Jackson. *Does Anybody Else Look Like Me?: A Parent's Guide to Raising Multiracial Children*. Cambridge, MA: Perseus Books; 2003.
- Office of Management and Budget. Recommendations From the Interagency Committee for the Review of the Racial and Ethnic Standards to the Office of Management and Budget Concerning Changes to the Standards for the Classification of Federal Data on Race and Ethnicity. *Federal Register* 1997;62(131):36874–36946.
- Okamura, Jonathan Y. Situational Ethnicity. *Ethnic and Racial Studies* 1981;4:452–465.
- Parker, Jennifer D.; Madans, Jennifer H. The Correspondence between Interracial Births and Multiple-race Reporting. [American Journal of Public Health](#) 2002;92:1976–1981. [PubMed: 12453819]
- Passel, Jeffrey S. Provisional Evaluation of the 1970 Census Count of Native Americans. [Demography](#) 1976;13:397–409. [PubMed: 955175]
- Phinney, Jean S. Ethnic Identity in Adolescents and Adults: Review of Research. [Psychological Bulletin](#) 1990;108:499–514. [PubMed: 2270238]
- Piper, Adrian. *Out of Order, Out of Sight: Selected Writings in Meta-Art 1968–1992*. Cambridge, MA: MIT Press; 1999.
- Poston, Carlos WS. The Biracial Identity Development Model: A Needed Addition. [Journal of Counseling and Development](#) 1990;69:152–155.
- Renn, Kristen A. Patterns of Situational Identity among Biracial and Multiracial College Students. [The Review of Higher Education](#) 2000;23:399–420.

- Rockquemore, Kerry Ann; Laszloffy, Tracey A. *Raising Biracial Children*. Lanham, MD: AltaMira Press; 2005.
- Root, Maria PP. Multiracial Families and Children: Implications for Educational Research and Practice. In: James, A Banks; McGee Banks, Cherry A., editors. *Handbook of Research on Multicultural Education*. San Francisco, CA: Jossey-Bass; 2003. p. 110-124.
- Root, Maria PP. From Exotic to Dime a Dozen. *Women and Therapy* 2004;27:19–31.
- Ruiz, Vicki L. Morena/o, Blanca/o y Cafe con Leche: Racial Constructions in Chicana/o Historiography. *Mexican Studies/Estudios Mexicanos* 2004;20:343–360.
- Russell, Kathy Midge Wilson; Hall, Ronald. *The Color Complex: The Politics of Skin Color among African Americans*. New York: Anchor Books; 1992.
- Snipp, Matthew C. Sociological Perspectives on American Indians. *Annual Review of Sociology* 1992;18:351–371.
- Snipp, Matthew C. Racial Measurement in the American Census: Past Practices and Implications for the Future. *Annual Review of Sociology* 2003;29:563–588.
- Spickard, Paul R. *Mixed Blood: Intermarriage and Ethnic Identity in Twentieth-Century America*. Madison, WI: University of Wisconsin Press; 1991.
- Stephan, Cookie White; Stephan, Walter G. After Intermarriage: Ethnic Identity among Mixed-heritage Japanese-Americans and Hispanics. *Journal of Marriage and the Family* 1989;51:507–519.
- Stonequist, Everett. *The Marginal Man: A Study in Personality and Conflict*. New York: Russell and Russell; 1937.
- Streiner, David L.; Norman, Geoffrey R. *Health Measurement Scales: A Practical Guide to Their Development and Use*. New York: Oxford University Press; 2003.
- Thomas, Kathryn F.; Dingbaum, Tamara L. How Good are these Data Anyway? The 1990 Content Re-interview Survey. Presented at the Proceedings of the Survey Research Methods Section: American Statistical Association. 1992 [Last Accessed: October 8, 2007]. <http://www.amstat.org/Sections/Srms/Proceedings/y1993.html>
- Thornton, Russell, editor. *Studying Native America: Problems and Prospects*. Madison, WI: University of Wisconsin Press; 1998.
- U.S. Bureau of the Census. Population Division Working Paper. Washington, D.C.: 1997. Results of the 1996 Race and Ethnic Targeted Test.
- Vaquera, Elizabeth; Kao, Grace. Private and Public Displays of Affection Among Interracial and Intra-racial Adolescent Couples. *Social Science Quarterly* 2005;86:484–508.
- Waters, Mary C. *Ethnic Options: Choose Identities in America*. Berkeley, CA: University of California Press; 1990.
- Williams-Leon, Theresa Kay; Nakashima, Cynthia L., editors. *The Sum of Our Parts: Mixed-Heritage Asian Americans*. Philadelphia, PA: Temple University Press; 2001.
- Xie, Yu; Goyette, Kimberly. The Racial Identification of Biracial Children with One Asian Parent: Evidence from the 1990 Census. *Social Forces* 1997;76:547–557.

Biographies

Jamie Mihoko Doyle is a postdoctoral fellow at the Department of Biostatistics and Epidemiology at the University of Pennsylvania School of Medicine. Her main research interests center on race relations and the social determinants of physical and mental health among adolescents with a specific focus on multiracials and Hispanics.

Grace Kao is Associate Professor of Sociology and the Director of the Asian American Studies Program at the University of Pennsylvania. Her research interests focus on race, ethnicity, immigration and educational outcomes of youth. This paper is part of a larger project, supported by NICHD, on interracial friendships and romantic relationships among adolescents.

Table 1
Weighted Descriptive Statistics of Respondents Who are in Both Waves I and III, Add Health In-home Sample^a

Race Self-Identified at Wave I	White	Black	Asian	Native American	Black and White	Asian and White	Native American and White
<i>Outcome Measure: Identity Change^b</i>							
Change	2.9	2.9	7.0	30.0	41.3	45.0	80.9
No Change	97.1	97.1	93.0	70.0	58.7	55.0	19.1
<i>Individual-Level Characteristics</i>							
Gender							
Male	50.4	49.8	54.5	64.7	56.9	46.7	53.9
Female	49.6	50.2	45.6	35.3	43.1	53.3	46.1
Age at Wave I ^c	15.5	15.7	15.7	15.1	15.9	15.3	15.2
<i>Pa rental Characteristics</i>							
Mother's Education							
< High School	10.0	21.1	23.0	25.5	10.5	12.3	17.0
High School	45.1	44.8	20.3	32.5	35.5	30.7	44.4
High School +	45.0	34.2	56.8	42.1	53.0	57.0	38.7
<i>Interviewer's Remarks</i>							
Skin Color, Wave III							
Black	0.2	28.7	0.5	0.8	5.0	0.0	1.9
Dark Brown	0.1	30.3	3.1	23.5	8.8	2.5	0.0
Medium Brown	0.4	30.4	18.7	31.7	35.8	3.1	1.1
Light Brown	2.8	10.3	48.0	11.8	40.6	42.2	5.8
White	96.5	0.3	29.7	32.4	9.8	52.2	91.3
Total Weighted N	14,438,825	3,334,319	744,345	103,141	84,226	84,991	322,715
Total Unweighted N	7,864	3,079	996	83	89	88	194

^aReported are column percents, unless otherwise indicated. Columns may not sum to 100% due to rounding error.

^bChange in self-reported race from Wave I to Wave III.

^cReported are weighted means for age at Wave I.

Weighted Descriptive Statistics of Respondents' Racial Identity Self-Reported at Wave I by Self-Reported Racial Identity Reported at Wave III^a

Table 2

Race at Wave III	Race at Wave I						
	White	Black	Asian	Native American	Black and White	Asian and White	Native American and White
	Did not Identify with a Race	Residual					
Monoracials							
White	96.3 7,176	0.7 15	1.4 10	14.1 8	2.0 —	14.9 11	68.6 122
Black	0.1 14	96.3 2,724	0.4 —	1.9 —	33.1 33	0.0 —	1.9 —
Asian	0.1 4	0.0 —	89.7 873	0.4 4	0.0 —	26.9 19	1.7 —
Native American	0.1 5	0.3 8	1.5 22	67.1 48	0.0 —	0.0 —	6.6 12
Multiracial							
Black and White	0.1 7	0.4 19	0.0 —	0.3 —	57.0 42	0.0 —	0.0 —
Asian and White	0.1 12	0.0 —	3.5 27	0.0 —	0.0 —	53.1 46	0.0 —
Native American and White	2.3 169	0.0 —	0.0 —	12.2 11	0.0 —	0.0 —	18.6 39
Did Not Identify With a Race	0.1 10	0.0 —	0.2 —	0.0 —	0.0 —	2.6 —	0.0 —
Residual	0.8 65	2.4 81	3.4 32	4.1 5	8.0 6	2.6 6	2.6 5
Racial Concordance ^{b,c}	White	Black	Asian	Native American	Black/White	Asian/White	Native Am./ White
% Concordant	99.8	99.6	94.4	83.0	74.7/17.2	27.3/44.5	4.7/86.6
Total Concordance	99.8	99.6	94.4	83.0	91.9	71.8	91.3

^a Un-weighted percentages of race at Wave I by race at Wave III are available from the authors upon request. Columns may not sum to 100% due to rounding error. Un-weighted Ns are displayed in “()” Due to Add Health contractual data restrictions, cell frequencies less than three cannot be reported. These cells are indicated by “—.”

^b See Appendix for information on concordance between interviewer and self-report.

^c Disaggregated and aggregated concordance percentages were calculated based on weighted frequencies for all races. For instance, for black-white multiracials, the weighted frequencies for concordance were 57,126 and 13,164 for black and white, respectively. The total number of frequencies for this group was 84,226. Excluding 9.2% of black-whites due to non-response (N = 7,768) yields a total weighted N of 76,458. Dividing the numerators by 76,458 yields percentages of 74.4% and 17.2% for black and white, respectively. Adding the two percentages together, the total concordance is 91.9%. This figure also suggests that 8.1% of respondents did not self-identify with a race that was not in agreement with the interviewer's assessment of the respondent's race. This same procedure was repeated for all multiracial groups. 0.5% of Asian-whites and 9.2% of black-white multiracials were excluded from the concordance percentage calculations due to non-response to the “best single race” question.

Table 3

Odds Ratios from Logistic Models Estimated by Generalized Estimating Equations with Change in Racial Identity as a Dichotomous Dependent Variable^a

	Model 1	Model 2	Model 3	Model 4	Model 5 ^c
<i>Individual-Level Characteristics</i>					
Race of Respondent, Wave I					
[White]					
Black	0.95	0.95*	1.05	0.88	4.11*
Asian	2.46*	3.07*	4.18*	2.75*	7.71*
Native American	15.12*	14.06*	12.21*	7.94*	358.04*
Black and White	23.39*	24.06*	21.77*	14.08*	8.12*
Asian and White	27.01*	26.90*	33.50*	19.71*	44.64*
Native American and White	140.25*	139.91*	184.38*	166.59*	84.39*
Gender					
[Male]					
Female		1.03	1.04	1.06	1.00
Age					
Wave I		0.96	0.94	0.95	0.94
<i>Parental Characteristics</i>					
Mother's Education					
[High School]					
< High School	1.22	1.27	1.39		
High School +		0.88	0.90	0.90	
<i>Interviewer's Remarks</i>					
Concordant with Respondent, Wave I					
[No]					
Yes					0.19
Skin Color, Wave III ^b				0.13	1.79
<i>Interactions</i>					
[White]					
Black* Skin Color					0.46
Asian* Skin Color					0.49
Native American* Skin Color					0.14
Black-White* Skin Color					0.92
Asian-White* Skin Color					0.54
Native American-White* Skin Color				1.95	
Log likelihood		-2793494	-2403228	-2364832	-2332044

^a. [] Indicates reference category

^b Skin color is a quantitative measure, 5-category measure: White (1), Light Brown (2), Medium Brown (3), Dark Brown (4), and Black (5).

* p < 0.05

^{A,B} Denotes statistical difference from monoracial Asians and Blacks, respectively. Results come from likelihood ratio tests with a critical value of p < 0.05.

^c The large odds ratios do not suggest the presence of quasi-complete separation for the following reasons: (1) The standard errors reported are non-zero and small, (3) Skin color is treated as a quantitative variable with a diffuse distribution, and (3) Likelihood ratio chi-square statistics (displayed are based on Wald) are also align with what is reported above (See Allison 2001).

Appendix A

Detailed Descriptions of Variables on Race

Variables Used	Measures, Sources	Description
<i>Change/No Change</i> : If race reported at Wave I does not equal race reported at Wave III	Race at Wave I and Race at Wave III, Respondent In-home Questionnaire	Add Health asks "What is your race? You may give more than one answer." Response options included: White, Black or African American, Asian or Pacific Islander, Native American or American Indian, and Other. Monoracials were coded as White, Black, Asian, and Native American if they chose only one race. Multiracials were coded if they marked only two races for the race question. If an individual consistently reported his/her race in Waves I and III, then "No change" equals one and zero otherwise.
<i>Concordance</i> : Agreement between interviewer's report of respondent's race and respondent's self-reported race	Interviewer's Remarks on Respondent's Race, Wave I Best single-race, Wave I	After recording the respondent's responses to the ethnicity and race questions, interviewers were asked, "Please code the race of the respondent based on your observation alone." Options included: White, Black or African American, Asian or Pacific Islander, Native American or American Indian, and Other. Respondents who elicited multiple responses to the race question were also asked, "Which one category best describes your racial background?" Options were the same as above. Concordance in race reporting for multiracials (interviewer vs. self-report) was based on this question.
<i>Skin Color</i>	Interviewer's Remarks on Skin Color, Interviewer's Report Wave III	Immediately after leaving the respondent's residence, interviewers were instructed to answer a battery of questions, which includes, "What is the respondent's skin color." All possible options are displayed in the tables.

Source: The National Longitudinal Study of Adolescent Health website, <http://www.cpc.unc.edu/projects/addhealth>

^a All respondents used for the analysis self-identified as non-Hispanic in both Waves

^b The racial/ethnic information about interviewers is not available in Add Health.

^c Interviewer's remarks on skin color were not available in Wave I.

Appendix B
Un-weighted Descriptive Statistics of Respondents in Add Health, In-home Sample

	Self-reported Race at Wave I					
	White	Black	Asian	Native American	Black and White	Asian and White Native American and White
Attrition						
n	24,78	28,73	24,2	27,83	37,32	29,6
Wave I Only	75,22	71,27	75,8	72,17	62,68	70,4
In Waves I and III						
Outcome Measure: Identity						
Change from Wave I to Wave III						
No Change	97,06	96,72	93,16	64,1	51,72	56,63
Change to White	n/a	0,53	1,14	11,54	2,3	13,25
Change to Single Race	0,31	0,26	2,49	7,69	41,38	26,51
Minority						
Change to Multiracial or	2,63	2,49	3,21	16,67	4,6	3,61
Other Multiracial						0

* Reported are column percents. Weighted statistics are available from the authors upon request.