Predictors of risk-taking behavior trends among racial minority adolescents: Examining interactive effects using latent growth analysis

by

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B.S., Manhattan Christian College, 2006
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AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Applied Human Sciences
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Abstract

Risk-taking behavior (RTB) among juveniles has grown steadily since the first juvenile justice system was established. This study examines the relationship between future expectations of racial minority adolescents and their RTB across seven years. The role of multiracial identity and the malleability of this identity in RTBs were further examined, as were differences across sexes. Data from Waves 1 through 3 of the National Longitudinal Study of Adolescent Health (N = 1770; 796 males and 974 females) was utilized for this study. All participants indicated a minority race at Wave 1. Slightly more than 40% of the males and almost 60% of the females changed their race from Wave 1 to Wave 3. Latent growth curve modeling results not only suggest that although adolescents took fewer risk initially, adolescents who had significantly higher future expectations actually increased their RTB over time as compared to those with lower future expectations. While previous research has indicated that higher future expectations are associated with lower risk-taking behavior, the findings of this study suggest that higher future expectations is associated with an increase in risk-taking behavior over time. Shame and guilt and their ties to reflected appraisal and identity formation may be one way to understand this phenomenon. The higher one's future expectations, likely the more positive their reflected appraisals and lower the anticipated shame. The more secure on is in their identity, the less likely that anticipated shame or guilt might influence their actions, as these responses would be seen as exceptions rather than indicative of their identity. Examination across sexes found that the relationship between future expectations and RTB attenuated among females to the point of insignificance but remained significant for males over time. As for moderators, results suggest that the inverse relationship between future expectations and initial reports of RTB is weaker among multiracial adolescents who identify as one race. Further, racial identity malleability

moderated the initial relationship between future expectations and RTB in males but not females. Among racial minority males, racial identity malleability reverses the positive effect of future expectations on RTB. Last, racial identity malleability moderated the relationship between future expectations and the trend in RTBs in females but not males. It appears that racial minority adolescent females do not only have a less stable racial identity but the more flexible their racial identity, the more RTB despite having high future expectations. Clinical implications and further research are discussed.

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relationship between future expectations and RTB in males but not females. Among racial minority males, racial identity malleability reverses the positive effect of future expectations on RTB. Last, racial identity malleability moderated the relationship between future expectations and the trend in RTBs in females but not males. It appears that racial minority adolescent females do not only have a less stable racial identity but the more flexible their racial identity, the more RTB despite having high future expectations. Clinical implications and further research are discussed.

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Thank you to Dr. Joyce Baptist who absolutely refused to let me quit.

Dedication

This work is dedicated to Diane Henry. Happy Birthday! This is also for Casey, who wasn't allowed to do it herself. You deserve this just as much as I do.

Chapter 1 - Introduction

Risk-taking behavior (RTB) or juvenile delinquency as it is called in the literature, has been a subject of much research and interest for many years. RTB among juveniles has grown steadily since the first juvenile justice system was established over 100 years ago in 1899 in Illinois, with a dramatic rise in violent crimes during the 1970s (May, Osmond, & Billick, 2014).

According to the Office of Juvenile Justice and Delinquency Prevention (2012), arrest rates for Black juveniles ages 10 to 17 is twice that of White juvenile arrest rates. Arrest rates for violent crimes among Black juveniles is more than four times that of White juveniles, and arrest rates for property crimes are double. While the arrest rates for both Native American and Asian adolescents are lower than that of both White and Black juvenile offenders, there are no statistics for Latinos or multiracial or multiethnic adolescents. Understanding the factors that contribute to the decision to engage in risky behaviors (e.g., violent crimes, drug possession) can provide more avenues for interventions. It is also worth noting, that the disparities in these statistics are likely due more to systemic racism than race itself (Saucier, Hockett, Zanotti, & Heffel, 2010). However, since that is not a variable that was examined in the dataset used for this study, this will not be examined.

Researchers have examined contributors to adolescent RTB [e.g., future expectations (Brezina, Tekin, & Topali, 2009; Caldwell, Weibe, & Cleveland, 2006; McDade, Chyu, Duncan, Hoyt, Doane, & Adam, 2011; Nguyen, Hussey, Halpern, Villaveces, Marshall, Siddiqi, & Poole, 2012), adverse childhood experiences, (Baglivio & Epps, 2016; Barrett & Katsiyannis, 2015), trauma (Bruce & Waelde, 2008), family factors (Cassidy, 2011), neighborhood factors (Fite, Preddy, Vitulano, Elkins, Grassetti, & Wimsatt, 2012), direct and indirect peer relationships (Payne & Cornwell, 2007), poverty, living in single-parent households (Harrison, Duncan, &

Boisjoly, 2002), gender (Steketee, Junger, & Junger-Tas, 2013), and ethnic identity (e.g., Bruce & Waelde, 2008)]. And although the interplay between these various contributors have been examined (Fite et al, 2012; Haynie & Payne, 2006) there has been no clear conclusion of the relationship between racial/ethnic identity and long-term trajectory of RTB.

Racial Identity and Risk-taking

Racial identity is associated with a sense of belonging to a particular racial group with which one affiliates. Race is often conceptualized as a predictor of mental and/or behavior problems among adolescents. The strength of one's racial identity or sense of belonging to one's race is only occasionally taken into account. Racial identity is an aspect of adolescent identity development that is significant among racial minority adolescents. It is an aspect of identity that represents both how the adolescent sees him/herself as well as how others see him or her. Racial identity development has an important role in understanding RTBs among racial minority adolescents, (Kerwin, Ponterotto, Jackson, & Harris, 1993). Racial identity has been shown to be a protective factor against RTB (Bruce & Waelde, 2008; Caldwell, Kohn-Wood, Schmeelk-Cone, Chavous, & Zimmerman, 2004; Townsend & Belgrave, 2000). However, the mechanism for this protection is unclear.

For multiracial adolescents, racial identity may be an unstable feature – about one-fifth of the study participants who identified themselves as other than White from the National Longitudinal Study of Adolescent Health (Add Health, the dataset used in this study) changed how they racially identified themselves over seven years. In other words, when asked to identify their race, these adolescents gave different answers when they were aged 12 to 17 than when they were 19 to 25 years of age. The extent to which this malleability of racial identity enhances

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or hinders the protective function racial identity has against RTB has not previously been examined.

Future Expectations and Risk-taking

Perceptions of future expectations at one time-point have been found to predict future RTBs. In other words, adolescents with higher academic and life expectations are less likely to engage in later RTB than those with low expectations for their future. Adolescents who see their future as uncertain or lack confidence in their survival are more focused on the present than the future (Hill, Ross, & Low, 1997). This present-oriented stance may be what motivates some adolescents to engage in RTBs that provide immediate rewards. For adolescents with low future expectations, the possibility of reaping a reward in the present outweighs the possible future rewards for not engaging in RTB (Brezina et al., 2009). Further, research has shown that perceived support is tied to strategy formation, which may alleviate future RTB (Clinkinbeard & Murray, 2011; Clinkinbeard & Zohra, 2012). Perceived support from parents, teachers, and peers is likely tied to adolescents' future expectations in that the more perceived support one has the more likely that they will have higher future expectations for themselves.

Research shows that as adolescents age and mature, they engage in fewer RTBs (Hill, Blockland, & van der Geest, 2016). Since future expectations at an early age have been shown to affect RTB at a later age, perhaps the rate at which this RTB decreases over time is also affected by future expectations. The effect of future expectations on RTB may be modified by gender. In a recent study, Andreoni et al., (2019) found that female adolescents displayed greater risk aversion compared to their male counterparts. Rebellon, Manasse, Agnew, Van Gundy, and Cohn (2016) suggest that these gender differences in adolescent RTB might be a result of anticipated guilt, which is the motivating force of one's willingness to avoid RTBs.

In this study, the term RTB is used rather than "delinquent," as it is common in criminology literature to reduce the stigma around adolescent behaviors. The reason for this will be clarified in the theory section in regards to labeling and its impact on identity and therefore behavior. In this study, the focus is on RTBs that can lead to arrest, but not on arrest rates themselves. It may also be beneficial to understand the behavior as part of a risk-reward mentality. Behavior such as stealing can be understood as a risk taken for an immediate reward due to a belief that a later reward is unlikely to come.

To better understand contributors to RTB among multiracial adolescents is to understand how future expectations and racial identity can together influence RTB. Racial identity and its moderating effects between an associated factor (such as trauma or ethnicity) and RTB have previously been examined (Bruce & Waelde, 2008). However, specifically looking at multiracial identity as a moderator within a sample of diverse adolescents has not previously been studied. Future expectations as a predictor of adolescent RTB has previously been studied (e.g., Brezina, Tekin, & Topali, 2009), however a possible moderating relationship between RTB and multiracial identity or racial identity malleability has not previously been considered. This study focuses on racial minority adolescents because differences between adolescents from racial or ethnic minorities and white adolescents have been frequently catalogued (Cooney & Radina, 2000). In this vein, the role of multiracial identity status and racial identity malleability will be examined because these have more meaning among racial minority groups.

List of Definitions

Racial Identity refers to the quality of one's identification with one's racial group and emphasizes how individuals come to recognize and overcome the psychological and internalized effects of racial oppression (Helms and Cook, 1999)

Multiracial Identity refers to people who identify with two or more racial heritages, based on socially constructed racial criteria. This is separate from multiethnic identity, which embraces the complexity within LatinX and Asian communities.

In this study, Risk-Taking Behavior refers to what has previously been identified as delinquent behavior. This is done in order to reduce the stigma around behavior that may be more reflective of circumstance or risk vs. reward mentality.

Strategy Formation refers to the creation of a plan to address anticipated challenges.

Chapter 2 - Risk-taking and Future Expectations of Adolescents

This study will continue to examine the complexities in how factors predict RTB with a focus on identity and its possible modification of the relationship between future expectations and RTB trends. Previous research using the Add Health dataset (Haynie & Payne, 2006) has found that race/ethnicity has moderated the relationship between friendship networks and violence. Adolescents who identified as Black or Hispanic engaged in significantly more violence than white adolescents in the study. However, Black adolescents who were part of a more integrated and racially diverse friend group were less likely to engage in violence, whereas Black adolescents who were part of a homogeneous friend group were more likely to engage in violence. This may also play out in the relationship between future expectations and RTB trends.

Identity Development

Identity development is both an intra- and interpersonal process. In the criminology literature, Mastrueda (1992) examined the ways in which our concept of self is derived not just from our perception of our self, but also our perception of how others see us. He called this reflected appraisal. These processes combined can be used to understand the development of an individual's identity (with a connection to their racial identity) and the eventual impact of these identities on behavior. Identity development is a dual process that is both internal and external (Deaux, 1993). This dual process involves both a personal identity, which refers to a collection of self-descriptive characteristics, and a social identity, which is made up of roles and membership categories that a person believes is representative of one's self. Identity development has impacts on both behavior and relationships. Oyserman's (2010) Identity Based Model examined the ways in which our identity determines our behavior and makes sense of how others respond to our behavior. This has an impact on our expectations for our future

potential. This is one reason why the impact of future expectations on RTB trends is examined in this study.

During adolescence, there is a preoccupation with what someone feels s/he is and what s/he appears to be to other people. This already complex process has an additional layer when it comes to multiracial adolescents. Racial identity has shown itself to be a protective factor when it comes to RTB. For adolescents who are multiracial, the process of choosing a racial identity has added intricacy. Wijeyesinghe's (2001) Factor Model of Multiracial Identity explores these intricacies and is used in this study to explore a possible moderating relationship on future expectations and RTB.

Reflected Appraisals and Future Expectations

Mastrueda (1992) examined the role of reflected appraisals in identity development. He defined reflected appraisals as how one perceives the ways others see them. This is a type of informal label that would not necessarily predict initial RTB but could significantly impact continuing behavior (Koita & Triplett, 1998). Using a symbolic interactionist perspective Mastrueda posited that the self is rooted in social interaction. Global self-esteem can be comprised of three things: reflected appraisals (forming self-conceptions on the basis of one's perceptions of others' attitude towards them), social comparisons (making judgments about yourself in comparison to others), and self-attribution (drawing conclusions about your disposition, motives, and self-esteem based on your observations of your own behaviors) (Rosenberg, 1979). Mastrueda operated on the belief that reflected appraisals were a better predictor of RTB than global self-esteem. He found that reflected appraisals explained much of the relationship between parental appraisals and RTB, previous and future RTB, and structural variables and RTB.

Reflected appraisals impact our identity in that they become a self-fulfilling prophecy. The most important thing about reflected appraisals is that they do not have to be accurate to be effective. If an adolescent thinks others see them as a failure or a criminal, they are most likely to see themselves in that way. As a result, their future expectations are low and they are more likely to engage in RTB because they do not believe they are likely to receive long-term rewards. As systemic racism continues to become more apparent within our society, this reflected appraisal and its role in identity development among racial minority youth becomes critical. As racial minority youth experience systemic racism, they may believe the messages inherent in the system, leading them to see themselves as less than, hated, violent, criminal or dangerous. These reflected identities would in turn impact how they represent themselves in various environments.

These reflected identities can be understood through the reference of shame and guilt. Shame focuses on one's global self – who I am and who I do not want to be – with its source being an unwanted identity (Ferguson & Eyre, 2000). Guilt, on the other hand, can be seen as a reaction to a specific act that violates moral standards. Guilt can stem from a person's belief that their behavior somehow negatively impacts another person. Generally, this other person is someone the individual cares about, as guilt does not seem to manifest if no emotional ties are acknowledged. While shame is directly tied to reflected appraisals and identity, guilt is tied to behavior and the choices made. Females report guilt and shame more than males do (Ferguson & Eyre, 2000). This anticipated shame and guilt leads to reductions in offending among females (Svensson, Weerman, Pauwels, Bruinsma, & Bernasco, 2013).

Identity-Based Motivation and Future Expectations

The Identity-Based Motivation (IBM) model expands this line of thinking to explain the link between identity and behavior among adolescents. The IBM model exemplifies the meaning

making and action process of identity (Oyserman & Destin, 2010). Accordingly, "people interpret situations in ways that are congruent with their currently active identities" (p. 1002). If someone experiences difficulty as a result of an accepted identity, that difficulty is seen as meaningful. If someone experiences difficulty with an identity that is not accepted, the behavior is labeled as incongruent with the accepted identity. For example, if a youth identifies him/herself as "stupid," then each time s/he encounters difficulty with academics, s/he accepts the difficulty as something that "stupid people" have to deal with. In the reverse, if he/she receive praise for academic achievement, s/he may shake off or ignore that praise because "stupid people" are not meant to have academic achievements.

The same struggle would have different meaning for someone who identified him/herself as "smart." Academic struggles would not be a result of his/her intelligence, but rather of something else entirely because "smart people" do not struggle academically, and s/he would place responsibility for the struggle elsewhere. Reversely, academic achievement would be something expected for a "smart person." According to the IBM model, interpretation of difficulty and expectations of achievement are tied to identity. Identity then is the motivator for subsequent behaviors.

One challenge that racial minority adolescents may as a whole share is the lack of a strong sense of belonging in school and neighborhoods if they attend a predominantly White institution (PWI) and live in a neighborhood that lacked racial diversity. As Chen and Vazsonyi (2013) found, there is likely a connection between school community and future expectations. Not to mention, more diverse friend networks have moderated the relationship between race and violent behavior such that a more diverse friendship network is associated with less violent behavior in Black adolescents as compared to those with a less diverse friendship network

(Haynie & Payne, 2006). This could be tied to how a non-white adolescent is able to establish a sense of belonging and therefore an identity that fits their reflected appraisal. Schwartz et al., (2009) found higher scores in school functioning as measured by bonding to school, classmate support, and teacher support, associated with fewer conduct problems. In turn, personal identity confusion was associated with more conduct problems. They also found a link between personal identity confusion and school functioning. This indicates that there may be a moderating relationship between personal identity confusion and school functioning and their impact on conduct problems.

Factor Model of Multiracial Identification

For multiracial adolescents, in addition to managing the normal identity development processes noted by Mastrueda (1992) and Oyserman (2010), there is the decision of how to identify oneself to others racially. It is important to recognize that racial identity is made up of a number of factors and decisions and is therefore not stagnant, but dynamic (McEwen, 1993) – meaning it can change over time. Racial identity consists of the personal significance and meaning of race. This includes relevance of one's race at a particular moment, the extent to which a person normally defines their race, their feelings toward that race, as well as beliefs about how others view that race (Neblett, Sosoo, Willis, Bernad, Bae, & Billingsley, 2016). This becomes even more complex for multiracial adolescents as various factors such as physical appearance, racial ancestry, and social and geographic regions are said to influence their racial identity development (Wijeyesinghe, 2001). For instance, whenever multiracial adolescents encounter new situations with new people, they have a choice to blend in with those around them or stand out and be different. Their choice may be influenced by the relationship with those around them at that time in addition to their own ancestry and other family influences such as

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racial socialization (Allen, Garriott, Reyes, & Hsieh, 2013). These adolescents' choice to either blend in or stand out will likely be the option that most benefits them, although the choice itself may be a stressor (Erikson, 1959/1980). Possible benefits could be acceptance or safety, depending on the situation and people involved. A stronger ethnic identity has been found to be a protective factor with RTBs (Bruce & Waelde, 2008). The intra- and interpersonal processes of identity development derived from Wijeyesinghe's (2001) Factor Model of Multiracial Identity, Oyserman's (2010) Identity Based Model, and Mastrueda's (1992) reflected appraisal, guide this study.

Multiracial Identity and Racial Identity Malleability

Previous research has shown that multiracial adolescents differ significantly from their white peers (Cooney & Radina, 2000). Multiracial adolescents are more likely to be held back in school, have more suspensions or expulsions from school, and have higher depression scores. Multiracial girls also have a higher rate of RTBs. Multiracial boys and girls are more likely to have seen a professional counselor than their monoracial peers. However, the school problems experienced by multiracial adolescents are comparable to those reported within single-race minority populations (Cooney & Radina, 2000). This illustrates that being multiracial does not necessarily put someone at risk for problem behaviors. What appears to be correlated to problem behaviors is having a minority background In order to control for this, the participants in this study will all have selected some type of racial minority status. Multiracial and racial identity malleable adolescents can then be compared to static racial identity of monoracial minority adolescents.

Overall, multiracial adolescents have more general health problems (e.g., skin problems, sleep problems, aches/pains) than their monoracial counterparts. Multiracial adolescents are

twice as likely to smoke (cigarettes) than both Black and Asian adolescents and three times as likely to get drunk as Asian American adolescents. Adolescents who identify with more than one race are over thirty percent more likely to smoke or get drunk than adolescents who identify as "Other" (Cooney & Radina, 2000). Given the ties between racial identity and RTB, the added complexity of racial identity development for multiracial adolescents may complicate this relationship. This study compared multiracial adolescents with their monoracial minority counterparts to assess if the relationship between future expectations and RTB is moderated by multiracial identity status.

Future Expectations and Risk-taking Behaviors

Previous research has found a link between future expectations and RTB among adolescents (Chen & Vazsonyi, 2013; Clinkinbeard & Zohra, 2012; Sipsma, Ickovics, Lin, & Kershaw, 2012). Future expectations can be associated with a view of future orientation, or a belief that one will have a future and therefore making plans for that future. This future orientation often leads to lower levels of RTB (Chen & Vazsonyi, 2013). Future expectations can also lead to creating concrete strategies for achieving goals, therefore increasing the likelihood of achieving those goals (Clinkinbeard & Zohra, 2012). This in turn can lead to fewer RTBs because an individual is less likely to risk future rewards with present behaviors when they have specific and achievable goals in mind.

Purpose of this Study

The purpose of this study is to extend current literature by examining predictors of RTB trajectories among racial minority adolescents over a seven-year period. As previously stated, RTB tends to decline over time (Hill, Blockland, & van der Geest, 2016). In this study, it is expected that the trajectory of RTB will be examined to see if future expectations and racial

identity impacts the rate of this decline. The model examined is illustrated in Figure 1. In summary, how future expectations affects the trend of RTB over time and how a malleable racial identity or a multiracial identity status moderate that relationship will be examined. Further, because of the difference in risk aversion among male and female adolescents, the influence of gender on risk-taking will be tested. The following hypotheses were examined:

H1: Higher future expectations will predict a decrease in RTB over time among racial minority adolescents.

H2: Multiracial identity status will strengthen the relationship between future expectations and RTB trends.

H3: Racial identity malleability will weaken the relationship between future expectations and RTB trends.

H4: The extent multiracial identity and racial identity malleability moderate the relationship between future expectations and RTB is influenced by biological sex.

This study contributes to previous research by examining the complexities in two of the factors that impact RTB among racial minority adolescents. While this study has its limitations, specifically that the data was collected over 20 years ago, the results from the study can still be useful in designing future studies.

Figure 2.1 Conceptual Latent Growth Curve Model Assessing Trajectories of RTBs Over Three Waves, Controlling for Age, Sex, Perceived Support and Household Income

Chapter 3 - Method

Participants

This study utilized data from Waves 1 through 3 of the National Longitudinal Study of Adolescent Health (Add Health). Add Health consists of a nationally representative sample of adolescents from the Southeastern Region of the United States, primarily North Carolina (Bearman, Jones, & Udry, 1997). Wave 1 was collected in 1994 when adolescents in grades 7 through 12 from 80 different high schools were interviewed both in their homes and at school. Wave 2 was collected a year later, and Wave 3 was collected from 2001 to 2002 when the participants were 18 to 26 years old.

During Wave 1, 90,118 students were interviewed at school. A subset of 20,745 were also interviewed at home in a computer-assisted personal interview. In Wave 2, adolescents were no longer interviewed at school and of the subset of 20,745, 14,738 completed the in-home interview. In Wave 3, the sample size was 15,197. This study used the public use sample that consists of 6,504 adolescents. Given the known discrepancies between racial/ethnic minority adolescents and White adolescents, only those who indicated a minority racial status at Wave 1 and only those that indicated a race in both Waves 1 and 3 were included in this study (i.e., 1770 participants: 796 males and 974 females). Details of participants are presented in Tables 3.1 and 3.2.

Table 3.1 Descriptive Statistics of Participants

Variables	All participants ($n = 1770$)				Participants that changed race from W1 to W3 ($n = 439$)			
	n	M or %	SD	Range	n	M or %	SD	Range

Sex:								
Male	796	45.0%			190	43.3%		
Female	974	55.0%			249	56.7%		
Age:								
Wave 1	1334	14.78	1.75	11-19	296	14.77	1.75	11-19
Wave 2	1349	16.01	1.65	11-21	331	16.01	1.61	13-21
Wave 3	1770	21.87	1.85	18-28	436	21.96	1.84	18-27
Household Income:								
$\leq$ \$25,000	551	31.1%			144	32.8%		
\$26,000 to \$50,000	418	23.6%			105	23.9%		
\$51,000 to \$75,000	189	10.7%			44	10.0%		
\$76,000 to \$100,000	79	4.5%			12	2.7%		
>\$100,000	30	1.7%			6	1.4%		
Multiracial at Wave 1:								
Males	89	43.0%			134	44.1%		
Females	118	57.0%			170	55.9%		

Slightly more than 40% of the males and almost 60% of the females changed their race from Wave 1 to Wave 3. At Wave 1, 88% of the participants identified as monoracial and 12% as multiracial, whereas at Wave 3, 93% identified as monoracial and 7% as multiracial. Majority of participants (slightly more than 60%) identified as Black in both Waves 1 and 2. None of the 231 participants that identified as only "Other" in Wave 1 retained this racial identity in Wave 3 and the 247 participants that identified as only White in Wave 3 had not identified as only White in Wave 1.

Table 3.2 Breakdown of Participants' Race in Waves 1 and 3

	Wave 1 (*n* = 1770)		Wave 3 (*n* = 1770)	
	n	%	*n*	%
Monoracial:	1563	88.31	1651	93.3
Black	1108	62.60	1134	64.07
Native American	56	3.16	90	5.08
Asian	168	9.49	180	10.17
White	--	--	247	13.95
Other	231	13.05	--	--
Multiracial:	207	11.69	119	6.72
Black/White	41	2.32	34	1.92
Black/Asian	5	.28	5	.28
Black /AI	26	1.47	21	1.19
AI/White	85	4.80	19	1.07
AI/Asian	5	.28	--	--
Asian/White	24	1.36	25	1.41
Black/Asian/White	5	.28	2	.11
Black/AI/White	16	.90	9	.51
AI/Asian/White	--	--	2	.11
Black/AI/Asian/White	--	--	2	.11

Variables/Measurements

Variables for this study consisted of one outcome variable (RTB), one predictor variable (future expectations), two moderating variables (multiracial identity and racial identity malleability), and three control variables (age, household , and perceived support). Measures were selected from the data to reflect the construct of the different variables. Details of variables are presented in Table 3.3.

Outcome variable

Risk-Taking Behavior (RTB)

The delinquency scale from Add Health was used to measure RTB. It consists of 15 questions at Wave 1, 14 questions at Wave 2, and 18 questions at Wave 3. In order to perform longitudinal analysis with a latent growth curve, the questions need to be the same across all three waves. Seven questions were consistent across all three waves and these were used in the analysis. The questions enquired if participants had caused damage to property or stole more than $50 in the past 12 months, and if they had ever burglarized a building, used or threatened with a weapon, sold drugs, stole more than $50 or took part in a group fight. Reliability at Waves 1, 2, and 3 were tested and the Cronbach's Alpha for each wave was .72, .73, and .67, respectively. Each question asked the frequency of occurrences in specific behavior over the previous 12 months such as stealing something worth more than $50, selling drugs, damaging property etc. Adolescents' responses ranged from 1 = "Never" to 5 = "Five or more times." This variable demonstrated high positive skewness. Square root transformation was used to reduce the skewness. [Wave 1 (from 3.45 to 1.23), Wave 2 (from 4.23 to 1.48), and Wave 3 (from 4.78 to 2.07)] and kurtosis [Wave 1 (from 16.97 to .97), Wave 2 (from 25.76to 1.99), and Wave 3 (from 34.22 to 4.04)].

Predictor variable

Future Expectations

Caldwell, Wiebe, and Cleveland (2006) used the Add Health dataset to examine the effects of future expectations on delinquent behavior and school adjustment among African American adolescents. After an exploratory factor analysis they found three different types of future expectations: life expectancy, marriage certainty, and college certainty, of which life

expectancy and college certainty were better predictors of juvenile delinquency than marriage certainty.

Based on these findings, the following items from Wave I of the data collection were selected for this variable: the likelihood that the person would live to age 35, would be killed by age 21, would get HIV or AIDS, would graduate from college, and would have a middle class income. Responses ranged from "0" (no chance) to "8" (it will happen). The responses indicated death at an early age or likelihood of getting HIV or AIDS were reverse coded. Scores on these five items were totaled and averaged. Higher scores indicate having positive future expectations. The Cronbach's Alpha for this scale was low ($\alpha = .52$).

Moderating variables

Multiracial identity

This is a computed variable based on the respondents' opportunity to "choose all that apply" when racially identifying themselves at Wave 1. This is a binary variable with "1" representing a multiracial identity and "0" representing a single racial identity. Those who chose to indicate more than one race were categorized as "multiracial." However, choosing "Other" race, an option on only Wave 1 but not Wave 3, without choosing an additional race (e.g., White, Black, American Indian, or Asian) was not included in the multiracial identity variable. Reason being, in the Add Health dataset, ethnicity and race were treated as two separate variables. Therefore, adolescents could indicate that they are of Hispanic origin for ethnicity and pick a race including "Other" at Wave 1. Those who chose "Other" for race may not have felt that they fit into any of the racial categories but considered themselves Hispanic (Udry, Li, & Hendrickson-Smith, 2003). In this instance, choosing "Other" may not necessarily indicate a multiracial identity. At Wave 1, 207 participants identified as multiracial.

Racial identity malleability

This is also a computed variable based on data collection from Waves 1 and 3. Not all respondents racially identified the same way in Wave 1 as they did in Wave 3. This variable will accounted for changes in participants' selected race across those two time points. Two types of situations were included: 1) the participant selected more than one race at Wave 1 and only one race at Wave 3, or vice versa, 2) the participant selected one race at Wave 1 and selected a different race at Wave 3. This is a binary variable with "1" representing malleability or a change from Wave 1 to Wave 3 and "0" representing no change. A total of 439 participants (24.8%) changed their racial identity across Waves 1 and 3.

Biological Sex

To compare male and female groups, the variable sex from the in-school interview at Wave 1 was used and coded "1" for males and "2" for females.

Control variables

Age

Age at Wave 1, a continuous variable was included as a control variable.

Household income

Household income was obtained from the parent interviews in Wave 1. This was the only question in this study not answered by adolescents. This question was a single-item indicator and an open-ended question with a range from $0 to $999,000. The distribution of income in this dataset was highly skewed as a result of one person indicating that they made $999,000. In order to normalize this distribution the answers were recoded on a scale of 1 to 5 where 1 = $0 to $25,000, 2 = $26,000 to $50,000, 3 = $51,000 to $75,000, 4 = $76,000 to $100,000, and 5 = >$100,000.

Perceived support

Adult role models can influence peer selection among adolescents (Walters, 2016). Perceived support consisted of eight items in the Add Health survey that were administered in the in-home interview during Wave 1. These items, labeled Protective Factors, assessed how much the adolescents perceived family, peers, and teachers as caring and understanding. Responses ranged from 1 for "Not at all" to 5 for "Very much." The variable Perceived Support was created by reverse coding the responses related to the desire to leave home and then averaging the total score of all eight items. Higher total scores reflected more perceived support. Although the Cronbach's Alpha ($\alpha = .44$) for Perceived Support was low, the variable was included in the model as a control variable because it may influence the relationship between future expectations and RTB.

Table 3.3 Descriptive Statistics for Measures

Variable	n	M or %	SD	Range	Skewness	Kurtosis	α
Perceived Support Wave 1	1765	4.02	.60	1-5	-.85	1.53	.44
Future Expectations Wave 1	1264	5.50	1.54	0-8	-.71	.63	.52
RTB :							
Wave 1	1761	.24	.33	.00-1.73	1.23	.97	.72
Wave 2	1332	.21	.31	.00-1.73	1.48	1.99	.73
Wave 3	1755	.13	.26	.00-1.73	2.06	4.04	.67

Data Analysis

This study examined rates of change in RTB from adolescent to young adulthood, the extent future expectations predicted this change, and if multiracial identity and malleability of racial identity moderated the relationship between future expectations and RTB over time. Differences between groups were examined by comparing between males and females. Latent growth curve (LGC) modeling was used to test these relationships in MPlus v8.8 software (Muthén & Muthén, 1998-2019). All models were fitted using the robust Maximum Likelihood estimator (MLR), which is robust to non-normality of data.

Prior to running LGC, some preliminary analyses were performed using SPSS v26 (IBM Corporation, 2019) such as correlations, *t*-tests to examine differences between groups (sex, multiracial identity and malleability of racial identity) and ANOVAs for differences in RTB.

Latent Growth Curve

The first step was to estimate the rate of change in RTB over time, as well as the variability of that rate or change within the sample. In LGC, each time point measurement was an indicator of two latent growth factors, initial status and linear change or slope, on which individuals may vary (Kline, 2010). The following steps were used for LGC.

Unconditional LGC

The hypotheses for this study were grounded in the supposition that future expectations are key to predicting racial minority adolescents' RTB trends. In other words, there is a rate of change in RTB over time, which is derived in the growth model. A substantial rate of change had to first be established in order to determine if there were any factors that impact the rate of that change. For this, an unconditional LGC was used where the initial status and slope were regressed on RTB at Time 1, 2, and 3 to determine if the initial status of RTB was significantly

different than 0 (illustrated in Figure 2). A significant intercept indicates that the initial level of

RTB is different than 0. A significant slope indicates that there is a change in RTB over time.

The factor loadings from the slope of participants' risk-taking trajectory to the RTB

(outcome variable) represented the metric of time. To account for the variability in duration

between Waves 1 and 2 (1 year) and Waves 2 and 3 (6 years), RTB at Wave 1 ("initial status")

was set as "0", Wave 2 was freely estimated, and Wave 3 was set at "1".

Models are considered good fit if the root mean square error of approximation (RMSEA)

is close to zero, Chi-square (χ^2) test is non-significant, comparative fit index (CFI) is more than

.09, and standardized root mean square residual (SRMR) is less than .05 (Hu & Bentler, 1999).

However, an unconditional LGC is a saturated model that has no degrees of freedom, hence

producing a perfect model fit.

Conditional LGC: H1

After a rate of change in RTB was substantiated, predictor variable, future expectations,

that may impact the rate of change in RTB was examined using a conditional LGC. Here, the

predictor variable, future expectations, was entered into the model together with control variables

(age, perceived support, and income). These variables were included in the model as time-

invariant covariates and both the initial status and slope of RTB were regressed on these

variables.

Conditional LGC with moderators: H2 and H3

In order to test H2 and H3, multiracial identity status and racial identity malleability were

added as time invariant covariates on the relationship between future expectations and RTBs

over time. This was done by standardizing future expectations (ZFE) and creating two new

variables by multiplying ZFE with racial identity malleability and again with multiracial identity. These computed variables were then regressed on intercept and slope of RTB.

Multi-group Growth Model: Hr

A multi-group analysis of invariance was used to test H4. First, a separate LGC analysis was run for males and females to determine if the hypothesized model fit the data across groups equivalently. The next step was the simultaneous estimation of growth models across groups to compare an unconstrained model (i.e., where paths are allowed to freely vary across groups) with a fully constrained model (i.e., where all paths are held equal across groups). A fully constrained model would be equivalent to estimating a single-group model, while an unconstrained model would on the other hand, be equivalent to estimating a growth model within each group separately (Curran, Obeidat, & Losardo, 2010). Consequently, a partially constrained model would most likely reflect differences and similarities across groups. Results from bivariate correlations were used to identify paths within the model that may differ across groups. These paths were subsequently unconstrained. The difference in χ^2 was used to determine model fit.

Chapter 4 - Results

Preliminary Results

Correlations

Associations between variables are presented in Tables 4.1 and 4.2. Overall, correlations results did not indicate any multicollinearity among study variables. Results from Table 4.1 provided support for the modeling of future expectations and multiracial identity on RTBs. A strong inverse relationship between future expectations and RTBs in Waves 1 ($r = -.14, p < .001$) and 2 ($r = -.11, p = .001$) but not Wave 3 ($r = -.04, p =$ ns) were indicated. Identifying as multiracial at Wave 1 was related to RTBs at only Wave 1 ($r = .06, p = .007$), and higher likelihood of changing racial identity at Wave 3 ($r = .34, p < .001$).

Table 4.1 Summary of Intercorrelations of Study Variables

Variables	1	2	3	4	5	6	7	8
1. Future Expectations	-							
2. Multiracial Identity	.02	-						
3. Racial Identity Malleability	-.04	.34***	-					
4. RTB Wave 1	-.14***	.06**	.07**	-				
5. RTB Wave 2	-.11**	.01	.05	.52***	-			
6. RTB Wave 3	-.04	-.002	-.01	.22***	.27***	-		
7. Perceived Support	.14***	-.06*	-.06*	-.22***	-.17***	-.10***	-	
8. Income	.16***	.06*	-.05	-.01	.003	-.02	-.03	-
9. Age	-.01	-.02	-.01	-.004	-.03	-.05*	-.13***	.03

*Note: *$p < .05$, **$p < .01$, ***$p < .001$.*

The correlation results for males and females (Table 4.2) indicated some similarities and variations in relationships between variables. For both males and females, RTB at Wave 1 was

significantly related to Future Expectations, Multiracial Identity, stability of this identity and

Perceived Support.

Table 4.2 Summary of Intercorrelations of Study Variables for Males and Females

Variables	1	2	3	4	5	6	7	8	9
1. Future Expectations Wave 1	-	.02	-.06	-.14***	-.14***	-.05	.16***	.18***	.02
2. Multiracial Identity Wave 1	.01	-	.36***	.07*	-.03	-.01	-.04	.08*	-.05
3. Racial Identity Malleability	-.02	.32***	-	.07*	.02	-.01	-.02	-.02	.002
4. RTB Wave 1	-.12**	.07*	.09*	-	.51***	.14***	-.22***	.01	-.06
5. RTB Wave 2	-.04	.05	.08*	.51***	-	.24***	-.18***	.04	-.03
6. RTB Wave 3	-.001	.01	-.001	.21***	.24***	-	-.14***	.01	-.05
7. Perceived Support Wave 1	.12**	-.09**	-.10**	-.21***	-.15***	-.07	-	-.05	-.13***
8. Income Wave 1	.14**	.05	-.09*	-.03	-.02	-.04	.001	-	.01
9. Age Wave 1	-.04	.02	-.03	.03	-.04	-.09*	-.13**	.05	-
Males: Mean	5.38			.30	.27	.19	4.00		14.90
SD	1.62			.36	.35	.31	.62		1.80
Females: Mean	5.59			.19	.16	.07	4.05		14.70
SD	1.48			.28	.27	.20	.59		1.71

Note: $*p < .05$, $**p < .01$, $***p < .001$. Males = below the diagonal, Females = above the diagonal.

However, while both groups' RTB at Wave 2 was related to RTB at Wave 1 and

Perceived Support, some variations were noted. RTB at Wave 2 was significantly related to

Future Expectations for females ($r = -.14$, $p < .001$) but not males ($r = -.04$, $p =$ ns) and Racial

Identity Malleability for males ($r = .08$, $p = .04$) but not females ($r = .02$, $p =$ ns).

Further, for both groups, RTB at Wave 3 was related to previous RTB. However, Perceived Support was only pertinent for females ($r = -.14$, $p < .001$) but not males ($r = -.07$, $p =$ ns). Overall, these results suggest that as adolescents age, having positive expectations for one's future and perceiving support from others may have a bigger influence on females while stability of racial identity may have a bigger effect on males.

Differences across sex

Results from *t*-tests indicated that compared to females, males reported higher levels of RTB across all three waves examined in this study (Wave 1: $t(1759) = 7.05$, $p < .001$; Males: $M = .30$, $SD = .36$; Females: $M = .19$, $SD = .28$); Wave 2: $t(1330) = 6.20$, $p < .001$; Males: $M = .27$, $SD = .35$; Females: $M = .16$, $SD = .27$); Wave 3: $t(1753) = 9.81$, $p < .001$; Males: $M = .19$, $SD = .31$; Females: $M = .08$, $SD = .20$). Compared to males, females reported having higher levels of positive future expectations for themselves ($t(1262) = -2.42$, $p = .016$; Males: $M = 5.38$, $SD = 1.62$; Females: $M = 5.59$, $SD = 1.48$). No differences were found across sexes for perceived support from parents, peers and teachers.

Differences across multiracial identity

Compared to participants who identified as monoracial at Wave 1, more participants who identified as multiracial at Wave 1 reported higher RTBs at only Wave 1 ($t(1759) = -2.68$, $p = .014$; Multiracial: $M = .30$, $SD = .36$; Monoracial: $M = .23$, $SD = .32$). Monoracial participants reported higher perceived support compared to multiracial participants ($t(1763) = 2.49$, $p = .013$; Multiracial: $M = 3.93$, $SD = .56$; Monoracial: $M = 4.04$, $SD = .61$). No significant group differences were found for RTB at Waves 2 and 3 and future expectations.

Differences across racial identity malleability

Participants that indicated a different race at Wave 3 compared to their race at Wave 1 were more likely to engage in risky behaviors at Wave 1 compared to those who did not change their race ($t(1759) = -3.05$, $p = .002$; Changed race: $M = .28$, $SD = .34$; Did not change race: $M = .23$, $SD = .32$). The reverse was found in regards to perceived support where participants who changed their race perceived less support from parents, peers and teachers compared to those who did not change their race ($t(1763) = 2.41$, $p = .018$ Changed race: $M = .3.96$, $SD = .59$; Did not change race: $M = 4.04$, $SD = .61$). No significant group differences were found for RTB at Waves 2 and 3 and future expectations.

ANOVAs

Results indicated the RTB differed across all three waves *Welch's* test (for unequal group variance) $F(2,2962) = 42.13$, p $< .001$. Post hoc comparisons using the Games-Howell test indicated that RTB was significant more in Wave 1 ($M = .16$, $SD = .32$) than Wave 3 ($M = .08$, $SD = .22$, $p <.001$), and more significant in Wave 2 ($M = .14$, $SD = .30$) than Wave 3 ($p <.001$).
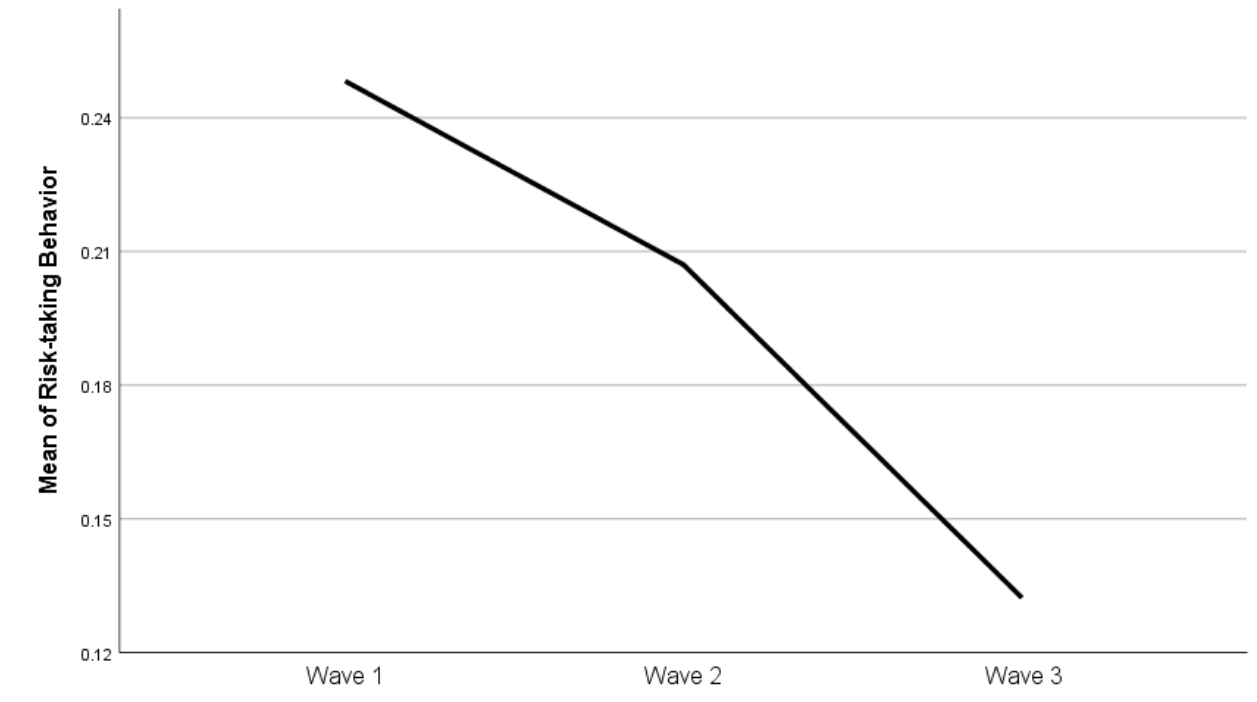
Latent Growth Curve

The unstandardized regression coefficients should be interpreted as a 1unit increase in the predictor is associated with a 1unit increase in the outcome variable. The standardized regression coefficients should be interpreted as 1 standard deviation increase in the predictor is associated with a 1 standard deviation increase in the outcome variable.

Unconditional LGC

Results from the unconditional latent LGC that estimates the change over time in RTB indicated that the initial status mean was .24, $p < .001$, suggesting that the initial amount or RTB is .24, which is greater than 0. The mean of the slope was -.11, $p < .001$, indicating a statistically significant decline over time in RTB (illustrated in Figure 4.1). In other words, time has a

significant inverse correlation with RTBs in that as time moves forward, RTBs decrease by an average of .11 across Waves 1 to 3. Further, the intercept and slope was negatively correlated (r = -.77, p < .001) indicating the participants with greater RTBs at Wave 1 tended to have steeper decline in such behaviors over time.

Figure 4.1 Graph of RTB from Waves 1 to 3

Conditional LGC: H1

H1 was not supported. The conditional LGC with controls variables (age, perceived support and income), and the predictor variable (future expectations) regressed on RTBs was a good fit (χ^2(4)= 2.15, p = .71, RMSEA = .00, CFI = 1.00, SRMR = .008). Future expectations had significant impact on both the initial status (B = -.03, p = .002, β = -.13) and the slope (B = .03, p = .02, β = .11) over and above age, income, and perceived support.

A second model was run after removing two control variables (income and age) that were not significantly related to RTB. The model fit remained good (χ^2(2)= .10, p = .95, RMSEA =

.00, CFI = 1.00, SRMR = .002). Future expectations' impact on RTB at the initial status (B = -.03, $p < .001$, $\beta = -.13$) and over time (B = .03, $p = .01$, $\beta = .11$) over and above perceived support, improved slightly. Given the parsimony of the latter model, this model was retained.

The initial status' negative coefficient indicates that adolescents who had higher future expectations had lower initial levels of RTB than adolescents with lower future expectations. As learned from the growth model, RTB on average declined over time. The slope's positive coefficient indicates that for adolescents who had higher future expectations at Wave 1 that, counterintuitively, the rates of change in RTB actually were significantly higher, indicating higher rates of RTB across time for those with higher future expectations. However, this increase across time was largely offset by how much lower they started in RTB at Wave 1.
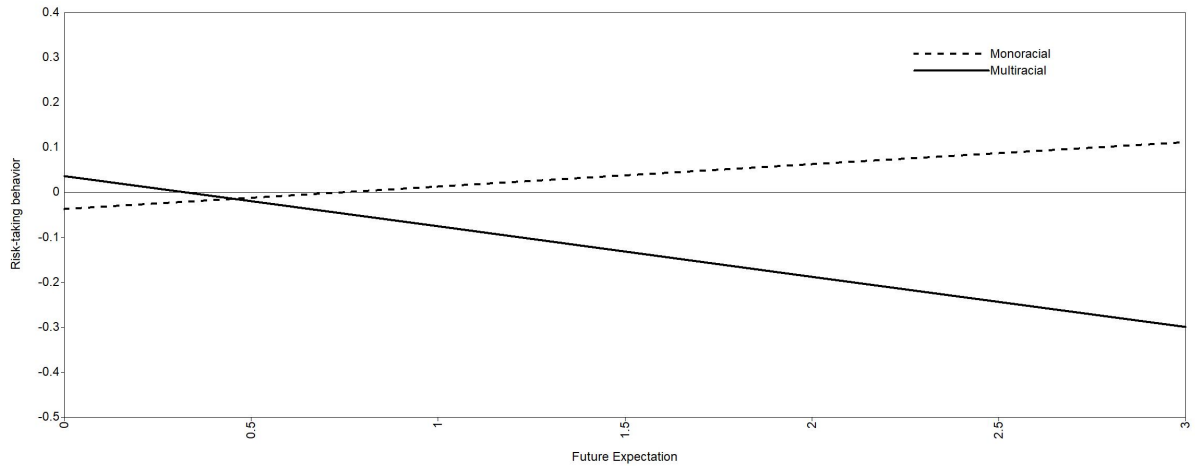
LGC with Moderators: H2 and H3

H2 was partially supported but not H3. Results of LGC including the moderators multiracial identity and racial identity malleability indicated a good model fit ($\chi_{(6)}^2 = 2.08$, $p = .91$, RMSEA = .00, CFI = 1.00, SRMR = .007). Results are presented in Table 4.3 and illustrated in Figure 4.7.

H2: Multiracial identity significantly moderated the initial relationship between future expectations and RTB (B = -.08, $p = .01$, $\beta = -.11$), but did not impact the relationship over time (B = .03, $p = .39$, $\beta = .04$). Results suggested that identifying as multiracial strengthened the inverse relationship between future expectations and RTBs, but did not significantly impact the trend over time. In other words, future expectations was a protective factor against risky behaviors improved when adolescents identified as multiracial at Wave 1, as illustrated in Figure 4.2. Conversely, for those who identified as monoracial, showed increased in future expectations

was related to increased RTB at Wave 1. However, these impacts seem to attenuate over time and do not significantly predict the decline in RTB.

Figure 4.2 Simple Slope of Future Expectations Predicting RTB for Multiracial and Monoracial Identity at Wave 1 for All Adolescents

H3: Racial identity malleability did not significantly moderate the relationship between future expectations and RTB initially (B = .03, p = .26, β = .05) or over time (B = .004, p = .89, β = .007). Change in racial identity from Waves 1 to 3, had no significant impact on the relationship between future expectations and RTB. Results further indicated that perceived support significantly reduced RTB at Wave 1 (B = -.10, p < .001, β = -.21) and augmented the decline in RTB over time (B = .06, p = .001, β = .14).

Table 4.3 Summary of Time-Invariant Covariate Growth Curve Analysis for Future Expectations Predicting RTBs among Adolescents (N = 1263)

Variables	Risk-taking Intercept				Risk-taking Slope			
	B	SE B	β	95%CI	B	SE B	β	95%CI
Control variables:								
Perceived Support	-	.02	-.21	-.26,-.15	.06***	.02	.14	.07,.21
Predictor Variable:								
Future Expectations (FE)	-.03**	.01	-.12	-.18,-.05	.02+	.01	.09	.01,.17

	B	SE	β	CI	B	SE	β	CI
Moderators:								
[a]Multiracial Identity (MI)	.04	.03	.04	-.01,.10	-.06[+]	.03	-.08	-.14,-.01
[b]Racial Identity Malleability (RIM)	.04[+]	.02	.06	.01,.12	-.03	.02	-.05	-.11,.02
FE x MI	-.08*	.03	-.11	-.18,-.04	.03	.03	.04	-.04,.12
FE x RIM	.03	.02	.05	-.02,.12	.004	.03	.01	-.08,.10
R^2	.12 ($p < .001$)				.05 ($p = .007$)			

[a]Multiracial identity = 1, Single racial identity = 0; [b]Change in racial identity = 1, No change in racial identity = 0.
[+]$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$. Fit indices: $x^2(6) = 2.08$, $p = .91$, RMSEA = .00, CFI = 1.00, SRMR = .007.

Multi-group Growth Model: H4

Fit indices confirmed the measurement equivalence for males ($\chi^2(6) = .54$, $p = .99$, CFI = 1.00; TLI = 1.00; RMSEA = .00, and SRMR = .006) and females ($\chi^2(6) = 7.17$, $p = .30$, CFI = .99; TLI = .98; RMSEA = .02, and SRMR = .02), hence the model in Figure 2.1 can be compared across groups.

The unconstrained model, with all parameters freely estimated in the two groups, fit the data well ($\chi^2(13) = 7.65$, $p = .86$, CFI = 1.00; TLI = 1.00; RMSEA = .00, and SRMR = .013). The fully constrained model, with all parameters equal across groups also fit the data well ($\chi^2(25) = 16.79$, $p = .89$, CFI = 1.00; TLI = 1.00; RMSEA = .00, and SRMR = .021). The difference in $\chi^2(12)$ between the fully constrained and unconstrained models = 9.14, is not significant at the .05 level, rendering the fully constrained model acceptable.

However, the correlation results (Table 4.2) suggest variation in the relationship between predictor and moderating variables and RTB across groups. RTB at Wave 2 was significantly related to Future Expectations for females ($r = -.14$, $p < .001$) but not males ($r = -.04$, $p = $ ns) and Racial Identity Malleability for males ($r = .08$, $p = .04$) but not females ($r = .02$, $p = $ ns). In order to reflect these differences, the following paths were unconstrained in the multi-group LGC: 1)

intercept to Future Expectations, 2) intercept to Future expectations x Racial Identity

Malleability, 3) slope to Future Expectations, and 4) slope to Future expectations x Racial

Identity Malleability. All other paths were constrained to be equal across groups. This partially

constrained model that fit the data well, ($\chi^2(21) = 10.32$, $p = .97$, CFI = 1.00; TLI = 1.00;

RMSEA = .00, and SRMR = .016). The difference in χ^2 between this partially constrained model

and both the fully constrained and unconstrained models indicated that all three models fit the

data well. Because the partially constrained model better reflects differences and similarities

across groups, this model was retained and the results are presented in Table 4.2 and Figure 4.7.

Table 4.4 Summary of Time-Invariant Covariate Growth Curve Analysis for Future Expectations Predicting RTBs defined by Male and Female Adolescents (N = 1263)

Variables	Risk-taking Intercept				Risk-taking Slope			
	B	SE B	β	95%CI	B	SE B	β	95%CI
MALES:								
Perceived Support	-.10***	.02	-.19	-.25,-.14	.06**	.02	.12	.06,.18
Future Expectations (FE)	-.04*	.02	-.13	-.23,-.04	.04*	.02	.17	.05,.28
[a]Multiracial Identity (MI)	.03	.03	.04	-.01,.09	-.05[+]	.03	-.06	-.12,-.002
[b]Racial Identity Malleability	.04*	.02	.06	.01,.11	-.04	.02	-.05	-.11,.005
FE x MI	-.07*	.03	-.08	-.14,-.02	.02	.03	.02	-.04,.09
FE x RIM	.07*	.03	.11	.03,.20	-.07	.05	-.11	-.25,.03
R^2	.08 ($p = .001$)				.05 ($p = .039$)			
FEMALES:								
Perceived Support	-.10***	.02	-.23	-.30,-.17	.06**	.02	.14	.07,.21
Future Expectations (FE)	-.02	.01	-.08	-.17,.01	.01	.02	.03	-.07,.13
[a]Multiracial Identity (MI)	.03	.03	.05	-.02,.11	-.05[+]	.03	-.07	-.14,-
[b]Racial Identity Malleability	.04*	.02	.08*	.02,.14	-.04	.02	-.07	-
FE x MI	-.07*	.03	-.11*	-.19,-.03	.02	.03	.03	-.05,.11
FE x RIM	-.01	.03	-.02	-.12,.07	.06*	.03	.13	.02,.23
R^2	.11 ($p < .001$)				.06 ($p = .014$)			

The results suggest that Future Expectations predicts RTB, and the strength of this relationship is predicted by racial identity differently for male and female adolescents. First, Future Expectations was significantly related to RTB at Wave 1 (B = -.04, p = .03, β = -.13) and over Waves 2 and 3 (B = .04, p = .02, β = .17) for males. However, Future Expectations was not significantly related to RTB for females at Wave 1 (B = -.02, p = .15, β = -.08) and across Waves 2 and 3 (B = .01, p = .12, β = .03).

Second, the relationship between Future Expectations and RTB was moderated by Multiracial Identity at Wave 1 for both males (B = -.07, p = .02, β = -.08) (see Figure 4.3) and females (B = -.07, p = .02, β = -.11) (see Figure 4.4), but not over time for either group. In other words, for both male and female adolescents, identifying as multiracial at Wave 1, increased the negative effect of future expectations on RTB at Wave 1 but not at Waves 2 and 3.

Figure 4.3 Simple Slope of Future Expectations Predicting RTB for Multiracial and Monoracial Identity at Wave 1 for Male Adolescents
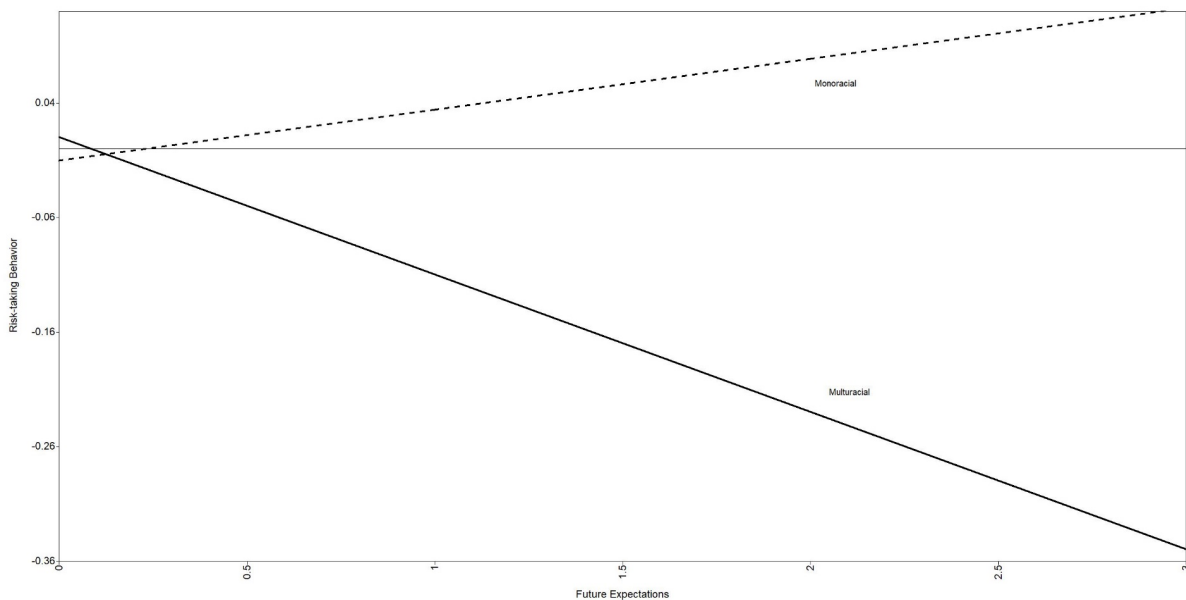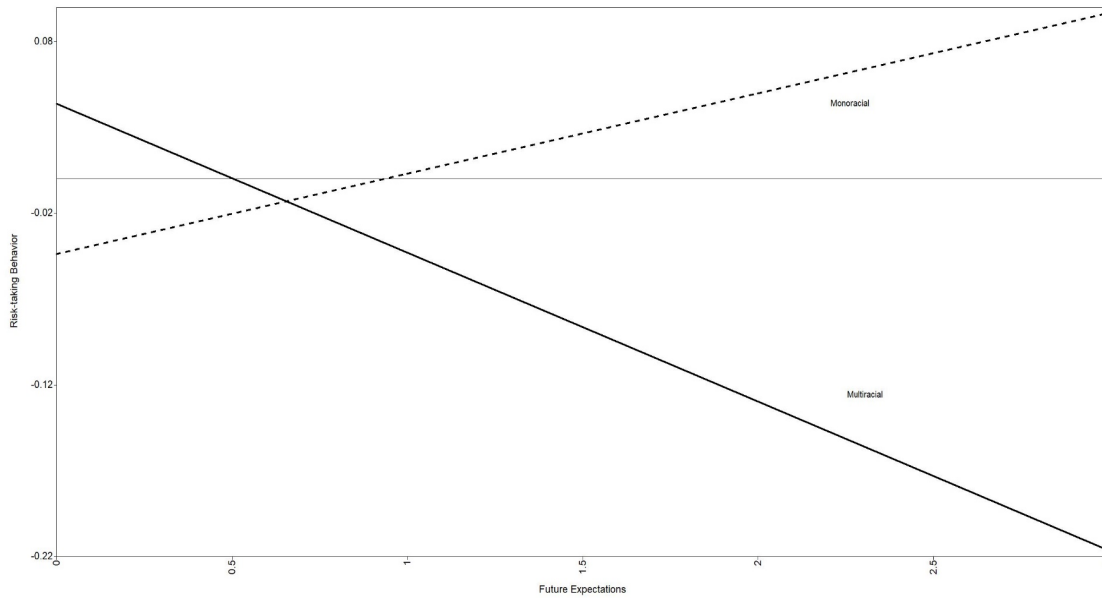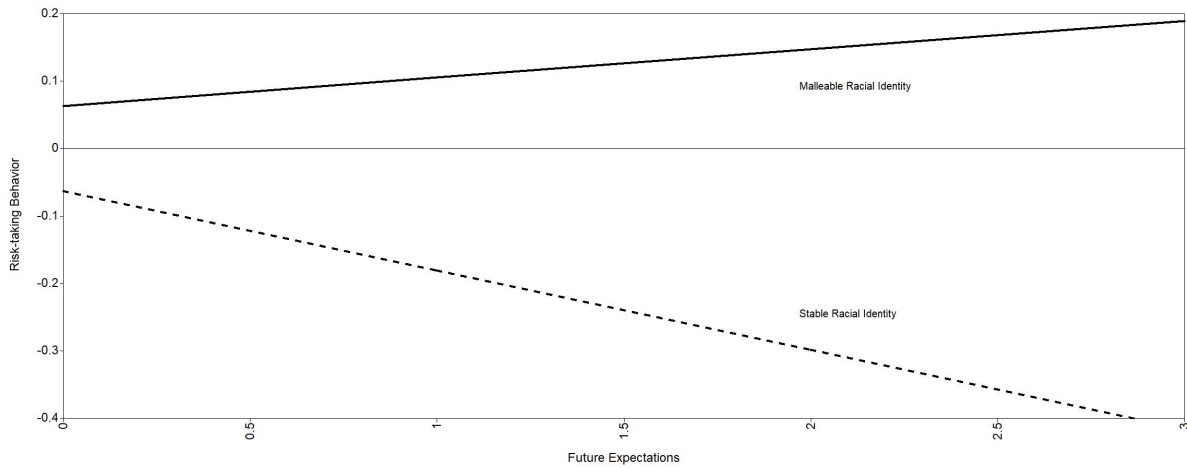
Figure 4.4 Simple Slope of Future Expectations predicting RTB for Multiracial and Monoracial Identity at Wave 1 for Female Adolescents
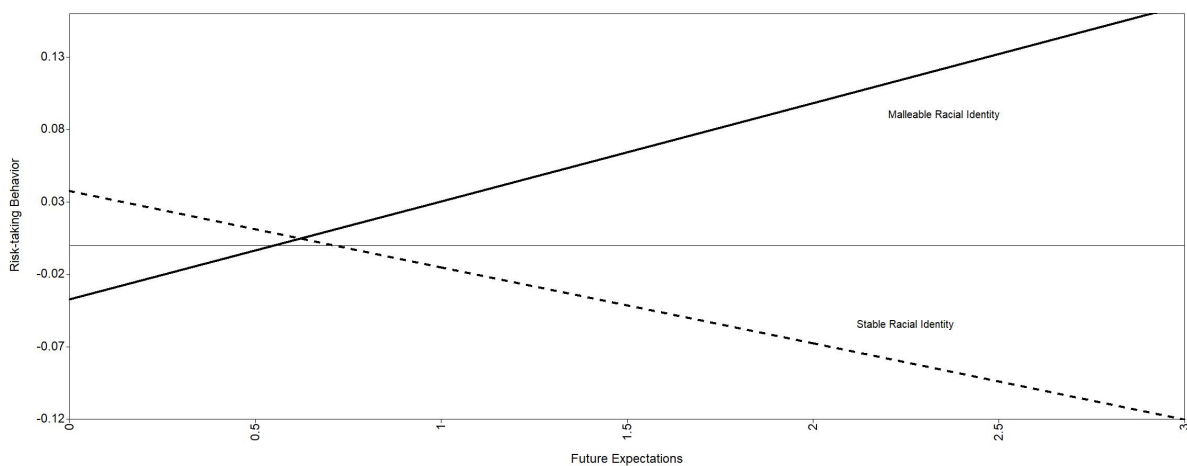

Third, for males, racial identity malleability significantly moderated the relationship between future expectations and RTB initially (B = .07, *p* = .03, *β* = .11) (see Figure 4.5) but not over time (B = -.07, *p* = .17, *β* = -.11). Change in racial identity from Waves 1 to 3, significantly impacted how having future expectations reduce initial RTB for males. The relationship between RTBs at Wave 1 and future expectations was strengthened by racial identity malleability among males. However, racial identity malleability among males did not predict the strength of this relationship over time.

Figure 4.5 Simple Slope of Future Expectations Predicting RTB for Malleable and Stable Racial Identity at Wave 1 for Male Adolescents

For females, racial identity malleability did not moderate the relationship between future expectations and RTB initially (B = -.01, p = .68, β = -.02) but did over time (B = .06, p = .04, β = .13) (see Figure 4.6). Change in racial identity from Waves 1 to 3, significantly impacted how having future expectations reduced RTBs over time. The decline in RTB that corresponded to changes in future expectations was less for females whose racial identity was malleable from Wave 1 to 3 compared to those whose racial identity was stable over time.
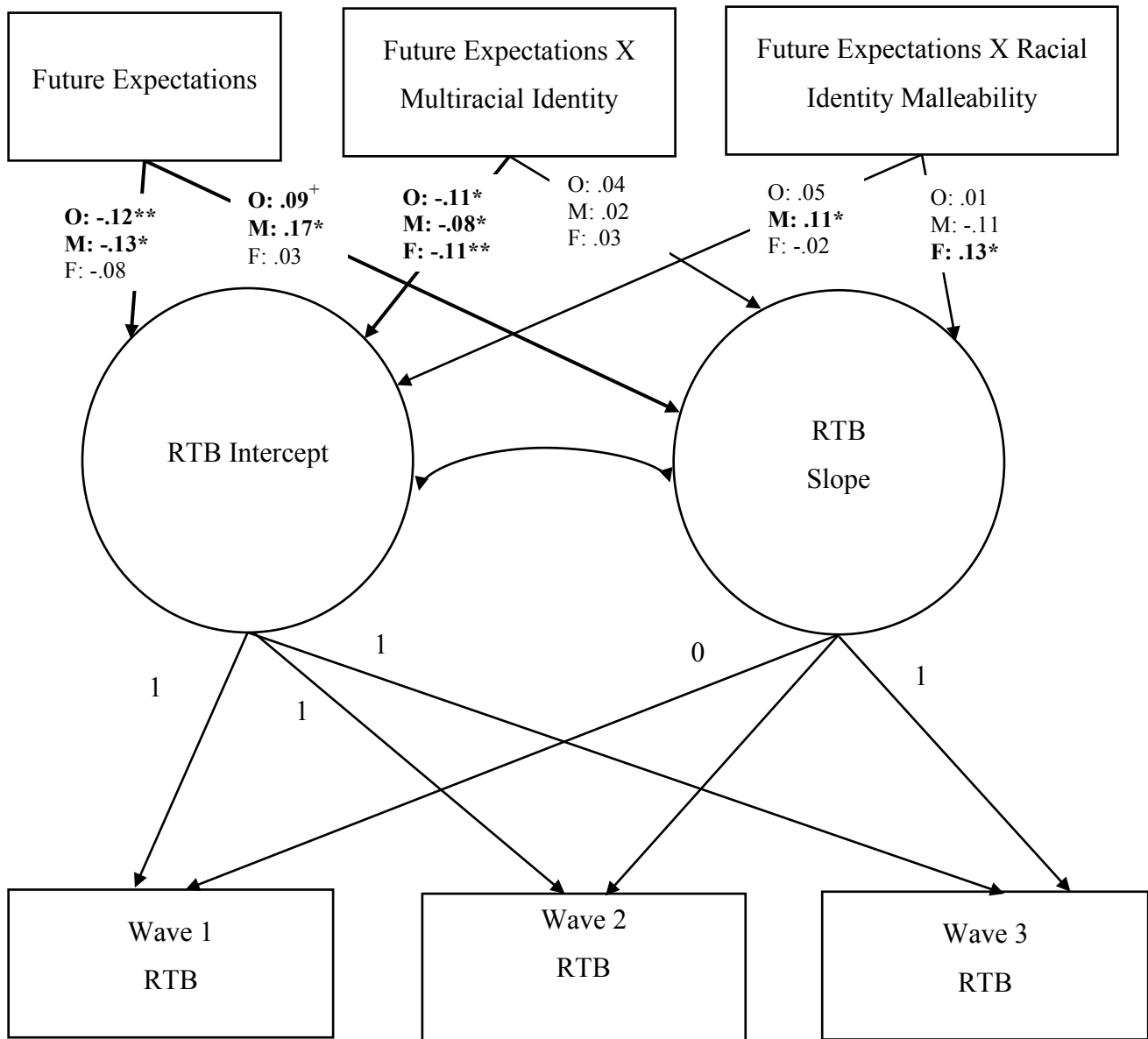
Figure 4.6 Simple Slope of Future Expectations Predicting RTB for Malleable and Stable Racial Identity Over Time for Female Adolescents

The multi-group LGC analysis highlighted nuances between males and females that would not have been evident otherwise. While multiracial identity appears to be similarly

pertinent across groups for RTB, the effects of malleability of racial identity differs for males'

and females' RTBs over time.

Figure 4.7 Standardized Latent Growth Curve Model Assessing Trajectories of RTBs over Three Wave with Predictor and Moderator Variables (N = 1693)

Note. O = Overall. M = Males. F = Females. ^+p < .10. *p < .05. **p < .01. ***p < .001.

Chapter 5 - Discussion

RTB among juveniles has grown steadily since the first juvenile justice system was established. This study examined the extent to which future expectations predict RTB trends among adolescents. The role of multiracial identity and the malleability of this identity in RTBs were further examined.

RTB among Racial Minority Adolescents

Results suggest that racial minority adolescents' RTB declined over time. Future expectations significantly altered these RTB trends. Not only did those who had significantly higher future expectations reduce their RTB sooner than those with lower future expectations, they also took fewer risks initially. These results support the existing literature that higher future expectations are predictive of lower RTB (Brezina, Tekin, & Topali, 2009; Caldwell, Weibe, & Cleveland, 2006; Hill, Ross, & Low, 1997). This study extends existing literature by illustrating that the negative trend of RTB over time is strengthened when adolescents expect to have a long, fulfilling life.

When analyzing group differences across sexes, males reported significantly more RTBs and lower future expectations compared to females. The former supports previous research by Andreoni et al., (2019). Growth curve results found two main differences across sexes. The relationship between future expectations and RTB attenuated among females to the point of insignificance but remained significant for males overtime. This suggests that while RTBs decrease over time, the rate of decrease is impacted in racial minority males by future expectations. However, this may not be true for racial minority females.

It is possible that for females, anticipated shame and guilt rather than future expectations have more bearing on RTB (Svensson et al., 2013). Research has shown that females experience

the emotion of guilt more normatively than men and it is more easily induced in them (Ferguson & Eyre, 2000). These guilt motivations may be a better explanation of the rate of change in RTBs among females as compared to males.

The Role of Multiracial Identity

Overall, multiracial identity weakened the relationship between future expectations and adolescent RTB in the initial status. However, this impact attenuated over time and multiracial identity did not significantly impact the relationship between future expectations and RTB trends. This demonstrates that the inverse relationship between future expectations and initial reports of RTB is weaker among multiracial adolescents than racial minority adolescents who identify as one race.

Comparisons across sexes found no differences between males and females. For both sexes, multiracial identity moderated the relationship between future expectations and RTB in the initial status but not overtime.

The Role of Racial Identity Malleability

Overall, racial identity malleability did not appear to moderate the relationship between future expectations and RTB over time. However, comparison across sexes revealed that racial identity malleability moderated the initial relationship between future expectations and RTB in males but not females. RTB increases as future expectations increases among adolescent males whose racial identity is malleable but the reverse is true for adolescents with more stable racial identity. Hence, among racial minority males, racial identity malleability reverses the positive effect of future expectations on RTB. Given previous connections between racial identity and lower levels of RTBs, it follows that a malleable racial identity might contribute to the reversal

in this relationship (Bruce & Waelde, 2008; Caldwell, Kohn-Wood, Schmeelk-Cone, Chavous, & Zimmerman, 2004; Townsend & Belgrave, 2000).

Further, racial identity malleability moderated the relationship between future expectations and the trend in RTBs in females but not males. Racial minority adolescent females do not only have a less stable racial identity (60% of females changed their race overtime compared to 40% of males) but the more flexible their racial identity, the more RTB despite having high future expectations. Conversely, female adolescents whose racial identity was stable overtime, engaged in less RTB as their future expectations rose. Racial identity malleability appears to reduce the impact of future expectations on RTB of female adolescents overtime. While this is not as extreme as the reversal among racial minority males, this finding supports previous research as well in the importance of a stable racial identity (Bruce & Waelde, 2008; Caldwell, Kohn-Wood, Schmeelk-Cone, Chavous, & Zimmerman, 2004; Townsend & Belgrave, 2000).

Shame and guilt and their ties to reflected appraisal and identity formation may be one way to understand this phenomenon. The Identity Based Model (IBM) indicates that it is an acceptance of an identity that motivates behavior (Oyserman, 2010). Reflected appraisal plays a role in determining identity (Mastrueda, 1992). This reflected appraisal can send messages around shame and anticipated guilt. One interpretation of racial identity malleability is a changing racial identity motivated by shame. This shame can impact adolescents' view of self, and therefore the framework in which they interpret behavior. At this point, it may no longer be future expectations which influences their decision-making, but rather shame and anticipated guilt. Rebellon et al., (2016) suggest that these gender differences in adolescent RTB might be a result of anticipated guilt. And because females tend to be more susceptible to shame and guilt

than do males (Ferguson & Eyre, 2000), RTB of females in this study may be more influenced by anticipated shame and guilt through racial identity malleability rather than future expectations alone (Svensson et al., 2013). The reflected appraisal of others and its impact on the identity of males versus females as well as the role of anticipated guilt may help us to understand how reporting female is linked to racial identity malleability, while anticipated guilt has implications for behavior.

Clinical Implications

The results of this study have implications for therapists and youth development. First, given that RTBs is closely linked to expectations of life in the future, interventions should aim at instilling hope among minority race youth. Providing opportunities to experience success and/or witness the success of role models may be useful in reducing behaviors that can lead to delinquency. Further, the significant differences between males and females suggest that different interventions should be considered for each group. The initial analysis showed that RTB is higher among males, while females have higher future expectations. Given that a higher future expectation is predictive of fewer RTBs, it is worth examining what contributes to racial minority female adolescents' future expectations and if these factors would apply to and be used as interventions for male adolescents.

Next, multiracial adolescents appear to be at more risk of RTB compared to non-multiracial adolescents despite having positive future expectations. Hence, it would be important to explore potential risk-factors that are unique to multiracial adolescents that could negate any positive contributions of future expectations. Helping adolescents better manage these risk-factors could help mitigate RTBs.

Given the potential role of anticipated shame and guilt in racial identity malleability for females, it would be important to assess the motivations for and against changing one's racial identity overtime. The need or desire to change or hold stable one's racial identity may be useful because changing one's racial identity could increase the vulnerability for RTB overtime. For both males and females, assessing the contributors to racial identity malleability and working towards stabilizing racial identity could be a protective factor for RTBs.

Study Limitations

The data from this study comes from the Add Health dataset (Bearman, Jones, & Udry, 2001). While this is a well-known and often used dataset, the data from the first wave was collected over 20 years ago. There are different circumstances, resources, and challenges that adolescents now face that were either nonexistent or not applicable in 1995. For example, there is nothing in this dataset addressing the impact of technology on behavior. Access to technology may impact an individual's identity, their view of their future expectations, or their potential.

The Cronbach's alpha for the future expectations measurement is .52. This is lower than it should be for internal reliability. As this was the main predictor variable, the low internal reliability is concerning when interpreting the results. It is possible that the variable is measuring something other than future expectations and that may have affected the results. Despite this, the results were significant. It is possible that if items were improved, the connection between future expectations and risk-taking behavior would be able to be understood more clearly. Future research involving this dataset might examine each item individually to compare the relationship of each item to risk-taking behavior trends.

The variable racial identity malleability is inferred due to race reporting inconsistencies. While these inconsistencies may be an indication of racial identity malleability, there is also the possibility that some of these cases were a result of reporting or recording error.

Another limitation in this study is the examination of only biological sex and not gender. This study leaves out data on those who identify as transgender or non-binary. As these populations continue to grow, it will be important to understand their experiences as well. The acknowledgement and investigation into the intersection of various cultural identities will add depth to the understanding of variations within groups (Jones & Neblett, 2017).

The omission of Hispanics and their ethnic identity formation and its relationship to future expectations and risk-taking behavior is another limitation. This eliminates a large sub-section of our growing population, and should be closely examined in future research.

Further Research

The relationship between multiracial identity and behavior has been researched for some time, but there is still more to understand. Racial identity is seen as a protective factor against RTB. The further complications of establishing a multiracial identity, particularly if the parents have not had any conversations around racial socialization may mitigate the effect of establishing a racial identity. Integrating a biopsychosocial perspective into the construction of questions related to the study of racism-related stress as well as racial-ethnic protective factors would provide a more complete picture of the experiences, interactions, and dynamics that go into racial identity development as well as decision-making (Jones & Neblett, 2017).

There has been a lot of research examining the differences in behavior between multiracial and monoracial adolescents (Going, Butler-Bente, McGovern, & Howard, 2016; Goings, Salas-Wright, Howard, & Vaughn, 2018). Further examining the role of racial identity

development differences between these populations will help us to further understand the process that might explain these differences. Given the gender differences noted in this study, future research should consider the gender differences in racial identity development as well, particularly among multiracial adolescents.

Gender differences in RTB have been the subject of much examination. However, future research should examine the roles of anticipated shame and guilt as possible mediators or moderators of RTB. It is likely that the role of anticipated shame and guilt is created by socialization. This socialization impacts both males and females, though in different ways (Dennis, 2012).

This study was not able to fully examine the complexities of multiethnic identities or the role of colorism in identity. Future research should examine the role of systemic racism on multiracial identity, multiethnic identity, and colorism (the preference of lighter skin tones among people of color) in relationship to risk-taking behavior. The role of colorism in multiracial identity formation would be another area of interest.

Conclusion

This study contributes to previous research by demonstrating the complexity of the relationship between future expectations and risk-taking behavior trends. While previous research has indicated that higher future expectations is associated with lower risk-taking behavior, the findings of this study suggest that higher future expectations is associated with an increase in risk-taking behavior over time. These results are counter-intuitive to previous research and theory. However, when you take into account the role of reflected appraisals as well as anticipated shame and guilt into behavior motivation, another possibility presents itself. The higher one's future expectations, likely the more positive their reflected appraisals and lower the

anticipated shame. The more secure one is in their identity, the less likely that anticipated shame or guilt might influence their actions, as these responses would be seen as exceptions rather than indicative of their identity (Oyserman, 2010). Understanding the role of both identity and racial identity in influencing risk-taking behavior was also examined in this study. While there was not enough power to find a connection between multiracial identity and the relationship between future expectations and risk-taking behavior trends, this does not necessarily mean that no relationship exists. However, examination of racial identity malleability indicates that racial minority adolescent females do not only have a less stable racial identity but the more flexible their racial identity, the more risk-taking behavior despite having high future expectations. This study indicates the need for future research in understanding the complexity of the connections between gender, racial identity, future expectations, and risk-taking behavior.

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Appendix A - Measure Items

Future Expectations

On a scale from "No chance" to "It will happen" what do you think are the chances you will:

    a. live to age 35?

    b. be married by age 25?

    c. be killed by age 21

    d. get HIV or AIDS?

    e. graduate from college

    f. have a middle-class family income by age 30?

Perceived Support

Section 35: Protective Factors

    1. How much do you feel that adults care about you?

    2. How much do you feel that your teachers care about you?

    3. How much do you feel that your parents care about you?

    4. How much do you feel that your friends care about you?

    5. How much do you feel that people in your family understand you?

    6. How much do you feel that you want to leave home?

    7. How much do you feel that you and your family have fun together?

    8. How much do you feel that your family pays attention to you?