CHAPTER 10: INTEGRATIVE SUMMARY

In this monograph, we have examined the development of a large number of adolescents from diverse socioeconomic and racial/ethnic backgrounds. Overall, these young Americans showed much stronger evidence of positive than problematic development, even at their most vulnerable times. Absolute levels of their engagement in healthy behaviors, supportive relationships with parents and friends, and positive self-perceptions and psychological well-being were much higher than their angry and depressive feelings, engagement in risky behaviors, and negative relationships with parents and peers.

We did not find much evidence that adolescence is a time of heightened risk. Rather, most of these adolescents experienced relatively stable and developmentally healthy trajectories across a wide range of beliefs, behaviors, emotional functioning, and relationships, with slight increases or decreases at different points in development that varied across domains. That said, however, some developmental periods were riskier than others, depending on the outcome assessed as well as the gender and race/ethnicity of the adolescent. An examination of the entirety of adolescence (ages 12 to 20) allows us to pinpoint when, on average, such changes occurred.

Developmental Changes during Adolescence

Within risk-protection and positive youth development frameworks, our findings highlight the optimal timing to reduce risk and promote positive youth development among different groups of adolescents in multiple spheres of development. During
early adolescence, youth often experience multiple, simultaneous changes associated
with puberty, the transition from elementary to middle school, and their relationships
with parents and friends. As other researchers have noted (cf. Roeser, Eccles, &
Sameroff, 2000), early adolescence is a critical time for changes in both positive and
negative functioning. This was highlighted in our findings where changes were evident
in psychological well-being, peer relationships, and positive identification with parents
– suggesting that this is an optimal period for reducing risk and boosting protection in
these areas.

For many adolescents, the teenage years are a vulnerable period for engaging in
problem behaviors, experimenting with various substances, and associating with
negative friends. Engaging in problem behaviors and having negative friends both
peaked in middle to late adolescence, suggesting that this is an important time to
prevent delinquency. Later adolescence, however, was a time of risk for substance use
and abuse. Both using various substances and having friends who endorsed drug use
increased steadily across adolescence and peaked in late adolescence, highlighting the
importance of continued preventive efforts related to substance use through secondary
school and into the later adolescent years.

As we expected from previous studies (Eccles et al., 1993; De Fraine et al. 2007;
Gniewosz et al., 2012; Roeser & Eccles, 1998; Wang & Dishion, 2012; Wang & Eccles,
2012), academic self-beliefs and school motivation declined somewhat across the
school years. However, these adolescents maintained high aspirations and expectations
for their future educational and occupational prospects throughout adolescence. This
suggests that supporting school-related achievement, motivation, and identification is
more critical than a focus on increasing students’ aspirations during the junior and high
school years. Lastly, R/E identity and perceptions of discrimination remained relatively
stable throughout adolescence, indicating that prevention in this area should most likely target specific groups of adolescents who show vulnerability in these domains.

**Gender and R/E Differences in Adolescent Trajectories**

Developmental trajectories showed some differences according to gender and race/ethnicity, but these variations depended on the domain being examined. For psychological well-being and academic outcomes, the main gender and R/E differences were found for the mean levels at the intercept rather than in the slopes of the developmental trajectories. However, there were two exceptions: Males experienced a sharper decline in their grades during high school compared to their female peers and females experienced an increase while males experienced a slight decrease in educational aspirations. As other studies have found (Gutman & Schoon, 2012; Huang, 2012, Mello, 2008; Schoon et al., 2007; Voyer & Voyer, 2014), females reported higher levels of educational aspirations and expectations and better grades than did males. In line with previous research (Garber & Sontag, 2004), however, females also reported higher levels of the psychological characteristics linked to internalizing problems than did males, whereas males reported higher expectations of negative outcomes than did females.

As other research has noted (Johnson et al., 2001), the African American adolescents reported higher levels of occupational aspirations and attached more importance to school subjects than did the European American adolescents. However, the African American adolescents also reported lower GPAs than did the European American adolescents, despite the fact that they were as likely as their European American peers to come from middle to high-SES families, highlighting the Black-White achievement gap (Kao & Thompson, 2003; Magnuson & Waldfogel, 2008). African American adolescents also reported higher levels of anger than European American
adolescents. For the most part, however, both the gender and R/E differences were quite small, suggesting that adolescents experience quite similar developmental patterns in these two domains regardless of their gender or race/ethnicity.

For R/E identity, the most obvious feature of these results was the extent to which the R/E groups adhered to their own social identities and friendship networks. R/E discrimination also appeared to play a salient role in the lives of African American adolescents. Overall, we found very few changes in these constructs during adolescence, supporting some research on R/E identity (Seaton et al., 2009) but contrasting with other research on experiences of R/E discrimination (Greene et al., 2006; Seaton et al., 2009). There were, however, some changes in late adolescence for both African American and European American adolescents that were somewhat contradictory to each other. African American adolescents had increasing concerns about R/E discrimination yet reported a slight increase in having more cross R/E friendships. European Americans reported that their parents had fewer worries about discrimination yet were less likely to have cross R/E friendships. These findings may reflect their transition into college or employment in late adolescence when both groups may confront more heterogeneous R/E environments in contrast to their high schools where most students were African American. Such apparent differences, however, need to be viewed cautiously given that the meaning of these measures may have been different for African American versus European American adolescents.

Patterns of change in their engagement in problem behaviors and association with negative peers also showed variation according to gender and race/ethnicity. In support of previous research (Bray et al., 2001; Chen & Jacobson, 2012; Gutman et al., 2011; Wallace et al., 2002; Webb et al., 2002), these European American and male adolescents were at higher risk of engaging in problem behaviors compared to these
African American and female adolescents. European American adolescents not only reported higher rates of cigarette, alcohol, and marijuana use, they also reported faster rates of increase in cigarette and marijuana use compared to African American adolescents. Males further reported higher mean levels regarding their marijuana use, engagement in problems behaviors both in and out of school, and association with negative peers as well as faster rates of increase in using marijuana and having negative peers compared to females. These findings highlight the heightened risk of European American adolescents, particularly males, for engagement in problematic behaviors.

Gender and R/E differences were also evident in the mean levels and/or slopes of interpersonal relationships. Consistent with the existing literature (e.g., Rose & Rudolph, 2006; Way & Green, 2006), female adolescents reported higher levels of positive relationships with their parents and peers than did male adolescents. In terms of R/E differences, African American adolescents reported lower levels of autonomy from, as well as more positive relationships with, their parents than did European American adolescents. As others have suggested, stronger parental control is normative in African American families and thus may be viewed as protective rather than confining (Smetana et al., 2004). These African American adolescents also reported having more prosocial and academically-engaged peers during early adolescence than did these European American adolescents. Given that these African American adolescents were more academically motivated than were their European American counterparts, it is not surprising that their friends were more academically engaged as well.

In terms of the intersection between gender and race/ethnicity, we found few significant interactions at the $p < .01$ level. Nevertheless, the significant interactions suggest that certain risks are specific to the intersectionality of the gender and
race/ethnicity of the adolescent. European American females, for example, had the highest incidence of eating disorders and the lowest self-esteem of the four groups. Of the four groups, European American males reported the least positive relationship with their parents with the steepest decline and the greatest decrease in academic importance as they neared high school graduation. European American males also had the greatest linear increase in having friends who thought using drugs was “cool” from early to middle adolescence, an increase that tapered off in late adolescence. In contrast, African American males had the sharpest increase in the extent to which their friends felt drug use was “cool” in late adolescence. These results suggest that the timing of risk for the negative influence of peer drug norms varies for European American versus African American males.

**Parents’ Marital Status and SES Differences in Adolescent Trajectories**

There were few significant differences in adolescent growth trajectories associated with parents’ marital status or SES. There was only two significant findings associated with parents’ marital status: Adolescents with always married parents had higher GPAs and reported a slight increase in parent-adolescent communication as they approached young adulthood compared to adolescents with single or divorced parents. Although the lack of associations may be due to our examination of family structure at only a single point time, only a very small percentage of our sample experienced a change in marital status over the years of the study.

In contrast, the effects of SES were more pervasive in some domains. Lower-SES adolescents were at greater risk of worse mental health, lower academic outcomes, and less positive peer relationships than were higher-SES adolescents. Furthermore, lower-SES youth experienced a greater decline in positive peers, GPA, and academic motivation than did higher-SES youth. However, the mean levels and growth
trajectories of problem behaviors and family characteristics were similar regardless of SES. There was also evidence that some of the significant SES differences, such as those associated with psychological well-being, lessen in early adulthood. However, it is important to note that SES differences may be larger in more recent samples of racially/ethnically diverse adolescents, given that wealth inequality has widened along R/E lines since the end of the Great Recession (Kochhar & Fry, 2014).

**Limitations**

A number of limitations need to be noted in the context of our findings. First, we based our investigation on adolescents’ reports; therefore, we do not capture perceptions of adolescent development from other viewpoints, such as that of parents. However, the purpose of the study was to examine trajectories of adolescents’ perceptions of their intra-individual and interpersonal worlds. Nevertheless, it is important to note that agreement between parents’ and adolescents’ views of their relationship may be low to moderate and may increasingly diverge with age (Smetana, 1988, 1989).

Second, our measures were somewhat limited due to the constraint on the growth curve trajectories that requires exactly the same measures across waves. The relatively small number of items in each scale likely contributed to lower reliabilities for a few of our measures at different waves. We did add items for some of the scales as newer instruments became available. However, HLM analyses work best when the same scales are used at each wave in order to increase the comparability of measurement across waves.

Third, there is a possibility that some of the words in the questions and the numbers on the response scales may mean something different to African American versus European American, male versus female, and younger versus older adolescents.
As described in Chapter 3, we examined the pattern of correlations among measures reported in this study, revealing substantial support for the assumption that our measures have similar meanings across groups and time, with the exception of the R/E discrimination measures. Thus, consistent with the idea that abstract concepts can have the same meaning even if the meaning of some items varies across groups and time (Nesselroade et al., 2007), we assumed that the meaning of the scores on the majority of scales in this study were sufficiently similar to warrant meaningful comparisons of growth parameters across our four race/ethnicity and gender groups. Apparent violations of this assumption are a limitation of the current study, and future research will be needed to better understand the implications of such variations across groups and time during adolescence.

Fourth, we examined development as a function of chronological age. As other researchers have noted (Collins, 2006; Lerner, Schwartz, & Phelps, 2009), there are other time metrics that might prove potentially useful (e.g., development as a function of pubertal status or specific life changes). This may be particularly relevant where examining within-level differences among R/E groups because there are variations in the timing of pubertal development between European American and African American adolescents. However, the examination of age trajectories represents a first step in understanding adolescent development in this sample, and other approaches should follow in future reports.

Fifth, SES and parents’ marital status were only measured at a single time point; therefore, there may have been changes in SES and family structure whose consequences were not captured by our analyses. In fact, however, very few of the adolescents in our sample experienced such changes over the course of this study. For example, the correlation between Wave 1 and Wave 4 SES is .85, and 87% of the parents
who were married at Wave 1 were still married at Wave 4, with European American males’ families showing the most stability at 94%. Furthermore, although we included SES and marital status in all of our analyses, it also important to keep in mind that our sample is relatively more affluent than the typical United States population. Therefore, it is possible that this socio-demographic characteristic may account, at least in part, for the relative lack of risky trajectories evidenced by MADICS participants during adolescence. Therefore, it is important to assess whether more tumultuous adolescent trajectories are present for adolescents living in less privileged circumstances.

Sixth, our analysis was restricted to African American and European American youth, neglecting Latinos, Asian Americans, or biracial adolescents. We acknowledge the importance of describing the normative adolescent development of these groups, yet the geographic reality of our sample did not include a large enough percentage of these groups to assess their trajectories reliably. Our goal was to look at the trajectories in these two R/E populations in a context in which their relative SES and educational circumstances were as similar as possible. This goal, and its constraint on selecting the community in which to conduct this study, made obtaining equivalently representative samples of other R/E groups within the United States impossible. We hope that other researchers will replicate our project with other R/E populations living in a variety of different social and national contexts.

Lastly, the developmental trajectories reflect adolescents in the late 20th century. Since that time, significant societal events have taken place such as the election of our first African American president, along with the Great Recession and widening income gap (Kochhar & Fry, 2014). Although these changes are likely to impact contemporary youth development, it is not entirely clear how. For example, recent research has found that the percentage of adolescents in the United States reporting psychological health
complaints decreased from 2006 to 2010, despite the economic recession of 2007 (Pfoertner et al., 2014). Other research has also indicated improving trends for adolescents in the United States, with externalizing symptoms decreasing in the 1990s then remaining stable in the last decade (Center for Disease Control and Prevention, 2012) and with an overall decline in underage drinking from 1991 to 2005 (Newes-Adeyi, Chen, Williams, & Faden, 2007).

Although today’s adolescents may show higher or lower mean levels in some of our measures compared to our sample of African American and European American youth, there is little indication that patterns of developmental change from early to late adolescence would differ between our sample and a more contemporary one. Moreover, there is no evidence to suggest that the nature of the scales and items included would have any different meaning currently than in the past few decades. For example, the concept of self-esteem is the same now as it was in the past several decades, and the items we used to assess that construct appear to have the same meaning at present compared to the past several decades. Furthermore, most, if not all, of our measures are relevant for contemporary youth. Our results are thus useful in that they provide information about the trajectories of African American and European American youth in the United States who grew up in comparable socio-economic and educational contexts at the end of the 20th century. Whether these patterns definitely hold for different groups and in different socio-historical periods remains to be determined.

**Future Studies**

Next steps might include examining (a) bi-directional relations between trajectories across time, (b) demographic intersectionality, (c) developmental pathways defined by linking multivariate profiles across time, and (d) the potential heterogeneity
across individuals in the functional forms of change. Previous studies using MADICS data have examined how changes in parenting and family dynamics are associated with changes in adolescents’ psychological and behavioral outcomes (Gutman & Eccles, 2007; Gutman et al., 2011). Other research has examined the linkages between adolescents’ relationship with parents and peers across time (e.g., De Goede, Branje, Delsing, & Meeus, 2009) as well as the influence of parents, peers, and school climate on adolescents’ engagement in problem behaviors (e.g., Martino, Ellickson, & McCaffrey, 2009; Wang et al., 2011; Wang & Dishion, 2012). Future studies could expand these findings by investigating the interrelations among changes in multiple domains of risk, promotive, and protective factors during adolescence. Particularly important would be to distinguish between recursive and non-recursive effects in adolescents’ trajectories and to examine whether the nature of these relations varies according to the developmental period in question (e.g., early adolescence versus late adolescence, middle school versus high school).

A further contribution would be to examine more closely the intersectionality between gender and race/ethnicity, as well as SES, and to consider their combined influence on development. Our findings revealed few significant gender-by-race/ethnicity interactions, where \( p \) was set at < .01. Furthermore, we found few indications of significant race/ethnicity-by-SES interactions in our preliminary analyses. Nevertheless, this may be a function of our unique sample, where the different R/E groups have more similar SES backgrounds than the United States overall. There may be significant differences among gender, race/ethnicity, and SES in samples where some of the adolescents grow up in more disadvantaged circumstances and surroundings. Although previous studies have investigated the moderating role of these factors, linking predictors and outcomes in different domains at one point in time, more
research with adolescents living in different locales examining the intersectionality of these factors in moderating the association between contextual influences and longitudinal trajectories of adolescent development is needed.

A further step in examining adolescent development would be to consider a constellation of risk, promotive, and protective factors that exist within individuals at specific point(s) in time (Bergman & Vargha, 2013; Bergman, Magnusson, & El-Khoury, 2003; Magnusson, 1985, 2003; Peck & Roeser, 2003). Given the complex and varying interdependencies that likely exist among many of the variables we examined, a pattern-centered, multivariate profile approach may further reveal additional forms of heterogeneity in adolescents’ developmental trajectories. However useful it may be for capturing a normative picture of adolescent development, focusing exclusively on univariate growth trajectories and their interrelations is an inherently limited approach to understanding human development in context because both individuals and social contexts are multidimensional, multilevel phenomena. How such dimensions and levels cohere within individuals and contexts to form integrated patterns, and the implications of these integrated patterns of personal and contextual characteristics for both typical and atypical developmental pathways, are pressing questions that deserve increased attention.

Conclusions

This monograph represents one of the few comprehensive documents examining risky and positive youth development in multiple domains from early to late adolescence. Our findings suggest that the average youth in the United States experiences relatively stable and positive trajectories in their interpersonal and intrapersonal worlds throughout their adolescence. Developmental fluctuations were evident, but these occurred at different points depending on the domain in question.
Furthermore, these shifts were not mutually exclusive; often times, these adolescents experienced changes in risk, promotive, and protective factors at a similar point in development, even within the same domain. Developmental trajectories differed in some expected ways by gender and race/ethnicity, but even these differences were not very marked. Overall, most of the young people, African American and European American alike, navigated through their adolescence into their twenties with little evidence of heightened risk and arrived at young adulthood with good mental and physical health, quite positive relationships with their parents and peers, and high aspirations and expectations for what their future lives might hold. Exploring possible exceptions to these average trends will be hastened by using methods designed explicitly for examining sample heterogeneity and atypical development (Peck, Feinstein, & Eccles, 2008).

In conclusion, we hope that this monograph provides a springboard for future studies that further explore multivariate heterogeneity in adolescents’ profiles and developmental trajectories. Although examining such integrated patterns depends critically on variable-centered measurement development, and benefits from the kind of univariate descriptive analyses reported here, more work is sorely needed. Future studies that accomplish such nuanced examinations would add greatly to our understanding of the complexities involved in the both the nature and timing of changes characterizing adolescent development and its multiple interacting influences and contexts. Our data set is archived at the Henry A. Murray Research Archive at Harvard University (http://murray.harvard.edu/), and we encourage others to complement our work by pursuing such analyses.
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