Re-thinking Race Among Adolescents in a Multiracial Generation: An Emerging Research and Public Health Approach to Identity and Health

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Submitted in partial fulfillment of the

requirements for the degree of

Doctor of Philosophy

under the Executive Committee

of the Graduate School of Arts and Sciences

COLUMBIA UNIVERSITY

2019

ABSTRACT

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There is a growing group of adolescents and young adults in the United States who identify as multiracial. An emerging literature has begun to research multiracial identification and health and behavioral outcomes for multiracial populations in comparison to their single-race counterparts. Understanding the intersectional influences on this identification process is critical to updating the literature on racial and ethnic identity and health with more accurate identifications and categories. This dissertation consists of three chapters, each of which investigates the topic of multiracial identification more closely. The first chapter reviews and synthesizes the research examining influences on multiracial identification and health outcomes and creates an empirically testable conceptual framework that guides the work of this dissertation. The second chapter uses a nationally representative sample to explore parent and child racial and ethnic identification as well as psychosocial outcomes and peer treatment among multiracial adolescents. Finally, the third chapter applies learnings from the first two chapters and uses a nationally representative public health dataset to update the empirical data on risk engagement for multiracial and single-race adolescents and young adults. Findings from these papers demonstrate that when compared to single-race peers, multiracial adolescents and young adults are not at increased risk for depressive symptoms, being involved with risky peer groups, or engaging in risk behaviors such as tobacco use, or alcohol use. This dissertation emphasizes the importance of integrating public health research with historical and demographic context. It also argues for approaching data analysis with theory and conceptual reasoning so as to most

accurately update public health research using categories that more closely correlate with how individuals self-identify.

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ACKNOWLEDGEMENTS

This dissertation research was supported by grants from the Initiative for Maximizing Student Development (5R25GM062454-12) and the Gender, Sexuality and Health Training Grant (2T32HD049339-11).

First, I would like to acknowledge and thank my dissertation committee, Dr. Diana Hernandez, Dr. Constance Nathanson, Dr. John Santelli, Dr. Ana Abraido-Lanza and Dr. Maria Abascal. Each of you provided unique contributions and pushed me out of my comfort zone. Your ability and willingness to provide constructive feedback that always pressed me to think more critically made this dissertation so much stronger. I have learned a tremendous amount from each of you, and am deeply appreciative.

Dr. Santelli, thank you so very much for providing me with countless opportunities over the past four years, for treating me like a true colleague and thought partner and for your encouragement and dedication to my success as a scholar.

To one of my mentors - Dr. Marina Catallozzi. Your fierce dedication to your role as a mentor and to my success as a researcher, teacher and person is humbling. I could never thank you enough for your guidance, friendship and kindness throughout this process.

To my parents – the two people who have always believed in me more than I believe in myself and have provided every opportunity to help me succeed in my education and my life. I wouldn't be where I am today without the two of you. Thank you for your unending support, encouragement, and love.

To my partner – thank you for riding this rollercoaster of graduate school by my side. Your encouragement, true and constant belief in my ability, interest and questions about my work, and

your never-ending ability to help me take a step back and see the big picture are so appreciated, thank you.

And to my friends who have been there every step of the way providing encouragement and love - it truly takes a village. I'm so lucky to have found the best village I could ever ask for. Thank you.

CHAPTER 1

Check All that Apply: Adolescents Growing up in a Generation Allowed to be Multiracial

There are a growing number of adolescents and young adults in the United States who identify as multiracial (Bernstein & Edwards, 2008). An emerging literature has begun to examine the unique ways multiracial adolescents and young adults identify. Currently, the literature on multiracial individuals in the United States operates in silos – in racial and ethnic studies, sociological literature on categorization, psychological literature on development and finally in the public health and medical literature. This review takes an interdisciplinary approach relying on historical literature on race, racism and categorization, psychological and medical literatures on adolescent development, the sociological literature on racial and ethnic identification and the limited public health research beginning to disentangle multiracial health outcomes. Scholars of multiracial identity formation have emphasized the need for interdisciplinary work – "just as mixed-race people exist at a complicated intersectionality, so too does the knowledge, method, and interpretation of their contemporary experiences" (Rockquemore, 2009, p.24; Zack, 1993).

To develop this review and to create a conceptual framework that connects these research bodies, I drew upon key review papers as well as books and empirical articles from these different fields to elucidate the multitude of complex relationships and influences on multiracial identification. This paper explores the definitional and operational challenges in studying multiracial populations, the unique developmental period of adolescence, the evolution of studying multiracial identity and then systematically explains each component of the conceptual model. This review develops a systematic, integrated framework for exploring vital questions including how and why adolescents come to identify with multiple races and how does this identification impact

their health and well-being. It also questions if the mechanism between identification and well-being occurs through internal mechanisms, the perception and treatment by others, or a combination of both. Once the conceptual framework is outlined, the second part of this review will connect the framework to its impact on health outcomes and will offer new directions for research using this framework.

Multiracial groups are often included as the 'other' analytic category in public health and in research. However, what is this category truly capturing? Who is included in this category and who 'counts' as multiracial? Although seemingly straightforward, it is first important to note how different understandings of racial and ethnic categories are formed and reified and by whom. These understandings vary from person to person and group to group throughout the United States, as well as between the United States and other countries and regions of the world (Saenz, 2005). Race and ethnicity have different formal definitions in the United States – race generally referring to the categories Black, White, Asian, and Other and ethnicity generally referring to national origin (in many cases Hispanic or Not-Hispanic). The complexity of operationalizing the term *multiracial* leads to the insight that the actual meaning of multiracial identification is quite different for individuals depending on how salient and important the racial categories are for them in daily life and how much 'distance' there is between these categories (e.g. Black-White may be different than Asian- White) (Cheng, 2009). It is for this reason that it is vital to disaggregate multiracial individuals, especially when looking at health consequences and outcomes, which may vary greatly across individuals depending on the specific groups with which they identify. It is also important to understand that the experience of being multiracial is not monolithic –a multitude of factors and circumstances might change this experience, including the time or position in the life course. Multiracial identification is a socially produced

category which means different things to different people and under different circumstances. Although some of these factors are considered to be operating on the individual level it is vital to note that most of these 'individual' factors are socially produced and are impacted by outside influences and perceptions.

It is also important to clarify the difference between identity and identification. This review will pull from work on identity formation that permeates the sociological literature, especially with regard to race and ethnicity. However, it will also move toward using the term *multiracial identification* instead of *identity*. Brubaker describes the critical difference:

> "Identification lacks the reifying connotations of 'identity'. It invites us to specify the agents that do the identifying. And it does not presuppose that such identifying (even by powerful agents, such as the state) will necessarily result in the internal sameness…Identification – of oneself and of others – is intrinsic to social life; 'identity' in the strong sense is not"(Brubaker, 2000 p.14).

It is therefore critical that we do not essentialize race and ethnicity by considering them intrinsic and stagnant things to study. Instead, it should be understood that personal identification is influenced by socially produced and external forces. From this point forward, when I use **identity formation** I will be addressing research that has been done looking at the intrinsic process of forming one's 'identity', however when I discuss influences on and outcomes for multiracial populations where we only know how they have identified in terms of a set of closed categories to choose from, I will use the term **identification**- as that is what is being actually measured in many studies and through official classifications. Identification can be more transient than identity. Identification is something that a person is forced into by a survey question and generally a set of close-ended categories. This does not necessarily mean that this identification is intrinsically meaningful or will be consistent long term.

Building an Updated and Empirically-testable Intersectional Framework

The process of identifying with different groups and categories is a lifelong process that begins during childhood. However, it reaches its zenith during adolescence and is refined through multiple stages over the course of an individual's life. In adolescence, reconciling diverse dimensions of identification becomes an acute priority, especially for adolescents and young adults of color (Rivas-Drake, 2014). These dimensions include race, ethnicity, sexual orientation, political views, cultural identification and many more. There is a real lack of attention paid to racial and ethnic identification during this period of time, especially among multiracial populations – a gap that this review aims to begin to fill.

Adolescence is a period in the life course that is especially important in terms of physical and emotional development (Steinberg, 2001). Traditionally adolescence has been examined as an inherently risky developmental time, often thought of as a period of brain development and social development that can lead to impulsive behavior. In clinical settings, Kenneth Ginsburg has attempted to shift this framework and argues that "while we guide youth to avoid risk behaviors, our greater goal is to prepare them to thrive and to position them to be fully prepared to lead us into the future" (Ginsburg, 2014, p.3). It is not that risk and resilience are diametrically opposed frameworks, but that not all adolescents participate in risky behaviors; therefore, it is important to understand the mechanisms behind why some adolescents 'fail' and others 'thrive' even when exposed to the same risks and challenges (Compas, 1995). Similarly, in much of the early conceptualization of multiracial identification it was taken as fact that identifying as multiracial was inherently stressful (Stonequist, 1937). However, this assumption needs to be empirically tested in a conceptually driven way that takes into accounts the multiple intersecting influences on identification and the link between identification and health and behavioral outcomes.

Adolescence is a time of questioning – questioning who you are and if you 'fit in' or are 'normal'. Past sociological literature has examined these ideas of 'fitting in' or feeling marginalized and the impact of those feelings on development and health. The marginal man theory argues that "a man living and sharing intimately in the cultural life and traditions of two distinct peoples; never quite willing to break, even if he were permitted to do so, with his past and his traditions, and not quite accepted, because of racial prejudice, in the new society in which he now sought to find a place" (Hughes, 1949, p.59). It is clear how feeling stuck or in-between two cultural frames and experiences could lead to this type of stressful and difficult position of not-belonging. This theory also demonstrates the impact of perception of others on an individual – how being in a liminal or in-between space would lead to not feeling accepted by either group. The idea of the marginal man is similar to that of double consciousness, which isa term coined by WEB Du Bois. Double consciousness is explained as "the sense of always looking at one's self through the eyes of others, of measuring one's soul by the tape of a world that looks on in amused contempt and pity"(Du Bois, 1903, p.2). Du Bois was discussing the lived experience of being Black in America and the difficulty that comes with these two identities (Black and American). Although he was not himself talking about being multiracial, this concept is directly transferrable to what is discussed in this review. Du Bois said

> "It is a peculiar sensation, this double-consciousness, this sense of always looking at one's self through the eyes of others…one ever feels his two-ness, an American, a Negro; two souls, two thoughts, two unreconciled strivings…the history of the American Negro is the history of this strife – this longing to attain self-conscious manhood, to merge his double self into a better and truer self. In this merging he wishes neither of the older selves to be lost" (Du Bois, 1903, p.3).

For some individuals who identify as multiracial this idea of double consciousness might resonate. However, this is not the case for all adolescents. **It is vital to understand under what circumstances does identifying as multiracial create feelings of instability and stress that**

might put adolescents at risk for negative behavioral and health outcomes and under what circumstances does identifying as multiracial provide the adolescent with advantages from the multiple cultures, experiences and influences available to them? It is also necessary to explore the impact of others' perceptions and treatment on individuals who identify as multiracial to better understand the link between identification and health behavior outcomes.

Much of the earliest theoretical work on multiracial populations focused specifically on biracial populations (generally Black and White) and focused on deficits and marginality (Stonequist, 1937) and focused on the difficulty that came with identifying with multiple races. It became clear that models of identity formation that focused on single-race individuals did not fit the experience of multiracial populations (Root, 1992). Work that has followed (Poston, 1990) has focused on the different stages of identity formation for biracial populations (not separating out people who identify with different racial and ethnic groups). Some models have demonstrated that the identity process and outcomes for multiracial populations is not monolithic and can change over the life course. For example, the Continuum of Biracial identity Model by Rockquemore and Laszloffy argues that there is a continuum that multiracial individuals fall within – from exclusively one of their races to exclusively the other with different levels of blendedness in between (Rockquemore & Laszloffy, 2005).

The way an individual identifies does not occur in a vacuum – there are multiple factors that affect this process for an individual. There have been many conceptual models developed to examine the complex influences on identity formation for multiracial populations. Table 1 summarizes the major components of some of the key models as described in Wijeyesinghe's (2012) article which introduced the revised Intersectional Model of Multiracial Identity.

Although this table presents some of the key evolutions in theory about populations that identify as multiracial, it is not comprehensive of all theories. These previous models have underscored the importance of intersectionality and a life course approach to understanding the lived experience of multiracial identifying individuals.

Table 1. Evolution of Key Models Exploring Multiracial Identity

Model Name	Factor Model of Identity	Multiple Dimensions of Identity Model	Ecological Framework for Understanding Multiracial Identity Development	Intersectional Model of Multiracial Identity
Year Introduced	2001	2000	2002	2012
Key Components	Single social identity (racial identity in this case) influenced by multiple social constructs and including things like physical appearance, cultural attachment, spirituality etc.	Highlights multiple aspects of person's identity and highlights fluidity of identity. Also highlights the importance of internal and external forces on identity.	Expanded upon Factor model using ecological model to incorporate additional influences, including family socialization, family functioning, community attitudes and historical influences	This model highlights the idea that different factors affect identity differently at different time points in an individual's life and that racial identity is fluid. Also emphasizes the importance of other social categories such as gender, class and age.
Citation	Wijeysinghe, 2001	Jones and McEwon, 2000	Root, 2002	Wijeysinghe, 2012

Although previous models of multiracial populations exist, and are similarly focused on intersectional influences, they have not been well incorporated into public health and medical research. Using these past theories as a foundation, the framework developed as part of this review takes its structure from the social ecological model - which emphasizes the different intersecting influences between individual, interpersonal, community and structural factors (Bronfenbrenner, 1979) - and also incorporates a life course framework to demonstrate that the

identification development process is not stagnant but takes place over time. This review will focus on adolescence as a critical time period when the issue of identification is particularly salient for many. It will also attempt to provide a framework with measurable and distinct factors that can be integrated into public health research to attempt to bridge the gap between the sociological literatures on multiracial identifying populations and the medical and public health research that is being done with these analytic categories.

Although many frameworks exist within these different but intersecting fields, a comprehensive framework aimed at understanding racial and ethnic identification and its impact on health, during adolescence marks a necessary contribution to the literature. I propose an original framework based on previous research and a comprehensive review of multiple literatures. This framework entitled, "Intersectional Influences on Multiracial Identification and Impact on Adolescent Development and Health" takes into account individual, interpersonal, community and structural level factors that impact racial and ethnic identification and health outcomes during adolescence. This moves the field forward beyond simply examining the impact of the heterogeneous experience of multiracial identity and instead linking it to health and developmental outcomes (Rocquemore, Brunsma and Delgado, 2009).

An intersectional approach is critical to understand what it means to claim a multiracial identification– taking into account the intersecting realities of other aspects of identification including gender, religion, geography and socioeconomic status. Although race and ethnicity are particularly salient pieces of how a person identifies, due to the historical and social context of the United States, identification should always be examined as intersectional and should be examined across the life course. Intersectionality is "a theoretical framework that posits that multiple social categories (e.g. race, ethnicity, gender, sexual orientation, socioeconomic status) intersect at the

micro level of individual experience to reflect multiple interlocking systems of privilege and oppression at the macro, social structural level (e.g. racism, sexism, heterosexism)" (Bowleg, 2008, p.1267). Due to these interlocking systems of privilege and oppression, it is vitally important to understand that racial and ethnic identification exists within the context of other socially produced categories that individuals are identified by – including gender, class and many others. This is especially important to unpack during adolescence, as this is a critical period of development when many previously accepted identities are questioned – such as racial, sexual and gender identification (Christie, 2005; Tolman, 2011).

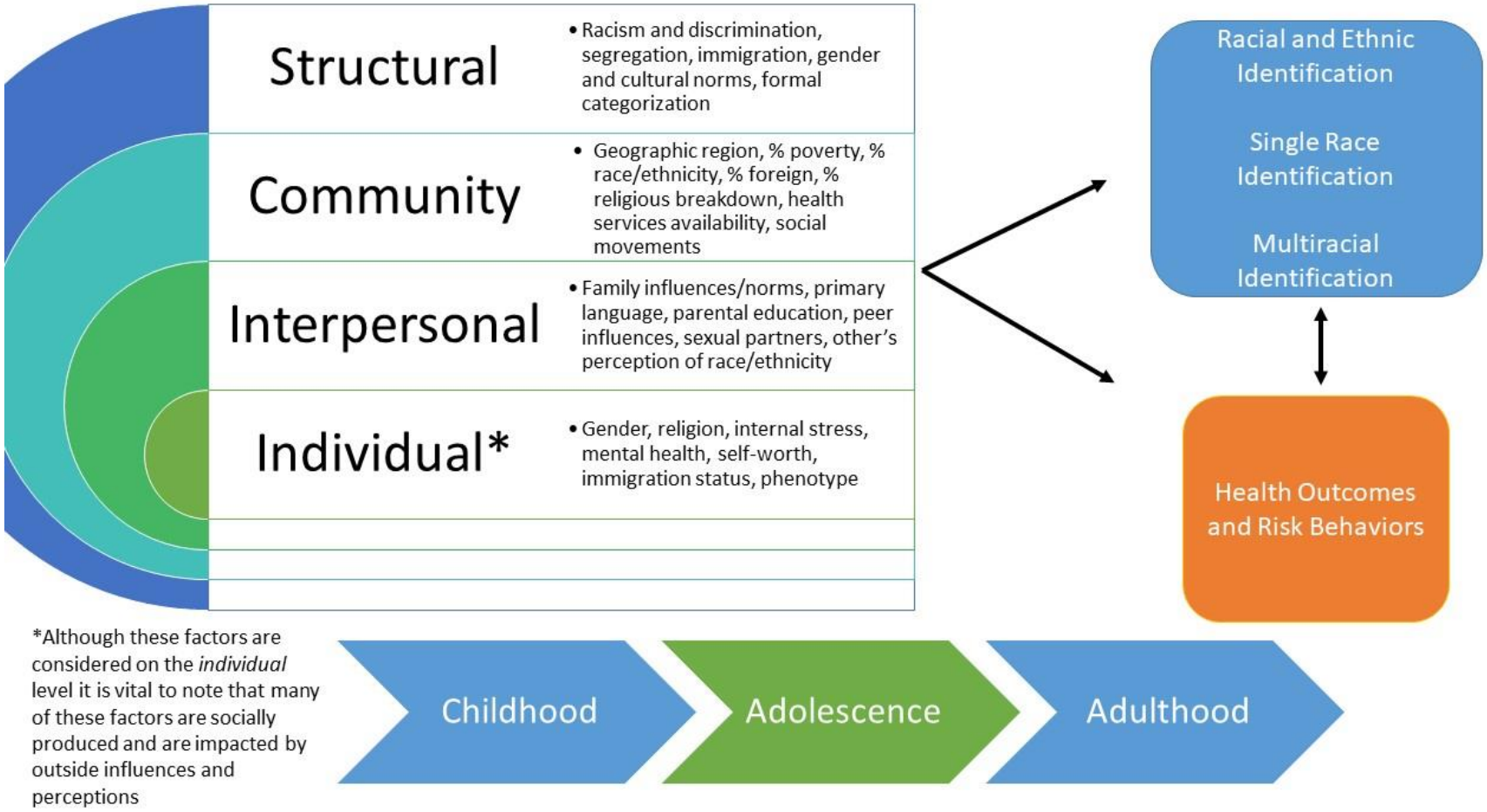
It is not only important to place multiracial identification within its structural, community and interpersonal contexts but also to locate it within the individual's life course. Choosing how a person will identify is not a finite process that occurs in adolescence and then ends, and it is not something that is achieved during childhood and finalized by adulthood. Adolescence is a time of transition from childhood to adulthood and includes cognitive and emotional development, as well as changes in social relationships (Smetana, Campinoe-Barr, Metzger, 2006). Identification also differs based on influences from parents, family and community. When an adolescent begins to question who they are, this process often begins with who they are in comparison to other people. One of the most formative development theories is that of Erikson's model of development, which emphasizes the importance of adolescence as a period of identity formation and identity crisis. Erikson explains that this process of identity crisis is a complex cycle of reflection and observation, saying "identity formation employs a process of simultaneous reflection and observation, a process taking place on all levels of mental functioning, by which the individual judges himself in the light of what he perceives to be the way in which others judge him in comparison to themselves and to a typology significant to them; while he judges

their way of judging him in the light of how he perceives himself in comparison to them and to types that have become relevant to him"(Erikson 1968, cited in Tatum 1997:p.19). Identity formation does not occur in a vacuum – instead it occurs at the intersection of multiple social identities including race or ethnicity, gender, sexual orientation, religion, politics, socioeconomic status among other systems of categorization.

Levels of Influence on Racial and Ethnic Identification

The framework presented in Figure 1 below demonstrates the multiple spheres of influence that are necessary to account for when exploring how an individual identifies. Just as one cannot look at the individual as a static point but instead need to explore how the individual fits within the life course, it is also critical that individual factors are explored alongside the intersecting influences that the individual is situated within – including interpersonal, community and structural. This review will move from the individual level influences and then outward to interpersonal, community and structural levels.

Figure 1. Intersectional Influences on Multiracial Identification and Impact on Adolescent Health Outcomes



Individual Level

There are many conceptualizations of the identity formation process for individuals, however most are derivatives of the same major stages. The first stage is generally considered unexamined racial or ethnic identity, and takes place before an individual begins to explore or have positive or negative feelings toward their ethnic group. The second is the period of time when they are going through exploration and beginning to search and decide how they want to identify and then finally the third is achieved ethnic identity, when an individual has decided which groups they will identify with (French, 2006). However, this is not a linear process, identification may shift due to outside or potentially changing circumstances such as geography, peer influences, romantic partners and historical context, which includes the shifting salience of particular aspects of identity over time. A fluid conceptualization of identity allows this process to repeat multiple times for an individual, occurring as a cycle rather than a linear and one way process. It is also interesting to note that multiracial individuals are more likely to change their identification over time (Hitlin, Brown, Elder, 2006), and therefore looking at race as a static and fixed characteristic is even less valid for this group.

Many theoretical models for identity formation among multiracial groups exist within the sociological literature and have helped to enumerate the multiple sets of influences on multiracial identification. Much of the body of evidence focuses on how the impact of physical appearance on the process of racial identity formation, highlighting the intersection of personal identification and identification by others. However, the relationship between self-identification and perception by others is complex. For example, in some cases physical appearance and personal identification are congruent, meaning the way someone is identified by others matches how they identify themselves. However, in cases where physical appearance does not match self-

identification, this incongruence may hinder the ability of an individual to self-identify with certain racial groups (Wijeysinghe, 2012). Some research has found that racial and ethnic identity has more salience at a younger age for multiracial populations (Rogers and Meltzoff, 2017). This might be because of racial socialization messages that are received from parents and family, and the fact that race is often explained to children in minority families, especially when there is an inter-racial marriage (Rogers and Meltzoff, 2017).

The work that has examined gender as an influence on multiracial identification has not taken a truly intersectional approach, but instead has focused on the influence of gender concordance or discordance with parents. This research has produced conflicting findings. Some hypothesize that daughters are more likely to identify with their mother's race than their father's (Brusnma, 2005). Other research has shown the impact of the intersection of race and gender of parents on multiracial youth by demonstrating that there are complex patterns that are specific to different racial and ethnic multi-racial families. For example, that in Black/White households the adolescent tends to identify with the father's race if he is White, but that in Asian/White households the children tend to match the mother's race regardless of which race she identifies with (Bratter, 2009).

Similar to other research on multiracial identification, much of the work on gender and influence of parent gender on multiracial youth utilizes a risk based framework. Some qualitative work has demonstrated that White mothers of children who have a Black father face high levels of stigma and therefore might impact the access children have to social support (O'Donoghue, 2004). Not only is it sometimes the case that these interracial couples and their children are disowned by family members, but often White mothers report they are not able to relate to the effect of racism on their children (Reddy, 1994). The mechanism for these relationships is not well-studied, but one

hypothesis is that this has to do with family-based social capital. For example, the study by Schlabach found that multiracial-identifying young people with higher levels of family-based social capital are able to escape the negative well-being effects found for multiracial adolescents with less social capital (Schlabach, 2013).

In addition to the impact of parental gender on adolescent and young adult identity, there has been some research on the intersection of individual gender identity and racial and ethnic identification. However, evidence is sparse and shows conflicting findings, especially when considering different racial and ethnic subgroups. For example, some literature has theorized that young women place more emphasis on relationships and being connected to others whereas young men are more concerned with issues and messages of racial bias (Bowman & Howard, 1985). This may impact identity formation because girls may have the benefit of positive family socialization more so than their male counterparts (Charmaraman, 2010). Other studies demonstrate that racial and ethnic identity is more salient for girls rather than boys (Romero & Roberts, 1998), however a different study demonstrated that same finding but only for Black and Asian young people and not for multiracial or Hispanic adolescents (Martinez & Dukes, 1997).

Studying multiracial-identified populations also allows for a better understanding of the concept of 'symbolic' or 'situational' identities. Situational identities can be defined as social identities that individuals can construct and present as strategic responses to a specific context (Lee and Bean, 2010). Some multiracial young people express the idea of moving between identifications based on the situation or the context – sometimes identifying as one or the other single-race and other times identifying as multiracial dependent on the situation and context (Renn, 2000).

Although one way to look at changing identification is the idea of situational identification, research has also shown that multiracial adolescents are much more likely to change the way they identify over time – a finding that is often masked by cross-sectional instead of longitudinal studies of racial identification (Hitlin, Brown, Elder, 2006). Many individual factors, including psychosocial variables such as self-esteem, as well as geographic and family context variables are associated with the fluidity of racial identification for this population. For example, higher socioeconomic status and higher self-esteem are associated with lower rates of switching identification. Individuals with certain multiracial combinations (such as White and Native American) were most likely to switch their identification over time – emphasizing the need for nuanced analyses broken down by multiracial groups (Hitlin, Brown, Elder, 2006). Other research has demonstrated that multi-racial individuals are most likely to identify as White if they have a phenotype that is interpreted as White by others, don't consider ethnic identity to be important, and, if Hispanic, live in a mostly White context (Herman, 2004). In contrast, those who believe ethnic identity is important and have experienced discrimination are more likely to identify as non-White. These are complex and nuanced patterns that need to be confirmed and broken down in further research.

One area that is notably absent from much of the racial and ethnic identification literature is that of religion and belonging to a religious group. Some research has shown that being Jewish predicted identifying as White, whereas belonging to a religion that is associated with a minority group was associated with identifying as non-White (Davenport, 2016). In the United States, Muslim communities have been ostracized and marginalized in mainstream US culture and conversation. It is unclear how Muslims will be categorized by others and also how they will self-identify in terms of their race and ethnicity, although it is quite clear they are viewed as 'non-

White'. Research has explored how the racialization of Muslims can help to explain the rise of Islamophobia and can begin to frame Islamophobia as racism toward Muslims (Garner and Selod, 2015). Adolescents who identify as Muslim may have very different experiences than their multiracial peers due to the stigma attached to this identification in the United States. Research has begun to look at the unique experience of Arab-American youth in the United States who are facing prejudice, discrimination and also trying to navigate the difficult balance of cultural tradition and mainstream peer expectations (Ahmed, Kia-keating, Tsai, 2011). An intersectional approach should be taken to begin to understand how adolescents in the United States context incorporate their religious identification with their phenotype, class, gender and other identify-based characteristics.

It is critical to note that although identification is often thought of as a purely individual characteristic, many aspects of identity are socially produced in interaction with others. The way others view us and categorize us impacts how we view ourselves. The interpersonal and structural factors intersect and impact the identity development process.

Interpersonal Level

A 2014 review brought scholars in child development together to synthesize what is known on racial and ethnic identification during adolescence and young adulthood (Umana-Taylor, 2014). Although not specific to multiracial populations, this review emphasized the importance of context in racial and ethnic identity formation – context can mean geographic, familial, and historical contexts (Umana-Taylor, 2014).

The engrained dichotomy of Black versus White is evident in the assumption that when someone says multiracial or biracial they are referring to being Black and White. Even less

attention is paid to mixed combinations that do not include White, as Latino-Black or American Indian and Black populations do not 'mix' with Whiteness nor do they threaten the White majority (Tatum, 1997). It is not only evident in how people assume the terms bi- or multiracial refer to Black and White but it is also evident in the perception and treatment of different multiracial combinations. Research has shown that Asian-White and White-Hispanic children are more accepted in White majority communities than Black-White children (Tatum, 1997). However, multiracial populations are heterogeneous (even across individuals who identify with the same racial and ethnic groups) and many intersecting factors are at play into how that identification is decided upon. These variables include, the family context (who does the child live with, the parents races, etc.), geography and the environment.

Another main contribution of the sociological research on multiracial identification is the influence of parents on their children's identification. Within the context of multiracial identification, socialization is understood as the influence of information given to children by their parents about race and ethnicity (Hughes, 2006). While similar to the concept of cultural repertoires or modeling, this idea is specific to racial and ethnic identification. Hughes presents multiple types of racial and ethnic socialization. These include cultural socialization (parents teaching children about their racial and ethnic background), preparation for bias (teaching children that they may face discrimination) and promotion of mistrust (teaching children to be careful when having interracial interactions) (Hughes, 2006). Finally, in some instances, it is the silence or lack of talking about race at all that is influential for adolescents, because without being taught a frame to understand racial relations, experiences of discrimination or bias can be even more stressful for adolescents. These different categories or aspects of racial and ethnic socialization interact with gender and age, and parents approach these different topics differently

throughout their children's lifetime. For example, parents are more likely to discuss preparation for bias and promotion of distrust as children become older and are more likely to talk to girls about cultural socialization. Most of this research has traditionally been done with African American parents and children (Hughes, 2006).

Immigration status and nativity are also important factors that impact how parents identify their children. This is an area of research that once again emphasizes the importance of exploring multiracial individuals who identify with different racial and ethnic groups – not looking at them as one monolithic group (Khanna, 2012). For example, Asian-White parents are most likely to identify their child as Asian if foreign-born (Xie and Goyette, 1997). Some previous work has found that Black parents who were born in the US are more likely to identify their children as Black (Qian, 2004); whereas foreign-born Black parents are more likely to identify their child as White (Roth, 2005).This phenomenon can be explained by the specific context of race and racial classification in the United States and also due to immigrants understanding the complicated stratification system in the United States and trying to distance their children from this stratification (Khanna, 2012). For example, West Indian immigrants to the United States find themselves in a unique situation. When they first arrive, they tend to be at an advantage over Black Americans due to being perceived as hardworking by employers and already possessing the skills and qualifications, including English language, that are needed in the U.S. workforce (Waters, 1999). West Indians also tend to have better relationships with White Americans because they have a different view of racial relations coming from majority Black countries. However, the longer they are in the United States, the more their outcomes begin to reflect those of Black Americans due to wage discrimination, poor working conditions, and structural racism (Waters, 1999). West Indian immigrants often hold onto their West Indian

identification when they arrive in the US, but begin to identify as Black as their treatment begins to match that of Black Americans (Waters, 1999).

Additional qualitative research has identified different potential roles that parents take in helping to shape how their children identify (Crawford, 2008). Through a process of in-depth interviewing, adolescents interviewed identified these domains as areas that were important to their development (either positively or negatively). Crawford identified the following domains of parental influence, the first being "parental awareness and understanding of race issues" (Crawford, 2006). Parents were often sought out as support for adolescents who identified as biracial, and when that support did not exist, adolescents were frustrated. The second major domain was "impact of family structure and lack of role models" (Crawford, 2006). Adolescents discussed that when living in single-parent households where the absent parent is a different race, they often felt a lack of connection to that parents' racial or ethnic identity or felt the need to distance themselves from that half of their identity due to feelings of anger or resentment. Finally, the third domain identified was "family communication and willingness to talk about race issues" (Crawford, 2006). Negative communication about race left the largest impact on adolescents, especially when they perceived there to be disparaging remarks made about their parents' interracial relationship (Crawford, 2006). This research on the role of parents begins to explore the impact parents have on adolescent and young adult racial and ethnic identification through awareness of race issues, the impact of family structure and importance of communication.

Not only do familial influences impact racial and ethnic identification for multiracial adolescents and young adults, but peer groups and sexual partners also play important roles in identification. Peer groups are also particularly influential on multiracial adolescents and young

adults. Some research has explored to what extent and at what ages there is more racial fluidity among multiracial populations, and the impact on that classification by peer influences. Over the course of middle school, classmates and friends have different effects on multiracial identification. In the younger years of middle school, diversity in classmates and friends were both influential on multiracial identification. However, during the later years of middle school classmates are no longer influential, but friends remain so (Echols and Ivanch, 2017). Due to the complex nature of multiracial identity, many mechanisms have not yet been fully elucidated – however, one hypothesis is that a diverse group of friends may help multiracial adolescents navigate evolving identifications (Echols and Ivanch, 2017).

Community Level

The next level of influence is the community level, comprised of the immediate surroundings of the individual. These include the geographic context and demographic influences that the individual is placed within – such as religious, racial/ethnic, educational, and socioeconomic status. Major events such as social movements also play an important role and might impact the saliency of race and ethnicity. This level of influence also includes structural influences such as school and neighborhood environments.

Existing research on socioeconomic status and racial identity - especially multiracial identity - is conflicting. Research has demonstrated that multiracial individuals who live in minority social contexts (for example, their social networks and their schools) are more likely to identify with their minority racial background. Those multiracial individuals who have 'Whiter' social networks and environments are more likely to identify as either multiracial or White (Brunsma, 2005; Dalmage, 2000). However, a persistent problem in this research and much of the research on multiracial identifying populations is that it is difficult to tease out directionality of

relationships and mechanisms. In this case, is it that the social context affects the multiracial identification or that the multiracial identification influences where an individual lives? Or, is there a third variable that impacts the correlation – such as the family structure? This preliminary research shows the complex intersection of socioeconomic status, social context and phenotype and the challenging task of disentangling these multiple influences.

Identification is also impacted by social movements and political action. Linking to the literature on identity as a manifestation of political action is another lens to view the evolution of categories and identity movements. Movements such as Black power, the Chicano movement, and Black Lives Matter are political and social movements that place racial and ethnic identity as their central tenant and have generational impacts on how a group identifies, who is included in that group and how the group interacts with society. A study examining the effects of the immigration rights movement in 2006 demonstrated that after the protests and marches that were a part of this movement, Latinos answered that they had a greater sense of racialization than before the movement, and that these changes in identity persisted after the protests ended. The authors conclude that social movements can have immediate and long-lasting effects on collective identity. (Zepeda-Millan & Wallace, 2013).

Structural Level

When studying identification, it is critical to examine structural factors that the individual is situated within and the ways in which those factors impact how an individual is perceived and perceives themselves. The individual is enmeshed within a scaffolding of other factors that influence the way an individual moves through the world. As stated in the introduction of this review, identification does not look the same for all individuals, and it may not even look the same during different stages of life for an individual. The following section reviews the impact of the legacy of

racism and discrimination in the United States on classification and identification. This section will explain how the historical racial order in the US and structural racism impact the identification and lived experience of multiracial populations.

Racial order in the US: A Brief History

In order to fully understand the identification and experience of multiracial populations in the United States, it is vital to understand the complicated and troublesome context of race, racism and racial categorization in the United States. It is critical to begin with the understanding that race is a social construct that has been created and reified in order to create and maintain social hierarchies. The legacy of racial classification in the United States plays an enormous role in the racial and ethnic identity development process. Although it has taken many forms, racism has existed in the United States from its inception.

The legacy of slavery and the systematic dehumanization of Black people in the United States is the foundation on which classification, identification and racial relations is built. Slavery was begun and perpetuated with a belief that Black people were lesser than White people– a belief that was written into the Constitution of the United States with Black people being counted as ¾ of a person. The fact that it took a civil war to abolish slavery, and that in 2018 there are continued fights over honoring Confederate 'heroes' demonstrates the deep-rooted racism and belief of White superiority that existed and in many cases still exists in the United States. The dominant group in any hierarchal situation will always try and protect the status quo. As Everett Hughes said when discussing racial relations, "the group with the greatest interest in the status quo may be expected to think of the arrangement as permanent, and to justify it by various devices – such as the doctrine of racial superiority and inferiority. The group

disadvantaged in status may use some principle of permanency, which has been violated by the status-bargain forced upon them" (Hughes, 1963, p.882).

The outlawing of slavery in 1865 was clear progress, however it did not end racism it just *changed* its form. The introduction of Jim Crow legislation marked the progression of racist ideology and the institutionalization of racism. By writing racial segregation into law after the civil war, it maintained the idea of 'separate but equal' and further segregated the United States by racial group. Jim Crow laws permeated every aspect of American life – from restaurants to schools, doctors' offices and residential neighborhoods. These laws were widespread across the United States – they were not unique to the South. Although the pendulum swung back again when Jim Crow laws were outlawed through the Civil Rights movement in 1964, discriminatory legislation and policies continued and persist today (Kendi, 2016). Not only does official legislation overtly sustain racial hierarchies, but perhaps even more invasive is the political and cultural production of racism in the United States.

The effects of interpersonal and structural racism are widespread and permeate all aspects of life and relationships in the United States. For the purpose of this review, it is most relevant to understand their impact on racial classification. These concepts and social hierarchies have been built into racial categorization and how people are asked (and often forced) to identify.

The following table demonstrates the major shifts in the way racial and ethnic categories were collected on the Census over time. Through an examination of these major shifts in classification, we can see the impact of the racial order and racism on the category changes. Before 1950, phenotype was the main variable taken into account when classifying individuals. Identification was not an individual choice, but an external decision made by someone else. The directions stated that any person with any amount of "Negro blood" should be identified as

"Negro". The Census Bureau has relied upon cultural definitions to create its categories, using the 'one drop rule' (those who had any Black lineage at all were considered Black) to dominate how it created classification systems (Davis, 2010). It is important to note that the only ethnic population that the one-drop-rule applies to is Blacks. For all other populations, assimilation is seen as attainable and identification changes as inter-mixing occurs (Davis, 2010).

Table 2: Census Changes Over Time

	1790-1950	**1960**	**2000**
	Census takers decide race	Self-enumeration	Multiple categories allowed
Directions	Those who collect data for the census are told to decide the race of the individuals in front of them	Is this person --- (list of categories)	What is this person's race? Mark X one or more races to indicate what this person considers himself/herself to be.
Categories	**Example Categories are from 1930** **-White** **-Negro** ("person of mixed White and Negro blood should be returned as Negro, no matter how small the percentage of Negro blood") **-Mexican** **-Indian** ("person of mixed White and Indian blood should be returned as Indian, except where the percentage of Indian blood is very small, or where he is regarded as a White person by those in the community where he lives) **-Chinese** **-Japanese** **-Filipino** **-Hindu** **-Korean**	**Categories on 1960 census** -White -Negro -American Indian -Japanese -Chinese -Filipino -Hawaiian -Part Hawaiian -Aleut -Eskimo	**Categories on the 2000 Census:** **Race:** -White -Black, African American or Negro -Some other race -American Indian or Alaska Native -Chinese -Japanese -Filipino -Korean -Asian Indian -Vietnamese -Other Asian -Native Hawaiian -Samoan -Guamanian or Chamorro -Other Pacific Islanders **Ethnicity:** -Mexican, Mexican American, Chicano -Puerto Rican -Cuban -Other Spanish/Hispanic Latino

Perhaps the largest shift for the purposes of understanding multiracial populations happened in 1960 when Census policy around race and ethnicity switched to self-enumeration. Americans were now asked to classify themselves racially as they self-identified.

Up until 2000 individuals were only able to mark one racial category. If they did not want to do this, they had to mark the 'other' category. Instead of making a separate category, the census beginning in 2000 allowed individuals to mark "one or more races". However, the Census Bureau would only consider the first category the individual listed. One might have expected the ability to self-identify would have changed the Black population size; however, immediately after this change there was almost no change at all. One hypothesis for the reason behind the lack of a change is that the one drop rule (that if you had any Black lineage at all you were considered Black) had become so engrained in the population, that people did not change the way they identified simply because of a category change. "In other words, Blacks with White ancestry did not suddenly choose to identify as White or as some other race when given the opportunity to do so" (Lee and Bean, 2010, p.1091).

Between the years 1960 and 2000 the number of intermarriages in the United States increased by a factor of 20 (from 150,000 to 3.1 million) (Pew, 2015). In 2015, 17% of all new US marriages included spouses with different race or ethnicity (Pew, 2017). In order for inter-marriage to have an effect on identification, norms had to change as well. Many people with mixed heritage would not immediately identify as multiracial since any amount of Black heritage automatically meant Black identification. Intermarriage and procreation do not automatically shift norms, "intermarriage and procreation change individual positions vis-à-vis racial boundaries only where they are *socially recognized* to have that effect" (Loveman & Muniz, 2007, p.934). The shift in official classification, the rise of interracial marriage, and the beginning of a norm shift to allow for more nuanced racial groups and identification has led to a sizable group of the US population identifying as multiracial. In 2010, over 9 million people (2.9% of the US population) identified as more than one race. This was a 32% increase since

2000, and it is estimated that this percentage will grow by 180% by 2050 (Bernstein & Edwards, 2008).

The legacy of race and racism in the United States impacts the experience of multiracial populations in a unique way. When norms began to shift and more and more people identified as multiracial, the popular opinion was that those who identified as multiracial would end racial discrimination as the population began to blend. However, this is unlikely to happen and the current research on discrimination among individuals who identify as multiracial elucidates the many ways that multiracial populations experience unique forms of discrimination. The legacy of racism and enduring power of Whiteness in the United States is evident in that any 'blend' of non-Whiteness leads to discrimination (Hernandez, 2018). The production of 'Whiteness' is always evolving, with the newest strategy being what is often called 'colorblindness'. White dominance is in fact protected by the idea of color blindness which is an idea that "self-righteously wraps itself in the raiment of the civil rights movement and that, while proclaiming a deep fealty to eliminating racism, perversely defines discrimination strictly in terms of explicit references to race" (Lopez, 2006, p. xviii)

Institutional influences

Structural racism is defined as "a system in which public policies, institutional practices, cultural representations, and other norms work in various, often reinforcing ways to perpetuate racial group inequity" (Aspen Institute, 2016). One of the most persistent components of structural racism is that of residential segregation. Residential segregation has far-reaching implications for education and accumulation of wealth, and therefore the ability to have inter-generational impacts on racial relations and equality (or the lack thereof). Public discourse around residential segregation is that it is caused by de facto segregation, the consequence of White flight, real estate

agents steering Black families to certain neighborhoods and White families to others and banks discriminating against Black families. Although all of these factors are at play, and do contribute to the lasting residential segregation present in all areas of the country, some scholars argue that it is actually de jure governmental policy that has led to and maintained segregation (Rothstein, 2017).

In his book, The Color of Law, Rothstein argues that although public discourse and Supreme Court decisions have perpetrated the idea that segregation is accidental or a product of uncontrollable factors, this is a misrepresentation of the government's role in implementing and enforcing racist laws and policies that have engrained segregation in all corners of the United States. The argument is that the government denied African Americans in the United States the right and importantly the means to buy property and integrate into middle-class neighborhoods (Rothstein, 2017). Residential segregation is notoriously difficult to 'undo' because of several reasons: economic status is intergenerational – meaning once African Americans were unable to participate in the labor market, generations of people had lower income potential; significant wealth differences between White and Black families due to Black families being unable to purchase real estate; federal housing subsidies encouraged Black families to rent in low-income areas (Rothstein, 2017). It is for these reasons and many more that residential segregation persists.

With an understanding that residential segregation is widespread and persistent, it is easy to understand why schools are more segregated now than they were forty and fifty years ago. For example, in 1970 on average African American students attended schools with 32% White populations. In 2010, this number had actually gone down to 29% (Rothstein, 2017). This directly ties into who adolescents are generally around during their school years and impacts their educational opportunities, peer networks, and identification. The demographic makeup of schools and peer networks has a profound impact on the identification of multiracial adolescents and young

adults, as the impact of peer groups and neighborhood composition often changes how an individual is perceived and how they perceive themselves. It is especially impactful on multiracial youth and adolescents, as it has already been demonstrated that peer groups and neighborhood composition have strong impacts on racial identification and formation. The racial make-up of the neighborhood and school environment have also been shown to impact the racial identification of multiracial youth. Neighborhood makeup seems to have the largest impact on Hispanics, with Hispanics who live in higher SES and predominantly White neighborhoods being more likely to identify as White (Herman, 2004). The hypothesis for this finding is that Hispanics who have lighter skin tones often think of Hispanic as ethnicity and their race as White, whereas those who have darker skin identify as Hispanic as a racial group. This is similarly true for multiracial individuals who have some Black ancestry, with those who live in neighborhoods with a high percentage of Black neighbors being more likely to identify as Black (Khanna, 2012); this finding is similar for those who are Asian-White. Sociologists have hypothesized that this finding is due to cultural exposure which occurs both in the immediate family but also in the neighborhood and school contexts (Khanna, 2012). Interestingly, where there are high percentages of multiracial individuals, the identity of multiracial (rather than selecting a single identity) also increases – potentially because of awareness and acceptance of multiracial identity (Khanna, 2012).

Institutional system factors such as tracking systems in many schools where the more advanced tracks have disproportionate numbers of White students are obvious to young people. There are also social cues and influences – for example, messaging about who is sexually desirable or valuable and who begins to date or is left out of dating (Tatum, 1997). It is because of these encounters and the stark transition into being aware of their 'otherness' that often what is called racial grouping takes place. From a dominant racial perspective this is often referred to as 'self-

segregation', however racial grouping is a response to racism – it is a coping mechanism used to garner support among people going through a similar experience (Tatum, 1997)

Now that each level of the framework has been explored, and the current research has been documented, this review will move toward unpacking the connection between identity formation, identification and health outcomes.

Implications for health research

This review has provided the evidence for the conceptual framework presented in Figure 1, which is based on the social ecological framework. The model suggests that individual, interpersonal, community and structural factors influence how an individual identifies and simultaneously influence a myriad of potential health and behavioral outcomes.

The link between race and health is not a newly discovered concept. In 1906 W.E.B. DuBois identified health disparities through his analysis of census data and observed how these disparities were tied to root social determinants that disproportionately affected Blacks (DuBois, 1906). Racial differences in health have been well documented and have persisted over time (Williams, 2016). It is also clear that race as a piece of identity does not act in a vacuum – there are class and gender effects that are simultaneously affecting the individual and their health outcomes. Race and socioeconomic status (SES) are closely intertwined, however, "sociologists have emphasized that race and SES are two related but not interchangeable systems of social ordering that jointly contribute to health risks" (Williams,1997, p.5). Research has found that racial differences in health are sometimes reduced when controlling for education and for income,

however discrimination and stress account for remaining differences between health outcomes (Williams, 1997).

It is important to interrogate what is actually being measured when race is used in public health research. What are the categories that participants are allowed to select between? Do those categories reflect their lived experience? In order to avoid essentializing race, researchers should be careful to name *racism* and not a biological conceptualization of *race* as a predictor of health outcomes. The use of racial categories is not the same as the use of identity and the two should not be conflated (Zuberi & Bonilla-Silva, 2008). It is particularly important, when examining health outcomes for populations to be explicit about what is being studied and measured – is it self-perception, perception by others, identity or identification? These distinctions tend to get lost in this literature and are vital for understanding relationships and mechanisms regarding health outcomes.

Much research has focused on differences by race and ethnicity for adolescents in access to health care generally (Elster, 2003). Historically, this research has been done looking at single-race individuals and comparing non-White groups to the White reference category. For a long time, this made sense as it reflected the population in the United States. However, with the changing demographic landscape there is much more mixing between racial and ethnic groups. There is not only heterogeneity between multiracial groups and single-race groups but also within the multi-racial category. It is therefore necessary to take a more nuanced look at outcomes by racial and ethnic groups that include people who identify with different racial and ethnic groups.

It is critical to understand any findings of health outcomes for multiracial populations within this larger conceptual framework and to continue to push the field forward to begin to unpack these complicated and intersectional mechanisms between identity and health. The limited

public health research that has focused on health outcomes for multiracial populations in the United States has been risk-based. Udry and colleagues found that multiracial adolescents were at higher health and behavior risk in comparison to their peers who only identified with one race; they also found that this applied across the board and not only for certain race-combinations (Udry, 2003). Udry and colleagues define at risk as engaging in behaviors such as alcohol use, tobacco use, and sex at higher rates or at earlier ages. The authors conclude that multiracial populations are at high risk for emotional, behavior and health related problems. They hypothesize that the mechanism for this relationship is stress caused by identity conflict but were unable to test this hypothesis directly (Udry=, 2003).

Another study by Choi and colleagues aimed to explore rates and patterns of substance use and violent behaviors among multiracial adolescents in comparison to three mono-racial groups: European, African and Asian Americans (Choi, 2012). In order to operationalize race/ethnicity this study used self-identification into as many as five groups (Black/African American, Native American/American Indian or Alaska Native, Asian/Pacific Islander, Caucasian or White and Hispanic/Latino). The adolescents also filled out an ethnic identity measure to assess affirmation and belonging with specific ethnic groups. Their study found that there were higher rates of problem behaviors among multiracial adolescents in comparison to their mono-racial peers. They controlled for socioeconomic status differences between the youth and argued that this group of adolescents may be more harmed by issues of race and ethnicity and that there were associations between racial discrimination and many problem behaviors. There were several important limitations to this study: it was cross-sectional, the youth were quite young, and the ethnic identity measure used was developed for single-race populations and therefore may not capture the unique

qualities of multiracial identity. This study also highlights the need for research to be done on adolescents and young adults – a population too often overlooked by public health research.

Mental health variables such as depressive symptoms, anxiety, and stress are often cited as potential mechanisms that link identity and health outcomes. A study by Fisher and colleagues aimed to explore the relationship between ethnic identity and mental health outcomes for multi-racial adolescents. They found that multiracial youth experienced higher levels of anxiety and depressive symptoms in comparison to their single-race peers and more symptoms of anxiety than their Caucasian peers (Fisher, 2014). They link these findings to prior hypotheses that because identity formation is more stressful for multiracial youth, they are at increased risk for mental health issues. Family dynamics and their impact on children have not been thoroughly explored and could act as intervening mechanisms on the impact and outcomes for children of inter-racial marriages. However, the authors explain that more research needs to be done in order to understand how gender, socialization, and experiences with discrimination affect ethnic identity development and its connection to mental health.

The existing literature is not conclusive regarding under what circumstances the identity formation process is more stressful for multiracial youth, and under what circumstances it is not. This is a critically important question that needs to be explored in order to disentangle health outcomes for multiracial populations. Some research has begun to move the field toward other potential mechanisms between identity and health. So, for example, that it is possible multiracial individuals health outcomes may mimic the health outcomes of the racial group that they most closely identify with (Bratter, 2011). This leads to the hypothesis that the link between identification and health may be a combination of exposure to discrimination similar to a single

race group and/or exposure to environmental or structural conditions that impact health (Bratter, 2011).

There is even less research on sexual and reproductive health outcomes for multiracial adolescents and young adults. Adolescence is a period of development, identity building and also when many individuals begin to initiate sex, make decisions about relationship formation and engage in potentially risky behaviors. The age at which an individual begins to initiate sex has been shown in the literature to be a risk factor for other sexual risk behaviors (O'Donnell, 2001) as well as for adolescent pregnancy (Coker, 1994) and STIs (Kaestle, 2005). In past research, Black adolescents reported younger ages for first sexual intercourse and higher rates of adolescent pregnancy and STIs (Hallfors, 2007; CDC, 2010; Ventura, 2011). Although these overall trends have been widely reported on, they have not been fully explained. There is much research on individual and family level factors and an emerging literature on the effects of neighborhood and spatial disadvantage (Hallfors, 2007, Biello, 2013) as explanations for these disparities. It is critical that public health research begins to investigate these outcomes with a conceptually driven framework such as the one provided in this review and that this research is done with more nuanced understandings of racial and ethnic categories that are more reflective of the current and future US population.

Although the majority of the research presented demonstrates negative outcomes for multiracial adolescents and young adults, it is important that these data are updated as much of this work is based on data from earlier generations when identifying with multiple races was much less common, and therefore potentially more stressful.

Conclusion: Bringing it all together

This review has pulled from literatures that often exist in siloes – adolescent development, identity formation, racial and ethnic identity formation, and health – to create a more holistic and context-dependent understanding of multiracial identity formation specifically in a United States context. The conceptual framework developed fills a gap in this literature by demonstrating the intersectional influence of different contexts on the racial and ethnic identity development of adolescents and young adults, specifically for multiracial adolescents and young adults.

The theoretical contribution of this review to the literature on multiracial identity formation among youth include the following complicated and inter-related heuristics that place the discussion of multiracial identity within the historical realities of race and racism in the United States.

1. Internal (individual's perception) and external (other people, social scientists, government agencies) in the tabulation of identity

2. The continuous feedback loop between societal categorization and individual categorization and the problem of which is more influential and which comes first

3. The intersecting facets of identity and their changing influences throughout the life course

With the legacy of racism in the United States and the danger of categorization described in this review, it is critical that we take a lifelong, intersectional approach to identity, especially when applied to public health research. The three heuristics outlined above begin to push the field in that direction. The first is that racial and ethnic identity formation must be placed within the historical realities of race and racism in the United States. The second, and related point, is that internal and

external influences are both critical in how an individual forms their identity. Third, there is a continuous feedback loop between societal categorization and individual categorization and both are influential. Finally, this review has shown that identity is intersectional and occurs over the life course – it is not a stagnant process. It is only with this foundational understanding that public health researchers can begin to understand and disentangle health outcomes for multiracial adolescents and young adults.

The conceptual framework developed as part of this review demonstrates that a strength-based approach, as opposed to a risk-based framework, allows researchers to alter the frame from which they consider adolescents and understand the intersecting aspects of their identities and lives. It allows the focus to be on what are protective factors and what individuals, families and communities are already doing to protect themselves and their families. There are many areas of this framework that need to be tested using both qualitative and quantitative data to better elucidate the influence of these individual, interpersonal, community and structural level variables both on identity formation for multiracial adolescents and young adults as well as their health and risk behaviors. Further research should aim to explore these pathways.

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CHAPTER 2

Parents and Peers: Generational differences in Identification and Peer Influences for Adolescents Who Identify as Multiracial

Abstract:

Purpose

The objective of the study was to examine racial and ethnic self-identification among adolescents and to explore psychosocial outcomes and peer treatment for multiracial adolescents in the United States.

Methods

This analysis utilizes the Child Development Supplement which collected data in 2014 from a subsample of the Panel Study of Income Dynamics. Data were weighted to be nationally representative. Descriptive statistics were used to describe the population and to explore family and parent demographics. Kappa Coefficients were used to test the agreement rate of how parents identified their children and how youth identified themselves and multivariable regressions were used to test for differences in psychosocial outcomes as well as peer treatment and peer group behaviors for multiracial youth in comparison to their single race peers.

Results

There was discordance between how parents identified adolescent's race/ethnicity and how adolescents self-identified, with adolescents being more likely to identify as multiple races. Black multiracial youth had significantly lower scores on the children's depression index when compared to their single race Black peers, and white multiracial youth reported significantly higher rates of peer mistreatment in comparison to their White single race peers. Black multiracial and White multiracial adolescents reported similar positive peer group behaviors and negative peer group behaviors to their single race peers.

Conclusions

Generational changes may be responsible for the discordance between how parents identify their children and how adolescents self-identify in terms of race and ethnicity, with adolescents perhaps being more comfortable identifying as multiracial. Complex patterns emerge when examining the psychosocial and peer treatment variables presented in this analysis for multiracial adolescents and young adults and their single-race peers. The findings regarding depressive symptoms and peer bullying point to signs of different relationships between Black multiracial adolescents and their single-race Black peers and White multiracial adolescents and their single-race White peers. It appears White multiracial adolescents report worse outcomes than their White single-race peers, but Black multiracial adolescents reporting better outcomes than their Black single-race peers.

Introduction:

The percentage of adolescents who identify as more than one race has been steadily increasing in the United States over the past few decades (Khanna, 2012). As the proportion of the population that identifies as multiracial continues to grow, assumptions are being made about the process of claiming a multiracial identity and outcomes for this population. It is critical to have a demographic understanding of the multiracial segment of the population, and to understand the many influences on this identification for young people. Adolescents do not exist in a vacuum, they are parts of families and peer networks, both of which impact how and why they choose certain identifications and how that identification may or may not impact or be associated with certain behaviors and/or outcomes.

Much of the research on individuals who identify as multiracial has been done from the perspective of the parent, as the multiracial populations began to increase in size and this population was made up of a significant amount of young children. (Pew, 2017). Therefore, research has focused on parents' report of their children's race and ethnicity and explored factors that might influence that parental identification. For example, multiple research studies have examined the impact of nativity on how parents identify their children. A study that used 1990 Census data found that children of African American and White couples were least likely to be identified by their parents as White whereas children of Asian-White couples were most likely to be identified by their parents as White (Qian, 2004). This study also demonstrated that the intersection of gender, racial identity and nativity of the two parents impacted how they identified their child. Couples which included a father who was a minority and foreign born were more likely to identify their child as a minority whereas couples where the mother was a minority and foreign born who were more likely to identify their children as White (Qian, 2004).

Very little research has been done, however, to examine how and if that identification matches a child's personal identity during adolescence. Because early identity development is often strongly influenced by parental identification (Hughes, 2006), it is assumed that parental identification of children is an appropriate proxy for self-identification. However, since the Census began allowing multiracial identification in 2000, there has been a rise in multiracial marriages (Pew, 2017); coupled with a multiracial President, it is possible that there are significant generational changes in how identity is conceptualized. Identity is not a stagnant and immovable concept that automatically correlates between parent and child. Ancestry does not automatically correlate with parental classification of children's identity nor does it automatically correlate with the child's self-identification. Identification is the way that an individual selects a classification, generally based on a forced (and often limited) selection of options and is influenced by external social forces and expectations.

If research is relying on parental identification of children for research on disparities between single-race and multiracial populations, it is quite possible these estimates are not accurate and may be mis-categorizing some adolescents as single-race and others as multiracial who don't personally see themselves as part of those groups. Since we know much of the link between identity and health is based on stress and perception of treatment (Williams, 1997), it is critical that research examines if identification is in fact consistent between parent and child, and if not, where the differences appear and research moves toward asking the child or adolescent to self-identify.

In addition to familial influences, peer groups also play important roles in racial and ethnic identification for multiracial adolescents and young adults (Echols and Ivanch, 2017). Most of the previous research has focused on the impact of peers' race and ethnicity on

multiracial adolescents' identification. Some research has explored to what extent and at what ages there is more racial fluidity among multiracial populations, and the impact of peer influences on that classification (Echols & Ivanch, 2017). Over the course of middle school, classmates and friends have different effects on multiracial identification. In the younger years of middle school, diversity in classmates and friends were both influential on multiracial identification. However, during the later years of middle school classmates are no longer influential, however friends remain so (Echols and Ivanch, 2017). Not only are peers important to examine in terms of their influence on racial and ethnic identification, but also in terms of risk behavior and involvement. A study done by Choi in 2012 found that multiracial youth were more likely than their single-race peers to be impacted by peer pressure (Choi, 2012). However, this study did not examine in-depth reasons why that influence was greater, or what behaviors their peers engaged in that were considered risky. This paper aims to examine the perception of adolescents who identify as multiracial about treatment from their peers as well as their report of peer network behaviors. These analyses are included in this paper in order to test the hypothesis that adolescents who identify as multiracial are more likely to be influenced by negative or risky peer groups due to a need to 'fit in' (Choi, 2012).

Previous research has examined mental health outcomes for multiracial youth. The public health research that exists on this topic is risk-based and focuses on mental health variables such as increased levels of anxiety, stress, and depressive symptoms as mediators between identification as multiracial and poor health and behavioral outcomes (Udry, 2003; Choi, 2012). A study by Fisher and colleagues aimed to explore the relationship between ethnic identity and mental health outcomes for multiracial adolescents. They found that multiracial youth experienced higher levels of anxiety and depressive symptoms in comparison to their single-race peers and more symptoms

of anxiety than their White peers (Fisher, 2014). It is critical to note that the data used in the Fisher study by were collected in 2006 in a Midwestern state and were not nationally representative.

This study utilizes nationally representative data from both adolescents and their parents to: 1) describe the multiracial population of adolescents in a nationally representative survey in the United States; 2) explore the correlation between parent identification of their child and the adolescent identification 3) explore psychosocial well-being and peer influences including markers for mental health and negative and positive peer influences of these adolescents from the child and parent perspectives.

Methods:

Data from this analysis are from the Panel Study of Income Dynamics (PSID), a large, longitudinal panel study in the United States that focuses on issues of family, income, education, health behaviors, and many additional topics. Specifically, this study uses data from the Child Development Supplement (CDS) 2014 data. The CDS is designed to be nationally representative in terms of the US population of children and families. To be eligible to participate: the family must have participated in the core PSID survey in 2013; the child must have been born between 1997 and 2013; the child belonged to the PSID sample, the child was not the household head and was not in the previous CDS study. The total sample of children that were eligible to be included in the CDS 2014 was 5,816 (Institute for Social Research, University of Michigan, 2017).

Families with eligible children were contacted and completed a 'coverscreen' which asked questions about household composition and the primary caregiver. The final number of children that data were collected from was 4,333 (77%) – the remaining were left out for a multitude of reasons including refusal, the family not being located, a language barrier, office error, or their primary care giver did not respond to multiple contact attempts. Children in the

final sample ranged from ages 0-17, and the sample was roughly even between males and females. The CDS includes multiple data sources, including a primary caregiver household interview, a primary caregiver child interview, a child interview, child assessments (for those families selected), a time diary (for those families selected), a demographic file and a file mapping the data back to the larger PSID sample. For the sake of this analysis, data came from the primary caregiver household interview, the primary caregiver interview about the child, the child interview, and the demographic file and was limited to adolescents and parents of adolescents who were 12 years and older. (Institute for Social Research, University of Michigan, 2017).

Variables Included:

The first set of variables defined are those that are child report. These questions were asked of children who were 12-17 years old. Previous research has been done to verify the reliability of self-report data for adolescents (Klein, 1999; Santelli, 2002).

Race/Ethnicity:

The first question that is asked of children 12-17 years old is about ethnicity. They are asked "In order to get an idea of the different races and ethnic groups that participate in the study, I would like to ask you about your background. Are you Spanish, Hispanic, or Latino? That is, Mexican, Mexican American, Chicano, Puerto Rican, Cuban, or other Spanish?" Due to small sample sizes, we re-coded this variable into a dichotomous variables (Hispanic yes/no).

The next question is regarding their racial identification. They are asked "What do you call your racial or ethnic group? Are you White, Black, American Indian, Alaska Native, Asian, Native Hawaiian, or Pacific Islander?" The participants are allowed to answer up to three racial groups.

We then re-coded their answers to their racial category (all three mentions) and the question about ethnicity to form the racial and ethnic groups used in this analysis. We relied on previous research demonstrating how to form nuanced multiracial groups with relatively small sample sizes (Grilo, in preparation). In this conceptualization, Hispanic is treated as a racial group and therefore anyone who identifies as Hispanic and one or more racial group is considered multiracial. Black multiracial is any individual who identifies as more than one racial and/or ethnic group that includes Black (e.g. Black-Hispanic, Black-White, Black-Asian). White multiracial is classified as any individual who identifies as more than one race and/or ethnic group that includes White (except for Black-white which is categorized as Black multiracial). The final categories were: White-only (not Hispanic), Black-only (not Hispanic), Asian only (not Hispanic), White multiracial (including Hispanic) and Black multiracial (including Hispanic).

Demographics:

Participants are asked to identify their gender, "Are you male or female?" and their age, "How old are you?"

Religious Services Attendance: Primary caregivers are asked as part of the CDS to answer if their child has attended religious services in the last year.

Educational Expectations: Primary caregivers are also asked what level of education they expect their child to reach. Their options ranged from grade 11 or less, graduate from high school, post-high school vocational training, some college, graduate from 2 year college with associate's degree, graduate from 4 year college, master's degree or teaching credential program and finally MD, law, PhD or other doctoral degree. We then re-categorized this variable into four categories as seen in Table 1.

Psychosocial Variables:

Given prior research on mental health and stress as potential mediators for multiracial identifying outcomes (Fisher, 2014), we selected a series of health and mental health variables that were present in the PSID survey to compare racial and ethnic groups.

Self-rated health: Participants are asked to rate their general health, "In general, would you say your health is excellent, very good, good, fair, or poor"?

Children's depression inventory short form (Overholser, 1995): A series of ten questions are asked as part of the children's depression inventory scale. The introduction to these questions states, "Choose the statement that best describes how you have felt during the last two weeks". The individual items are as follows:

- I am sad once in a while, I am sad many times, I am sad all the time
- Nothing will ever work out for me, I am not sure things will work out for me, things will work out for me
- I do most things ok, I do many things ok, I do everything wrong
- I hate myself, I do not like myself, I like myself
- I feel like crying every day, I feel like crying many days, I feel like crying once in a while
- Things bother me all the time, things bother me many times, things bother me once in a while
- I look ok, there are some bad things about my looks, I look ugly
- I do not feel alone, I feel alone many times, I feel alone all the time
- I have plenty of friends, I have some friends, but I wish I had more, I do not have any friends
- Nobody really loves me, I am not sure if anybody loves me, I am sure that somebody loves me

These individual items were then combined to make a scale that is used to assess severity of depression-related symptoms. In order to improve accuracy and protect privacy, adolescents were told to read these questions themselves and answer with a code that corresponded to the

statement that best described their feelings. This scale was treated continuously for our analyses, with higher scores meaning more depressive symptoms.

Rosenberg self-esteem scale (Rosenberg, 1986): A series of five questions were asked as part of the Rosenberg self-esteem scale. Participants were asked if they strongly agree, agree, disagree, or strongly disagree with the following statements:

- On the whole, I am satisfied with myself.
- I feel that I have a number of good qualities.
- I am able to do things as well as most other people.
- I am a person of value.
- I feel good about myself.

These individual items were then combined to make a scale used to assess self-esteem. This scale was treated continuously for our analyses, with higher scores meaning higher self-esteem.

Peer Influences:

The first set of questions asks about friends' positive and negative behaviors and were asked of participants ages 10-17. The items in this scale were considered individually and were not aggregated into a scale for analysis. Children are asked, "How many of your friends …." And are able to answer "none, a few, some, many or almost all or all":

- Participate in community groups, like scouts?
- Are in youth or street gangs?
- Do volunteer activities?
- Refuse to use drugs when offered?
- Go to church or other religious services regularly?
- Are going steady with someone (have a boyfriend or a girlfriend)?
- Think school is very important?
- Do well in school?
- Plan to go to college?
- Plan to work full time when they get out of high school?
- Skip classes without an excuse?
- Steal things worth more than $100?

- Hit someone with the idea of hurting them?

Peer Problems Scale (Goodman, 1997): The following scale addresses to what extent adolescents get along with their peers. Five items are taken from the "strengths and difficulties questionnaire" to evaluate children's problems with peers in the last six months. Response categories ranged from "not true" (1) to "certainly true" (3) and the items are listed below. A scale was included in the PSID dataset for these items that added them together and created a composite score (with a higher score representing more peer problems).

- I am usually on my own
- I have one good friend or more
- Other people my age generally like me
- Other children or teens pick on me
- I get along better with adults than with people my own age

Peer Victimization and Bullying (Kochenderfer, 1996): The peer victimization and bullying scale consisted of four items that were pulled from Kochender and Ladd. The PSID dataset included an aggregate scale by adding the responses to these variables together and creating a composite score (with a higher score signifying higher rates of peer victimization and bullying). Participants were able to answer how many times each of the following behaviors occurred in the last month (from "every day" to "not in the past month"):

- Kids picked on you or said mean things to you?
- Kids hit you?
- Kids taken your things, like your money or lunch, without asking?
- Purposely left you out of your friends' activities?

Race/Ethnicity of Child - Parent Report: The birth mother and birth father were also asked to report the race and ethnicity of the child with the same questions that the children received (hispanicity first and then up to three racial groups). These variables came from a birth history

file, so were not asked at the same chronological time as the children answered the PSID Child survey.

Analysis:

Survey Weights:

The CDS 2014 provided weights to allow researchers to generalize results to the national population of children and their caregivers. Because the focus of this paper is the adolescents, we used the weight that was developed for research questions that were looking at adolescents as the subgroup of interest.

Descriptive statistics were used to describe the population and to explore family and parent variables to gain a better understanding of multiracial families in the United States using this national sample – these variables included racial/ethnicity identification, geographic context, household income and gender. We then estimated Kappa Coefficients to test the agreement rate of how parents identified their children and how youth identified themselves. Chi-square tests were used to explore differences between parent-child dyads that agreed on multiracial status and those who did not. Finally, we explored psychosocial outcomes such as depressive symptoms and self-esteem by racial and ethnic status and differences in peer treatment and peer group behaviors by racial and ethnic status.

Results

Table 1 below presents the demographics of the sample overall and by race and ethnic group (category formation described in Methods). These data were self-reported by the adolescent (ages 12-18). In this nationally representative sample, the weighted percent of White multiracial adolescents was 14.5% and Black multiracial adolescents was 3%. Table 1 demonstrates that the household income and geographic type of location differ significantly between these racial and ethnic identifications. White single-race adolescents come from households that report the highest average

household income ($107,758) and adolescents who identify as Black single-race report an average household income of $54,888. Households that include White multiracial adolescents fall in-between with an average household income of $85,949. The lowest reported average household income is for Black multiracial which is $38,967. Multiracial adolescents are more likely to live in urban areas. Fifty-six percent of households with White single-race adolescents reported living in an urban area, whereas for White multiracial this number is 72% and Black multiracial 96%. There were no significant differences between racial and ethnic groups for attending religious services or for parental expectation of child education.

Table 1. Demographics and Racial and Ethnic Groups, PSID Child Development Supplement, 2014

	Overall Sample	White only	White multiracial	Black only	Black multiracial	Asian Only	Hispanic Only	Others	P-value
	N (%) or M(SD)	N (%)or M(SD)	N (%)or M(SD)	N (%)or M(SD)	N (%)or M(SD)	N (%)or M(SD)	N (%)or M(SD)	N (%)or M(SD)	
N (%)	1,094 (100%)	423 (55%)	83 (14.5%)	454 (14%)	58 (3%)	12 (2%)	45 (9%)	19 (2.5%)	
Gender*									0.005
Male	411 (49%)	181 (52%)	35 (58%)	159 (49%)	17 (27%)	8 (71%)	6 (21%)	5 (38%)	
Female	421 (50%)	182 (48%)	26 (42%)	155 (50%)	27 (73%)	3 (29%)	22 (79%)	4 (62%)	
Age									.4400
12-13	414 (33%)	151 (33%)	34 (33%)	163 (34%)	21 (40%)	3 (23%)	18 (32%)	8 (30%)	
14-15	383 (34%)	140 (32%)	30 (38%)	162 (33%)	21 (32%)	5 (37%)	15 (37%)	9 (66%)	
16-18	314 (32%)	132 (36%)	19 (28%)	129 (33%)	16 (27%)	4 (40%)	12 (31%)	2 (4.5)	
Household Income	88,104(5379)	107,758 (9430)	85949 (7408)	54,888 (3334)	38967 (5411)	100,384 (20027)	50975 (5290)	52563 (11496)	<0.000
Urbanicity									<0.000
Urban	1074 (67%)	230 (56%)	55 (72%)	351 (77%)	51 (96%)	11 (91%)	36 (82%)	14 (77%)	
Suburban	167 (14%)	68 (15%)	14 (14%)	34 (9%)	3 (2%)	1 (9%)	8 (18%)	3 (17%)	
rural	266 (20%)	124 (29%)	14 (14%)	69 (14%)	4 (2%)	0 (0%)	1 (.6%)	2 (6%)	
Attended religious services in Last year									.9779
yes	336 (33%)	140 (32%)	26 (35%)	124(32%)	18 (26%)	6 (49%)	16 (39%)	5 (22%)	
no	758 (67%)	280 (67%)	57 (65%)	323 (68%)	40 (74%)	6 (50%)	24 (61%)	13 (78%)	
Parent Expectation:Child Education									.4919
HS or lower	204 (14%)	53 (12%)	12 (14%)	117 (24%)	10 (11%)	2 (13%)	4 (9%)	2 (7%)	
Some college	56 (5%)	18 (4%)	8 (9%)	22 (5%)	2 (6%)	0 (0%)	2 (5%)	0 (0%)	
College graduate	680 (69%)	291 (71%)	53 (66%)	239 (62%)	38 (71%)	9 (78%)	27 (69%)	15 (83%)	
Masters or higher	134 (12%)	56 (13%)	9 (11%)	53 (9%)	8 (12%)	1 (9%)	6 (17%)	1 (10%)	

*gender has a lower overall n because it was asked in a separate optional section of the survey and 266 respondents did not fill this optional section out.

Table 2 shows the agreement between the birth mother report of child's race and ethnicity at birth and the adolescent's self-report between age 12 and 17. Cohen's Kappa between mother report and adolescent report was .7635 (agreement: 85%) a strong, but not perfect, agreement around identification. The major differences seemed to appear for multiracial identification. For example, in 77 instances the adolescent reported themselves as multiracial but the mother reported White only or Black only. In only 18 cases did the mother and father agree on selecting multiple races for identification. The rates of disagreement appeared were about the same for Black multiracial and White multiracial – showing that the difference might be in the identification as more than one race, more than a difference between combinations of multiracial. In an attempt to understand the differences between instances where the parent and child agreed versus where they disagreed, we ran an exploratory analysis comparing the dyads that agreed (18) with those that disagreed (77). We hypothesized that there may be demographic characteristics that help to predict the discordance – factors like gender or age of the child. However, we did not find significant differences in child age or gender, geography or household income between these groups.

Table 3 reports the same information between the birth father and the adolescent. It is important to note that there was much more missing data for the birth father, however the same pattern emerges with a Cohen's Kappa of .7519. Although the agreement between child and parent seems to be around 85%, the agreement between the mother and father is nearly perfect – the Cohen's Kappa between the parents in terms of their identification of the child was .9639. This suggests that the parents agree on the identification of the child, but by the time the child reaches adolescence their own identification may have shifted. This is particularly interesting in light of previous research that suggested there may be differences in racial and ethnic identification of

the child based on the concordance or discordance with the parent gender (Brunsma, 2005; Bratter and Heard, 2009).

Table 2. Cohen's Kappa: Mother and Adolescent Report of Adolescent Race and Ethnicity

	Child Report							
Mother report	White Only	Black Only	Asian Only	White Multiracial	Black Multiracial	Other	Hispanic Only	**Total**
White Only	411	4	0	38	0	5	9	**467**
Black only	0	408	0	1	38	3	1	**451**
Asian only	0	0	10	1	0	1	0	**12**
White multiracial	1	0	0	10	0	0	6	**17**
Black multiracial	1	4	0	0	8	1	0	**14**
Other	1	0	0	3	1	2	0	**7**
Hispanic only	0	4	0	23	4	4	25	**60**
Total	**414**	**420**	**10**	**76**	**51**	**16**	**41**	**1028**

Table 3. Table 3. Cohen's Kappa: Father and Adolescent Report of Adolescent Race and Ethnicity

	Child Report							
Father report	White Only	Black Only	Asian Only	White Multiracial	Black Multiracial	Other	Hispanic Only	**Total**
White Only	384	2	1	37	0	4	10	**438**
Black only	0	206	0	1	18	1	1	**227**
Asian only	0	0	9	1	0	1	0	**11**
White multiracial	0	0	0	9	0	1	4	**14**
Black multiracial	0	2	0	0	12	1	0	**15**
Other	0	0	0	3	0	2	0	**5**
Hispanic only	1	1	0	22	3	3	24	**54**
Total	**385**	**211**	**10**	**73**	**33**	**13**	**39**	**764**

Table four presents weighted averages for the three health and psychosocial scales for adolescent's ages 12-17. The first is self-rated health where a score of 1 was excellent and 4 was poor. White multiracial scored an average of 2.1 in comparison to White single-race at 2.0, and Black multiracial scored an average of 2.2 with Black single-race scoring an average of 2.1. This demonstrates the very similar self-reported health of multiracial adolescents with their single-race peers. As described in the methods section, the children's depression inventory (CDI) short form examined depressive symptoms for adolescents, where a higher score corresponded to more

depressive symptoms. This data shows that multiracial youth scored lower on the CDI than their single-race peers – dramatically so for Black multiracial youth. White single-race adolescents scored on average a 4.3 in comparison to White multiracial who scored an average of 3.2. For Black single-race adolescents the average was 9.4 (almost double the overall sample average) and the Black multiracial adolescents scored an average of 3.2 (on par with White multiracial youth and lower than White-single-race). Finally, on the Rosenberg self-esteem scale, a higher average score corresponded to higher self-esteem. For this scale, multiracial adolescents once again scored around the same or higher than their single-race peers. White single-race adolescents scored an average of 16.7 in comparison to White multiracial which scored 16.8. Black single-race adolescents scored an average of 17.4 in comparison to Black multiracial adolescents who scored an average of 17.6.

Table 4b presents the survey linear regressions that were performed to test for differences between single-race and multiracial adolescents while controlling for income. The models were done separately for White multiracial adolescents and Black multiracial adolescents so that each could be compared to their single-race peers (White and Black respectively). The only significant difference that was found was for depressive symptoms – Black multiracial adolescents had significantly lower scores ($b= -5.9$, $p=.04$) on the depressive symptoms index (even when controlling for income) when compared to Black single-race.

Table 4: Adolescent Report of Psychosocial Variable: Averages by Race and Ethnicity

	Overall Sample	White Only	White multiracial	Black only	Black multiracial	Asian Only	Hispanic Only	Other
Self-rated health	2.1 (.04)	2.0 (.04)	2.1 (.12)	2.1 (.09)	2.2 (.21)	2.7 (.37)	2.5 (.17)	2.6 (.20)
Children's Depression Inventory Short-Form	4.6 (0.58)	4.3 (.71)	3.2 (1.3)	9.4 (2.7)	3.2 (1.3)	7.5 (4.1)	2.8 (.69)	2.1 (.66)
Rosenberg Self-Esteem Scale	16.7 (0.10)	16.7 (.13)	16.8 (.30)	17.4 (.21)	17.6 (.50)	15.4 (.61)	15.5 (.46)	16.5 (.59)

Table 4b. Adolescent Report of Psychosocial Variables: Regression Models comparing Multiracial and Single-Race Adolescents

	Children's Depression Inventory		**Rosenberg Self-Esteem**	
	Coefficient	**p-value**	**Coefficient**	**p-value**
Racial and Ethnic Group				
White only	ref	ref	ref	ref
White multiracial	-1.19	0.412	0.19	0.561
Black only	ref	ref	ref	ref
Black multiracial	-5.90	0.042	0.16	0.619

**controlling for household income*

The last section of this analysis is presented in table 5, 5b and figures 1a, 1b, 2 and 2b. These analyses focus on peer interaction and peer networks by racial group identification. The first is a scale of peer problems, in which we find no differences between racial groups. The second scale is peer victimization and bullying, this analysis demonstrates White multiracial adolescents report higher average scores (more negative treatment from peers) than their White single-race peers; however we see lower rates of victimization for Black multiracial peers in comparison to their Black single-race peers. Table 5b presents the regression models for these outcomes separately for White multiracial adolescents and Black multiracial adolescents. The only significant finding was that White multiracial adolescents were at increased risk for peer victimization and bullying in comparison to their single-race White peers (b=.95, p=.05), while controlling for income.

Table 5. Adolescent Report of Peer Problems and Bullying: Averages by Race and Ethnicity

	Overall Sample	White Only	White multiracial	Black only	Black multiracial	Asian Only	Hispanic only	Other
Peer Problems Scale	3.0 (.43)	2.0 (.09)	4.6 (2.0)	2.7 (.50)	1.9 (.26)	2.3 (.56)	7.3 (3.4)	2.1 (.30)
Peer Victimization and Bullying	3.5 (.14)	3.0 (.16)	3.9 (.45)	4.2 (.32)	3.6 (.70)	1.8 (.42)	4.9 (.63)	6.2 (1.1)

Table 5b. Adolescent Report of Peer Problems and Bullying: Regression Models Comparing Multiracial and Single-Race Adolescents

	Peer Problems Scale		**Peer Victimization and Bullying**	
	Coefficient	**p-value**	**Coefficient**	**p-value**
Racial and Ethnic Group				
White only	ref	ref	ref	ref
White multiracial	2.35	.238	0.95	.048
Black only	ref	ref	ref	ref
Black multiracial	-0.74	.185	-.91	0.227

**controlled for income*

The final part of this analysis examined peer group behaviors for multiracial adolescents and young adults in comparison to their single-race peers. Each behavior was examined separately and a survey regression was run for each outcome (treated continuously from 1-5 with 1 being none of my friends and 5 being most or all). These regressions were run for Black multiracial adolescents and young adults being compared to their Black single-race peers and then separately for White multiracial adolescents in comparisons to their White single-race peers. For the majority of outcomes, there were no significant differences between either group of multiracial adolescents and their single-race peers, even after adjusting for household income. The only significant difference was for White multiracial adolescents who had a higher mean score than their single-race White peers for having peers who think school is important (b=.47, p<.001), a finding that remains even after controlling for income (b=.49, p<.001).

Figures 1a, 1b, 2a and 2b represent this data slightly differently for visual effect and without controls – but demonstrate the similarities in peer groups for these different racial and ethnic identifications. Figures 1a and 1b show the percentage of adolescents in the overall sample, White-single-race and White multiracial that report **many or all** of their friends engage in the listed positive behaviors – including participating in community groups, volunteering, refusing drugs, planning to go to college, etc. These data demonstrate that when compared to White single-race peers, White multiracial peers report similar, percentages of friends who engage in these positive behaviors. Figure 1b shows the percentage of many/all of their friends that report engaging in negative behaviors – and again we see that White multiracial adolescents report similar or lower raw percentages of friends who report engaging in these negative peer behaviors. For example, 4.5% of the overall sample stated that most or all of their friends skip classes – this number was 4.2% for White only and even lower – 2.6% for White multiracial identified adolescents.

Figure 1a. Positive Peer influences for White Multiracial Adolescents

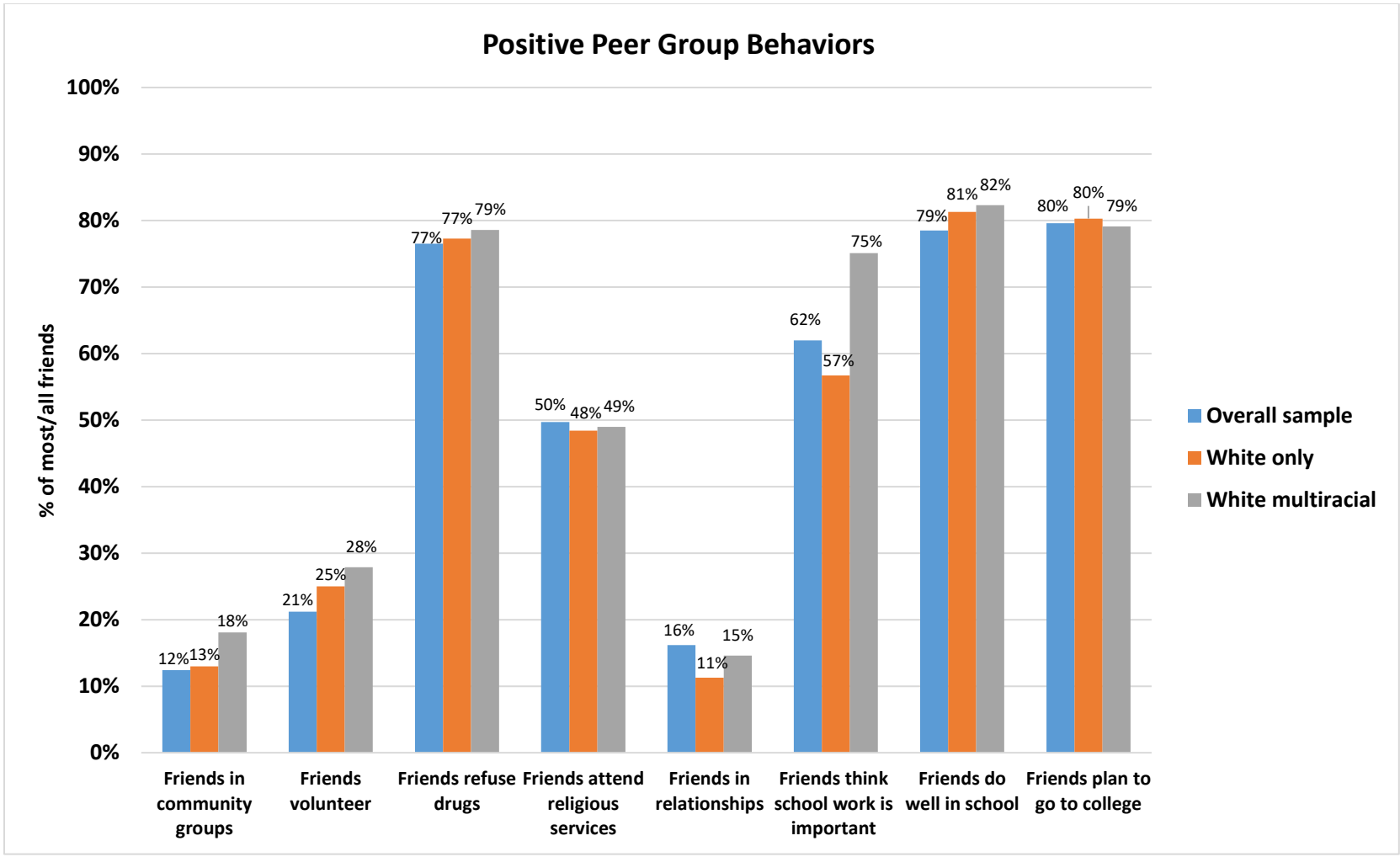
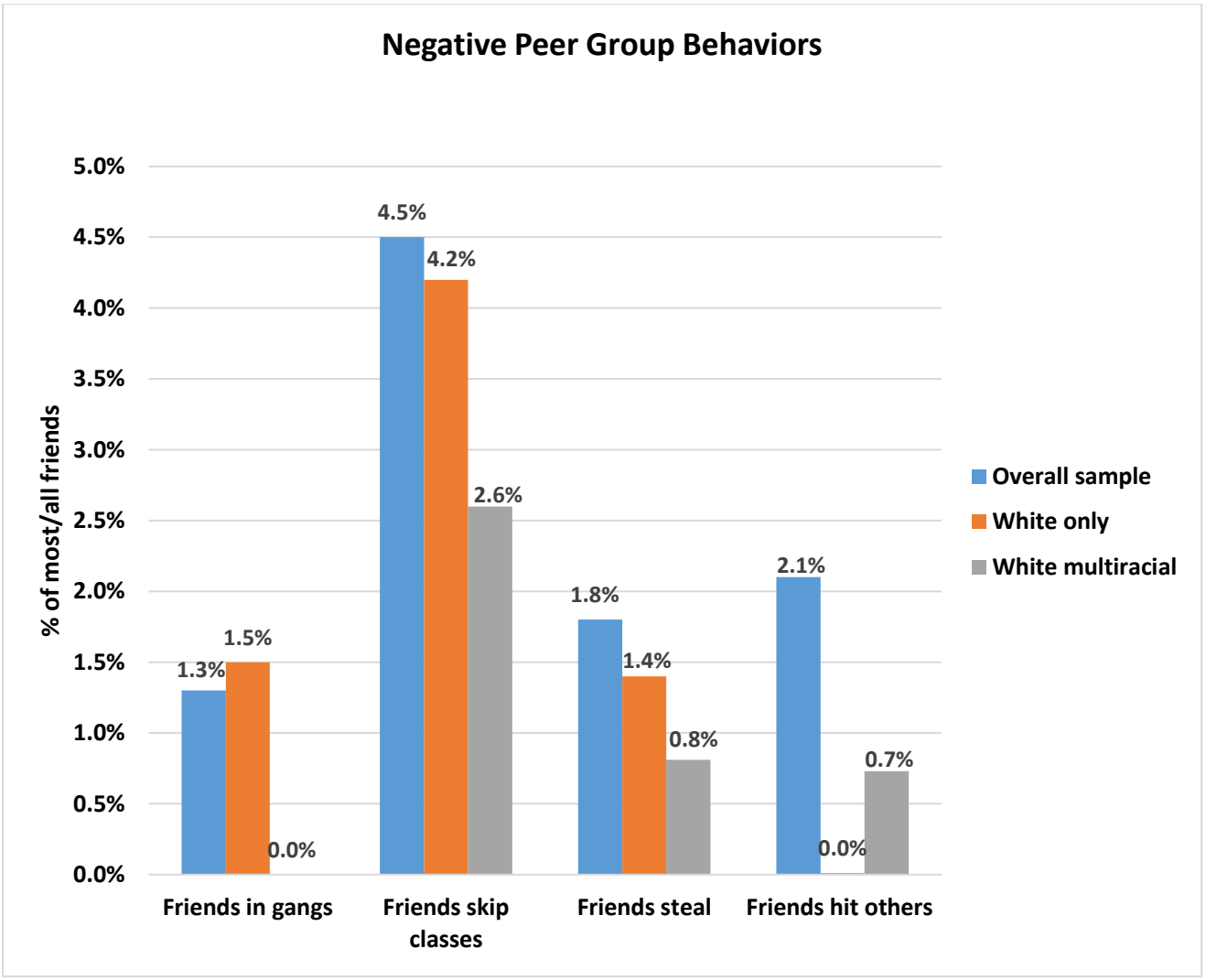


Figure 1b. Negative Peer influences for White Multiracial Adolescents



A similar pattern emerges in figures 2a and 2b which present the same positive and negative peer behaviors for Black single-race and Black multiracial identifying adolescents. In almost all cases Black multiracial adolescents report higher or about the same percentage of most/all of their friends engaging in positive behaviors such as refusing drugs, doing well in school, and planning to go to college. Also, in all four negative peer group behaviors, Black multiracial adolescents reported lower percentages of friends engaging in these behaviors when compared to Black single-race identifying adolescents, although these may not be significant differences, they demonstrate the pattern that multiracial adolescents do not have peers that engage in significantly more risk behaviors, and in fact might be trending toward having less risky peer groups.

Figure 2a. Positive Peer influences for Black Multiracial Adolescents

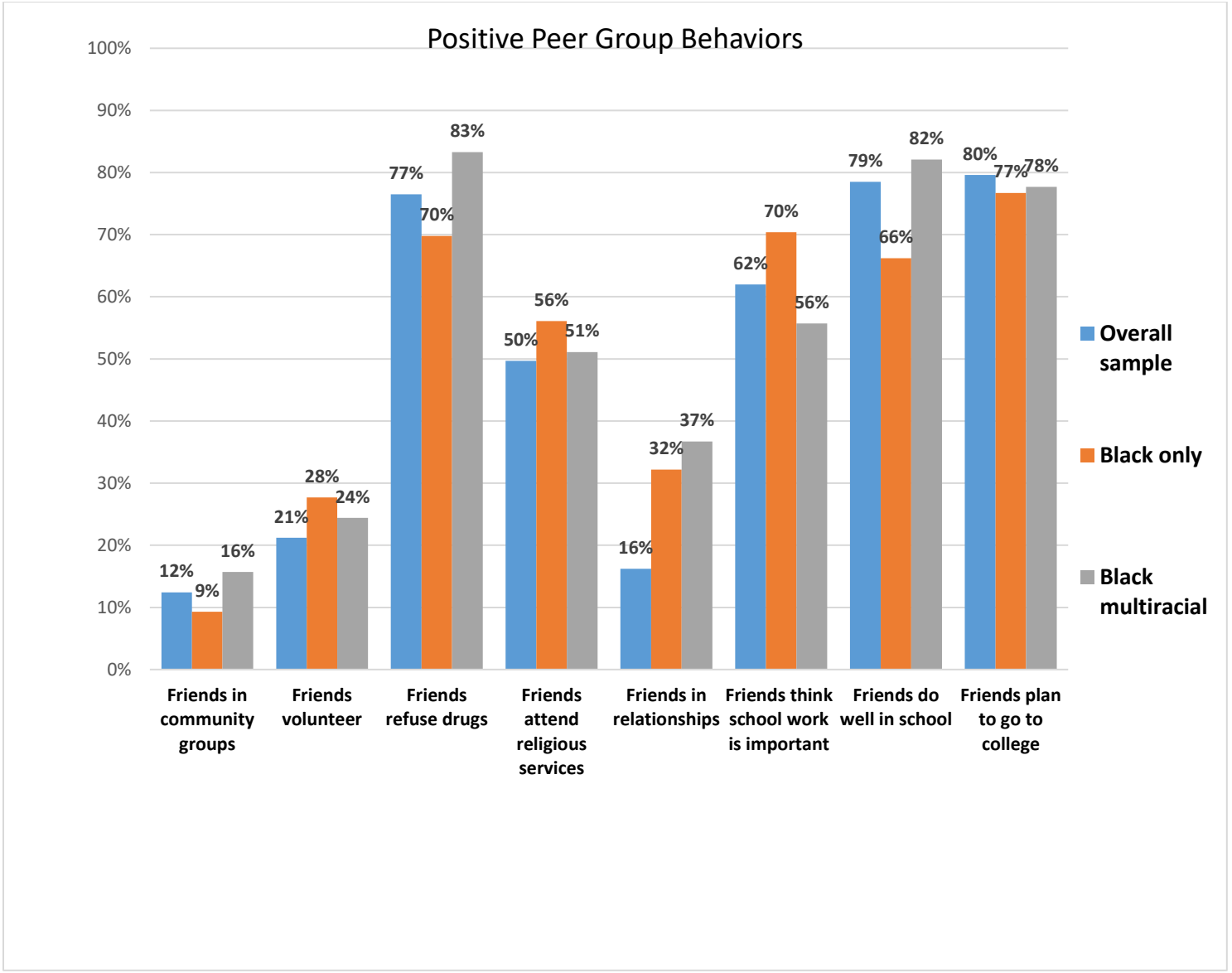
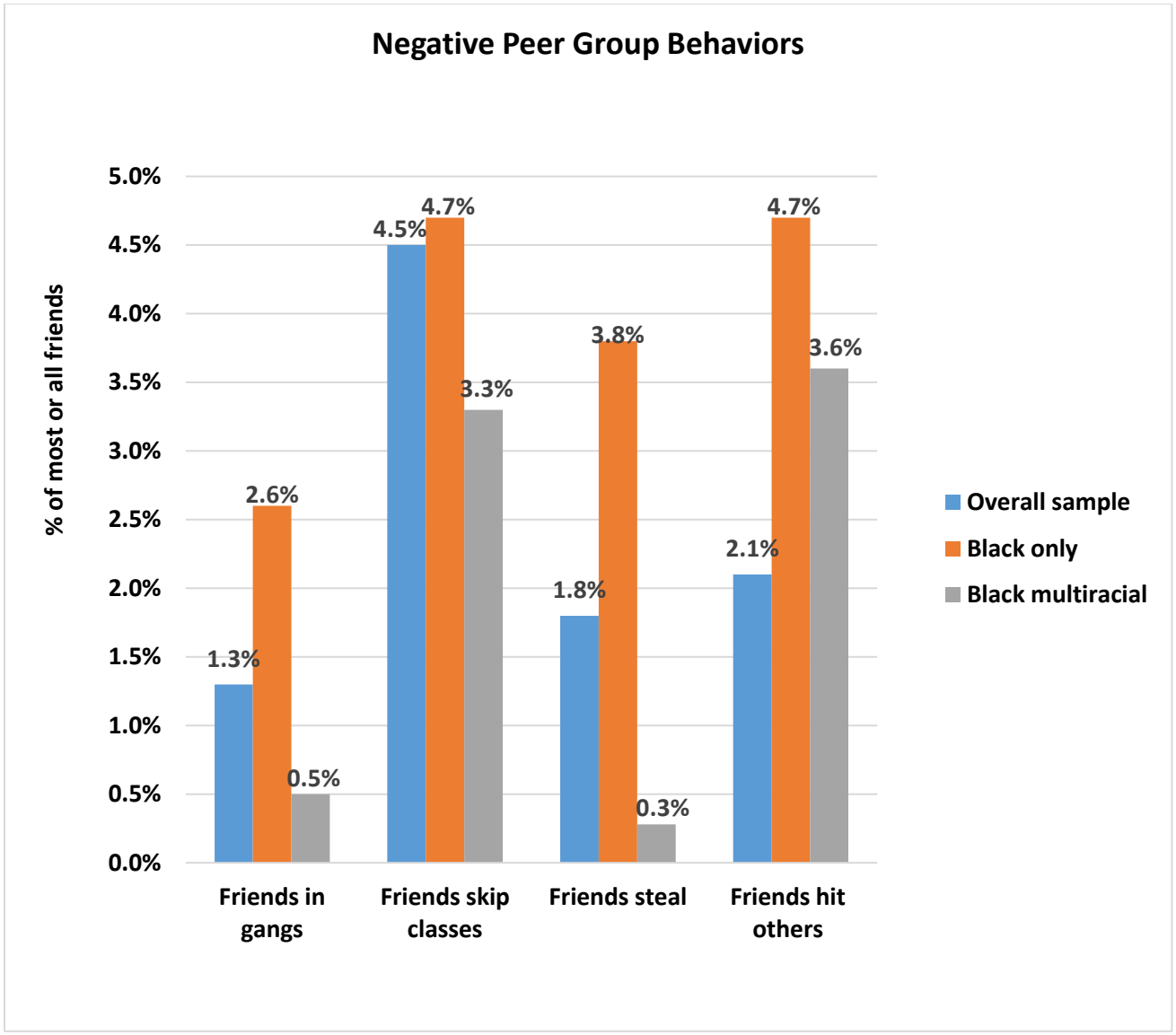


Figure 2b. Negative Peer influences for Black Multiracial Adolescents



Discussion:

Much of the early research on multiracial children and adolescents utilized parent report of child race and ethnicity, as the children were often young (Xie & Goyette, 1997; Qian, 2004). However, there has been very little research that has examined if parent identification of children actually matches how children and adolescents identify themselves. The first aim of this paper was to leverage the uniqueness of the data to explore the potential correlation between the mother and father report of child identification. We found that both the mother report and father report correlated strongly with the adolescent report of race/ethnicity (around .75). The largest discrepancies were with multiracial adolescents – the adolescents were more likely to identify as multiracial whereas the parents often identified these children as single-race Black or single-race White.

This finding regarding identification has important implications for research on adolescents who identify as multiracial. It is critical that adolescents are asked how they identify instead of relying on parental identification. Past research has demonstrated the efficacy of adolescent report on surveys (Klein, 1999) and our research clearly demonstrates that although racial and ethnic identification by parents and adolescents is correlated, it is not perfectly so. Other research has also demonstrated the discrepancies between different informants (parents, children, and teachers) for various outcomes (De Los Reyes, 2005). Therefore, research that relies on parent report of their children's ethnic/racial identification may be missing a group of adolescents who identify themselves as multiracial even though their parents identify them as single-race. Although our data was unable to detect differences between the group of parents and children who agreed on multiracial identification and those who did not, future research (with larger sample sizes and more data available on the parent) should aim to find these differences.

Understanding what makes these two groups different could help to shed light on identification patterns in multiracial and multi-ethnic households.

Not only does this finding make the methodological contribution regarding relying on adolescent personal identification, but also the conceptual contribution that there may be a generational change unfolding in terms of racial and ethnic identification. It is possible that due to the growing multiracial population in the United States over the past few decades, as well as other social changes that have created space for more fluid identities (gender identity and sexual orientation for example), adolescents are more comfortable identifying as multiple races than their parents' generation. Another potential factor that may exacerbate these differences in identification may be that single-race parents are not as comfortable with the concept of identifying with multiple races as this is not an identity they have developed themselves. Additionally, monumental structural changes occurred between these generations – including a shift in the formal categorization by the Census which occurred in 2000 (Bernstein & Edwards, 2008) was the first year that an individual was allowed to select more than one races on the Census form, officially 'allowing' multiracial identification. Parents of adolescents were not exposed to this as an option until very recently, whereas adolescents grew up in a generation where this was accepted as an identification option.

A complex picture emerges when looking at patterns across multiracial and single-race adolescents and their families. When examining demographic characteristics, it appears that there is some level of socioeconomic disadvantage among multiracial families. Households with White multiracial adolescents report household incomes that are lower than households with single-race White adolescents, and the same relationship appears for households with Black multiracial adolescents reporting lower household incomes than households with their single-

race Black peers. When exploring urbanicity in the context of these findings regarding income disparity, a similar pattern emerges. A higher percentage of White multiracial adolescents report living in urban areas in comparison to their White peers and a higher percentage of Black multiracial adolescents report living in an urban area compared to their Black peers. These findings around income and urbanicity should be further studied, as it is important to understand why these patterns might be emerging. The finding around urban areas is particularly interesting – is this due to the concentration of poverty in urban areas, or is it due to greater acceptance of inter-racial and inter-ethnic families in urban areas, or most likely, is it reflection of a confluence of these different factors?

Previous health outcomes literature that examined multiracial adolescents has often taken a risk-based approach that has assumed stress and anxiety must be the mechanisms for negative health outcomes for multiracial adolescents and young adults (Udry, 2003; Choi, 2012). The Udry (2003) study broke out nuanced multiracial groups and used multiple reference categories, and consistently reported elevated risk of many outcomes including smoking and drinking for multiracial subgroups. This paper, however, used data from the late 1990's, when there was a much smaller multiracial population and this identification was less accepted. It is vital that we update these statistics as large demographic shifts have occurred since that data was collected and analyzed and therefore we may be seeing a cohort effect and therefore outcomes may be quite different. A 2012 study by Choi and colleagues examined substance use and violent behavior among multiracial youth. They found increased rates of violence and alcohol use for multiracial youth in comparison to White peers, and found socioeconomic status and family structure mediated this relationship. This paper also highlighted the impact of peer risk factors – finding that multiracial youth were more likely to have been impacted by peer pressure (Choi,

2012). However, unlike the Udry study, a limitation of this study was that it did not disaggregate multiracial groups, instead comparing all multiracial combinations in the same analytic category to a White reference group. These findings, therefore, will be difficult to compare to the results in the present analysis as it utilizes more nuanced subgroups and also different reference categories.

Again, complex patterns emerge when examining the psychosocial and peer treatment variables presented in this analysis for multiracial adolescents and young adults and their single-race peers. The findings regarding depressive symptoms and peer bullying point to signs of different relationships between Black multiracial adolescents and their single-race Black peers and White multiracial adolescents and their single-race White peers. There is not a perfect continuum where multiracial adolescents are always between both White and Black single-races, however the patterns that do emerge point toward White multiracial adolescents reporting worse outcomes than their White single-race peers, but Black multiracial adolescents reporting better outcomes than their Black single-race peers. For example, the findings around depressive symptoms demonstrated that Black multiracial adolescents reported significantly lower depressive symptoms when compared to their single-race Black peers. When exploring peer bullying and treatment, White multiracial adolescents reported higher bullying scores than their White-single-race peers.

The finding that in many ways Black multiracial adolescents are reporting better outcomes than their single-race Black peers, but White multiracial adolescents are reporting more negative outcomes than their White single-race peers fits into the historical context of race relations in the United States. The racial order in the United States has always relied upon and exploited a Black-White divide and has privileged Whiteness. Black multiracial adolescents may be conferred some of this privilege, buffering them from some of the treatment that leads to poor

psychosocial outcomes often reported by their Black single-race peers. This pattern also emerges when looking at White multiracial adolescents who report worse outcomes than their White single-race peers as their multiracial identification may be preventing them from receiving the full privilege bestowed on their only White peers. These findings around multiracial identification are elucidating the idea that privilege is still conferred based on Whiteness in the United States. However, it is critical that research moving forward does not examine multiracial identity in a vacuum – and that the influences of intersecting social identities including gender, socioeconomic status, sexuality and others are considered when examining axes of privilege and oppression.

Potentially most interesting is that on the self-esteem scale Black multiracial and Black single-race youth reported the highest average scores. This finding about self-esteem, especially in the context of the findings regarding depressive symptoms, demonstrates an impressive amount of resilience that should not be overlooked. Instead of applying a risk-based approach oft used when considering adolescents (particularly adolescents of color), the power in this ability to maintain high levels of self-esteem should be harnessed and supported by those working with and advocating for adolescents.

The third major aim of the paper was to examine relationships and influences of peers for multiracial identifying adolescents. Some previous research has claimed that due to feeling a need to try harder to fit in, multiracial adolescents may be more susceptible to peer pressure (Choi, 2012). This nationally representative data, however, shows that positive peer behaviors in peer networks are as high or higher in multiracial adolescents and negative peer behaviors are often lower for multiracial adolescents when compared to their single-race peers. Once again, this demonstrates that in many ways Black multiracial peers had more positive and less negative

behaviors when compared to their single-race Black peers. This finding demonstrates a possible buffer that exists for multiracial youth – that not being identified as 'fully' or 'exclusively' in a minority category may confer some level of privilege to these youth. It may also point to multiracial adolescents having more diverse racial and ethnic peer groups than their single-race peers – something that this paper did not have the data to test but should be explored in future research. Another potential difference in terms of influences for multiracial adolescents that should be further explored is that of their parents and extended families. It is possible that multiracial families have more diverse networks and therefore peer networks which may influence behaviors and outcomes for multiracial youth. It is critical to understand peer groups and influences on adolescents, as we know that during this period of development, peer networks are highly influential on preventing adolescent risk behavior involvement (Maxwell, 2002). Further research, quantitative and qualitative, should be done to explore this idea of a continuum of treatment and perception for multiracial youth and to talk with youth who identify as multiracial about their peer group decisions and influences.

Limitations

The major limitation of this study was small sample sizes – a problem that persists throughout research on multiracial data analysis. Due to this small sample size, we were not able to look at the most nuanced groups of multiracial but instead had to aggregate to Black multiracial and White multiracial. Another limitation is that the race/ethnicity data collected from the parent and adolescent were not collected at the same time as the adolescent report comes from the data in 2014 and the parent report comes from the birth history file. Therefore, we don't know if the parent has also changed how they identify their child over time.

Implications

As more research is conducted that aims to examine multiracial adolescents and young adults in the United States, it is important that nationally representative samples are used to demonstrate what this sample looks like descriptively. These data also demonstrate the importance of looking at individual identification and not parent identification –as these identifications are correlated but not the same. These data also demonstrate that a risk based approach is not appropriate when studying multiracial adolescents, and that their resiliency should be harnessed and supported. Future research should continue to create and utilize nuanced multiracial groups and to test mechanisms of mental health and peer networks before assuming risk. Research should also continue to elucidate the ways in which privilege is conferred to different racial and ethnic identifications. Many people theorized that the rise of multiracial populations would begin to erode the color line – but it might instead be reifying it. It will be critical for future research to examine if multiracial populations are given privilege and treated differently than minority single-race peers, and if that difference in treatment deepens the historical Black-White divide in the United States.

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CHAPTER 3

Adolescent and Young Adult Risk Behaviors: Are Youth who Identify as Multiracial Riskier than their Single-race Peers?

Purpose:

Little is known about health of adolescents and young adults who identify as multiracial. We examined health behaviors for multiracial adolescents. Race and multi-racial identification are often considered to be 'risk factors'.

Methods:

In 2016, an online, pre-recruited nationally representative sample of 1,918 US adolescents and young adults (13-26 years old) was surveyed. Survey questionnaire domains were based on prior research and data were weighted to be nationally representative. Data were analyzed to create nuanced racial and ethnic groups that were grounded in conceptual and practical realities. Multinomial logistic regressions were used to test for differences in risk behavior involvement for different racial multiracial groups in comparison to their single race peers.

Results:

Separate analyses were completed comparing black multiracial to their single-race black peers, white-multiracial adolescents to their single-race white peers, and then finally analyses were run with all racial and ethnic groups compared to the traditional single-race white reference category. No significant differences were found by multiracial group for tobacco use, alcohol use or sex in the many different sets of analyses performed.

Conclusions:

Although much of the public health literature takes a risk-based approach to both adolescence as well as multiracial populations, these data demonstrate that multiracial adolescents and young adults are not at an increased risk for engaging in these specific risk behaviors that often are initiated during adolescence. It also demonstrates empirically how to create conceptually understandable groups, even in the case of small sample sizes, as well as the importance of analyzing with appropriate reference groups.

Introduction:

The percentage of adolescents and young adults who identify as multiracial has been steadily growing in the United States. In 2010, over nine million people in the United States identified with more than one race; this is 32% more than 2000 (Khanna, 2012). Public health researchers should thoughtfully consider literatures on development and identity development when conducting public health research about adolescents and young adults who identify as multiracial in order to ensure that this research is true to the lived experiences of these populations. Given the lack of a shared conceptual understanding of multiracial individuals and identification, small sample sizes are often combined and labeled 'other'.

Race and ethnicity have different formal definitions in US health statistics with race generally referring to the categories Black, White, Asian, and Other and ethnicity generally referring to national origin (in the U.S., Hispanic or Not-Hispanic). Hispanic identity further complicates the classification of multiracial populations. The United States census and government surveys ask about ethnic and racial identification separately (Lee and Bean, 2010). Consequently (for example), although an individual with a Hispanic mother and White father may identify as multiracial, their identification in these surveys may not accurately represent that identification.

The experience of identifying as multiracial is fluid, shifting over historical and personal time and in relation to social contingencies (Echols and Ivanch, 2017). The fluidity of identity is not reserved to racial and ethnic identification, but is also becoming more accepted in terms of sexual identity and gender identity. There are a multitude of factors and circumstances that might change this identification, including the time or position in the life course as well as the racial and ethnic groups that an individual identifies with. For example, when multiracial is combined as one

analytic category, it equates the experience of a Black and White identifying adolescent with that of an Asian and White identifying adolescent – identifications that might bring with them different perceptions by and treatment from others as well as different family and peer influences (Hilton, Brown, Elder, 2006; Herman, 2004). It is vital to disaggregate multiracial groups, especially when looking at health consequences and outcomes, as these may vary greatly between adolescents and young adults who identify with different racial and ethnic groups.

In order to disaggregate multiracial groups into categories that make conceptual sense, historical context and official categorization schemes must be consulted. The racial order in the United States has been dominated by a Black-White divide, which has impacted how racial and ethnic categorization has evolved. For example, the Census Bureau utilized the 'one drop rule' for official categorization in the United States for hundreds of years – meaning that if a person had even 'one drop of Black blood' they should be identified as Black (Davis, 2010). Even if this is no longer the official policy, its legacy has lasting effects on identification. Past research on multiracial youth has shown that those who do not identify Black as one of their racial groups have the most flexible racial and ethnic identification. For example, Asian-White or Hispanic-White are able to have situational identifications or choose between their two categories whereas those young people who have Black as one of their identifications almost always identify or have others identify them as Black (Lee and Bean, 2010). Other research has also shown that Asian-White and White-Hispanic children are more accepted in majority White communities than Black-White youth (Tatum, 1997).

While recent research has begun to explore multiracial identity, little is known about health outcomes for adolescents and young adults who identify as multiracial. In 2003, Udry and colleagues reported that multiracial identifying adolescents were at higher health and behavior risk

in comparison to their peers who only identified as being one race (Udry, 2003). The authors concluded that multiracial populations were at high risk for emotional, behavior and health related problems including higher rates of smoking and drinking and lower overall health status. Although the rates were higher than single-race peers, the authors also acknowledged that the risk of negative health behaviors was still low, even among multiracial youth. They hypothesized that the mechanism for this relationship was stress (Udry, 2003). The Udry analysis did compare multiracial identified adolescents with both sets of their single-race peers. It is important to update Udry and colleagues' analysis, as the context of identifying as multiracial has changed over the past 15 years.

A more recent study done in 2012 by Choi and colleagues examined rates of substance use and violent behaviors for multiracial youth. They found that although these youth had higher rates of violence and alcohol use when compared to Whites, this relationship was partially explained by differences in socioeconomic status and family structure. This paper also highlighted the impact of peer risk factors – finding that multiracial youth were more likely to have been impacted by peer pressure (Choi, 2012). However, unlike the Udry study, a limitation of this study was that it did not disaggregate multiracial groups, instead comparing all multiracial combinations in the same analytic category to a White reference group.

Although scholars are beginning to examine multi-racial populations more carefully in public health research, it is necessary to push this field further. Cheng and Lively conclude that there is great heterogeneity in mixed-race populations and that it will be important for research to examine how different multiracial self-identifications may lead to different individual outcomes (Cheng & Lively, 2009). Previous health research examining sexual health behaviors for multiracial adolescents and young adults has found mixed results related to the specific

combinations of races examined; these researchers have called for health research that disaggregates the multiracial category (Landor and Halpern, 2015).

The present study uses a nationally representative sample to compare health behaviors between adolescents and young adults who identify with multiple racial groups and those who identify with a single racial group. We hope to provide methodological guidance on how to classify multiracial populations in a conceptually-driven way. By embedding our categories in the historical and theoretical background described above and in more detail in the methods section, this paper focuses on creating analytic categories and reference groups that reflect identification and perception for young people in the United States.

Methods:

This research is sponsored by the Adolescent Health Consortium, a collaboration between multiple professional organizations with the goal of understanding and improving the delivery of clinical preventive services to adolescents and young adults. Collaborators included the American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), the American College of Obstetricians and Gynecologists (ACOG), and the Society for Adolescent Health and Medicine (SAHM) as well as Columbia University.

Data Collection

In 2016 a nationally representative sample of 1,918 US adolescents and young adults (13–26 year olds) were surveyed. The sample included 1,209 adolescents (13-18 year-olds), their parents, and 709 young adults 19-26 year olds). Respondents were sampled from a pre-enrolled online panel (KnowledgePanel®)(GfK) from a national market-research firm (GfK) using a household sampling frame via random digit dialing and address-based sampling. GfK utilizes a probability-based sampling methodology in order to provide full coverage of US households

including hard-to-reach households. The sample includes households with and without landline telephones. Participants were only included if they spoke English or Spanish: Surveys were completed in Spanish by 7.2% of adolescents and 3.1% of young adults. The completion rate for the survey was 65%. The final sample was weighted to represent the non-institutionalized U.S. adolescent and young adult population by age, gender and race/ethnicity. The 2015 Current Population Survey Supplement (CPS) was used to calculate appropriate population weights. Sampling and probability methods from previous research using AHC data have been described in further detail in previous publications (Santelli, 2019).

Survey and Question Construction

Survey questionnaire domains were based on Fishers' Information-Motivation-Behavior skills (IMB) conceptual model (Fisher, 2002) as well as prior research with this population (Ford, 2016; Bravender, 2004). The survey included questions about attitudes and experiences with clinical preventive services, adolescent and young adult private time with providers and confidentiality of care. Formative research included focus groups with adolescents and young adults, parents, and physicians that explored issues of clinical preventive services, confidentiality and private time. Previous research has validated adolescent self-report of receipt of clinical preventive services and health behaviors (Klein, 1999; Santelli, 2002).

Ethical Approval

The study was approved by institutional review boards at Columbia University, the University of Illinois at Chicago and at American Academy of Pediatrics. Informed consent was obtained from parents and from young adults over age 18; parent permission and adolescent assent was obtained for youth under age 18.

Independent Variables

Demographic variables are presented in Table 1 and include age (13-14, 15-18, 19-22, 23-26), gender (women, men) sexual orientation (straight, not straight/don't know) and enrollment in school. Household variables include metropolitan statistical area status (metro, non-metro) and household income (<$25,000, $25,000-$49,999, $50,000-$74,999 and $>75,000).

Primary Predictor Variables:

The primary predictor variable in this analysis is racial and ethnic identification. Due to the focus on multi-racial adolescents and young adults, emphasis was placed on creating conceptually sound and nuanced racial and ethnic groups. When creating analytic groups for this analysis the first priority was making more nuanced groups than usually used in public health research, where individuals who select more than one racial category are typically grouped together as multiracial regardless of which categories they selected. If the sample size was larger, we would have compared each combination of racial and ethnic groups to all single-race peers corresponding with each selection. For example, if an individual were to select Asian and White, the group would have been Asian-White and this group could have been compared to both Asian single-race as well as White single-race. However, our sample did not have enough power when broken down to these very small groups. Therefore, we had to re-aggregate to a higher level while retaining as much nuance as possible.

To create our two multiracial groups (White multiracial and Black multiracial) we relied on past theory regarding racial identification in the United States. For this reason, we began our categorizations with the understanding that if one of the many races/ethnicities selected was Black the young person would be included in the Black multiracial category and if not then they would be considered White multiracial.

The first set of analyses performed use the most nuanced racial and ethnic groups – breaking out the different ethnic (Hispanic yes/no) and racial groups. The two major multiracial categories are Black multiracial (anyone with more than one race where one is Black) and White multiracial (anyone with more than one race where one is White, except for White-Black who are included in Black multiracial). These groups, and the combinations included in each group, are shown below in Table 1.

Table 1. Analysis A: Racial and Ethnic Groups

Racial group	**Frequency**	**Combinations Included**
White single-race	1152	White race, not Hispanic
Black single-race	156	Black race, not Hispanic
Asian single-race	65	Asian race, not Hispanic
Black multiracial	53	White-Black(28); White-Black-Hispanic(7); White-Black-Native(5); Black-Native(5); White-Black-Hispanic-Native (2); Black-Asian(2); Black-Hispanic-Asian(1); Black-Hispanic-Native (1); White-Black-Asian(1); White-Black-Asian-Native(1);
White multiracial	44	White-Native (17); White-Asian(15); White-Hispanic-Asian (4); White-Hispanic-Asian_native(1); White-Hispanic-Native(7);
Hispanic no race	86	Hispanic only, no race (86)
Hispanic White	306	Hispanic yes, White race (306)
Hispanic Black	14	Hispanic yes, Black race (14)
Hispanic others	16	Hispanic-Asian(5); Hispanic-Native(11);
Total	**1899**	

In additional analyses the groups are combined for larger sample sizes, and Hispanics are grouped with multiracial categories (for example, an individual who selected Hispanic and White was considered White multiracial and someone who selected Hispanic and Black was considered Black multiracial). Lastly, we did a sensitivity analysis treating Hispanic ethnicity as separate from race in all cases where a race was provided. Therefore, White Hispanic respondents were

considered White single-race and Black Hispanic respondents were considered Black single-race. The tables from this analysis are included in an appendix.

Primary Outcome Variables

The primary outcome variables for this analysis were adolescent and young adult self-reported risk behaviors including tobacco use and alcohol use in the last 30 days as well as sexual initiation – measured by ever having sex (oral, vaginal or anal). These three behaviors were selected to be part of the AHC national internet survey as they are markers of adolescent risk behavior during this developmental period, and these behaviors are often tracked on a national level for adolescents (Kolbe, 1993; Grunbaum, 2004).

Analysis

Bivariate relationships were tested using t-tests for proportion. Survey logistic regressions were used to identify independent predictors of risk behavior involvement.

Results:

In the first set of analyses, to understand the demographic picture of our sample, the racial and ethnic groups were broken down into nuanced subgroups, with an emphasis on separating out the different Hispanic groups as shown in the methods section (Table 1).

Table 2 presents the demographic characteristics of the sample, broken down by the most nuanced racial and ethnic categories. Of the 1899 adolescents and young adults included in the analyses, 1.8% of respondents in the sample are considered White multiracial and 1.9% of the sample are Black multiracial. There are significant differences between racial groups for many demographic factors. Household income varied by racial and ethnic group with Asian adolescents and young adults being most likely to report an annual family income over $75,000 (65.8%). The percentage of White single-race and White multiracial adolescents and young

adults who reported family incomes in the highest income bracket (54.4% and 56.2% respectively) were similar. Differences were evident between report of family income above $75,000 for Black multiracial respondents (31%) in comparison to Black single-race (23.4%). There was more income variation in the different Hispanic groups.

Significant differences were also present in terms of sexual orientation –12.3% of Black multiracial adolescents and young adults reported identifying as not straight, which was significantly higher than all other racial and ethnic groups; Hispanic-White had the lowest percent of not straight identification (6.7%). A larger percentage of Black multiracial adolescents and young adults (22.5%) reported living in rural areas, when compared to White multiracial adolescents and young adults (8.7%) Finally, Asian single-race adolescents and young adults were significantly more likely to be enrolled in school (77.2%) when compared to all other racial and ethnic adolescents and young adult groups.

Table 2. Analysis A: Demographic Differences by Racial and Ethnic Groups, US, 2016

	White single-race		White Multiracial		Black single-race		Black multiracial		Asian single-race		Hispanic single		Hispanic White		Hispanic Bck		Hispanic others		P-value
Predictor	**N**	**%***	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	
Total	1152	55.4	44	1.8	156	14.0	53	1.9	65	5.9	86	4.5	306	15.2	14	0.6	16	0.9	
Income																			<0.001
25,000-	141	9.2	4	6.0	61	36.1	18	35.1	6	7.3	36	36.5	89	21.2	3	28.5	7	41.0	
25,000-49,999	195	17.4	11	24.6	38	26.5	9	20.2	5	5.8	24	33.9	90	33.6	2	9.7	5	31.2	
50,000-74,999	238	19.0	9	13.2	21	14.0	7	13.7	12	21.1	14	19.1	51	15.8	4	26.1	1	8.5	
75,000+	578	54.4	20	56.2	36	23.4	19	31.0	42	65.8	12	10.5	76	29.4	5	35.7	3	19.3	
Age																			0.066
13-14	278	12.7	11	16.1	37	14.4	17	26.2	18	13.4	23	14.1	94	17.5	6	25.6	4	13.8	
15-18	436	29.8	17	35.7	59	29.1	16	20.8	23	22.9	24	16.8	124	30.3	5	35.9	4	27.6	
19-22	157	28.5	4	19.1	18	20.3	11	38.0	8	24.5	17	39.3	32	27.1	2	26.6	0	0	
23-26	281	29.0	12	29.1	42	36.2	9	15.0	16	39.1	22	29.9	56	25.1	1	11.8	8	58.7	
Gender																			0.435
Male	595	50.8	29	67.3	71	44.6	25	45.0	29	44.6	49	57.7	151	51.0	7	46.2	10	61.4	
Female	557	49.2	15	32.7	85	55.4	28	55.0	36	55.4	37	42.3	155	49.0	7	53.8	6	38.6	
Sexual Orientation																			0.005
Straight	1060	92.3	41	96.4	143	92.2	48	87.7	58	93.3	70	88.5	269	89.2	12	91.4	12	75.0	
Not straight	70	6.9	1	1.1	6	4.2	4	12.3	3	5.1	8	9.7	16	6.7	0	0	1	6.7	
Don’t know	14	0.8	1	2.5	5	3.6	0	0	1	1.6	5	1.7	14	4.2	2	8.6	3	18.3	
Residence																			<0.001
Urban/suburban	971	80.5	40	91.3	147	91.3	43	77.5	65	100	84	94.0	290	92.7	14	100	16	100	
Rural	181	19.5	4	8.7	9	8.7	10	22.5	0	0	2	6.0	16	7.3	0	0	0	0	
Enrolled in school																			0.002
Yes	746	52.5	26	46.2	95	47.6	36	57.2	52	77.2	52	44.4	221	60.8	10	58.4	8	25.9	
No	406	47.5	18	53.8	61	52.4	17	42.8	13	22.8	34	55.6	85	39.2	4	41.6	8	54.1	

**percents are weighted*

The major outcome variables in this analysis are risk behaviors – tobacco use, alcohol use and ever having sex. Table 3 presents risk behaviors by the nuanced Hispanic groups (in order to test if there were differences by Hispanic identification before deciding how to analytically treat the different Hispanic groups). Table 3 shows that there were no significant differences for Hispanic-Black, Hispanic single (no racial group) or Hispanic-others in comparison to Hispanic-White for any of the three risk behaviors. We also re-ran these models three additional times with each Hispanic subgroup as the reference category to see if we found any significant differences on risk behaviors when Hispanic-White was not the reference category. We did not find any significant differences in risk behaviors when changing the reference categories.

However, other predictors of these behaviors were evident. The most consistent findings were around income. As income increased, the risk of tobacco use and alcohol use also increased – this was most substantial for alcohol use with those in families making more than $75,000/year being 6.6 times more likely than those in the lowest income bracket to have ever used alcohol. Not surprisingly, these behavioral outcomes become more common at later ages which is to be expected. It is, however, important to note that it appears adolescents and young adults who identify as multiracial are initiating these behaviors at similar ages and are not engaging in 'risky' behavior earlier. Those in the oldest age group (23-26) were 13 times as likely as those 15-18 to have ever had alcohol and 26.7 times as likely to have ever had sex. Finally, being unsure of sexual orientation increased risk of tobacco use (OR=1.02); alcohol use (OR=5.38) and ever having sex (OR=1.18). Being not straight also increased the risk of alcohol use (OR=0.009).

Table 3. Analysis A: Adolescent and Young Adult Risk Behaviors by Hispanic Status

	Tobacco Use		Alcohol Use		Ever had sex	
Predictor	**OR**	**p-value**	**OR**	**p-value**	**OR**	**p-value**
Income						
25,000-	Ref	Ref	Ref	Ref	Ref	Ref
25,000-49,999	0.900	0.003	3.756	0.003	0.560	0.205
50,000-74,999	0.862	0.775	2.008	0.189	0.716	0.568
75,000+	1.050	0.750	6.564	5.61e-5	0.952	0.921
Age						
13-14	0.687	0.422	0.180	0.001	0.115	0.002
15-18	Ref	Ref	Ref	Ref	Ref	Ref
19-22	2.152	0.084	3.364	0.010	9.070	3.39e-6
23-26	2.211	0.077	13.044	2.19e-6	26.747	7.48e-8
Gender						
Female	0.656	0.192	0.972	0.939	1.878	0.120
Male	Ref	Ref	Ref	Ref	Ref	Ref
Sexual Orientation						
Straight	Ref	Ref	Ref	Ref	Ref	Ref
Not straight	2.403	0.109	7.162	0.009	1.487	0.583
Don't know	1.02e-7	<2e-16	5.379e-8	<2e-16	1.18e-8	<2e-16
Residence						
Urban/suburban	Ref	Ref	Ref	Ref	Ref	Ref
Rural	0.544	0.450	2.495	0.153	6.689	0.001
Enrolled in school						
Yes	Ref	Ref	Ref	Ref	Ref	Ref
No	2.247	0.034	1.935	0.108	1.774	0.189
Race/ethnicity						
Hispanic_White	Ref	Ref	Ref	Ref	Ref	Ref
Hispanic_Black	0.824	0.814	2.304	0.268	2.132	0.575
Hispanic_Single	0.648	0.268	1.490	0.302	0.900	0.799
Hispanic_Others	0.239	0.059	3.008	0.320	3.454	0.283

**percent's are weighted*

After doing these initial analyses and based on the conceptual understanding of racial and ethnic groups, the racial and ethnic groups presented in Table 4 were created and utilized for the next set of analyses. This primary analysis treats Hispanic identification as a racial group, and therefore treats White-Hispanic respondents as White multiracial and Black-Hispanic respondents as Black multiracial. Hispanic only includes respondent who selected that they were Hispanic and skipped or refused the racial identity question.

Table 4. Analysis B: Racial and Ethnic Groups

Racial group	Frequency	Combinations Included
White single-race	1152	White only (1152);
Black single-race	156	Black only (156);
Asian single-race	65	Asian only (65);
Hispanic	86	Hispanic Only (86);
Black multiracial	67	White-Black(28); White-Black-Hispanic(7); White-Black-Native(5); Black-Hispanic (14); Black-Native(5); White-Black-Hispanic-Native (2); Black-Asian(2); Black-Hispanic-Asian(1); Black-Hispanic-Native (1); White-Black-Asian(1); White-Black-Asian-Native(1);
White multiracial	350	White-Hispanic (306); White-Native (17); White-Asian(15); White-Hispanic-Asian (4); White-Hispanic-Asian_native(1); White-Hispanic-Native(7);
Other	23	Native (5); Asian-native(2); Hispanic-Native(11); Hispanic-Asian(5);
Total	**1899**	

Table 5 represents the major descriptive table with these aggregated groups from Table 4. The demographic breakdown looks very similar to Table 3, however in this version age is also a significant predictor. The age breakdown by multiracial group is interesting because it suggests multiracial identification is growing over time – there are larger percentages of multiracial groups in the lower age brackets. For example, 12.7% of White single-race and 14.4% of Black single-race are between the ages of 13-15 whereas for White multiracial and Black multiracial those percentages are 17.4% and 26.1% respectively.

Table 5. Analysis B: Demographic Differences by Racial and Ethnic Groups, US, 2016

	White single-race		White Multiracial		Black single-race		Black multiracial		Asian single-race		Hispanic single		Others		P-value of chi-square test
Predictor	**N**	**%***	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	
Total	1152	55.2	350	16.9	156	13.9	67	2.5	65	5.8	86	4.4	23	1.3	
Income															<0.001
25,000-	141	9.2	93	19.6	61	36.1	21	33.6	6	7.3	36	36.5	9	36.2	
25,000-49,999	195	17.4	101	32.6	38	26.5	11	17.8	5	5.8	24	33.9	8	35.7	
50,000-74,999	238	19.0	60	15.5	21	14.0	11	16.5	12	21.1	14	19.1	3	15.1	
75,000+	578	54.4	96	32.3	36	23.4	24	32.1	42	65.8	12	10.5	3	12.9	
Age															0.025
13-14	278	12.7	105	17.4	37	14.4	23	26.1	18	13.4	23	14.1	5	10.6	
15-18	436	29.8	141	30.9	59	29.1	21	24.3	23	22.9	24	16.8	8	42.2	
19-22	157	28.5	36	26.2	18	20.3	13	35.3	8	24.5	17	39.3	1	2.5	
23-26	281	29.0	68	25.5	42	36.2	10	14.3	16	39.1	22	29.9	9	44.7	
Gender															0.489
Male	595	50.8	180	52.7	71	44.6	32	45.3	29	44.6	49	57.7	14	60.0	
Female	557	49.2	170	47.3	85	55.4	35	54.7	36	55.4	37	42.3	9	40.0	
Sexual Orientation															0.002
Straight	1060	92.3	310	89.9	143	92.2	60	88.6	58	93.3	70	88.5	17	74.1	
Not straight	70	6.9	17	6.1	6	4.2	4	9.4	3	5.1	8	9.7	2	8.2	
Don’t know	14	0.8	15	4.0	5	3.6	2	2.0	1	1.6	5	1.7	4	17.7	
Residence															<0.001
Urban/suburban	971	80.5	330	92.5	147	91.3	57	82.7	65	100	84	94.0	22	92.0	
Rural	181	19.5	20	7.5	9	8.7	10	17.3	0	0	2	6.0	1	8.0	
Enrolled in school															0.002
Yes	746	52.5	247	59.3	95	47.6	46	57.5	52	77.2	52	44.4	14	58.4	
No	406	47.5	103	40.7	61	52.4	21	42.5	13	22.8	34	55.6	9	41.6	

**percent’s are weighted*

Tables 6-8 predict the major outcomes (tobacco use, alcohol use, sex) by the same set of demographic predictors that were tested for Hispanic subgroups, but with different racial groups and reference groups. We tested for interaction effects between race groups and age, however due to small sample sizes the estimates were unstable and significance could not be determined. Table 6 shows risk behaviors by multiracial groups for Black multiracial adolescents and young adults, in comparison to Black single-race identifying adolescents and young adults. Due to our sample including adolescents and young adults, and these behaviors becoming more common as adolescents move to young adulthood, our data demonstrated that older age is significantly associated with tobacco use, alcohol use and ever having sex. The oldest age group of 23-26 year olds were over 11 times as likely to have ever had alcohol than the reference category of 15-18 year olds, a finding that is consistent with the life course development of adolescents into young adulthood where these behaviors are commonplace. Not knowing or being sure of sexual orientation was also a significant predictor of engaging in tobacco use (OR=19.2), alcohol use (8.2) and ever having sex (5.3). Black multiracial youth were not significantly more likely to have engaged in any three of the behaviors in comparison to single-race peers.

Table 6. Analysis B: Risk Behaviors for Black and Black multiracial Adolescents and Young Adults

	Tobacco Use		Alcohol Use		Ever had sex	
Predictor	**OR**	**p-value**	**OR**	**p-value**	**OR**	**p-value**
Income						
25,000-	Ref	Ref	Ref	Ref	Ref	Ref
25,000-49,999	0.518	0.242	1.782	0.344	0.718	0.546
50,000-74,999	0.246	0.064	2.434	0.240	0.535	0.396
75,000+	0.958	0.944	4.180	0.013	1.123	0.844
Age						
13-14	0.603	0.435	0.050	0.024	2.54e-08	<2e-16
15-18	Ref	Ref	Ref	Ref	Ref	Ref
19-22	3.594	0.061	4.176	0.040	3.824	0.029
23-26	3.263	0.053	11.613	0.0001	4.173	0.019
Gender						
Female	0.874	0.757	0.455	0.086	0.635	0.221
Male	Ref	Ref	Ref	Ref	Ref	Ref
Sexual Orientation						
Straight	Ref	Ref	Ref	Ref	Ref	Ref
Don’t know	19.150	0.0002	8.240	0.010	5.314	0.036
Not straight	4.206	0.056	3.983	0.045	20.549	0.002
Residence						
Urban/suburban	Ref	Ref	Ref	Ref	Ref	Ref
Rural	0.571	0.550	1.107	0.887	1.118	0.898
Enrolled in school						
Yes	Ref	Ref	Ref	Ref	Ref	Ref
No	1.566	0.405	1.797	0.288	3.230	0.026
Race/ethnicity						
Black multiracial	1.209	0.724	1.739	0.240	0.998	0.997
Black single-race	Ref	Ref	Ref	Ref	Ref	Ref

Table 7. Analysis B: Risk Behaviors for White and White multiracial Adolescents and Young Adults

	Tobacco Use		Alcohol Use		Ever had sex	
Predictor	**OR**	**p-value**	**OR**	**p-value**	**OR**	**p-value**
Income						
25,000-	Ref	Ref	Ref	Ref	Ref	Ref
25,000-49,999	0.690	0.110	1.207	0.474	0.742	0.286
50,000-74,999	0.823	0.422	1.292	0.364	1.040	0.889
75,000+	0.641	0.041	1.764	0.024	1.024	0.931
Age						
13-14	0.236	2.8e-7	0.159	2.4e-9	0.083	0.0001
15-18	Ref	Ref	Ref	Ref	Ref	Ref
19-22	1.646	0.033	4.303	2.2e-10	5.404	2.69e-12
23-26	1.598	0.047	8.872	<2e-16	9.635	<2e-16
Gender						
Female	0.902	0.516	1.219	0.240	1.750	0.002
Male	Ref	Ref	Ref	Ref	Ref	Ref
Sexual Orientation						
Straight	Ref	Ref	Ref	Ref	Ref	Ref
Don't know	0.122	0.003	0.376	0.158	0.097	0.006
Not straight	1.312	0.365	2.447	0.004	1.295	0.457
Residence						
Urban/suburban	Ref	Ref	Ref	Ref	Ref	Ref
Rural	1.238	0.347	1.426	0.179	2.327	0.003
Enrolled in school						
Yes	Ref	Ref	Ref	Ref	Ref	Ref
No	2.004	0.001	1.451	0.092	1.980	0.003
Race/ethnicity						
White multiracial	1.475	0.052	0.875	0.530	1.015	0.943
White single-race	Ref	Ref	Ref	Ref	Ref	ref

Table 7 demonstrates the same patterns as Table 6 in terms of predictors of risk behaviors – with age, sexual orientation, and not being enrolled in school being significant predictors of alcohol use, tobacco use and ever having sex. Additionally, in this model gender is also a significant predictor of ever having sex, with female participants being more likely than their male peers to have had sex. This table demonstrates that White multiracial adolescents and young adults are not more likely to engage in any three of these behaviors than their White single-race peers.

Table 8. Analysis B: Adolescent and Young Adult Risk Behaviors by Racial and Ethnic Identification

	Tobacco Use		Alcohol Use		Ever had sex	
Predictor	**OR**	**p-value**	**OR**	**p-value**	**OR**	**p-value**
Income						
25,000-	Ref	Ref	Ref	Ref	Ref	Ref
25,000-49,999	0.740	0.152	1.611	0.043	0.858	0.530
50,000-74,999	0.884	0.581	1.994	0.008	1.039	0.884
75,000+	0.737	0.144	2.486	5.44e-5	1.183	0.466
Age						
13-14	0.388	0.0001	0.159	2.54e-11	0.053	7.91e-6
15-18	Ref	Ref	Ref	Ref	Ref	Ref
19-22	1.897	0.003	4.223	4.44e-12	4.843	1.02e-13
23-26	1.947	0.002	9.861	<2e-16	9.027	<2e-16
Gender						
Female	0.886	0.398	1.083	0.596	1.337	0.069
Male	Ref	Ref	Ref	Ref	Ref	Ref
Sexual Orientation						
Straight	Ref	Ref	Ref	Ref	Ref	Ref
Don't know	1.311	0.689	1.257	0.690	0.465	0.332
Not straight	1.711	0.036	3.247	3.93e-5	2.010	0.034
Residence						
Urban/suburban	Ref	Ref	Ref	Ref	Ref	Ref
Rural	1.090	0.694	1.337	0.241	2.099	0.005
Enrolled in school						
Yes	Ref	Ref	Ref	Ref	Ref	Ref
No	1.822	0.002	1.512	0.030	1.824	0.002
Race/ethnicity						
White single-race	Ref	Ref	Ref	Ref	Ref	Ref
White multiracial	1.398	0.089	0.870	0.520	0.970	0.883
Black single-race	0.828	0.470	0.825	0.450	1.536	0.141
Black multiracial	1.007	0.986	1.176	0.620	1.415	0.471
Asian single-race	0.752	0.504	0.254	0.0008	0.414	0.030
Hispanic single-race	0.954	0.895	1.133	0.704	1.057	0.880
Others	0.509	0.241	2.224	0.220	2.018	0.285

Table 8 shows the risk behaviors with all of the racial groups in one model, with the traditional White reference group. This table demonstrates that adolescents and young adults who identify as multiracial are not engaging in risky behaviors at higher rates than their White-single-race peers. The only racial group that was significant was Asian adolescents and young adults who are significantly less likely to report alcohol use (OR=0.254, p=0.0008) or ever having sex (OR=0.414, p=0.030). We also re-ran these models with the other single-race groups as reference groups (Black single-race, Asian single-race and Hispanic single-race) and found similar patterns. The only model that showed significant differences by multiracial status was

when Asian single-race was the reference category and all groups (including multiracial) were at increased risk for alcohol use and ever having sex in comparison with the Asian-only reference group.

Table 8b shows the risk behaviors again with all of the racial groups in one model, with the traditional White reference group. However, this time we treated multiracial adolescents and young adults as one category and not disaggregated to ensure we were not masking an effect of the entire group by splitting into small sample sizes. In this case we once again see no significant differences for multiracial adolescents and young adults even in a large group and the predictors of risk behavior remain similar to Table 8 – with increased income, increased age, not identifying as straight and not being enrolled in school increasing risk of tobacco use, alcohol use and ever having sex - and being Asian single-race lowering that risk.

Table 8b: Analysis B: Adolescent and Young Adult Risk Behaviors by Racial and Ethnic Identification – Multiracial Combined

	Tobacco Use		Alcohol Use		Ever had sex	
Predictor	**OR**	**p-value**	**OR**	**p-value**	**OR**	**p-value**
Income						
25,000-	Ref	Ref	Ref	Ref	Ref	Ref
25,000-49,999	0.750	0.167	1.594	0.048	0.847	0.495
50,000-74,999	0.888	0.598	1.984	0.008	1.033	0.902
75,000+	0.742	0.155	2.465	6.51e-5	1.171	0.495
Age						
13-14	0.386	0.0001	0.160	2.70e-11	0.054	8.10e-6
15-18	Ref	Ref	Ref	Ref	Ref	Ref
19-22	1.891	0.003	4.229	4.24e-12	4.850	9,21e-14
23-26	1.954	0.002	9.815	<2e-16	8.986	<2e-16
Gender						
Female	0.884	0.386	1.088	0.578	1.343	0.065
Male	Ref	Ref	Ref	Ref	Ref	Ref
Sexual Orientation						
Straight	Ref	Ref	Ref	Ref	Ref	Ref
Don't know	1.321	0.679	1.254	0.693	0.463	0.332
Not straight	1.704	0.037	3.255	3.63e-5	2.016	0.033
Residence						
Urban/suburban	Ref	Ref	Ref	Ref	Ref	Ref
Rural	1.085	0.710	1.344	0.233	2.110	0.004
Enrolled in school						
Yes	Ref	Ref	Ref	Ref	Ref	Ref
No	1.815	0.002	1.515	0.029	1.830	0.002
Race/ethnicity						
White single-race	Ref	Ref	Ref	Ref	Ref	Ref
Multiracial	1.344	0.110	0.902	0.609	1.015	0.941
Black single-race	0.829	0.472	0.824	0.448	1.535	0.143
Asian single-race	0.751	0.501	0.254	0.001	0.415	0.030
Hispanic single-race	0.955	0.897	1.131	0.709	1.055	0.884
Others	0.508	0.238	2.223	0.220	2.020	0.285

As a sensitivity analysis, we also treated the racial/ethnic groups an additional way, with Hispanic not considered a racial identity. For this analysis, if a respondent selected Hispanic and then White they were treated as White and if they selected Hispanic and Black they were treated as Black (rather than being included in the White multiracial or Black multiracial category). The results were consistent with the findings already presented and so these tables are included in an Appendix.

Discussion:

Adolescence is a unique point in the life course – a time that is marked by identity formation as well as potential engagement in many risk behaviors. This analysis used data from a nationally representative sample to examine if there were differences in risk behavior involvement by multiracial identification. In order to create conceptually driven and nuanced racial and ethnic groups we balanced the realities of sample size with theory around multiracial identification within the context of race and categorization in the United States. The multiracial groups were constructed with the historical context of a racial order defined by Black versus White in the United States. One of the major contributions of this paper is the focus on creating groups from empirical realities of the data. We systematically compared similarities and differences between different racial and ethnic groups (especially the different Hispanic groups) in order to create meaningful identification categories. We not only created identification groups from empirical realities, but also used different reference groups based on the comparison we were trying to make. It is critical that as a body of research is generated around multiracial identification and health outcomes, racial and ethnic groups are formed so that they make conceptual sense and are not simply a catchall for 'other' identifications. This analysis can act as a guide for future public health research attempting to examine differences in health outcomes for multiracial groups.

An interesting and important demographic finding in this paper is regarding sexual orientation. Black multiracial adolescents and young adults reported the highest percentage of not straight when asked about their sexual identity. This is an area that should be explored further in future research as there are many possible interpretations of this finding. One possible interpretation is that adolescents and young adults who identify as multiracial are used to identifying in more 'liminal' spaces or with less 'traditional' categories. A second potential

interpretation of this finding is that it could be an effect of generational or developmental changes in understandings of social categories and identification. The multiracial population in this sample tended to be the youngest and therefore this finding might reflect that these adolescents may be more comfortable identifying as not straight or as not sure of their sexuality not due to their multiracial status, but because there have been generational shifts in understanding the fluidity of sexuality and gender and sexual orientation identification is relatively fluid during this developmental period (Ott, 2011). Another potential hypothesis is that multiracial youth have parents who are more socially liberal and therefore they discuss issues of sexual orientation more openly. Further research should examine the demographic characteristics of parents who enter into multi-racial marriages and how that differs from single-race families to better understand influences of families and household structure on issues of identity and identification. It will be important to follow this trend longitudinally and to examine the reasons behind this potential association between multiracial identification and non-heterosexual identification.

It is important to be conscious of how issues of health outcomes of mixed-race populations are studied and the importance of decisions made around measurement and analysis of these issues. Emirbayer and Desmond in their book *The Racial Order* examine how research and quantitative analyses reify racial categories in their treatment of race as something to 'control for' or 'compare between'. "This scholastic habit not only reifies 'races'; it also reifies racial hierarchies, since analysts almost always treats 'White' as the perfect and natural 'reference category' to which all other groups should be compared" (Emirbayer & Desmond, p.89). It is often assumed that White should be used as the reference group – implying that all other groups should be compared to and modeled after White identifying populations (Daniels & Schulz, 2006). However, White may not always be the best reference category, and similar to how for other

variables researchers use conceptual understanding to select the most appropriate reference category, researchers need to take seriously both the construction of racial and ethnic groups for analysis and also the reference groups being used. It is with this reality in mind and the complexity of multiracial identification that our data were analyzed in multiple ways with different reference groups.

In their study using Add Health data from 1994-1995, Udry and colleagues examined outcomes including general health, substance use and sexual behavior for multiracial identifying adolescents as one large group and then also broke down their data by more nuanced categories in comparison to single-race peers (for example, Black-White adolescents in comparison to Black single-race and White single-race). This took seriously the idea that different multiracial identities may have different outcomes. However, the present analysis was from a different generation – when identifying as multiracial was much less common. It is quite possible that as identifying as multiracial has become much more common over time, these populations have grown and perception and treatment might be quite different in 2016 than it was in 1995.

Our analysis using a nationally representative survey from 2016, demonstrates that there were in fact no significant differences by multiracial group for tobacco use, alcohol use or sex in the many different sets of analyses performed. This paper updates the data from the Udry et al 2003 study that also considered disaggregated racial groups and alternate reference categories, however did so in the context of multiracial identification being much less common. The absence of a significant finding for risk behavior engagement between multiracial adolescents and young adults and their single-race peers is an important addition to the literature. Much of the current literature on multiracial adolescents and young adults hypothesizes that multiracial identity is riskier for adolescents due to stress and uncertainty in identity formation. However, it is

important to note that this was not the case in our data – leading to the question, under what circumstances is identifying as multiracial risky and for what outcomes? Or, has this identification become more common and therefore is no longer a stressful for youth? Future research, both qualitative and quantitative, should continue to explore these questions with larger sample sizes and with additional psychosocial variables around stress, anxiety, and discrimination.

Limitations

Although this paper is able to add to the methodological literature in terms of how to create racial and ethnic groups in public health research, and how to treat these groups in analyses, this paper also has some limitations. The major limitation is sample size – when examining the nuanced racial and ethnic groups, many of the cells become quite small. The sample size limitation leads to a call for more research that oversamples multiracial populations so that these more nuanced and appropriate groups can be further analyzed. With larger sample sizes it will be important to test for interactions between different demographic factors (such as age and gender) and racial group to see if there are different risks and outcomes for these subpopulations. It will be particularly interesting to examine interactions between gender and racial/ethnic groups to see if the impact of identifying as multiple races is different for females and males in terms of the risk behaviors being examined. Another limitation in much research on multiracial identifying populations is that surveys generally capture racial and ethnic identification separately, and therefore Hispanic identifying individuals are often not included in multiracial populations. However, this data was able to explore multiple combinations to test with different reference groups in order to overcome this common limitation.

Implications

Although much of the public health literature takes a risk-based approach to both adolescence as well as multiracial populations, our data demonstrate that multiracial adolescents and young adults are not at an increased risk for engaging in these specific risk behaviors that often are initiated during adolescence. It also demonstrates empirically how to create conceptually understandable groups, even in the case of small sample sizes, as well as the importance of analyzing with appropriate reference groups. Public health research should examine under what circumstances multiracial identity is stressful but also under what circumstances is it not stressful or risky. This will allow for public health researchers and practitioners to identify circumstances and traits that will help those adolescents and young adults who are in riskier positions to thrive and will avoid stigmatizing multiracial adolescents and young adults.

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CONCLUSION

The Complex Science of Racial Identification: Where Do We Go From Here?

Research on multiracial identity in the United States is limited. There is now a sizable group of adolescents and young adults in the United States who identify as multiracial (Bernstein & Edwards, 2008). Though an emerging literature has begun to explore what it means to identify as multiracial, we still know very little about the process of identity formation for multiracial youth and the effect of multiracial identity on health and behavioral outcomes. Understanding the confluence of influences (individual, interpersonal, community and structural level factors) on this identification process is a crucial first step in ensuring that the literature on racial and ethnic identity and health accurately reflects today's more diverse population. Much of the current research utilizes the umbrella term of multiracial, without understanding who that population represents, who it leaves out, and how the process of claiming an identification impacts personal intentions and behaviors (Choi, 2012). Considerable research has explored racial and ethnic differences in health and behavioral risk outcomes for single-race adolescents (Elster, 2003). This has been important data, and for a long time reflected the majority of the population. However, with a changing demographic landscape, the way we collect data and study racial disparities needs to adapt as well.

This dissertation aims to re-conceptualize how racial categories are constructed and used in public health research by integrating knowledge from fields that often operate in silos. The three chapters build off of one another – the first reviews the evidence base and creates an empirically testable framework in order to explore intersecting influences on identification and health; the second describes a nationally representative sample of adolescents who identify as multiracial and explores peer and familial influences; and the third examines rates of adolescent

risk behaviors, such as alcohol and tobacco use, by nuanced racial and ethnic groups. Findings from the three chapters make theoretical, methodological as well as empirical contributions to adolescent health as a field.

Main Findings and Implications: Chapter 1

The first chapter is a literature review that synthesizes the qualitative and quantitative sociological literature on multiracial identity formation among adolescents and young adults. This chapter connects sociological research with public health research on health outcomes for young people who identify (or are identified) as multiracial. These multiple streams of research regarding adolescent development, qualitative and quantitative approaches to multiracial identity formation, and intersectional factors such as gender and religion often operate in silos, and are not well-integrated into public health theory-building and research design. This chapter also places these influences within the historical context of race relations in the United States—a critical foundation of identification relying on race (and often racism) in the United States. This review emphasizes the influence of interlocking systems of privilege and oppression—including other socially-produced categories such as gender, class, sexual identity and geographic location. It also underlines the importance of studying multiracial identification over the entire lifespan and across generations, as it is a dynamic process.

The main theoretical contribution of this chapter includes how intersectional influences of different contexts impact racial and ethnic identification and health for adolescents and young adults. The development of this framework also suggests opportunities for future research regarding how intersecting influences affect one's individual identification and health and behavioral outcomes. My future research will use

this framework to design studies and analyses that explore these contextual influences on identity formation and the link between identification and health. I will focus on uncovering and understanding mechanisms between multiracial identification and health, including internal factors (e.g., stress, anxiety) and external factors (e.g., discrimination and treatment by others based on perceived identity).

Main Findings and Implications: Chapter 2

The second chapter aims to explore adolescent and young adult identification and its congruence (or lack of congruence) with parental identification of their children. Much of the earliest research on multiracial children was generated using parental identification of the child (Qian, 2004). Thus, a critical contribution of chapter two is the high, but not perfect, correlation between parent identification of the child and the adolescent self-report of racial and ethnic identification. As the multiracial population increases in the United States, acceptance and understanding of what it means to identify as multiple races has also begun to change. The findings presented in chapter 2 demonstrate that adolescents are more likely to identify as multiracial, whereas parents were more likely to identify their child as a single-race.

The discrepancy between child and parent reporting has many potential causes, including generational differences in understanding racial and ethnic identification and categories as well as the evolution in census categorization. For example, the current generation of adolescents and young adults grew up with a President who is multiracial, which contributed to the visibility of this identification. Another generational change that may be contributing to this discrepancy is the acceptance of more fluid identities in other social categories – such as gender and sexual identities (Ott, 2011). It is possible that adolescents are now more comfortable with identities that do not fit a binary construction. There was also a major shift in how the Census categorized race

and ethnicity in 2000, for the first time people were allowed to select more than one race (Bernstein & Edwards, 2008). This recent change has 'allowed' for multiracial identification, something an older generation were just introduced to on a formal or national scale, and therefore may not be as comfortable with or used to. It is a critical methodological contribution that if interested on the connection between identification and an outcome that research should rely upon self-identification, rather than the parent identification, whenever possible. If, however, the goal of the research is to identify potential conflict between parental and adolescent or adult identification, then collecting both of these variables would be justifiable.

Along with the methodological contribution regarding self-report versus parent-report of racial identification, the second chapter of this dissertation also makes empirical contributions regarding demographic trends, psychosocial outcomes for adolescents who identify as multiracial, and examines peer group behaviors of multiracial adolescents. When examining the demographic picture of multiracial households and adolescents, it appears that there is some level of socioeconomic disadvantage among multiracial families – with these households reporting lower household income and a higher percentage living in urban areas. Past research has hypothesized that mental health factors (such as anxiety, stress and depressive symptoms) might be the mechanism between multiracial identification and poor health outcomes and behaviors (Udry, 2003). This analysis, however, demonstrated that the pattern is much more complex and the comparison between White multiracial and White single-race may be different than Black multiracial and Black single-race. For example, Black multiracial adolescents reported lower depressive symptoms when compared to their single-race Black peers, however White multiracial adolescents reported higher bullying scores than their single-race White peers.

Past research has also claimed that adolescents who identified as multiracial are overly influenced by peer pressure and may have peer groups that engage in riskier behaviors (Choi, 2012). The final aim of the second chapter was to examine reports of positive and negative peer group behavior by multiracial and single-race identification. Once again, the data do not demonstrate that multiracial adolescents engage in more "high risk" behavior than their single-race peers. In fact, in many cases multiracial identified adolescents report more positive peer group behaviors and less negative peer group behaviors when compared to their single-race peers.

The findings from this chapter lead to a hypothesis about multiracial identity within the context of the historical racial order in the United States as described in the review chapter. Black multiracial adolescents and young adults are, in many ways, less at risk for psychological and peer-based stressors than their Black single-race peers. This concept links the first and second chapters—demonstrating the depth to which the Black-White divide has been ingrained into the racial order in the United States. Many theorists have hypothesized that the rise of the multiracial population would erase the color line or lead to a "post-racial" American society (Hernandez, 2018), but these findings actually suggest an alternate possibility. It appears that outcomes for Black multiracial youth may be more positive than their Black peers, but that White multiracial adolescents are reporting outcomes that are in some ways worse than their single-race White peers. Although not a perfect continuum for all outcomes, these findings lead to the hypothesis that the growing multiracial population is in fact reifying the Black-White divide in the United States, demonstrating that privilege is still conferred based on Whiteness. However, race and ethnicity are only one piece of identity; thus, it is also necessary to take into

account other axes of identity, privilege and oppression, including gender, sexuality and socioeconomic status, when studying relationships between identification and health.

The fact that the findings from this chapter are discrepant from earlier findings that claimed higher levels of risk for multiracial adolescents and young adults, may also point toward generational change in acceptance of more fluid social categories. As the multiracial population in the United States has grown, and other social categories (such as gender identity and sexual orientation) have evolved to be more fluid, it is quite possible that the negative psychological and health outcomes that were found for multiracial populations in the earlier literature are simply outdated. It is vital that we continue to explore outcomes and mechanisms that link identity and health for multiracial adolescents and young adults to ensure accurate and up–to-date findings.

The results in the second chapter of this dissertation add important contextual information regarding adolescents who identify as multiracial and their family and peer networks. Importantly, it demonstrates the importance of allowing adolescents and young people to identify themselves and not rely on other's perceptions or identifications of them. It also emphasizes the importance of grounding hypotheses and potential mechanisms of different risk behaviors and outcomes in empirical data. The data from this chapter demonstrated that Black multiracial and Black single-race peers reported the highest self-esteem scales, which points to resilience and strength even in the face of elevated depressive scores. Assuming a risk-based framework reifies and perpetuates preconceived notions and generalizations about identifications that are not grounded in data or evidence, when resilience should be harnessed and encouraged by those working with adolescents.

Main Findings and Implications: Chapter 3

The third chapter of this dissertation focuses on comparing risk behavior involvement for multiracial adolescents and young adults to risk behavior involvement by their single-race peers. The limited research that does exist on multiracial health outcomes tends to group all multiracial adolescents together and argues they are at increased risk for a multitude of health outcomes, specifically negative mental health outcomes (such as depression and stress) (Udry, 2003; Choi, 2012). This chapter aims to make both methodological as well as empirical additions to the literature. The first main goal of this chapter is to create conceptually-driven racial and ethnic groups that take into account the realities of small sample sizes while not ignoring nuanced identification categories. We achieve this by looking at the sample by the most nuanced groups first – including both ethnic and racial identification. We conducted the analyses multiple times with different categories and reference groups in order to ensure our findings (lack of elevated risk for multiracial adolescents in comparison to single-race peers) were not an artifact of small sample size, but instead a true 'negative' finding.

In most public health research, multiracial youth are grouped together in an 'other' category. When significant findings arise for this 'other' group they are often ignored—a practice that may substantiate stigma and a lack of societal understanding that racial and ethnic groups are changing and therefore the way we categorize them and study them must change as well. Research on multiracial populations, and clinical approaches to adolescents (specifically adolescents of color), often takes a risk-based approach (Ginsburg, 2014), assuming that these adolescents will exhibit riskier behavior, rather than taking an empirically-driven approach to understanding where both strengths and risks exist.

Implications

This dissertation offers four major contributions to the literature. First, the research presented accurately reflects the demographic changes that are taking place in the United States, and provides a framework for future research to do the same. We need to better understand how these demographic changes impact identification, how these shifts should change categorization and how they ultimately might change the way race is understood in the United States. These shifts are all occurring within the troubled historical context of race, racism, and social hierarchies that have manifested over time, including by social scientists and public health researchers who utilize categories and often make generalizations about populations using forced categorizations that do not necessarily capture an individual's actual identity.

The second major contribution is the introduction of an empirically testable framework that examines identification and health and behavioral outcomes while allowing for the confluence of influences which include individual, interpersonal, community and structural level factors. Future research should examine pieces of this framework to continue to refine it over time. This framework places the research on health and behavioral outcomes for multiracial populations within the context of historical realities of the racial order in the United States. It will be critical for further research to explore how the growth of the multiracial population impacts the state of racism and race in the United States.

The third major contribution of this dissertation is establishing the importance of relying on self-identification for adolescents when exploring outcomes based on their identification. It is vital that we allow young people the ability to identify themselves and to include them in future research. Parents can provide important context for learning about adolescents and young people,

but their identification of their children may be different from how young people identify themselves.

Fourth, this dissertation demonstrates that a risk-based framework for studying youth who identify as multiple races is not empirically-driven. Our findings demonstrated that multiracial adolescents and young adults did not report having peers who engaged in riskier behaviors, were not at increased risk for depressive symptoms or low self-esteem and finally, did not report increased tobacco use, alcohol use, or sexual activity engaging in sex. It is vital that we take an evidence-based approach to understanding populations and not assume risk without testing that assumption. Public health research has the potential to reify and stigmatize categories or to focus on strength, resilience, and positive outcomes for populations. The evidence presented here makes a strong argument for taking next steps to understand the strengths and assets multiracial youth possess and how these strengths can be leveraged to improve the health and well-being of all young people.

Next Steps

This dissertation has begun to re-conceptualize how racial and ethnic categories are generated and utilized in public health research—with a focus on the implications and importance of this endeavor for adolescents and young adults who identify as multiple races. The three previous chapters each did this in different ways.

It is my hope that this dissertation acts as a catalyst for more research—both qualitative and quantitative—that examines multiracial identification and health outcomes. I plan to utilize the conceptual framework presented in chapter 1 to unpack the intersecting influences on identification and health with a research program that utilizes multiple modes of data collection and analysis. This chapter examines ‘intersection’ in two ways, the first being an intersection or

confluence of multiple levels of analysis (individual, interpersonal, structural) as well as the sociological understanding of intersectional, which highlights the intersection among categories (race, ethnicity, gender, SES, etc.).

There are other national datasets that contain relevant data that can be used to examine influences on identification and health and behavioral outcomes for adolescents and young adults who identify as multiracial. One of those datasets is the National Survey of Family Growth, a dataset that includes sexual and reproductive health outcomes. It is vital that the data on disparities in sexual and reproductive health outcomes are updated with more relevant racial and ethnic categories. These outcomes are especially important during this period of the lifespan, as adolescence and young adulthood is often when individuals begin to initiate sexual behavior and explore relationships. It will not only be important to examine current national datasets using the conceptual categories and nuanced groups discussed in chapters 2 and 3 of this dissertation, but also to consider the intersecting influences presented in chapter 1 whenever possible. It is critical that future research links national datasets with geographic data, such as census data, in order to examine the impact of regional differences and geographic context (such as the income and racial composition of a neighborhood).

Birth certificate datasets are another source of data that should be leveraged to gain a more complete picture of the demographic transition, as well as to update vital health statistics with nuanced racial and ethnic categories. The Guttmacher Institute has compiled a dataset that contains all birth certificates over the past few decades. This data contains information on the race of the mother, father, and racial identification of the child for all births in the US. This would be the most accurate 'count' of multiple-race children being born in the United States and would allow for an analysis of longitudinal trends in subgroups of multiracial populations (for

example, is White and Latino/a still the most common). This data would also update the public health literature on birth outcomes (birth weight, gestational age, etc.) with more nuanced racial and ethnic groups.

Future research should also prioritize more mixed methods and qualitative research. Qualitative research should include interviews with adolescents who identify as multiple races, as well as their parents and families. This research will allow young people to discuss how they view race and ethnicity, identification, and categorization, and will also deepen understanding of their lived experience identifying with multiple racial and ethnic groups. It would be interesting to take the framework created in chapter 1 and let the adolescents talk through the multiple influences described, sharing with us how (if at all) each level and factor impacts their identification and life experience.

Qualitative interviews would also give us the opportunity to hear directly from young people about how, if they were able to choose, they would identify (without forced categories), and to describe the multiple sets of influences on their identities and lives. This would provide insight into how they are viewing racial groups (if at all) and how they understand their identity fitting within that broader racial order. Qualitative interviews would need to be conducted in many areas of the country, both regionally (Northeast, Midwest, Southeast, Southwest, South, Pacific Northwest, etc.) as well as by type of geographic area (urban, suburban, rural), to understand perspectives from adolescents and young people in different contexts and with different societal influences. Not only is it important to examine geographic variation for multiracial populations, but also neighborhood and other structural influences on identity and identification. Previous research has demonstrated the importance of racial composition of the neighborhood and neighborhood institutions (such as schools, community centers, churches, etc.)

on psychosocial outcomes as well as academic achievement (Hurd, 2013; Caldas, 1998). It is therefore critical to examine the impact of racial composition (% Black, % White, % Multiracial, etc.) at the neighborhood level on identification and health and behavioral outcomes for adolescents who identify as multiracial. Adolescents are highly influenced by their neighborhoods and neighborhood institutions, as these are places where they spend much of their time and build peer groups. The examination of the racial composition of the neighborhood and neighborhood institutions will allow us to further understand the influence of socialization, including differences for those growing up in more segregated versus integrated communities.

Future qualitative research should inform future design of datasets. It will be important to use what we learn from youth to create questions that allow them to more accurately identify, and that will explore the influences that they classify as important for their identification. One of the major limitations with research that explores multiracial identity is the problem of small sample size. This issue often leads to a lack of power and the inability for researchers to look at mechanisms and intersections within the data. Until this demographic reaches a larger percentage of the population, it will be necessary for researchers to purposefully oversample this population to get more power and be able to explore more nuanced racial and ethnic groups in conceptually-driven ways.

Conclusions:

This dissertation has combined research and literatures on adolescent development, racial and ethnic identity theory and the historical context of the racial order and racism in the United States to better understand multiracial identification. It was the goal of this work to provide a foundation for future public health research on health and behavioral outcomes using more accurate racial and ethnic categories, other datasets, and to continue to generate empirical work that is grounded in theory. As the multiracial population continues to grow in the United States,

the issues surrounding racial identification and health outcomes for youth and eventually adults will become even more vital for public health researchers and practitioners to understand and react to effectively.

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Appendix: Additional Analyses Chapter 3

Table 1. Analysis C: Racial and Ethnic Groups

Racial group	Frequency	Combinations Included
White single-race	1458	White only (1152); White-Hispanic (306)
Black single-race	170	Black only (156); Black-Hispanic (14)
Asian single-race	70	Asian only (65); Hispanic-Asian(5);
Hispanic	86	Hispanic Only (86);
Black multiracial	53	White-Black(28); White-Black-Hispanic(7); White-Black-Native(5); Black-Native(5); White-Black-Hispanic-Native (2); Black-Asian(2); Black-Hispanic-Asian(1); Black-Hispanic-Native (1); White-Black-Asian(1); White-Black-Asian-Native(1);
White multiracial	44	White-Native (17); White-Asian(15); White-Hispanic-Asian (4); White-Hispanic-Asian_native(1); White-Hispanic-Native(7);
Other	18	Native (5); Asian-native(2); Hispanic-Native(11);
Total	**1899**	

Table 2. Analysis C: Demographic Differences by Racial and Ethnic Groups, US, 2016

	White race		White Multiracial		Black race		Black multiracial		Asian race		Hispanic		Others		P-value of chi-square test
Predictor	**N**	**%***	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	
Total	1458	70.3	44	1.79	170	14.5	53	1.88	70	6.11	86	4.44	18	1.0	
Income															<0.001
25,000-	230	11.7	4	6.0	64	35.8	18	35.1	8	8.7	36	36.5	7	35.7	
25,000-49,999	285	20.9	11	24.6	40	25.8	9	20.2	6	6.2	24	33.9	7	41.9	
50,000-74,999	289	18.3	9	13.2	25	14.5	7	13.7	12	20.1	14	19.1	3	19.4	
75,000+	654	49.0	20	56.2	41	23.9	19	31.0	44	65.0	12	10.5	1	3.0	
Age															0.034
13-14	372	13.7	11	16.1	43	14.9	17	26.2	19	13.3	23	14.1	4	11.0	
15-18	560	29.9	17	35.7	64	29.3	16	20.8	23	21.9	24	16.8	8	54.1	
19-22	189	28.2	4	19.1	20	20.5	11	38.0	8	23.4	17	39.3	1	3.2	
23-26	337	28.2	12	29.1	43	35.3	9	15.0	20	41.5	22	29.9	5	31.7	
Gender															0.376
Male	746	50.8	29	67.3	78	44.7	25	45.0	34	47.1	49	57.7	9	48.6	
Female	712	49.2	15	32.7	92	55.3	28	55.0	36	52.9	37	42.3	9	51.4	
Sexual Orientation															0.037
Straight	1329	91.6	41	96.4	155	92.2	48	87.7	62	92.5	70	88.5	13	73.6	
Not straight	86	6.9	1	1.1	6	4.0	4	12.3	3	4.9	8	9.7	2	10.5	
Don’t know	28	1.5	1	2.5	7	3.8	0	0	2	2.7	5	1.7	3	15.9	
Residence															0.002
Urban/suburban	1261	83.1	40	91.3	161	91.6	43	77.5	70	100	84	94.0	17	89.7	
Rural	197	16.9	4	8.7	9	8.4	10	22.5	0	0	2	6.0	1	10.3	
Enrolled in school															0.005
Yes	967	54.3	26	46.2	105	48.0	36	57.2	54	75.9	52	44.4	12	61.3	
No	491	45.7	18	53.8	65	52.0	17	42.8	16	24.1	34	55.6	6	38.7	

**percent’s are weighted*

Table 3. Analysis C: Risk Behaviors for Black and Black multiracial Adolescents and Young Adults

	Tobacco Use		Alcohol Use		Ever had sex	
Predictor	**OR**	**p-value**	**OR**	**p-value**	**OR**	**p-value**
Income						
25,000-	Ref	Ref	Ref	Ref	Ref	Ref
25,000-49,999	0.515	0.238	1.753	0.356	0.718	0.546
50,000-74,999	0.247	0.069	2.465	0.236	0.535	0.390
75,000+	0.962	0.949	4.214	0.013	1.123	0.843
Age						
15-18	Ref	Ref	Ref	Ref	Ref	Ref
13-14	0.600	0.432	0.049	0.024	2.54e-08	<2e-16
19-22	3.586	0.063	4.181	0.040	3.818	0.028
23-26	3.246	0.053	11.434	0.0001	4.174	0.019
Gender						
Female	0.873	0.755	0.458	0.089	0.563	0.220
Male	Ref	Ref	Ref	Ref	Ref	Ref
Sexual Orientation						
Straight	Ref	Ref	Ref	Ref	Ref	Ref
Don’t know	19.381	0.0001	8.611	0.007	5.323	0.038
Not straight	4.181	0.061	3.893	0.050	20.521	0.002
Residence						
Urban/suburban	Ref	Ref	Ref	Ref	Ref	Ref
Rural	0.567	0.550	1.070	0.925	1.115	0.900
Enrolled in school						
Yes	Ref	Ref	Ref	Ref	Ref	Ref
No	1.568	0.402	1.812	0.281	3.234	0.026
Race/ethnicity						
Black multiracial	1.220	0.734	1.870	0.216	1.011	0.986
Black race	Ref	Ref	Ref	Ref	Ref	ref

Table 4. Analysis C. Risk Behaviors for White and White multiracial Adolescents and Young Adults

	Tobacco Use		Alcohol Use		Ever had sex	
Predictor	**OR**	**p-value**	**OR**	**p-value**	**OR**	**p-value**
Income						
25,000-	Ref	Ref	Ref	Ref	Ref	Ref
25,000-49,999	0.687	0.110	1.215	0.458	0.756	0.295
50,000-74,999	0.775	0.286	1.321	0.317	1.037	0.897
75,000+	0.587	0.012	1.827	0.014	1.025	0.927
Age						
15-18	Ref	Ref	Ref	Ref	Ref	Ref
13-14	0.244	5.1e-7	0.158	1.94e-9	0.083	0.0001
19-22	1.664	0.029	4.263	2.73e-10	5.382	2.97e-12
23-26	1.611	0.043	8.803	<2e-16	9.610	2.59e-16
Gender						
Female	0.899	0.500	1.213	0.257	1.741	0.002
Male	Ref	Ref	Ref	Ref	Ref	Ref
Sexual Orientation						
Straight	Ref	Ref	Ref	Ref	Ref	Ref
Don’t know	0.130	0.003	0.371	0.161	0.100	0.007
Not straight	1.298	0.384	2.443	0.004	1.290	0.463
Residence						
Urban/suburban	Ref	Ref	Ref	Ref	Ref	Ref
Rural	1.156	0.517	1.456	0.153	2.316	0.003
Enrolled in school						
Yes	Ref	Ref	Ref	Ref	Ref	Ref
No	1.936	0.002	1.471	0.080	1.983	0.003
Race/ethnicity						
White multiracial	1.378	0.487	0.697	0.539	0.817	0.722
White race	Ref	Ref	Ref	Ref	Ref	ref

Table 5. Analysis C. Adolescent and Young Adult Risk Behaviors by Racial and Ethnic Identification

	Tobacco Use		Alcohol Use		Ever had sex	
Predictor	**OR**	**p-value**	**OR**	**p-value**	**OR**	**p-value**
Income						
25,000-	Ref	Ref	Ref	Ref	Ref	Ref
25,000-49,999	0.744	0.160	1.603	0.045	0.852	0.511
50,000-74,999	0.854	0.479	1.991	0.007	1.029	0.911
75,000+	0.693	0.075	2.520	2.98e-5	1.197	0.430
Age						
15-18	Ref	Ref	Ref	Ref	Ref	Ref
13-14	0.396	0.0001	0.158	2.32e-11	0.054	8.43e-6
19-22	1.899	0.003	4.143	6.98e-12	4.900	7.73e-14
23-26	1.942	0.002	9.729	<2e-16	9.293	<2e-16
Gender						
Female	0.886	0.400	1.071	0.653	1.314	0.089
Male	Ref	Ref	Ref	Ref	Ref	Ref
Sexual Orientation						
Straight	Ref	Ref	Ref	Ref	Ref	Ref
Don't know	1.393	0.622	1.248	0.698	0.496	0.359
Not straight	1.703	0.038	3.222	3.23e-5	2.002	0.036
Residence						
Urban/suburban	Ref	Ref	Ref	Ref	Ref	Ref
Rural	1.038	0.862	1.361	0.212	2.105	0.005
Enrolled in school						
Yes	Ref	Ref	Ref	Ref	Ref	Ref
No	1.788	0.003	1.533	0.025	1.821	0.002
Race/ethnicity						
White race	Ref	Ref	Ref	Ref	Ref	Ref
White multiracial	1.328	0.541	0.647	0.459	0.734	0.579
Black race	0.762	0.273	0.857	0.525	1.547	0.119
Black multiracial	0.899	0.814	1.206	0.622	1.334	0.581
Asian race	0.710	0.395	0.292	0.002	0.414	0.022
Hispanic race	0.864	0.677	1.167	0.635	1.060	0.871
Others	0.332	0.131	1.732	0.459	3.361	0.088