

**THE IMPACT OF SOCIAL STATUS ON LEVELS OF PSYCHOLOGICAL
WELL-BEING: A DYNAMIC, DEVELOPMENTAL APPROACH**

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Psychology)
In the University of Michigan
2007

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DEDICATION

To Eva, Ron, Mildred, & Ray

ACKNOWLEDGEMENTS

Completing one's dissertation is a very lonely process. It made me appreciate my cat that much more, which I (and probably many others) did not think was possible. But, now that I have successfully navigated through that process, I can sit back and reflect more fully on the various twists and turns that marked my "journey" from pre-schooler to doctor. Upon reflection, it is clear that the ultimate end point of my journey would have differed dramatically if it was not for a handful of individuals who offered much needed guidance and support along the way.

I want to begin by recognizing my advisors at the University of Michigan, Jacque Eccles, John Schulenberg, and Pam Davis-Kean. Though I am leaving the University of Michigan asking some of the same kinds of questions I asked when I arrived – namely how do different parts of how we think about ourselves gel together across development – under the guidance of Jacque the complexity and specificity of my questions, as well as my ability to design and carry out research to answer those questions, have grown immensely. At every turn, Jacque seemed to know just when to challenge me and just when to let me be. She allowed me the breathing space to grow into my own as a researcher, but always knew when to ask the hard questions to make sure I did not drift too far off track. Though I arrived at University of Michigan with an interest in the developmental period of adolescence, it was John Schulenberg who taught me to think like a developmentalist. Under John's guidance, the questions I asked and the models I developed transitioned from static and adevelopmental to dynamic and developmental.

Moreover, only after this change of orientation was I able to find (or at least begin to find) the answers I was looking for. Pam Davis-Kean's guidance came as a complete surprise – though a welcome one. She had no obligation to offer her time or wisdom, but every single time (and there were many, many times) I asked for her help and advice she offered it. While at the University of Michigan, Pam has been my primary source for guidance, and I'm not sure what I appreciate more – the excellent guidance she offered or the fact that she was so willing to offer it.

Beyond Jacque, John, & Pam, I am indebted to several other researchers who provided direction and support during both my undergraduate and graduate years. I would not have ended up a developmental psychologist (or perhaps even a psychologist) if it were not for Scott Vanderstoep and Marjorie Gunnoe, who were both psychology professors at Calvin College while I was an undergraduate there. They were the first educators who took a real interest in my success and challenged me to apply myself. To be honest, only after I realized that both Scott and Marjorie believed me to be a capable student did I actually begin to think of myself as one. Prior to their encouragement, I was just coasting through college, and I am sure I would have continued to do so if was not for their intervention. In addition, I am indebted to Carol Boyd, who I was honored to have served on my committee. Her unique and welcomed perspective, as well as her encouragement helped guide me through the dissertation process.

Chances are I would still be trudging through the dissertation process if it were not for the generosity of Dr. Seymour and Marilyn Lieberman. Thanks to their financial support, over the last year I was able to focus all my energies on completing my dissertation. Since I was fortunate enough to not be distracted by other responsibilities, I

was not only able to complete my dissertation in a timelier manner, but I was also able to produce a more coherent and reasoned end-product.

Last, but not least, I want to thank my family and friends for their continued support, affirmation, and encouragement. I'm a lucky, happier person who is at a great place in life, and I think that has a lot to do with the people around me. More specifically, I would like to thank my mother, my step-dad Frank, my brothers Ryan & Chad, my sister-in-law Vickie; my friends Amy, Peter, Christy, Andrew, The Erin Q. Hammers, Robin, Chris, Anjan, & Kate; and my boyfriend Steve.

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CHAPTER I

Grand Introduction

Our race, body weight, sex, sexual orientation (sexual-minority status), social class, and age all impact how others think about and behave towards us and how we think about and behave towards others; who we chose to befriend and who chooses to befriend us; who we choose to pursue romantically and who chooses to pursue us; and even how we think about ourselves. All of these personal characteristics are examples of social status, which is any aspect or trait one has whose meaning is largely derived from the societal context within which one operates. Social status should not be confused with social identity (Tajfel & Turner, 2004) which itself is constrained by social status and pertains only to how one's social statuses actually impact how one *thinks* about one's self and to an extent how one *thinks* about and behaves towards others. The influence of social status on how we interact with others and how they interact with us is profound. Due to the pervasive influence of social status, a tremendous amount of research has been devoted to examining the relationship between the social statuses mentioned above and psychological well-being¹. However, to date, our understanding regarding how social

¹ Psychological well-being has been conceptualized in various ways. While Bradburn's (1969) conceptualization of psychological well-being is limited to positive and negative mental affect, more recent work by Ryff and colleagues (Ryff, & Keys, 1995; Ryff, Keys, & Hughes, 2003) conceptualizes psychological well-being more broadly and focuses on various dimensions of overall "life satisfaction" – of which mental affect is just one dimension. While this broader conceptualization of psychological well-being is certainly useful, the substantive interest of this dissertation is limited to mental affect, and therefore, Bradburn's (1969) more limited conception of psychological well-being, which focuses solely on mental affect, is used.

statuses interact with one another to impact well-being is still quite limited.

Concerning social status, there is no such thing as a person who has just a race, but no sex, sexual-orientation, overweight status, and so forth. Instead, a given social status is always just an element of a larger set of social statuses and never exists in isolation. Research examining the impact of a given social status on levels of psychological well-being should account for the embedded nature of social status when assessing the impact of that social status on levels of psychological well-being. After all, given that social statuses are inherently linked to one another, it is not clear how research limited in focus to a single social status actually generalizes to the real world. In addition, the impact of any given social status on psychological well-being likely varies across the life span. That is, concerning a particular social status and its impact on psychological well-being, is the effect equivalent at ages 5, 20, and 60? Moreover, when does the effect first emerge? Also, does it dissipate? If so, when does it dissipate? Longitudinal data are required to answer these sorts of questions, and the answers to these sorts of questions are important for at least two reasons: (1) the answers provide insight into the process or processes associated with the given effect, and (2) the answers help guide the design and timely implementation of effective interventions.

The interplay of multiple social statuses and the impact of that interplay on psychological well-being likely reflect a very complicated process. A process that, likely, is better understood from a developmental perspective that (1) recognizes the dependent nature of social status and (2) takes into account when and how over the course of development each individual social status impacts the developmental course of psychological well-being. The end product will be a model that both clarifies the current

inconsistencies regarding the intersection of social status, and isolates when over the lifespan the interactions between various social statuses actually take place. Not only will this line of work contribute to the field's knowledge regarding social status and its impact on psychological well-being, but it also has implications for the development of interventions focused on marginalized and at-risk children, youth, and adults, as well as for parents, school administrators, and teachers hoping to help guide at-risk youth through the developmental challenges that they face.

*SOCIAL STATUS AND PSYCHOLOGICAL WELL-BEING: WHY DEVELOPMENT
MATTERS*

If, when examining social status and its impact on psychological well-being, one ignores how the impact of social status on psychological well-being may vary across the life span, then necessarily one implicitly assumes the following concerning the impact of social status on psychological well-being: (1) the size and quality of the impact is constant across the life span, and (2) distal factors fail to serve any sort of moderating role. That is, if one ignores age all together, then one assumes that the impact of social status on levels of psychological well-being is systematic across age. When operating within such a framework, the mere possibility that (1) the impact of social status on levels of psychological well-being varies across age or (2) earlier developmental experiences themselves impact the proximal or current impact of social status on levels of psychological well-being both go unquestioned. However, there is reason to believe that both of these assumptions are invalid, and therefore, it appears that a perspective that

takes into account issues of development is required when examining the impact of social status on psychological well-being.

The impact of social status clearly varies across development

Contrary to the first assumption, there is ample reason to suspect that the impact of social status on levels of psychological well-being does in fact vary across the lifespan. For example, researchers have shown again and again that the well-being disparities across both sex status (Kling, Hyde, Showers, & Buswell, 1999; McLeod & Owens, 2004) and race status (Gray-Little & Hafdahl, 2000; McLeod & Owens, 2004) emerge during adolescence. Thus, at the population level anyway, the impact of race and sex status on levels of psychological well-being does vary across the lifespan, and specifically the impact appears to be the most pronounced during adolescence. In addition, it stands to reason that the impact of other social statuses as well, such as marital status, parental status, and sexual-minority status, also varies across the lifespan. That is, likely being single/unmarried does not have implications for psychological well-being when individuals are in the 4th grade, but it probably does have implications when individuals are in their forties. Similarly, the impact of being a parent versus a non-parent on levels of psychological well-being varies if one is a teenager or an adult (Lee & Gramotnev, 2006; McGowan & Kohn, 1990). Finally, for sexual-minorities, awareness of one's sexual-minority status typically does not occur until at least late childhood (Rosario, Meyey-Bahlburg, Hunter, & Exner, 1996; Savin-Williams & Diamond, 2000). Thus the impact of sexual minority status on levels of psychological well-being before and after late-childhood likely varies dramatically.

Vulnerable Period - Conceptualizing the differential impact of social status across development: Given that the impact of social status on levels of psychological well-being varies across the lifespan, it is clear that if one wishes to understand the psychological well-being implications of social status, then one cannot ignore age. Instead, one must recognize that for any given social status there is at least one *vulnerable period* over the course of development that is characterized by non-parallel growth in psychological well-being across the levels of a given social status and coincides with when the disparities in psychological well-being emerge across the levels of that social status. For example, at the population level, females report lower self-esteem than males (Kling et al., 1999; Simmons & Blythe, 1987; Wigfield, Eccles, Mac Iver, Reuman, & Migley, 1991). Moreover, the size of this effect is not constant across time (Kling et al., 1999; McLeod & Owens, 2004). That is, it is not the case that females are simply born with lower self-esteem than males, and the size of the effect is constant across development, which, if it was the case, would be characterized over time by parallel trajectories with a simple level difference initiating at birth. Instead, sex differences in self-esteem first emerge around age 10, and continue to widen through mid- to late-adolescence (Kling et al., 1999; McLeod & Owens, 2004). Thus, concerning self-esteem, the period of non-parallel growth (i.e., the vulnerable period) across males and females occurs between late-childhood and mid- to late-adolescence.

In addition, the period of non-parallel growth that characterizes a vulnerable period does not occur at random, but instead coincides with other developmental changes that themselves interact with a given social status and subsequently result in differential growth across the levels of that social status. Sticking with the example of sex status,

developmental changes that coincide with the vulnerable period associated with sex status and interact with sex status (i.e., differentially impact the growth of psychological well-being across males and females) are the hormonal (Angold, Costello, Erkanli, & Worthman, 1999; Angold, Costello, Worthman, 1998; Nolen-Hoeksema, 1990) and body changes (Galambos, Leadbeater, & Barker, 2004; Kessler, 2003; Nolen-Hoeksema & Girgus, 1994) associated with puberty, as well as the formation of gender identity (Hill & Lynch, 1986; Orlofsky & O’Heron, 1987). Though the developmental changes that interact with sex status are changes occurring at the biological (hormonal changes/bodily changes associated with puberty) and cognitive (identity formation) levels, potentially developmental changes occurring at the contextual level could also interact with social status and result in a period of non-parallel growth across the levels of that social status (Crocker, 1999; Ethier & Deaux, 2001).

To summarize, contrary to the implicit assumption one makes if one ignores age when examining the impact of social status on psychological well-being, the impact of social status on psychological well-being does *not* appear to be constant across the lifespan. Instead, for any given social status, there appears to be a vulnerable period (or potentially vulnerable periods) during development when the psychological well-being disparities across the levels of that social status actually emerge. The emergence of psychological well-being disparities is characterized by non-parallel growth in psychological well-being across the different levels of a social status. In addition, the emergence of the disparities in psychological well-being is not random, but instead coincides with other developmental changes that potentially occur at the biological, cognitive, and contextual levels.

The impact of social status on psychological well-being: Distal factors as moderators

By ignoring whether or not the impact of social status on levels of psychological well-being varies across age, one also implicitly assumes that the impact is constant across age, and therefore also necessarily assumes that distal influences fail to impact current levels of adjustment. In fact, when taken to its logical conclusion, when age is ignored the mere notion of distal influences is all together meaningless. However, a key tenet of developmental science is that development is a cumulative process in which both proximal and distal factors influence current levels of adjustment (Caspi, 2000; Caspi & Moffit, 1995; Schulenberg & Maggs, 2002). Since vulnerable periods associated with social status do not appear to initiate at birth, but instead initiate at some later point of development, by the time a vulnerable period for a given social status actually initiates, the individuals of that social status are, at least to some extent, already in mid-stream developmentally speaking. That is, they are not a blank slate, but instead are already moving along a developmental trajectory. As such, it may be overly simplistic to assume that distal influences fail to moderate the impact of social status since by the time a given social status begins to impact psychological well-being (i.e., the initiation of the vulnerable period) the individual is already moving along a developmental pathway. After all, to assume as much would be to suggest that once a vulnerable period initiates there is absolutely no carry-over (i.e., complete discontinuity) from earlier developmental experience; that development is the opposite of a cumulative process, and instead simply starts afresh with the slate wiped clean each and every time a vulnerable period associated with one's set of social statuses initiates.

Thus, conceptually speaking, the notion that distal factors completely fail to influence the impact of social status on levels of well-being seems far-fetched. But, to make things more concrete, there are several specific examples of distal factors that likely influence the impact of social status on levels of well-being. For example, both stress-coping mechanisms (Aneshensel, 1992; McCreary, Cunningham, Ingram, & Fife, 2006; Olf, Langeland, & Gersons, 2005; Wheaton, 1985) and levels of social support (Borg, Hallberg, & Blomqvist, 2006; Hill, 1998; Li, Stanton, Pack, Harris, Cottrell, & Burns, 2002; Zimmerman & Bingenheimer, 2002) serve to mitigate the impact of social status on levels of psychological well-being. Clearly, one's ability to cope as well as one's level of social support varies over the life span (Aneshensel, 1992; Borg et al., 2006; Coventry, Gillespie, Heath, & Martin, 2004). Thus, the extent to which one has adequately developed these abilities *prior* to the initiation of a vulnerable period that is associated with a given social status may in turn moderate the impact of that social status on levels of psychological well-being.

Why development matters: Summation

Thus, when it comes to examining social status and its impact on psychological well-being, it does appear that, in at least three distinct ways, issues of development must be taken into consideration. First, the impact of social status itself varies across development, and is characterized by non-parallel growth (i.e., a vulnerable period), and for each social status under examination, one needs to account for the variable impact across age. Second, not only does one need to be sensitive to issues of development when assessing *when* a vulnerable period occurs, but one must also be sensitive to issues of development when assessing *why* a vulnerable period occurs. That is, for any given

vulnerable period there are one or more proximal developmental changes that interact with a given social status and in turn differentially impact the psychological well-being of different levels of that social status. These proximal developmental changes can be thought of as the cause (or the “why”) behind the non-parallel growth that characterizes a vulnerable period (the “when”). Third, once the “when” (developmental period characterized by non-parallel growth) and the “why” (i.e., proximal developmental changes that interact with a given social status resulting in that non-parallel growth) are properly diagnosed, the extent to which distal factors themselves moderate the impact of those proximal developmental changes, which themselves are the driving force behind the non-parallel growth in psychological well-being, must also be assessed.

*THE INTERACTION OF SOCIAL STATUS AND ITS IMPACT ON PSYCHOLOGICAL
WELL-BEING: CURRENT APPROACHES*

Consistent with the notion that one’s set of social statuses are linked in a dependent fashion, research focusing on the psychological well-being impact of two or more social statuses has consistently shown that dependence is the norm when it comes to the intersection of social status and psychological well-being. That is, conceptually speaking, when a given social status is paired with another, those two social statuses can interact in three ways: (1) independent (the impact of each on psychological well-being is unaffected by the presence of the other); (2) dependent-complementary (the impact of each on psychological well-being is amplified in the presence of the other); or (3) dependent-compensatory (the impact of each on psychological well-being is muted in the presence of the other). Research examining the psychological well-being impact of

various pairings of social statuses suggests that the relationships between social statuses prove to be either dependent-complementary (Crocker & Garcia, 2005; Miller & Downey, 1999; Twenge & Campbell, 2002) or dependent-compensatory (Dowd & Bangston, 1978; Dubois, Burk-Braxton, Swenson, Tevendale, & Harvesty, 2002; McLeod & Owens, 2004; O’Rand, 1996; Twenge & Nolen-Hoeksema, 2002), but not independent. Thus, current research is mixed regarding which type of dependent interaction – namely, dependent-complementary or dependent-compensatory – will characterize the relationship between two or more marginalized statuses.

Currently, there are two general approaches to understanding the interaction of social status and its impact on psychological well-being. The first approach focuses on marginalized status and posits that the interaction between two or more marginalized statuses will be dependent-complementary in fashion. The second approach is more of a post-hoc approach that, once the interaction between two or more social statuses is *already* empirically verified, attempts to disentangle the mechanisms driving that interaction. Both approaches rightly recognize the dependent nature of social status. However, both approaches have several limitations as well. One limitation that they both share is that they ignore issues of development and therefore incorrectly assume that (1) the impact of social status on levels of psychological well-being does not vary across age, and (2) distal factors fail to moderate the impact of social status on levels of psychological well-being.

The double-marginalized approach

The double-marginalized approach (Table 1.1) focuses specifically on the intersection of marginalized status and posits that the impact of each marginalized status

on levels of psychological well-being is amplified in the presence of the other (i.e., dependent-complementary). According to this line of work, marginalized status impacts health in two key ways. First, the distribution of social stressors is not uniform across social strata (Aneshensel, 1992; Dannefer, 2003; O’Rand, 1996; Turner, Wheaton, & Lloyd, 1995). Members of marginalized groups disproportionately encounter difficult, harsh, and traumatic life conditions (Aneshensel, 1992, Dohrenwend, & Dohrenwend, 1969; Eaton, 1986; Mechanic, 1972, & Wheaton, 1978), which are linked to poor psychological well-being (Aneshensel, 1992; Avison & Turner, 1988; & Liem & Liem 1978). Second, beyond added stressors, the negative social evaluations marginalized individuals perceive (i.e., perceived discrimination) are thought to impact levels of psychological well-being through the messages they communicate regarding one’s social and personal standing (Fordham & Ogbu, 1986; Mays & Cochran, 2001; McLeod & Owens, 2004; van Laar, 2000). Adopting this line of thinking, researchers approaching the interaction of social status and its impact on psychological well-being from the double-marginalized perspective typically posit that the stressors and negative social evaluations associated with each marginalized status of multiple-marginalized status individuals compound, interact in a dependent-complementary fashion, and render such individuals at acute risk for poor psychological well-being (Beale, 1970; Diaz, Bein, & Ayala, 2005; Dowd & Bangston, 1978; DuBois et al, 2002; McLeod & Owens, 2004)

Working with borrowed theory: In order to buttress their prediction theoretically, researchers approaching the intersection of social status and its impact on psychological well-being from the double-marginalized perspective consistently draw upon two distinct, but related theories – *Double-Jeopardy Theory* (Beale, 1970; Dowd & Bangston, 1978)

and *Cumulative Disadvantage Theory* (Dannefer, 2003; & O’Rand 1996). Both theories originated within the social stress and social psychology literatures, and were aimed at understanding the impact of multiple marginalized statuses on income and physical health disparities opposed to psychological well-being disparities (Dannefer, 2003; O’Rand, 1996).

Double-Jeopardy Theory posits that individuals of multiple-marginalized status rarely operate within a marginalization-free context and as a result are at acute risk for psychological well-being problems (Beale, 1970; Dowd & Bangston, 1978). For example, African-American females typically have to deal with a level of racism within racially mixed, sex-minority circles and a level of sexism among mixed-sexed racial-minority circles (Beale, 1970; Dowd & Bangston, 1978, Dubois et al., 2002). As such, African-American females rarely function within a context that is absent of both racism and sexism, and this is thought to have dire consequences on their psychological well-being.

Cumulative Disadvantage Theory is similar, but incorporates the passage of time. Cumulative Disadvantage Theory posits that the difference between the “haves” and the “have-nots” becomes more pronounced over time or over the life-span (Dannefer, 1987; O’Rand, 1996). Researchers interested in the impact of multiple-minority status on psychological well-being have applied the theory by first arguing that in the cross-section individuals of multiple-marginalized status should show deficits in psychological well-being relative to single-marginalized status individuals. Second, they argue that this deficit or “disadvantage” in the cross-section should cumulate over time, and as a result the difference between the single-marginalized individuals and multiple-marginalized

individuals should become more pronounced over time (DuBois et al, 2002; McLeod et al, 2004). It is important to note that while Cumulative Disadvantage Theory does incorporate the passage of time into its theoretical model, it still assumes that the psychological well-being impact of social status is constant across the lifespan, but posits that the effect of the constant impact cumulates exponentially. Put another way, while Cumulative Disadvantage Theory incorporates the notion of non-parallel growth (i.e., vulnerable period) across the strata of a given social status, it assumes that the non-parallel growth is constant across the lifespan, and therefore is in no way a function of a particular period of development.

To demonstrate the popularity of these two theories, Double-Jeopardy Theory and Cumulative Disadvantage Theory have been applied to the following combinations of marginalized statuses: African-American/females (McLeod & Owens, 2004; Beale, 1970; Bethea-Whitfield, 2005); African-American/elderly (Dowd & Bangston, 1978); African-American/homosexuals (Dube & Savin-Williams, 1999; Crawford, Allison, Zamboni, & Soto, 2002; Savin-Williams, 1996; Greene, 1994; overweight/females (Miller & Downey, 1999); overweight/lower-class (Miller & Downey, 1999), and elderly/lower-class (Dannefer, 2003; O’Rand, 1996).

Problems with the double-marginalized approach: One key problem with the double-marginalized approach is that its predictions concerning the interaction of marginalized statuses and its impact on psychological well-being – namely, that the interaction will be dependent-complementary – is often not supported empirically. Instead, as discussed earlier, depending upon the marginalized statuses in question, the interaction between two marginalized statuses may be dependent-complimentary or

dependent-compensatory. A second problem with the approach is that it is developmental, ignores age all together, and therefore implicitly assumes that the impact of social status is constant across the life span. Therefore, when attempting to disentangle the interaction between two or more social statuses, for each social status of focus the double-marginalized approach fails to (1) take into account the extent to which the impact of each social status on psychological well-being varies across development, and (2) take into account whether or not distal factors moderate the impact of each social status on levels of psychological well-being.

The moderating the moderator approach

Once the interaction between two or more social statuses is *already* empirically verified, *the moderating the moderator approach* (Table 1.1) attempts to disentangle the mechanisms driving that interaction. More specifically, regardless of which type of dependent interaction characterizes the relationship between two marginalized statuses (i.e., dependent-complementary vs. dependent-compensatory), the moderating the moderator approach attempts to clarify the process by disentangling (1) the mechanisms underlying the effect of one social status on psychological well-being, and (2) how a second social status moderates the impact of those mechanisms. This series of interactions can be thought of as the impact of one moderator itself being moderated by a second moderator, and from this point forward will be referred to as *moderating the moderator*. This approach is quite popular and has been widely applied. Specific examples of how the moderating the moderator approach has been applied to various pairings of social statuses follows below. For sake of presentation, the examples are

separated into two categories depending upon whether or not they pertain to dependent-compensatory or dependent-complementary interactions of marginalized statuses.

Examples of moderating the moderator interactions - dependent-compensatory:

The negative impact of female status on psychological well-being is muted when coupled with African-American status (Biro, Striegel-Moore, Franko, Padgett, & Bean; 2006; Molloy & Herzberger, 1998; Twenge & Crocker, 2002). One mechanism thought to contribute to the sex differences in psychological well-being is the differential impact of puberty - and its impact on body changes - on levels of body satisfaction across males and females (Galambos, Leadbeater, & Barker, 2004; Kessler, Avenevoli, & Marikangas, 2001; Nolen-Hoeksema, 1990; Nolen-Hoeksema & Girgus, 1994). However, because the African American community has less rigid, and more realistic standards concerning what female body types are considered attractive (Miller & Downey, 1999; Molloy & Herzberger, 1998), the bodily changes associated with puberty appear to not have as large of an impact on the body satisfaction of African American females (Biro et al., 2006; Molloy & Herzberger, 1998; Siegel, 2002). Thus, in terms of moderating the moderator, the impact of sex status on psychological well-being is moderated by the effects of puberty, and that moderator (the effects of puberty) is itself moderated by racial status. Similarly, another mechanism thought to contribute to the sex difference in psychological well-being is gender identity, and the differential impact of masculine and feminine identity on levels of psychological well-being (Hill & Lynch, 1986; Marsh, 1987; Orlofsky & O'Heron, 1987). However, because, relative to European American females, African American females are more likely to describe themselves with masculine or androgynous traits (Harris, 1996; Molloy & Herzberger, 1998), gender identity formation

appears to not have as large of an impact on the psychological well-being of African American females.

The relationship between overweight status and racial status is another example of a dependent-compensatory interaction between two marginalized statuses. The psychological well-being impact of being overweight is muted when coupled with African-American status (Miller & Downey, 1999). Again, disentangling (1) the mechanisms underlying the effect of obesity on psychological well-being, and (2) how racial status moderates the impact of those mechanisms (i.e., moderating the moderator) helps clarify the process. In part, the impact of obesity on body image and body satisfaction mediates the relationship between obesity and psychological well-being (Crocker & Garcia, 2005; Miller & Downey, 1999). As mentioned above, relative to the European American community, the African American community has more flexible and attainable standards concerning what body types are considered attractive (Miller & Downey, 1999; Molloy & Herzberger, 1998). As such, the impact of being overweight on one's sense of body satisfaction is mitigated among African Americans, and subsequently, the impact of being overweight on psychological well-being is also mitigated among African Americans.

In a similar fashion, the relationship between overweight status and socioeconomic status (SES) is also an example of a dependent-compensatory interaction between two marginalized statuses. The psychological well-being impact of being overweight is muted when coupled with low-SES (Twenge & Campbell, 2002). Within the United States, racial status and SES are conflated, and a disproportionate number of low-SES individuals are racial minorities. As such, the process underlying the protective

factor of African-American status on being overweight also, in part, drives the protective factor of SES on being overweight (Miller & Downey, 1999).

The relationship between elderly status and racial status is also an example of a dependent-compensatory interaction. That is, with respect to life satisfaction, Dowd & Bangston (1978) found that race differences between European Americans and African Americans are smaller during old age. Again, in terms of moderating the moderator, one mechanism linking elderly status to lower life satisfaction is perceived loneliness or lack of social support (Antonucci, 2001; Borg, Hallberg, & Blomqvist, 2006; McCamish-Svensson, Samuelson, Hagberg, Svensson, & Dehlin, 1999). Dowd & Bangston (1978) found that, compared to elderly European-Americans, elderly African-Americans reported higher rates of contact with children, grand-children, and other relatives. Thus, one mechanism linking elderly status with lower life satisfaction- namely, loneliness – appears to be mitigated by the higher rates of familial interaction within the African-American community.

Finally, the relationship between elderly status and SES is also an example of a dependent-compensatory interaction. In a large-scale, meta-analysis, Twenge & Campbell (2002) found that the impact of low-SES status on self-esteem was muted among the elderly. In yet another example of moderating the moderator, Twenge & Campbell (2002) posit that one mechanism linking SES with self-esteem – namely, that SES is an indicator of earned status – is less salient during the retirement years when one's occupation is not as central to one's self-concept. As such, the link between SES and self-esteem is mitigated among the elderly.

Examples of moderating the moderator - dependent-complementary interactions:

The relationship between overweight status and sex statuses is characterized by a dependent-complementary interaction. That is, the psychological well-being impact of being overweight is amplified among females (Miller & Downey, 1999). In part, the impact of overweight status on body image and body satisfaction mediates the relationship between overweight status and psychological well-being (Miller & Downey, 1999). Since, compared to males, body type ideals are much more rigid and unrealistic for females (Friedman & Brownell, 1995; Miller & Downey, 1999; Parker, Nichter, Nichter, Vuckovic, Sims, & Ritenbaugh, 1995), the impact of being overweight is more detrimental to the body image of females than it is males, and as such, the impact of weight status on psychological well-being is amplified among females. Thus in terms of moderating the moderator, the impact of weight status on body image and body satisfaction is itself moderated by sex status, such that the effect is even more pronounced among females.

Problems with the application of the moderating the moderator approach:

Though, as just highlighted above, in many cases use of the moderating the moderator approach can clarify the process by which various pairings of social status interact to impact psychological well-being, the approach, as applied to the intersection of social status, does have several short-comings. First, as applied, the approach is atheoretical. That is, even though one could potentially use the moderating the moderator approach to develop testable hypotheses and, based on theory, make predictions concerning how one social status might moderate the impact of a given mechanism on another social status (i.e., moderating the moderator), the approach has been typically applied in the reverse

when it comes to examining the impact of social status on psychological well-being. That is, only after the interaction between two social statuses and its impact on psychological well-being was already empirically verified did researchers then go on to disentangle that known effect by assessing what moderating the moderator interactions contributed to it. Put another way, as applied to the interaction of social status and its impact on well-being, the moderating the moderator approach was used as more of a blue-print that one might follow to empirically disentangle the already known relationship between two or more social statuses opposed to a theoretical approach one might utilize to predict the nature of the relationship itself. Finally, a problem with the approach itself (i.e., not just a problem in its application) is that it is, like the double-marginalized approach, a developmental in that it assumes that the impact of social status on psychological well-being is constant across the life span. As such, when examining the interaction between two or more social statuses and its impact on psychological well-being, the moderating the moderator approach fails to (1) take into account the extent to which the impact of each social status on psychological well-being varies across development, and (2) take into account whether or not distal factors moderate the impact of each social status on levels of psychological well-being.

Summary

Research focusing on the interplay of two or more social statuses has roundly shown that dependence is the norm when it comes to the intersection of social status and psychological well-being. However, results are mixed regarding the nature of that dependence. Currently, there are two general approaches to understanding the intersection of social status and its impact on psychological well-being, and neither

approach adequately models or explains the intersection of social status. One approach is the double-marginalized approach, which incorrectly posits that the interaction between two or more marginalized statuses will always be dependent-complementary in fashion, and fails to take into account issues of development. Another approach is the moderating the moderator approach, which focuses on disentangling (1) the mechanisms underlying the effect of one social status on psychological well-being, and (2) how a second social status moderates the impact of those mechanisms (i.e., moderating the moderator). While the moderating the moderator approach does help to clarify the interaction between marginalized statuses, as applied it is atheoretical, and it, like the double-marginalized approach, fails to take into account issues of development. As such, there is no single theoretical model or approach to the intersection of social status that adequately captures or predicts the intersection of social status and its impact on psychological well-being.

*THE IMPACT OF SOCIAL STATUS ON PSYCHOLOGICAL WELL-BEING: A
DEVELOPMENTAL APPROACH*

Concerning the two current approaches to understanding the interaction of social status and its impact on psychological well-being, perhaps their inability to adequately capture the intersection of social status and its impact on psychological well-being is, in part, bound in (1) the double-marginalized approach's focus on marginalized statuses vs. at-risk statuses, and (2) the failure of both approaches to take into account issues of development when examining the interaction of social status and its impact on psychological well-being.

At-risk status versus marginalized status:

A marginalized group is any social group that is disadvantaged or stigmatized due to their being underrepresented, de-valued, and/or disliked by the dominant group(s) of society. Beyond the term “marginalized”, the terms “minority” or “disadvantaged” are also often used to refer to these particular social groups (Branscombe & Ellemers, 1998; Crocker, 1999; Russell, Hadder, Carvajal, Chapman, & Alexander, 2006) - though the two latter terms each have their drawbacks in that a marginalized group is not always necessarily the numerical minority, and the term disadvantaged seems to imply that the “disadvantaged” are themselves lacking in some fashion and therefore somehow to blame for their plight. Specific examples of marginalized statuses within the United States are: African Americans, Gay and Lesbian individuals, individuals of Muslim faith, Mexican-Americans, over-weight individuals, and even females. Individual members of marginalized social groups are themselves of marginalized social status, and by virtue of that status they are more likely to endure discrimination (Branscombe & Ellemers, 1998; Mays & Cochran, 2001), loss of opportunity (Dohrenwend & Dohrenwend, 1969; Wheaton, 1985), and increased levels of stress (Aneshensel, 1992; Turner, Wheaton, & Lloyd, 1995) than are individuals who are not members of a marginalized group.

As noted earlier, researchers focused on the interaction of social status and its impact on psychological well-being have, for the most part, focused on marginalized statuses, and understandably so. After all, intuitively the marginalized groups should be the group at-risk for deficits in psychological well-being. However, depending upon the social status in question, the marginalized group is not always the “at-risk” group for deficits in psychological well-being - with the “at-risk” group being defined simply as those social groups who show deficits in well-being relative to other social groups. Note

that the distinction between “marginalized” and “dominant” is sociological in nature (i.e., based on power structures within a given society) while the distinction between “at-risk” and “not at risk” is empirical in nature (i.e., based on which group reports deficits in well-being relative to another group). For example, research has clearly demonstrated that during adolescence African-Americans, the marginalized group, report higher self-esteem (Gray-Little & Hafdahl, 2000; McLeod & Owens, 2002) and equivalent or perhaps even lower depressive affect (Dornbusch, Mont-Reynaud, Ritter, Chen, & Steinberg, 1991; McLeod & Owens, 2001) than European-Americans, the dominant group.

Most of the research attempting to clarify the seemingly counter-intuitive finding that African-Americans (the marginalized group) report better psychological well-being than European-Americans (the dominant group) group has, for the most part, focused on the resiliency of the African American community. Several factors thought to contribute to the resilience of the African American community are: The positive impact of racial identity on psychological well-being (Branscombe, Schmitt, & Harvey, 1999; Phinney, Cantu, & Kurtz, 1997; Rowley, Sellers, Chavous, & Smith, 1998; Wong, Eccles, & Sameroff, 2002), discrimination and stigma possibly serving as protective factors in that they provide external causes to which one can attribute failure (Crocker & Major, 1989) – though outside of an experimental setting there is little empirical support for this relationship (Branscombe & Ellemers, 1998); the extensive family networks that provide increased monitoring and social support (Hill, 1998; Li, Stanton, Pack, Harris, Cottrell, & Burns, 2002; McAdoo, 2001); and focused socialization from parents regarding how to deal with and understand discrimination (Bowman & Howard, 1985; Oyserman & Harrison, 1998; Thornton, 1997).

Shifting the focus to at-risk status: If one's aim is to understand how problematic social statuses intersect within the individual, then one would be wise to focus on at-risk statuses instead of marginalized statuses, since marginalized status does not always equate to at-risk status. Though the double-marginalized approach does not prove predictive when applied to marginalized statuses, maybe it does prove predictive when applied to at-risk statuses. That is, perhaps the interaction between two *at-risk* statuses will compound in a dependent-complementary fashion, as the double-marginalized approach posits.

In support of this shift in focus, many of the inconsistencies between the predictions of the double-marginalized approach and actual empirical findings concerning the intersection of marginalized status disappear when shifting the focus to at-risk status. That is, many of the dependent-compensatory interactions concerning the psychological well-being impact of marginalized statuses discussed earlier, which were inconsistent with the double-marginalized approach (i.e., since it posits dependent-complementary interactions), involved racial status. However, by switching the focus from marginalized status to at-risk status, which results in European Americans being the focal group opposed to African Americans, those dependent-compensatory interactions turn into dependent-complementary interactions, which are consistent with the double-marginalized approach.

However, not all of the inconsistencies are accounted for by simply switching focus from marginalized to at-risk social status. For example, the interaction between weight status and SES is characterized by a dependent-compensatory interaction, and both heavy-weight status and low-SES are at-risk statuses (i.e., both statuses are

associated with deficits in psychological well-being). Thus, switching the focus to at-risk status alone does not account for all of the inconsistencies concerning the intersection of social status and its impact on psychological well-being. Moreover, switching the focus to at-risk status does not alleviate a key drawback of the double-marginalized approach – namely, that it ignores the fact that the impact of social status on psychological well-being varies across the lifespan.

Incorporating issues of development - vulnerable periods and distal factors:

Incorporating vulnerable periods: While switching the focus from marginalized status to at-risk status accounts for many of the inconsistencies between empirical findings and what the double-marginalized approach predicts regarding the impact of social status on psychological well-being, maybe incorporating the notion of vulnerable periods into the model will help account for the remaining inconsistencies. Perhaps the interaction between two at-risk social statuses will be dependent-complementary if and only if the vulnerable periods associated with each at-risk status overlap with one another. And just as important, perhaps the period of development when this dependent-complementary interaction takes place will be limited to *when* the vulnerable periods overlap. To put it another way, if the vulnerable periods overlap, then the individual is dealing with the challenges associated with each at-risk status at the same point of development. Thus, the challenges associated with each at-risk status may compound, and the psychological well-being impact of each at-risk status may be amplified in the presence of the other.

What if the vulnerable periods associated with two or more at-risk social statuses do not overlap? Well, then the individual is dealing with the challenges associated with

each at-risk status at different points of development. Perhaps dealing with these challenges at different points of development results in a learning-curve when it comes to dealing with at-risk status? That is if the vulnerable periods associated with each at-risk status are staggered across the lifespan, and one deals successfully with the earlier at-risk status (i.e., psychological well-being consequences are minimal), then perhaps one is more likely to deal with the later at-risk status(es) successfully. Why might one expect a learning-curve when it comes to dealing with at-risk status? While at-risk statuses certainly differ from one another regarding what it is about the individual that poses a threat to psychological well-being (e.g., being over-weight, a sexual-minority, or a female), some of the mechanisms mediating the relationship between those statuses and psychological well-being are similar – namely, increased levels of stress, and in the case of at-risk statuses that are also marginalized status, increased levels of discrimination.

Incorporating distal factors: Recall that there are at least three distinct ways that issues of development must be taken into consideration when examining the impact of social status on psychological well-being. Simply taking into account the notion of vulnerable periods takes care of the first two – namely, that (1) the impact of social status on psychological well-being varies across the life span, and (2) that proximal developmental changes drive the non-parallel growth across the different levels of a given social status. However, there is a third issue of development that must be taken into consideration when examining the impact of social status on psychological well-being – namely, that distal factors may moderate the impact of the proximal developmental changes that themselves drive the non-parallel growth across the levels of

a social status. As such, the potential impact of distal factors should also be accounted for when examining the impact of social status on psychological well-being.

Interestingly, in cases when the vulnerable periods associated with each of one's multiple at-risk statuses are staggered across the lifespan, how one dealt with an at-risk status at an earlier point of development can be thought of as a potential distal factor that moderates how one deals with another at-risk status whose vulnerable period falls at a later point of development. Thus, the whole concept of a learning-curve when it comes to dealing with at-risk status involves prior experience with one at-risk status impacting how one deals presently with another at-risk status. In addition, as outlined earlier, there are numerous other potential distal factors (e.g., the extent to which one has, based on previous developmental experience, already developed strategies for dealing with stress and networks of social support) that may in turn moderate how the proximal developmental changes, which themselves are the driving force behind the non-parallel growth that characterizes a vulnerable period, impact psychological well-being. Given the potential array of meaningful distal factors, where possible distal factors should be taken into account when examining the impact of social status on psychological well-being.

Summary

By switching the focus to at-risk social statuses, incorporating the notion of vulnerable periods, and recognizing the potential impact of distal factors, the developmental model's (here after referred to as the Social Status/Vulnerable Period (SS/VP) model – Table 1.1) predictions appear to align with empirical findings concerning the intersection of social status. First, concerning a single social status, a

vulnerable period is the product of both (1) proximal developmental changes interacting with a given social status to differentially impact levels of psychological well-being across the levels of that social status, and (2) distal factors which may themselves moderate the impact of those proximal developmental changes on psychological well-being. Second, concerning the interaction of two or more social statuses, the SS/VP model also suggests when over the course of development this interaction will actually take place. More specifically, if the vulnerable periods overlap, the SS/VP model predicts that the interaction between two at-risk statuses will be dependent-complementary, and the period of development when this dependent-complementary interaction takes place will be limited to *when* the vulnerable periods overlap. If the vulnerable periods do not overlap, then the SS/VP model predicts that the interaction between two at-risk statuses will be dependent-compensatory. And this relationship is thought to be, at least in part, due to the similarity in tasks across different at-risk statuses (both marginalized and non-marginalized), such that how one copes with an earlier at-risk status may carry-over to how one deals with a later at-risk status.

THE INTERSECTION OF SOCIAL STATUSES: LAYERED INTERACTIONS

Based on this SS/VP model, the manner in which at-risk social statuses interact to impact psychological well-being is characterized by a series of interactions (Figure 1.1). When determining how two or more at-risk social statuses intersect to impact psychological well-being, a series of steps is involved. *Step 1:* determine the vulnerable period associated with each social status. In order to determine the vulnerable period associated with a given social status, two types of interactions should be examined. First,

how proximal developmental changes – changes that can occur within the individual (e.g., biological and cognitive level) or outside of the individual (e.g., contextual level) - differentially impact the strata of a given social status (interaction 1; Figure 1.1) must be examined. Second, how distal factors moderate the impact of those proximal developmental changes must also be examined (interaction 2; Figure 1.1). *Step 2:* After the vulnerable periods for the two or more social statuses of focus have been properly assessed, determine if the vulnerable periods overlap with one another. If they do, then the interaction should be dependent-complementary in fashion (interaction 3; Figure 1.1). If the vulnerable periods do not overlap, then the relationship should be dependent-compensatory in fashion due to the previous experience with an at-risk status, itself a distal factor, facilitating how one deals later on in development with the second at-risk status (interaction 2; Figure 1.1). *Step 3:* The *moderating the moderator* approach did prove empirically fruitful. As such, its findings cannot be ignored, but instead must be incorporated into the SS/VP model. However, when incorporated, the application of the moderating the moderator approach should be based on theory and specific hypotheses regarding potential moderating the moderator interactions should be formed and then tested. Step 3 then is to determine if the vulnerable period for a given social status identified in Step 1 might be moderated by a one or more characteristics associated with second social status (i.e., *moderating the moderator*) (interaction 4; Figure 1.1).

TESTING THE SS/VP MODEL: THREE PROPOSED STUDIES

Study 1: Racial status and changes in depressive affect after the end of high school

The first study focuses on race status and levels of depressive affect, and examines whether or not the contextual changes that follow the end of high school differentially impact African American and European American individuals. In addition, a set of potentially meaningful distal factors are identified, and the impact of those distal factors on subsequent growth in depressive affect are examined. In essence, one goal of the first study is to verify that a vulnerable period can be driven by contextual changes by more specifically verifying that the contextual changes that follow the end of high school (i.e., moving out on one's own as well as transitioning from the high school setting into either the college or work settings) lead to a period of non-parallel growth in depressive affect across race. Another goal of the first study is to demonstrate that distal factors moderate the impact of those contextual changes that follow the end of high school on the growth in depressive affect after the end of high school.

Study 2: Race and sex status and changes in psychological well-being between mid-adolescence and early adulthood.

The second study focuses on the intersection of race and sex status and its impact on psychological well-being across early adolescence and early adulthood, and in doing so (1) assesses whether or not the vulnerable periods overlapping (or not overlapping) is predictive of the interaction between race and sex, and (2), compares the predictive utility of the SS/VP model and the moderating the moderator approach. Predictions regarding whether or not the vulnerable periods of race and sex overlap are themselves based on extensive reviews of available literature. In an attempt to establish the advantages of the SS/VP model over the moderating the moderator approach, whether or not the association between changes in sex identity and body mass index (both moderating the moderator

mechanisms concerning the interaction of race and sex status) and changes in psychological well-being varied depending upon whether or not the vulnerable periods for race and sex overlap is assessed (i.e., test whether the moderating the moderator relationships only prove predictive or prove more predictive when the vulnerable periods overlap).

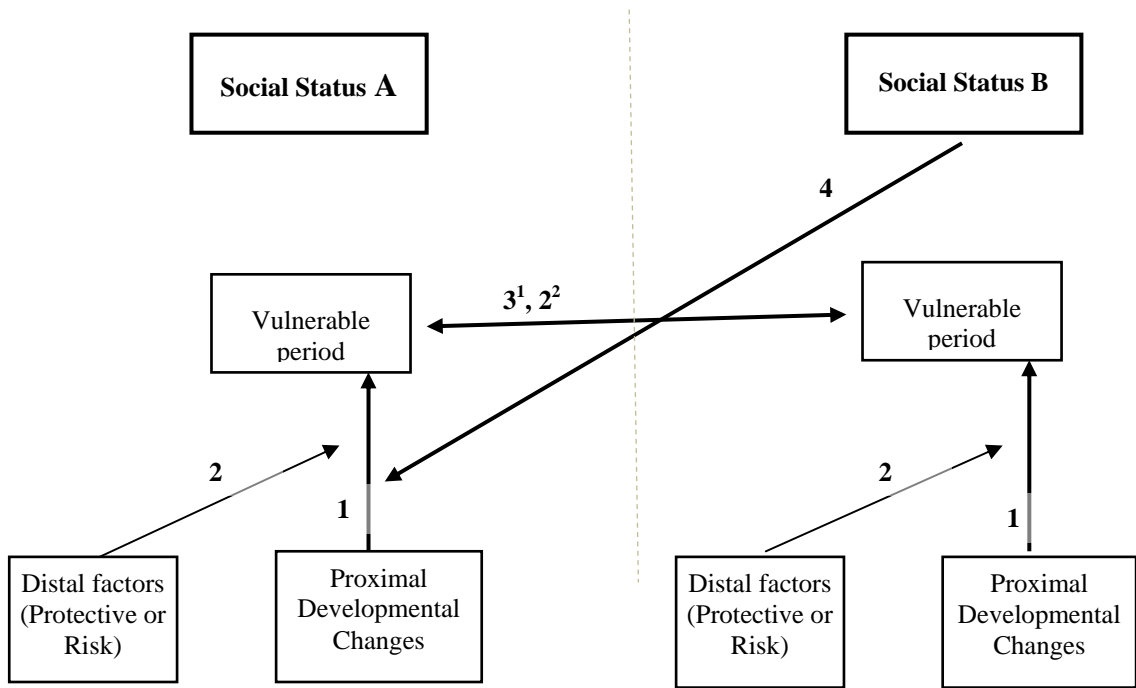
Study 3: The intersection of social status – is there a learning curve?

The third study examines whether or not there is a learning-curve to dealing with at-risk status by testing whether or not dealing effectively (i.e., minimal psychological well-being consequences) with an at-risk status whose vulnerable period falls at an earlier point of development facilitates how one deals with an at-risk status whose vulnerable period falls at a later point of development. Specifically, whether or not how one dealt with female status (a social status at-risk for increases in depressive affect during adolescence) facilitates how one deals with African American status (a social status at risk for increases in depressive affect after the end of high school) is examined. In addition, before examining the above, the differential impact across sex of important moderating distal and proximal factors is itself examined and subsequently controlled for when examining the above.

Table 1.1
Summary of approaches to disentangling the relationship between the intersection of multiple social statuses and its impact on psychological well-being

Name of approach	Brief definition	Key Weaknesses
Double-marginalized approach	In the cross-section, focuses on marginalized status and posits that the interaction between two or more marginalized statuses will be dependent-complementary in fashion.	(1) Often not supported empirically (2) Makes unwarranted assumption that the impact of social status on psychological well-being does not vary across development
Moderating the moderator approach	A post-hoc approach that, once the interaction between two or more social statuses is <i>already</i> empirically verified, attempts to disentangle the mechanisms driving that interaction by disentangling (1) the mechanisms underlying the effect of one social status on mental health, and (2) how a second social status moderates the impact of those mechanisms.	(1) Atheoretical - more of a blueprint one might follow to empirically disentangle the relationship between two or more social statuses opposed to a theoretical approach one might utilize to predict the nature of the relationship itself. (2) Makes unwarranted assumption that the impact of social status on psychological well-being does not vary across development
Social status/vulnerable period model	Posits that for each social status there is a period of non-parallel growth across the levels of that social status (i.e., a vulnerable period). Moreover, the interaction between two or more social statuses can be determined based on whether or not the vulnerable periods overlap or do not overlap with one another.	

Figure 1.1
SS/VP model - The interaction of multiple social statuses and its impact on psychological well-being



¹If vulnerable periods overlap, then the at-risk social statuses interact in a dependent-complementary fashion

²If vulnerable periods do not overlap, then the at-risk social statuses interact in a dependent-compensatory fashion, and the previous experience with an at-risk status is simply conceptualized as a distal factor that impacts how one deals with the later at-risk status.

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CHAPTER II

Racial Status and Changes in Depressive Affect After the End of High School: The mediating impact of proximal and distal factors

Abstract

The goals of this study are (1) to examine the extent to which African American status is a risk factor for increases in depressive affect during the years immediately following the end of high school – the initial years of early adulthood – and to the extent that African American status is a risk factor (2) to examine those characteristics, both distal and proximal, that mediate the effect. Using data from the Maryland Adolescent Development in Context study (MADICS) – a five-wave longitudinal study consisting of just over 1,600 participants - results suggest that African Americans do show increases in depressive affect relative to European Americans after the end of high school, and the effect is largely mediated by (1) the higher levels of non-college status among African Americans, and (2) the fact that non-college status only lead to increases in depressive affect during the post-high school years among African Americans. Lower levels of family income at Grade 7 also proved to be a significant mediator, with lower levels of family income predicting to higher increases in depressive affect after the end of high school. Finally, higher levels of perceived racial discrimination during high school were related to decreases in depressive affect after the end of high school, suggesting that perceived racial discrimination may serve as a distal protective factor.

Introduction

Developmental researchers are increasingly focusing on the years following the end of high school, since this is the period when individuals transform from youth still relatively dependent upon others and unsure of their path in life to self-sufficient young adults exerting their independence and following their own pursuits. This period of development, typically thought to occur between the ages of 18 and 25 (Arnett, 2000), is commonly referred to as *early adulthood*, *young adulthood*, *transition into adulthood*, and *emerging adulthood*¹. Due, at least in part, to the major contextual transitions (e.g., moving away from parents and transitioning into the college or work settings), this period of development is marked by a substantial amount of instability (Arnett, 2006; Tanner 2006; Schulenberg & Zarrett, 2006), and the developmental pathways across this period are marked by a tremendous amount of inter-individual variability (Arnett, 2000; Tanner, 2006). Moreover, this inter-individual variability generalizes to the developmental pathways of psychological well-being² as well (Schulenberg & Zarrett, 2006).

Concerning levels of psychological well-being during this period of development, it is important to determine what factors contribute to the inter-individual variability, so that those at risk for poor adjustment during this period of development, and also therefore at risk for failing to transition into self-sufficient adults, can be identified. The goal of this

¹ Though the term emerging adulthood is widely used, it is also a loaded term that denotes not just a span of years, such as the years between 18 and 25, but also implies numerous theoretical assumptions (Arnett, 2006). As such, the more straightforward term “early adulthood” is utilized for the purposes of this study.

² Psychological well-being has been conceptualized in various ways. While Bradburn’s (1969) conceptualization of psychological well-being is limited to positive and negative mental affect, more recent work by Ryff and colleagues (Ryff, & Keys, 1995; Ryff, Keys, & Hughes, 2003) conceptualizes psychological well-being more broadly and focuses on various dimensions of overall “life satisfaction” – of which mental affect is just one dimension. While this broader conceptualization of psychological well-being is certainly useful, the substantive interest of this dissertation is limited to mental affect, and therefore, Bradburn’s (1969) more limited conception of psychological well-being, which focuses solely on mental affect, is used.

paper is to examine the extent to which African American status is a risk factor for increases in depressive affect during the years immediately following the end of high school, and - to the extent that African American status is a risk factor - what factors contribute to that effect.

Early adulthood, depressive affect: Explaining the inter-individual variation

Though there is a sizable amount of inter-individual variability, on average, psychological well-being tends to increase and depressive affect tends to decrease during early adulthood (Galambos, Barker, & Krahn, 2006; Schulenberg & Zarrett, 2006). However, at the same time, rates of psychopathology also increase (Cicchetti & Rogosch, 2002; Trull, 2001). This pattern highlights the inter-individual variability in developmental pathways of psychological well-being and suggests for most individuals that early adulthood is marked by positive adjustment and decreases in depressive affect, but for a smaller few it is marked by increases in on-going psychological disorders or even the initiation of psychological disorders. To date, the factors that contribute to the inter-individual variability in levels of depressive affect during early adulthood remain, for the most part, poorly understood. Researchers are beginning to examine the factors that put individuals at risk for poor adjustment during early adulthood. To date, this research has primarily focused on potential risk factors that co-occur with early adulthood, and based on this approach several risk factors have been identified.

One risk factor is non-college status (i.e., foregoing college and transitioning directly into work), as it is related to lower levels of depressive affect (Dawson, Grant, Stinson, & Chou, 2005; Galambos, Barker, & Krahn, 2006). For individuals who forego college and transition directly into work, finding full-time employment can be a

challenge, and many suffer through long periods of unemployment or at best underemployment (i.e., only part-time employment is available) (Fergusson, Horwood, & Lynskey, 1997; Klerman & Karoly, 1994; William T. Grant Foundation, 1998), and young adults' experiences of unemployment and underemployment are related to increased levels of depressive affect (Dooley, Prause, & Ham-Rowbottom, 2000; Hartnagel & Krahn, 1995). Finally, even if employment is found the job is likely to be of low quality and garnish meager earnings (William T. Grant Foundation, 1998).

A second risk factor is residential status (i.e., living with parents versus not living with parents). Continuing to live with one's parents after the end of high school appears to be associated with higher levels of depressive affect (Galambos, Barker & Krahn, 2006; Valliant & Scanlon, 1996) as well as lower levels of psychological well-being in general (Galambos, Barker, & Krahn, 2006). One reason for this effect may be that the dynamics of the home context are not flexible enough to allow for the changing levels of autonomy and independence the child demands, which results in the "fit" (Eccles, Lord, & Roeser, 1996) of the home context not matching the developmental needs of the now young-adult child. This lack of fit may lead to increases in parent-child conflict (Aseltine & Gore, 1993; Flanagan, Schulenberg, & Fuligni, 1993), which in turn may lead to increases in depressive affect (Galambos, Barker, & Krahn, 2006). A second reason for this effect is that those youth living with their parents after the end of high school often are not doing so by choice, but instead external circumstances, which themselves are related to higher levels of depressive affect, such as lack of employment or lack of necessary funds, force these youth to continue living with their parents (William T. Grant Foundation, 1998).

Focusing on both proximal and distal influences: While research focusing on risk factors that occur during early adulthood (i.e., proximal risk factors) has certainly proven fruitful, its ability to explain certain forms of inter-individual variation is limited. In situations where the impact of early adulthood on psychological well-being still meaningfully differs among a set of individuals who have the same constellation of proximal risk factors, likely differences in distal risk factors, at least in part, help explain the remaining inter-individual variation.

Caspi & Moffitt (c.f., Caspi, 2000; Caspi & Moffitt, 1995; Roberts, Caspi, & Moffitt, 2001) conceptualize development as a cumulative process in which both proximal and distal factors influence current levels of adjustment. Applying this perspective to the impact of developmental transitions, such as those that characterize early adulthood, Schulenberg & Maggs (2002) posit that contextual transitions can lead to a shift in development or “turning-point” (i.e., ontogenetic discontinuity) or contextual transitions can simply magnify on-going individual differences in functioning (i.e., ontogenetic continuity). Another way to conceptualize the distinction between ontogenetic continuity and ontogenetic discontinuity is to focus on whether or not, regarding growth, there is stability in individual differences across the transition. That is, in instances of ontogenetic continuity there is stability in individual differences of growth (the rank order of individual differences is maintained across the transition) though the actual magnitude of individual differences in growth may shift across the transition. However, in instances of ontogenetic discontinuity there is instability in individual differences in growth across the transition (the rank order of individual differences is not maintained across the transition) though, again, the actual magnitude of individual

differences in growth may also shift across the transition. Thus, to the extent that the heterogeneity in trajectories of psychological well-being over the course of early adulthood are a function of individuals reacting differently to the contextual changes inherent in this period of development, that heterogeneity may be (1) a carry-over of individual differences in growth apparent at earlier points of development that are simply magnified over the course of early adulthood (ontogenetic continuity driven by distal influences), (2) a function of individuals with similar levels of psychological well-being at the onset of early adulthood reacting differently to the tasks associated with early adulthood (ontogenetic discontinuity driven by proximal influences), or (3) a combination of the two.

For the sake of conceptual clarity, distal influences are further divided into two separate categories: primary and secondary. Primary distal influences, which appear to be the distal influences that Schulenburg & Maggs (2002) focus on, are conceptualized as individual differences in the construct of focus that are apparent at earlier points of development. Secondary distal influences are conceptualized as individual differences in constructs other than the construct of focus that are apparent at earlier points in development. For example, for the purposes of this manuscript, depressive affect during early adulthood is the key focus. As such, primary distal factors are individual differences in depressive affect at earlier points of development, and secondary distal factors are individual differences in other constructs at earlier points of development. Distinguishing between these two types of distal influences is important because potentially they both may uniquely contribute to individual differences during early adulthood. That is, concerning depressive affect, there is likely to be some stability in

individual differences across time (Gutman & Sameroff, 2004), thus it is reasonable to expect that distal differences in depressive affect (e.g., the primary distal factor) are related to individual differences in depressive affect during early adulthood. In addition, because early adulthood is marked by so many transitions and challenges, how well one can manage and cope with all of these transitions likely influences mental health (Schulenberg & Zarrett, 2006). Thus, distal individual differences in constructs that may impact one's ability to cope (e.g., secondary distal factors) may also relate to individual differences in depressive affect during early adulthood.

Perspectives focusing on only proximal influences are limited in that they can only capture relationships characterized by ontogenetic discontinuity driven by proximal factors. However, perspectives focusing on both proximal and distal influences (both primary and secondary) can potentially capture relationships characterized by ontogenetic discontinuity, ontogenetic continuity, or both. As such, by recognizing the potential influence of both proximal and distal effects, likely a more complete account of the risk factors that contribute to poor adjustment during early adulthood, and therefore contribute to the marked heterogeneity in adjustment during this period, can be obtained.

Are African-Americans at-risk for problematic adjustment during early adulthood?

One potential risk factor for poor psychological well-being during early adulthood that has, to date, received little attention is African-American status. For several reasons, it is possible that the decreases in depressive affect seen among the general population may be less pronounced among African Americans, and these reasons can be divided into both proximal and distal risk factors.

Proximal risk factors: Potentially there are several proximal risk factors. First, for individuals of racial-minority status, for which both race-related social support from same-raced individuals as well as social connectivity to same-race individuals are important, Ethier & Deaux (2001) posit that new bases of race-related social support and connectivity need to be established when transitioning into a new context. As this process unfolds, individuals begin to rely less on or detach from the sources of race-related social support and connectivity from the former context (e.g., parents, grandparents, and same-raced peers from high school), and rely more and more on the new sources that they ideally establish in the new context. Ethier and Deaux (2001) term this process *remooing*. To the extent that racial-minority individuals have a difficult time remooing and have trouble establishing new bases of race-related social support and connectivity as they transition into novel contexts during early adulthood, their overall sense of race-related social support and connectivity are likely to decrease, which may result in decreases in psychological well-being (Ethier & Deaux, 2001).

A second potential proximal risk factor for racial-minorities is increases in perceived racial discrimination. That is, although the research is limited, because the transitions associated with early adulthood entail transitioning into contexts dominated (at least numerically) by the racial-majority, for racial-minority individuals, levels of perceived racial discrimination may increase (Branscombe & Ellemers, 1998; van Laar, 2000), and perceived racial discrimination is related to increases in depressive affect (Cassidy, O'Connor, Howe, & Warden, 2004; Phinney, Madden, & Santos, 1998; Verkuyten, 1998).

Finally, in addition to dealing with potential decreases in race-related social support and connectivity and increases in perceived racial discrimination, relative to European-Americans, African-Americans are overrepresented among those who continue to live with their parents after the end of high school (William T. Grant Foundation, 1998). In addition, African Americans are overrepresented among those who forego college and instead attempt to transition directly into work (Dawson, Grant, Stinson, & Chou, 2005; William T. Grand Foundation, 1998) – though the racial differences in college attendance have decreased in recent years, especially among females (William T. Grant Foundation, 1998). The overrepresentation of African Americans among those who continue to live with their parents after the end of high school and those who forego college attendance may put them at risk for poorer adjustment during early adulthood as both, as described above, are proximal risk factors for poorer adjustment during early adulthood.

Distal risk factors: As discussed earlier, depressive affect prior to the end of high school is a primary distal factor. Available research does suggest that prior to the end of high school rates of growth in depressive affect, at the population level anyway, do not differ across European Americans and African Americans (Twenge & Nolen-Hoeksema, 2002) or rates of growth are slightly higher among European Americans (Dornbusch, Mont-Reynaud, Ritter, Chen, & Steinberg, 1991; McLeod & Owens, 2004). However, race differences in the growth of depressive affect prior to the end of high school are of little relevance. Instead, of key interest is whether or not there are racial differences in the extent to which levels of inter-individual variability in depressive affect remain stable between the high school years and the early adult years, which, unfortunately, has yet to

be examined. For the purposes of this study, racial differences in the extent to which distal individual differences in depressive affect contribute to individual differences during early adulthood will be explored, but specific hypotheses are not offered.

One potential secondary distal factor for those of African-American status is that, relative to those of European American status, they are more likely to grow up in families with lower family incomes (Gray-Little & Hafdahl, 2000; Twenge & Nolen-Hoeksema, 2002), which is related to lower levels of psychological well-being (Gray-Little & Hafdahl, 2000; Mechanic, 1972), higher levels of stress (Aneshensel, 1992; Dannefer, 2003), higher levels of family conflict (Conger, Ge, Elder, Lorenz, & Simons, 1994; Wadsworth & Compas, 2002), and lower levels of social support (Geckova, Van Dijk, Stewart, Groothoff, & Post, 2003; O'Rand, 1996). To the extent that African-Americans are overrepresented among those who grow up in low-income families, and to the extent that growing up in low-income families serves as a distal risk factor for poorer adjustment during early adulthood, African-Americans may, at the population level, be at risk for poorer adjustment during early adulthood.

Empirical evidence for racial-minority status as a risk factor: Most age-specific research examining differences in depressive affect among European Americans and African Americans focuses on the adolescent years, and a subset focuses on the college-age years, but few include both the adolescent and college-age years, and therefore, few capture the transition out of high school. Thus, for the most part, available research does not shed light as to whether or not (1) the growth in depressive affect during early adulthood is more problematic for African-Americans than for European Americans, and (2) if that pattern of growth is more problematic for African Americans, whether or not

that pattern of growth is merely a continuation of an earlier pattern of growth present during high school or the initiation of a new pattern of growth after the end of high school. One study that did examine changes in depressive affect as individuals transition out of high school and whether or not those changes differed across racial status was a two-wave longitudinal study conducted by Gore & Aseltine (2003) that included an initial assessment when the respondents were seniors in high school and a two-year follow-up. Though the mean levels of depressive affect did not differ between African-American and European-American respondents at the end of high school, the change in depressive affect between the two time points did differ across the two racial groups, with depressive affect increasing among African Americans and a decreasing among European Americans, though the effect size was modest. Further, using Hierarchical Linear Regression, Gore & Aseltine (2003) included a host of potential mediating variables, such as residential status and college status. Though, residential status was unrelated to change in depressive affect, college/work status was (those not in college and not working had higher levels of depressive affect than those in college or those working), and when these mediator variables were included in the model, the differential change in depressive affect across race was no longer significant.

This pattern of findings is consistent with the notion that the period after the end of high school has a differential impact on the depressive affect of European Americans and African Americans, and suggests that racial differences in non-college status may be a key mediator. However, Gore & Aseltine's (2003) findings should be viewed with a measure of caution for several reasons. First, due to the study's two-wave design, it is not clear if the differential change in depressive affect across the two time points initiated

at the end of high school, or is simply an ongoing phenomenon that initiated prior to the end of high school. Second, while Gore & Aseltine (2003) included residential status and college status as mediators, they did not include them as potential moderators. That is, it may be the case that the impact of college status and residential status on change in depressive affect differs across racial status. Third, Gore & Aseltine (2003) focused on only proximal risk factors, and did not examine the extent to which the racial differences in change in depressive affect are a function of distal risk factors.

Key questions and hypotheses

Hypotheses 1: After the end of high school, trajectories of depressive affect will differ across race such that African Americans will report increases in depressive affect relative to European Americans, and the nature of that difference is not a continuation of an earlier difference present during high school, but instead is the result of the transitions following the end of high school and therefore unique to the period following the end of high school. *Hypothesis 2:* Race differences in family income while growing up (secondary distal factor) will at least partially mediate the differential growth in depressive affect across race during early adulthood. *Hypothesis 3:* The following proximal risk factors will at least partially mediate the differential growth in depressive affect across race during early adulthood: race differences in non-college status, race differences in residential status, race differences in race-related social support, and race differences in perceived racial discrimination. Though no specific hypotheses are offered, the extent to which the following distal factors mediate the differential growth in depressive affect across race during early adulthood will also be explored: levels of depressive affect during high school (primary distal factor), levels of race-related social

support during high school (secondary distal factor), and levels of perceived racial discrimination during high school (secondary distal factor). Finally, whether or not all significant proximal and distal factors fully mediate the differential growth in depressive affect across race during early adulthood will be tested.

Methods

Sample

The data for this study come from the Maryland Adolescent Development in Context Study (MADICS), a multi-wave community-based, longitudinal study of adolescents and their families (principle investigators: Jacquelynne S. Eccles and Arnold J. Sameroff). Participants were recruited via a note from the school to the adolescents' parents. In September, 1991, there were 7,841 7th grade students in the district enrolled in the 23 middle schools of focus. Of these, 5,452 parents/guardians authorized their child's participation in The Comer and Cook school evaluation study (CCSES). The MADICS sample is a purposive sub-sample (based on the parents' willingness to participate and on a stratified sampling procedure designed to get proportional representations of families from each of the 23 middle schools being studied) of those families who authorized their child's participation in the CCSES. The number of adolescents in each middle school participating in MADICS ranged from 30 to 90 depending on volunteer rates and school size; all but 2 of the schools had 40 or more participating adolescents and families. Although the MADICS participants are not a random sample from their cohort, there is evidence that there is very little systematic bias in the MADICS sample. Administrators of the CCSES were able to compare the characteristics of the MADICS Wave 1 sample with the characteristics of the larger CCSES

sample (from which the MADICS participants were drawn). In general, the differences are quite small and usually non-significant despite the large sample size. Primarily, the MADICS sample is slightly wealthier and more likely to be European-American than the CCSES sample.

MADICS participants have been assessed at five time points ranging from early adolescence (7th grade) through late adolescence/young adulthood (3-years post-high school graduation). During the 7th grade, 1,482 adolescents and their families participated. At each subsequent wave of data collection attempts were made to solicit data from all MADICS participants who initially participated at the 7th grade assessment. The majority of adolescents who did not participate in follow-up assessments did not participate because they moved out of the district. For the present investigation, information is reported for data collected at four time points (Wave 2 - Grade 9, Wave 3 - Grade 11, Wave 4 - 1-year post high school, and Wave 5 - 3-years post high school³) from those participants who had complete data for race and reported data for at least two time points for each of the constructs measured at multiple points in time (depressive affect, race-related social support, and perceived racial discrimination) - $N = 948$. For effects of attrition see section below labeled *attrition and missing data strategy*.

Procedure

Both the focal child and his or her primary caregiver were interviewed in their home at Waves 2 and 3 (Grade 9 and Grade 11). These questionnaires included a broad range of items about family dynamics, family and peer relationships, resources, and

³ The Waves used are literally Waves 3, 4, 5, & 6 of MADICS. However, the original Wave 2 of MADICS is unusable, and as such there are only 5 usable Waves of data – the last four of which are used for the purposes of this study. Thus to avoid confusion, the waves used in the present study are referred to here as Waves 2, 3, 4, & 5.

stressors, as well as a broad array of indicators of adolescent development including measures of racial identity. Waves 4 and 5 (1-year post high school and 3-years post high school, respectively) took place 2 and 4 years respectively after Wave 3. For Waves 4 and 5, only the focal children (now adults) were surveyed using a mailed questionnaire. Data collected during these later waves included all measures of development assessed at Waves 2 & 3 as well as measures of work, college, and romantic experiences.

Measures

Depressive affect: The scale for depressive affect is a 7-item scale, and is a truncated version of the Child Depressive Inventory (CDI) (Kovacs, 1992). The CDI items used are: *I am sad, I feel like nothing will ever work out for me, I am worthless all the time, I feel like I hate myself, I feel like crying everyday, things bother me all the time, I feel that I have plenty of friends* (reverse coded). Possible responses range from 1 (once in a while) – 3 (all the time). Data are available for Waves 2, 3, 4, and 5. Cronbach alphas are .78, .81, .78 and .81 respectively.

Family income at Grade 7: Family income was included as an indicator of Socio-economic status (SES). When respondents were in the 7th grade, their parent or legal guardian was asked to indicate their total family income before taxes. The possible response increased in increments of \$5,000, and ranged from 1 (less than \$5,000) to 16 (more than \$75,000).

Non-college status: At waves 4 and 5, respondents were asked the following question, “Are you in college?” Possible responses were: “No”, “Yes, *part-time*”, and “Yes, *full-time*”. For the purposes of this study, individuals who answered “No” or “Yes, *part-time*” were categorized as “working” (non-college status = 1) since both groups do

not represent traditional college status, and those who answered “Yes, full-time” were categorized as “in college” (non-college status = 0). Unless missing, respondents’ college status was based on their response at Wave 4. If data were missing at Wave 4, then college status was based on respondents’ answers at Wave 5 (if available).

Residential status: Whether or not respondents lived with parents after the end of high school was based on a single-measure assessed at Waves 4 and 5: “*During most of last Winter, where did you live?*” Possible responses were: (1) *Parents home or apartment*, (2) *Your own house*, (3) *College fraternity or sorority*, (4) *College dorm/residence hall*, (5) *Other relative’s home*, (6) *An apartment*, (7) *A rented room*, or (8) *other*. Those who answered “1” or “5” were coded as “living with parents” (residential status = 1), and those who answered otherwise were coded as “not living with parents” (residential status = 0). Unless missing, whether or not respondents lived with their parents was based on their response at Wave 4. If data were missing at Wave 4, then whether or not they lived with their parents was based on answers at Wave 5 (if available).

Race-related social support: The scale for race-related social support is based on four measures. The first two - *People of my race are very supportive of each other*, and *I have a close community of friends because of my race* – are on a scale that ranges from 1 (strongly disagree) to 5 (strongly agree). The third and fourth items – *How often do you participate in community activities with people of your racial background?*, and *How often do you celebrate any special days connected to your racial background?* – were also on a 5-point scale, but with responses ranging from 1 (never) to 5 (frequently). Data

are available for Waves 2, 3, 4, and 5. Cronbach alphas are .47, .60, .70, and .70 respectively.

Perceived racial discrimination: The scale for perceived discrimination is based on two items: (1) *How much do you think discrimination because of your race might keep you from getting the job you want?;* (2) *How much do you think discrimination because of your race might keep you from getting the amount of education you want?.* Possible responses range from 1 (not at all) to 5 (a lot). Data are available for Waves 2, 3, 4, and 5. Cronbach alphas are .74, .67, .79, and .78.

Attrition and Missing Data Strategy

Out of the 1,482 total participants, 1,340 had complete data for both race and sex and were either European-American or African-American - thus 142 individuals were not included in the analyses because they were either not of European-American or African-American descent ($n = 129$), or they had missing data for race ($n = 13$). Out of these 1,340, 948 individuals reported data for at least two of the time points that data for depressive affect were collected. Though Multiple Imputation (Rubin, 1987) is used to account for missing data (described in next section) and minimize bias due to attrition, for the sake of caution those individuals who reported data for depressive affect at one or fewer time points ($n = 392$) were dropped from the analyses. After all, this study is interested in trajectories of depressive affect, and imputing all but one or even all time points may introduce more bias than it alleviates. Subsequently, only those who reported data for two or more of the four possible time points for depressive affect were included in the analyses ($n = 948$).

Measure of depressive affect and attrition: Compared to the individuals who reported data for depressive affect at one or fewer time points ($n = 392$) those who reported data for depressive affect at two or more time points ($n = 948$) reported lower levels of depressive affect at Wave 3, $t(939) = 2.68, p < .01, R^2 = .007$, but reported equivalent levels of depressive affect at Waves 4, 5, & 6. Also, African Americans, $X^2(1) = 9.13, p < .01$, were overrepresented among those who reported data for depressive affect at 1 or fewer time points ($n = 392$).

Independent variables and attrition: Compared to the individuals who reported data for depressive affect at one or fewer time points ($n = 392$) those who reported data for depressive affect at two or more time points ($n = 948$) reported higher family income at Grade 7, $t(1,295) = 4.73, p < .001, R^2 = .016$, and were more likely to go onto college, $t(884) = 6.92, p < .01, R^2 = .050$. Concerning residential status, levels of race-related social connectivity, and perceived racial discrimination, there were no differences between these two groups.

Missing data strategy: Using the PROC MI procedure available in SAS (SAS Institute Inc., 1999), missing data were imputed using Multiple Imputation (MI) (Rubin, 1987). Compared to other missing data procedures, MI is superior when it comes to minimizing bias due to attrition (Graham, Hofer, & Piccinin, 1994; & Little & Rubin, 1987; Schafer & Olsen, 1998). In the same regard, MI is also far superior to simple case-wise deletion (Little & Rubin, 1987; & Schafer & Olsen, 1998). Moreover, not only are the parameter estimates more trustworthy when using MI (due to its accounting for attrition more effectively), but also standard errors associated with the parameter estimates are not artificially decreased, and as such inferences are trustworthy as well

(Graham, Hofer, & Piccinin, 1994). Only missing data for depressive affect, race-related social support, and perceived racial discrimination were imputed, and again the imputation process was limited to those individuals that reported data for at least two time points on each of the constructs measured at multiple points in time ($n = 948$). Again for the sake of caution, missing data for measures based on a single time point (family income, residential status, and non-college status) were not imputed.

An assumption of the multiple-imputation (MI) procedure is that the data imputed are missing at random (MAR), though it is a loose assumption (Rubin, 1987). By definition, a variable is missing at random if its state of missing has nothing to do with its actual value, but instead is due to the state of some secondary variable(s) (Schafer & Olsen, 1998). In more concrete terms, an individual's missing value for depressive affect is MAR if the state of missing is unrelated to that person's actual level of depressive affect at that very point in time, but instead is related to other variables (e.g., they are sick, working full-time, have low-income, etc.) at earlier points in time, that point in time, or future points in time, or is related to depressive affect at earlier or future points in time. When utilizing MI, the first step is to empirically identify as many variables as possible that are related to the missingness of the variables to be imputed, once identified these variables are included in the imputation process as "auxiliary variables", and their inclusion helps to insure that the imputed data resulting from the MI procedure are unbiased. However, once the data are imputed, the auxiliary variables are dropped, and the imputed data are then analyzed separately from the auxiliary variables. Because the auxiliary variables are not included in the actual analyses, they are not equivalent to control variables.

Using the number of missing time points for depressive affect, race related social support, and perceived racial discrimination as a grouping variable, a series of one-way ANOVA's were conducted to determine what auxiliary variables were significantly related to missingness. The variables related to missingness and included as auxiliary variables covered the following domains: school/academic achievement, relations with peers, relations with parents, family characteristics, neighborhood characteristics, spirituality/religion, puberty/physical health, sexual experiences and dating, and risky behavior. Among the 948 respondents included in the analyses, the mean percent missing across the 52 measures for which missing values were imputed (7 observations for the depressive affect scale at 4 time points, 2 observations for perceived racial discrimination at 4 time points, and 4 observations for race-related social connectivity at 4 time points) was 20.1%. Based on this fraction, 5 data sets were imputed to reach an efficiency level above .95 (Rubin, 1987).

Analytical Strategy

Means and standard errors were calculated using PROC MIANALYZE within SAS (SAS Institute Inc., 1999), which was developed to estimate standard errors of multiply imputed data. The imputation option within M-Plus (Muthen & Muthen, 1998-2006), also developed for multiply imputed data, was used to conduct growth model analyses.

Step 1 – Assessing shifts in the growth of depressive affect, by race: Concerning race and depressive affect, in order to assess if there is differential growth in depressive affect across race, and if the nature of that differential growth after the end of high school is distinct from before the end of high school, piece-wise latent growth curve-modeling

was utilized (Li, Duncan, Duncan, & Hops, 2001). Overall, growth of depressive affect was broken into two growth pieces: *Piece 1* is the piece that best corresponds with the high school years (change between Grade 9 and Grade 11), and *Piece 2* is the piece that best corresponds with the post high school years (change between Grade 11 and 3-years after the end of high school) – see Figure 2.1. In order to assess group differences across race, multiple-group, growth curve analyses were conducted (Duncan, Duncan, Strycker, Li, & Alpert, 1999).

Step 2 – Assessing the influence of distal and proximal factors on growth in depressive affect after the end of high school: The next step in the analyses was to examine the relationship between both distal factors (factors that occur prior to Piece 2 growth) and proximal factors (factors that coincide with Piece 2 growth) and Piece 2 growth in depressive affect. Building off of the model in Figure 2.1, both distal factors and proximal factors that are observed variables measured at a single point in time (e.g., family income, non-college status, and residential status) were included in separate models as exogenous predictors of Piece 2 growth in depressive affect (Figure 2.2). Again, building off of the model in Figure 2.1, both distal and proximal factors that are measured over multiple points in time (e.g., race-related social support and perceived racial discrimination) were each modeled simultaneously (in separate models) with the growth of depressive affect using a piece-wise, parallel process (Muthen & Muthen, 1998-2006), latent growth model (Figure 2.3). The latent growth factors for race-related social support and perceived racial discrimination were modeled as the distal (Intercept and Piece 1 growth) and proximal (Piece 2 growth) factors. In order to examine the association between both proximal and distal latent growth factors (Intercept, Piece 1

growth, and Piece 2 growth) and Piece 2 growth in depressive affect, the associations between Piece 2 growth in depressive affect and the latent growth factors were examined (See dashed correlations in Figure 2.3). Again, in order to assess group differences across race, multiple-group, growth curve analyses were conducted (Duncan, Duncan, Strycker, Li, & Alpert, 1999).

Step 3 – Repeat step 1, but control for significant distal and proximal factors:

Step 1 from above is repeated; however, all significant distal and proximal factors found in Step 2 were added as exogenous controls of Piece 2 growth in depressive affect in order to determine if the race differences in Piece 2 growth originally found in Step 1 were fully mediated by the set of significant distal and proximal factors found in Step 2.

Results

Basic descriptive statistics

The means and standard errors for all of the measures are presented in Table 2.1. Within Table 2.1, the means and standard errors are presented for the whole sample as well as separately for European Americans and African Americans. Imputed means and their standard errors are provided for the measures for which data are imputed (depressive affect, race-related social support, and perceived racial discrimination), for the remaining measures observed means and their standard errors are provided. Since there are 5 imputed data sets, and 2 different racial groups, there are 10 covariance matrices in all. As such the covariance matrices are not presented here, but are available from the author upon request. Additionally, due to space constraints, fit indices are not presented for each model, though in every case the fit ranged from excellent to good - e.g., CFI > .95 and RMSEA < .06 (McDonald & Ringo Ho, 2002).

Depressive affect and early adulthood: Is race a risk factor?

Table 2.2 lists separately for each race the mean estimates for the intercept (hereafter referred to as Grade 9), Piece 1 growth (hereafter referred to as growth during high school), and Piece 2 growth (hereafter referred to as growth after the end of high school). Trajectory plots of the imputed depressive affect means are presented separately for each race within Figure 2.4. For all estimates in Table 2.2 (and all subsequent tables) level of significance pertains to whether or not a given estimate is different from zero. Concerning the estimates for each race, levels of significance were obtained directly from the multi-group analyses within Mplus (Muthen & Muthen, 1998-2006). Concerning the estimates of racial differences, levels of significance were obtained from model comparisons. The procedure is similar to conventional multiple group analyses within SEM where certain parameters are constrained to be equal across groups in a more parsimonious model and then unconstrained across groups in a less parsimonious model. The fit of the models were then compared to one another by conducting standard chi-square difference tests (Kline, 1998).

Focusing on the growth in depressive affect for European Americans, the Grade 9 estimate of depressive affect (1.29) is significantly different from zero, and while the estimates for growth during high school (.04) and growth after the end of high school (-.02) are themselves not significantly different from zero, they are different from one another (.06), $\Delta X^2(1) = 4.37, p < .05$. These results suggest that for European-Americans there is a shift in growth after high school, and this shift is marked by a decrease in the growth of depressive affect. Focusing on the African American estimates, the Grade 9 estimate (1.28) is significantly different from zero as is the estimate for

growth after the end of high school (.03). The estimate for growth during high school (-.02) is not significantly different from zero. As was also the case for European Americans, for African Americans the growth estimates for growth during high school and growth after the end of high school are significantly different from each other (-.05), $\Delta X^2(1) = 6.35, p < .01$. These results suggest that for African-Americans as well there is a shift in growth after high school, and for African-Americans this shift is marked by an increase in the growth of depressive affect. Thus, for both races, there is a shift in growth after the end of high school; however, the nature of that shift varies across race (i.e., growth in depressive affect decreasing for European Americans but increasing for African Americans).

Aside from the differential impact of the transition out of high school on changes in depressive affect, the races also differ regarding the growth in depressive affect during high school and the growth in depressive affect after high school. During high school, relative to African Americans growth in depressive affect is increasing among European Americans (.06), $\Delta X^2(1) = 4.87, p < .05$, but, after the end of high school, relative to African Americans, growth in depressive affect is decreasing among European-Americans (-.05), $\Delta X^2(1) = 13.55, p < .01$.

Thus, relative to both their own growth during high school and the growth of European Americans after the end of high school, African American growth in depressive affect after the end of high school looks problematic. These results suggest that, in regard to depressive affect, African Americans, at the population level anyway, have more initial difficulty navigating through the post-high school transition than do European Americans.

Early adulthood and the shift in depressive affect: Distal influences

In Table 2.3 the estimated mean and variance for each distal factor (all measures prior to the end of high school) are listed separately for each race. Also listed separately by race in the last column of Table 2.3 is the association between each distal factor and growth in depressive affect after the end of high school (Piece 2). Finally, race differences in mean and variance estimates for each distal factor as well as race differences in the association between each distal factor and growth in depressive affect after the end of high school are listed in the lower portion of Table 2.3.

Regarding mean estimates and race differences in those estimates, average *family income at Grade 7* differed across race (1.67), $\Delta X^2(1) = 36.09$, $p < .01$. Specifically, average family income among African Americans (9.77 ~ \$43,500 annually) was lower than it was among European Americans (11.44 ~ \$52,500 annually). Concerning *depressive affect* and Grade 9 levels and growth during high school, the mean estimates for each race and racial differences in mean estimates were discussed in the previous section. Grade 9 levels of *race-related social support* differed across the races (-.36), $\Delta X^2(1) = 49.99$, $p < .01$, as did the growth in race-related social support during high school (-.21), $\Delta X^2(1) = 11.93$, $p < .01$. Specifically, Grade 9 levels of race-related social support were higher among African-Americans (2.85) than among European Americans (2.49), and during high school, race-related social support held steady for African-Americans (.02), but decreased for European Americans (-.18). Finally, Grade 9 levels of perceived discrimination were higher among African Americans (2.01) than among European Americans (1.24), $\Delta X^2(1) = 204.31$, $p < .01$, but there were no racial differences in the growth of perceived discrimination during high school (.04), $\Delta X^2(1) =$

.85, $p = .36$. However, though both estimates were equivalent to one another, only the European American estimate was different from zero (European Americans = .13, African Americans = .09).

Regarding the associations between the distal factors and growth in depressive affect after the end of high school, among African Americans, family income at Grade 7 was negatively related to growth in depressive affect (-.01) indicating that as family income at Grade 7 increases growth in depressive affect after the end of high school decreases. Among European Americans the size of the estimate was similar but was itself non-significant, and did not differ from the estimate for African Americans (-.01), $\Delta X^2(1) = .46$, $p = .50$. Somewhat surprisingly, for both races, depressive affect at Grade 9 and growth in depressive affect during high school were unrelated to growth in depressive affect after the end of high school. Moreover, there were no racial differences concerning the relationship between growth in depressive affect after the end of high school and both depressive affect at Grade 9 (-.01, $\Delta X^2(1) = .32$, $p = .57$), and growth in depressive affect during high school (.00, $\Delta X^2(1) = .16$, $p = .69$). Among African-Americans, Grade 9 levels of race-related social support were negatively related to growth in depressive affect after the end of high school (-.01). Among European Americans the size of the estimate was similar but non-significant (-.01), and the estimates did not differ across race (.00), $\Delta X^2(1) = 1.17$, $p = .30$. The association between growth in race-related social support during high school and growth in depressive affect after the end of high school was non-significant for both races (European Americans = -.01, African Americans = .01), and the estimates did not differ by race (-.02), $\Delta X^2(1) = 2.32$, $p = .13$. Finally, for African Americans higher levels of

perceived discrimination at Grade 9 were related to decreases in growth of depressive affect after the end of high school (-.03). Among European Americans, the size of the estimate was similar but non-significant (-.02), and the estimates did not differ across race (.01), $\Delta X^2(1) = 2.36, p = .13$. The association between growth in perceived racial discrimination during high school and growth in depressive affect after the end of high school was non-significant for both races (European Americans = -.01, African Americans = .01), and the estimates did not differ by race (-.02), $\Delta X^2(1) = 1.36, p = .24$.

Taken together, it appears - for African Americans in particular - that family income at Grade 7, Grade 9 levels of race-related social support, and Grade 9 levels of perceived racial discrimination are all distal factors that influence the growth of depressive affect after the end of high school. Moreover, increases in each are associated with decreases in growth of depressive affect after the end of high school.

Early adulthood and the growth in depressive affect, proximal influences

In Table 2.4 the estimated mean and variance for each proximal factor (all measures that coincide with the years immediately following the end of high school) are listed separately for each race. Also listed separately by race in Table 2.4 is the association between each proximal factor and growth in depressive affect after the end of high school (Piece 2) both with (last column) and without (second to last column) controlling for distal factors that proved meaningful in the previous section (i.e., family income at Grade 7, race-related social support at Grade 9, and perceived racial discrimination at Grade 9). Finally, race differences in mean and variance estimates for each proximal factor as well as race differences in the association between each proximal

factor and growth in depressive affect after the end of high school (Piece 2) are listed in the lower portion of Table 2.4.

Regarding mean estimates and race differences in those estimates, African Americans were more likely to transition directly into work (.48) than were European Americans (.38), $\Delta X^2(1) = 6.05$, $p < .05$. African Americans were also more likely to continue living with their parents after the end of high school (.44) than were European Americans (.31), $\Delta X^2(1) = 11.81$, $p < .01$. Growth in race-related social support after the end of high school also differed across the two races, $\Delta X^2(1) = 6.77$, $p < .05$. For African Americans levels of race-related social support held relatively steady after the end of high school (-.03) while for European Americans levels decreased (-.11). Finally, growth in perceived racial discrimination after the end of high school did not differ across the two races (-.01), $\Delta X^2(1) = 1.78$, $p = .18$, and appeared to hold relatively steady for both races as neither growth estimate proved significant (European Americans = -.04, African Americans = -.03).

Regarding the association between the proximal factors and growth in depressive affect after the end of high school, the impact of transitioning directly into work after the end of high school on growth in depressive affect differed across the two races, $\Delta X^2(1) = 3.96$, $p < .05$. More specifically, for African Americans transitioning directly into work was associated with an increase in growth in depressive affect after the end of high school (.07), but for European Americans there was no relationship (.01). In addition, the differential impact of non-college status on growth in depressive affect after the end of high school remained significant after controlling for meaningful distal factors (-.06), $\Delta X^2(1) = 4.09$, $p < .05$. For both races, residential status was unrelated to growth in

depressive affect after the end of high school, further the impact of continuing to live with parents after the end of high school did not differ across the two races ($.01$), $\Delta X^2(1) = 1.02$, $p = .31$. Similarly, for both races, changes in race-related social support after the end of high school were unrelated to changes in depressive affect after the end of high school, and the impact of proximal changes in race-related social support did not differ across the two races, $\Delta X^2(1) = .76$, $p = .38$. Changes in perceived racial discrimination after the end of high school were positively related to growth in depressive affect after the end of high school, and the effect did not differ across race, $\Delta X^2(1) = 2.04$, $p = .15$ (African Americans = $.01$, European Americans = $.01$). However, after controlling for meaningful distal factors, the relationship between perceived racial discrimination after the end of high school and growth in depressive affect after the end of high school was no longer significant for both races (European Americans = $.01$, African Americans = $.01$).

Taken together, when focusing just on proximal factors, it appears that for both races, increases in perceived racial discrimination after the end of high school is a proximal factor that influences the growth in depressive affect after the end of high school. In addition, for African Americans only, it appears that transitioning directly into work after the end of high school, which they are more likely to do than are European Americans, also is a proximal factor that influences the growth of depressive affect after the end of high school. Moreover, high levels of each are associated with lower growth in depressive affect after the end of high school. However, after controlling for meaningful distal factors, only non-college status remained a meaningful proximal factor, and only for African Americans.

Depressive affect and early adulthood: After controlling for proximal and distal influences is race still a risk factor?

After controlling for all meaningful distal factors (family income at Grade 7, Grade 9 race-related social support, and Grade 9 perceive racial discrimination) and the single meaningful proximal risk factor (non-college status), growth in depressive affect after the end of high school no longer differed across the two races, $\Delta X^2(1) = .33$, $p = .57$. Thus, the differential growth across race in depressive affect after the end of high school (as listed in Table 2.2) appears to be mediated by these proximal and distal factors.

Discussion

Four main conclusions can be drawn from this study: (a) The transition out of high school leads to a shift in the growth of depressive affect for both European Americans and African Americans; (b) the actual shift in growth varies across racial status, with African-Americans shifting to a higher, more problematic, rate of growth and European Americans shifting to a lower, more adaptive, rate of growth; (c) the differential shift in growth across race is largely driven by the higher rates of non-college status among African Americans and the more problematic impact of non-college status on changes in depressive affect among African Americans; and (d) concerning growth of depressive affect after the end of high school, *higher* levels of perceived discrimination prior to the end of high school appear to serve as a distal protective factor.

Early adulthood, depressive affect, and racial status

As expected, African American status was a risk factor for increases in depressive affect during early adulthood. With that said, it is important to note that the size of the

effect was small, which is not at all surprising, but instead is consistent with past research examining racial differences in psychological well-being in general (Gray-Little & Hafdahl, 2000; McLeod & Owens, 2004) and depressive affect in particular (Twenge & Nolen-Hoeksema 2002). In addition, on average, both African Americans and European Americans reported low levels of depressive affect (i.e., ~ 1.30 on a scale of 1.00 to 3.00). Thus, though African Americans reported increases in depressive affect relative to European Americans during the post high school years, African Americans still reported, on average, low, “healthy” levels of depressive affect. Moreover, there is reason to believe that the racial differences in depressive affect found in the current study – namely, the modest, non-parallel growth in depressive affect across race – do not extend later into adulthood. That is, cross-sectional research on adults suggests that African Americans and European Americans report equivalent levels of psychological well-being (Williams, Yu, Jackson, & Anderson, 1997), and that African Americans report lower levels of major depressive and psychological disorders (Breslau, Aguilar-Gaxiola, Kendler, Su, Williams, & Kessler, 2005; Williams, Gonzalez, Neighbors, Nesse, Abelson, Sweetman, & Jackson, 2007). Thus, beyond being modest in effect size, because, when averaging across all adults, African Americans report equivalent or even more adaptive levels of psychological functioning, this period of non-parallel growth in depressive affect during early adulthood is also, perhaps, short lived.

Impact of proximal and distal factors: In addition, the differential growth in depressive affect during early adulthood across European Americans and African Americans was fully mediated by a small set of distal and proximal factors. In large part, the differential growth in depressive affect during years immediately after the end of high

school was driven by (1) the higher levels of non-college status among African Americans, and (2) the fact that non-college status only lead to increases in depressive affect during the post high school years among African Americans. Thus, as expected, the rate of non-college attendance, a proximal factor, among African Americans was higher than among European Americans. However, in addition racial status appears to moderate the impact of non-college status on changes in depressive affect during the years immediately following the end of high school in that the effect only proved meaningful among African-Americans. Why racial status moderates the impact of non-college attendance on changes in depressive affect after the end of high school requires further examination. It may be that relative to the sub-sample of European Americans transitioning directly into work, there are higher rates of unemployment or underemployment among the sub-sample of African Americans transitioning directly into work, or, because African Americans were more likely to come from homes reporting lower family income at Grade 7, the job quality of jobs obtained may be lower among the African-American sub-sample transitioning directly into work. However, this latter possibility seems unlikely since, even after controlling for differences in family income at Grade 7, racial status still continued to moderate the impact of non-college attendance on changes in depressive affect after the end of high school.

Also as expected, lower levels of family income at Grade 7 served as a secondary distal factor in that lower levels of family income were related to larger increases in depressive affect during the post high school years. Though the process(es) by which family income at Grade 7 actually impacts changes in depressive affect after the end of high school requires further examination, likely the relationship is driven by both direct

and indirect effects. First, as a possible direct effect, families with lower incomes while their children are growing-up likely have less financial resources available to support their children as they transition into adulthood. Second, as a possible indirect effect, children growing up in families with lower incomes are more likely to receive lower levels of social support (Greckova, Van Dijk, Stewart, Groothoff, & Post, 2003; O’Rand, 1996) and experience higher levels of family conflict (Conger, Ge, Elder, Lorenz, & Simons, 1994; Wadsworth & Compas, 2002) while growing up. If the lower levels of social support and higher levels of family conflict while growing up extend into early adulthood, then youth from families with lower incomes may receive less emotional support from their family as they navigate through early adulthood.

Also, as expected race-related social support proved related to decreases in depressive affect after the end of high school for African Americans; however, it was not proximal changes in race-related social support that proved meaningful, but instead levels of race-related social support at Grade 9. One possible explanation for the impact of distal levels of race-related social support is that it may foster the development of effective coping strategies, which in turn may help the youth cope with the challenges associated with early adulthood. It is not clear why proximal changes in race-related social support among African Americans failed to impact growth of depressive affect after the end of high school, and this relationship requires further examination.

Surprising, both residential status after the end of high school and individual differences in depressive affect during high school proved unrelated to growth in depressive affect after the end of high school for both racial groups. Concerning residential status, it may be that the amount of missing (~ 30%) leads to biased results,

though as noted earlier, those who did not report data for residential status did not differ on levels of depressive affect from those who did report data on residential status. On the surface, the lack of association between depressive affect prior to the end of high school and changes in depressive affect after the end of high school suggests that individual differences in changes in depressive affect during the post high school years are characterized by ontogenetic discontinuity (i.e., not driven by primary distal factors). While on average this appears to be the case, it may be the case that among those individuals with more problematic levels of depressive affect prior to the end of high school, there is a higher degree of continuity in depressive affect across high school and the post high school years (i.e., earlier differences in depressive affect do serve as a meaningful primary distal factor). However, because this population was, on average, characterized by low, “healthy” levels of depressive affect during high school, the key factors influencing changes in depressive affect among this large population (opposed to the smaller sub-set exhibiting problematic levels of depressive affect) after the end of high school were instead proximal factors and secondary distal factors.

Another surprising result was that, while proximal changes in perceived discrimination proved unrelated to growth in depressive affect after the end of high school after controlling for meaningful distal factors, perceived discrimination at Grade 9 was related to growth in depressive affect after the end of high school, and perhaps just as surprising, it was negatively related. That is, higher levels of perceived racial discrimination at Grade 9 were related to less of an increase in depressive affect after the end of high school. This result is somewhat surprising since levels of perceived racial discrimination are associated with *increases* in concurrent levels of depressive affect

(Cassidy, O'Connor, Howe, & Warden, 2004; Phinney, Madden, & Santos, 1998; Verkuyten, 1998). Thus, while levels of perceived racial discrimination are a risk factor for concurrent levels of depressive affect, levels of perceived racial discrimination during high school appear to be a protective factor for levels of depressive affect during the years immediately following the end of high school. Two possible explanations for this effect are that individuals who experience higher levels of racial discrimination during high school are (1) better equipped to deal with discrimination during the years immediately after the end of high school and/or (2) are less surprised by experiences of discrimination during the years after the end of high school. In support of the latter explanation, the scale for perceived racial discrimination used in this study taps more directly into expectations for perceived discrimination than actual experiences of perceived discrimination (though the two are likely related). As such, the latter explanation from above may be even more likely (i.e., that individuals who report higher expectations for racial discriminations during high school are less surprised by experiences of discrimination after the end of high school).

Potential issues of generalizability

The sample utilized in this study represents a rather unique population – namely, a large, middle-class County on the East-coast that is a majority African American. Thus, the extent to which the current findings generalize to the general, U.S. population is not clear. The fact that the population from which the current sample was taken does not vary as much in SES as the national population is not necessarily problematic, since for most studies examining racial differences, SES is a potential confounding factor that is statistically controlled for. However, the fact that there are serious differences in

demographics between the population from which the current sample was taken and the national population (i.e., within the sample population African Americans are the clear numerical majority, while within the national population African Americans are the clear numerical minority) does potentially impact the extent to which the current study's findings generalize to the national population. That is, the fact that African Americans from this study's sample are generally the majority group at school, at neighborhood play grounds, at the grocery store, or at any other activity that takes place or any other context within the county that they live may make their experience of being "African American" different from those whose proximal communities are more typical of the general population and as such are comprised of mostly European Americans.

More specifically, it may be that the transition into college and work settings may be more problematic for African Americans included in this study than it is for African Americans among the general U.S. population. That is, for African-Americans included in this study, the transition into college or work likely entails a more dramatic shift in racial composition (i.e., transition from the home county where African Americans are the numerical majority to work or college settings where likely European Americans are the numerical majority) relative to African Americans in the general U.S. population, where the disparity in racial composition across transitions may not be as dramatic, and therefore not as challenging.

Social status, vulnerable periods, and contextual transitions

Racial status is an example of a social status, which can be thought of as any aspect or trait one has whose meaning is largely derived from the societal context within which one operates. Other examples of social status are sex, sexual orientation, and

social class. A significant amount of research has been devoted to examining the impact over time of social status on levels of depressive affect and psychological well-being in general. Not surprisingly, this line of research suggests that the impact of social status on levels of depressive affect is variable across time and more specifically manifests at particular periods of development (Angold & Rutter, 1992; Galambos, Leadbetter, & Barker, 2004; Kessler, 2003; Kling, Hyde, Showers, & Buswell, 1999; Simmons & Blythe, 1987). The period during which disparities emerge can be thought of as a *vulnerable period* that is characterized by non-parallel growth across the levels of a given social status and, therefore, is a period during which disparities in depressive affect across the different levels of a given social status actually emerge. Additionally, this timing of this vulnerable period is not random, but instead coincides with other age-related developmental changes.

The differential growth across race in depressive affect after the end of high school may be an example of a vulnerable period. That is, it is a period of non-parallel growth across the levels of a race (a social status) when disparities in depressive affect emerge. Further, there are clear age-related developmental changes that coincide with the period of non-parallel growth that appear to be responsible for the non-parallel growth – namely, age-related developmental changes at the contextual level (moving out of parents' home and transitioning into the work or college settings). Future research attempting to disentangle the relationship between social status and psychological well-being would be wise to take into account that there are vulnerable periods associated with social status such that the impact of social status on psychological well-being is variable across the life span.

Limitations

The current study's biggest weakness is the fact that the growth piece that best corresponded to the years after the end of high school included a portion of high school – namely 12th grade. That is, the piece that best corresponded to the years after the end of high school and included the end of high school was the growth piece between Wave 3 (the end of 11th grade) and Wave 5 (3-years after the end of high school). The fact that 12th grade is included in the growth piece that corresponds to the years after the end of high school is potentially problematic since it is not fully clear if the “shift” found in the growth in depressive affect actually initiated at the end of high school or initiated at some point during the 12th grade. With that said, though the transitions associated with the end of high school do not actually take place by the 12th grade, some of the stress associated with those transitions certainly begins during the 12th grade, and as such, its inclusion in the period of development when the transitions associated with the end of high school are thought to impact levels of psychological well-being is not entirely problematic. That is, during the 12th grade individuals are wrestling with decisions concerning college and work, taking standardized tests, filling out college applications, and so forth. All of these stressors – each of which is associated with the transitions after the end of high school even though they are occurring prior to those transitions - may impact psychological well-being and, therefore, if one is interested in isolating the impact of these transitions on well-being, then perhaps the starting point should not be when the transitions take place (the end of high school) but when individuals first begin to face the reality of these transitions (12th grade).

In addition, the differential rate of attrition across racial status is also a potential weakness. More specifically, African Americans were over represented among those who reported data for depressive affect at one or fewer time points, which was the cut-off point for whether or not a respondent was included in the analyses. In addition, those who reported data for depressive affect at fewer time points were more likely to report higher levels of depressive affect. Thus, since African Americans were overrepresented among those who reported data for depressive affect at fewer time points, and those who reported data at fewer time points were more likely to report higher levels of depressive affect, likely African Americans with higher rates of depressive affect were more likely to drop out of the study than were European Americans with higher rates of depressive affect.

Finally, there were potentially significant short comings with a couple of the scales used. The measure for perceived racial discrimination taps more directly into expectations for racial discrimination opposed to actual instances of perceived racial discrimination (as noted earlier). Concerning growth in depressive affect, it is possible that the impact of changes in actual perceived discrimination and changes in expectations for perceived discrimination differ from one another. Further, the scale for race-related social support is not an established scale, and the internal reliability was low at Grade 9 (though the internal reliability was adequate at later time points)

Final conclusions and next steps

Again, four main conclusions can be drawn from this study: (a) The transition out of high school leads to a shift in the growth of depressive affect for both European Americans and African Americans; (b) the actual shift in growth varies across racial

status, with African-Americans shifting to a higher, more problematic, rate of growth and European Americans shifting to a lower, more adaptive, rate of growth; (c) the differential shift in growth across race is largely driven by the higher rates of non-college status among African Americans and the more problematic impact of non-college status on changes in depressive affect among African Americans; and (d) concerning growth of depressive affect after the end of high school, *higher* levels of perceived discrimination prior to the end of high school appear to serve as a distal protective factor.

First and foremost, future research should focus on replicating these findings in other data – ideally using national data sets. Second, though the data in the present investigation end at 3-years post high school (or about age 21), it may be that the differential growth in depressive affect across race continues past the age of 21. Therefore, future research should also examine (1) if the differential growth in depressive affect across race status continues past the age of 21, and (2) if it does continue past the age of 21, when exactly the differential growth ends. Third, future research should also examine whether or not the differential growth in depressive affect across race after the end of high school applies equally across sex

Table 2.1
Overall means: Provided for whole sample and each race

	Available n	Wave of Study			
		Grade 9	Grade 11	1-year post HS	3-year post HS
Whole Sample					
Depressive affect ¹	948	1.28 (.012)	1.28 (.012)	1.31 (.013)	1.31 (.013)
Family income (SES)	938	10.4 (.134)	NA	NA	NA
Non-college status	776	NA	NA	.457 (.018)	NA
Residential status	678	NA	NA	.399 (.019)	NA
Race-related social support ¹	948	2.69 (.034)	2.67 (.027)	2.58 (.035)	2.60 (.046)
Perceived racial discrimination ¹	948	1.74 (.033)	1.80 (.028)	1.85 (.032)	1.74 (.030)
European Americans					
Depressive affect ¹	345	1.29 (.019)	1.33 (.020)	1.32 (.022)	1.30 (.021)
Family income (SES)	341	11.4 (.196)	NA	NA	NA
Non-college status	306	NA	NA	.377 (.028)	NA
Residential status	281	NA	NA	.315 (.028)	NA
Race-related social support ¹	345	2.44 (.063)	2.35 (.047)	2.12 (.050)	2.10 (.049)
Perceived racial discrimination ¹	345	1.25 (.035)	1.36 (.034)	1.31 (.040)	1.25 (.039)
African Americans					
Depressive affect ¹	603	1.28 (.015)	1.26 (.014)	1.30 (.017)	1.32 (.016)
Family income (SES)	597	9.79 (.174)	NA	NA	NA
Non-college status	470	NA	NA	.493 (.023)	NA
Residential status	397	NA	NA	.452 (.025)	NA
Race-related social support ¹	603	2.84 (.031)	2.89 (.039)	2.84 (.042)	2.88 (.055)
Perceived racial discrimination ¹	603	2.03 (.402)	2.05 (.036)	2.16 (.044)	2.03 (.039)

Note: Standard errors in parentheses

¹Imputed means and standard errors of imputed means are provided

Table 2.2

Growth in depressive affect by race and growth piece

	Depressive affect growth factors			Difference between B and C
	Intercept(A)	Piece 1(B)	Piece 2(C)	
Estimates				
European Americans	1.29**	.04	-.02	.06*
African Americans	1.28**	-.02	.03*	-.05*
Difference between races	.01	.06*	-.05**	

* p-value < .05

** p-value < .01

Table 2.3

Estimates of distal risk factors and their relationship with change in depressive affect, by race

	Mean estimates		Depressive affect Piece 2
	Mean	Variance	
European Americans			
Family income	11.44**	13.07**	.00
Depressive Affect - Intercept	1.29**	.05**	-.01
Depressive Affect - Piece 1	.04	.05**	-.01
Race-related social support - Intercept	2.49**	.15**	-.01
Race-related social support - Piece 1	-.18**	.17*	-.01
Perceived racial discrimination - Intercept	1.24**	.08**	-.02
Perceived racial discrimination - Piece 1	.13**	.02	-.01
African Americans			
Family income	9.77**	18.16**	-.01*
Depressive Affect - Intercept	1.28**	.04**	.00
Depressive Affect - Piece 1	-.02	.03*	-.01
Race-related social support - Intercept	2.85**	.17**	-.01*
Race-related social support - Piece 1	.02	.15**	.01
Perceived racial discrimination - Intercept	-.01	.20**	-.03**
Perceived racial discrimination - Piece 1	.09	.06	.01
Differences across racial status			
Family income	1.67**	-5.09**	-.01
Depressive Affect - Intercept	.01	.01	-.01
Depressive Affect - Piece 1	.06*	.02	.00
Race-related social support - Intercept	-.36**	-.01	.01
Race-related social support - Piece 1	-.21**	.02	-.02
Perceived racial discrimination - Intercept	-.77**	-.12**	.01
Perceived racial discrimination - Piece 1	.04	-.04	-.02

Note: All estimates unstandardized

* p-value < .05

** p-value < .01

Table 2.4

After controlling for meaningful distal factors¹, estimates of proximal risk factors and their relationship with change in depressive affect after the end of high school, by race

	Mean Estimates		Depressive Affect Piece 2	
	Mean	Variance	WO/distal controls	W/distal controls
European Americans				
Non-college status	.38**	.24**	.01	-.01
Residential status	.31**	.22**	.04	.03
Race-related social support - Piece 2	-.11**	.05	.00	.00
Perceived racial discrimination - Piece 2	-.04	.02	.01**	.01
African Americans				
Non-college status	.48**	.25**	.07**	.05*
Residential status	.44**	.25**	.03	.03
Race-related social support - Piece 2	-.03	.08	-.01	.00
Perceived racial discrimination - Piece 2	-.03	.07	.01**	.01
Differences across racial status				
Non-college status	-.09*	-.01	-.06*	-.06*
Residential status	-.13**	-.03	.01	.00
Race-related social support - Piece 2	-.07*	-.04	.01	.00
Perceived racial discrimination - Piece 2	-.01	-.06	.00	.00

Note: All estimates unstandardized

¹Grade 9 measures of family income, perceived racial discrimination, and race-related social support are all controlled for

* p-value < .05

** p-value < .01

Figure 2.1
Depressive affect piece-wise growth curve model

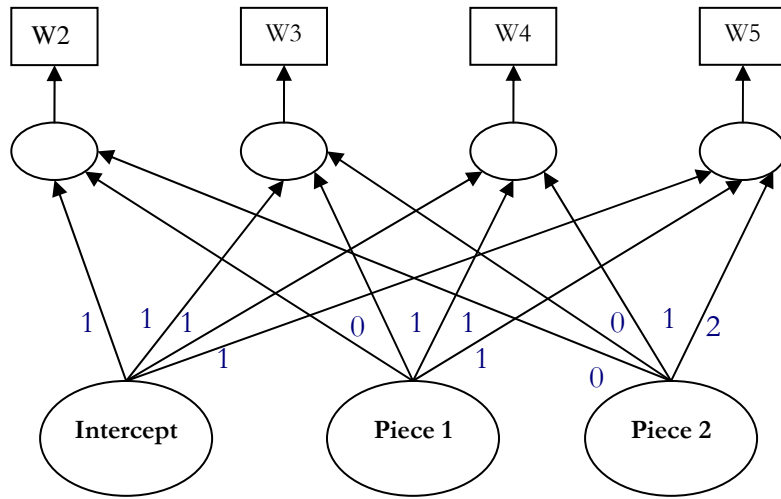


Figure 2.2
Depressive affect piece-wise growth curve model with exogenous predictor

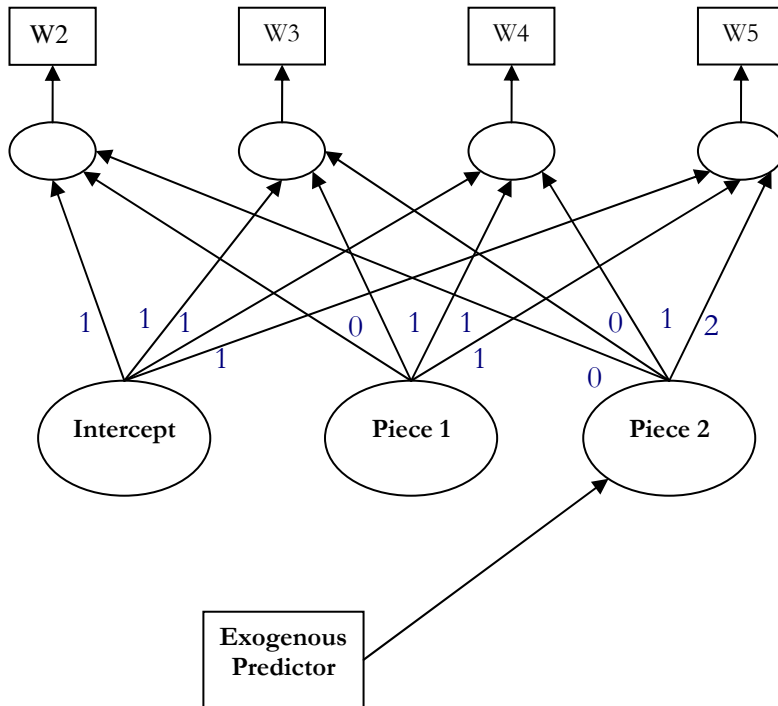
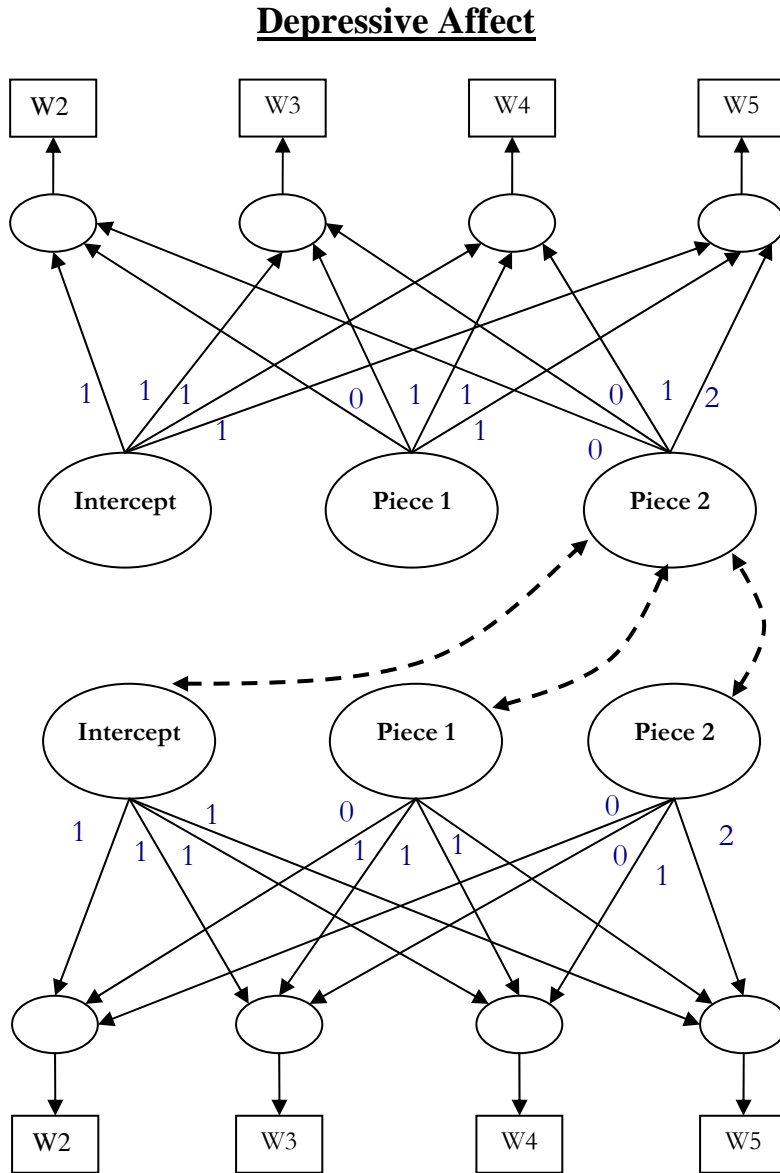
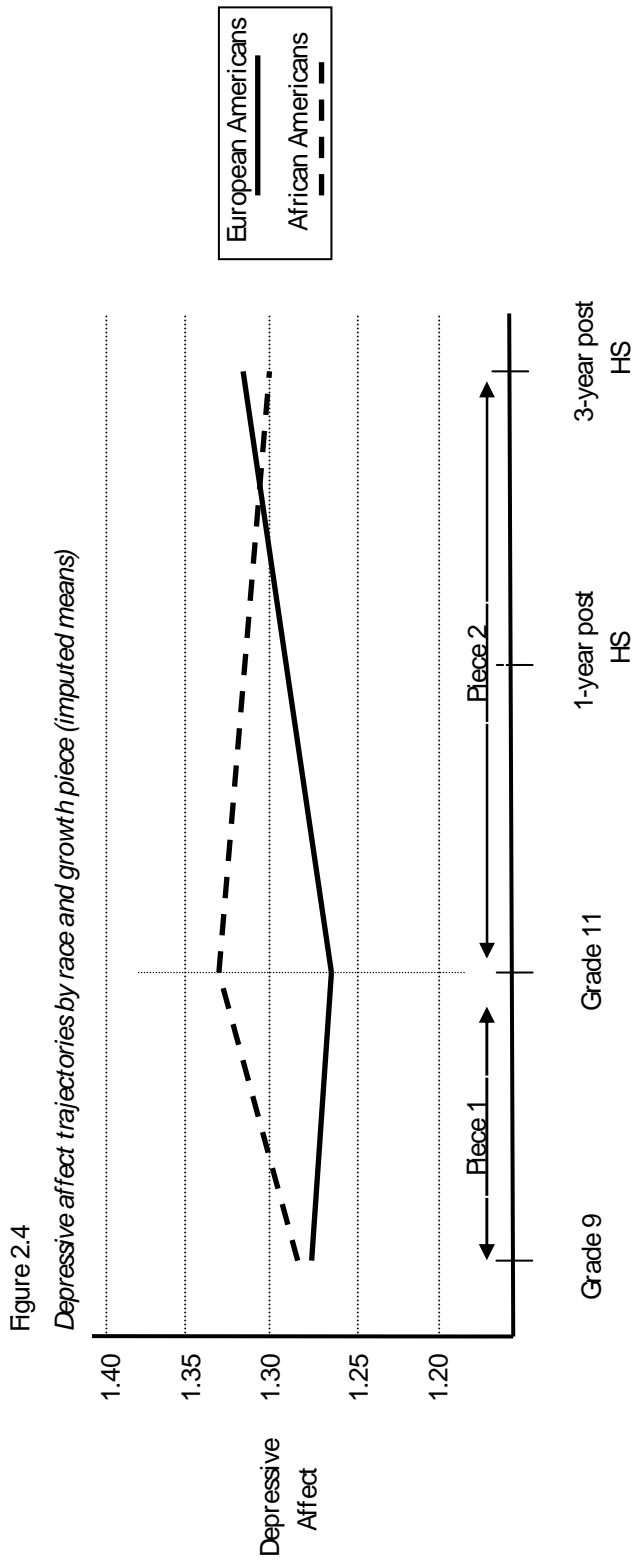


Figure 2.3
Parallel process model piece-wise growth curve model – Depressive affect and another growth function modeled simultaneously¹



**Race-related social support -or-
 Perceived racial discrimination**

¹Intercorrelations between all 6 latent growth factors are included in the model, but the for sake of presentation, only the three key intercorrelations of interest are shown.



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Chapter III

A Developmental Approach to the Intersection of Social Status and its Impact on Psychological Well-Being: Race and sex status and changes in depressive affect and self-esteem between mid-adolescence and early adulthood

Abstract

The purpose of the present study was to explicate the relation between race and sex status and its impact on the growth of psychological well-being across adolescence and young adulthood. Concerning the interaction of race and sex status and its impact on psychological well-being, the collective impact of two “at-risk” statuses was expected to compound if and only if those two at-risk statuses impacted growth in psychological well-being at the same point of development. Using data from the Maryland Adolescent Development in Context study (MADICS) – a five-wave longitudinal study consisting of just over 1,600 participants - it appears that (1) the impact of race and sex status on levels of depressive affect and self-esteem do compound such that European American females report especially low level of psychological well-being relative to the other race by sex groups. Moreover, it appears that the effect is in place by mid-adolescence. In addition, whether or not the extent to which the impact of certain mechanisms thought to contribute to the vulnerability of European American females varies across development was also explored.

Introduction

Due to the pervasive influence of social status, a tremendous amount of research has been devoted to examining the relationship between social status and psychological well-being¹. Currently, when it comes to examining the intersection of the social statuses of race and sex and its impact on psychological well-being, there are competing approaches. Regardless of the approach taken, the impact of race and sex on psychological well-being is not fully explained. One approach posits that the relationship should be a negative one, with more marginalized statuses (e.g., African-American and female status) resulting in lower levels of psychological well-being (Beale, 1970; Dowd & Bangston, 1978; DuBois, Burk-Braxton, Swenson, Tevendale, & Hardesty, 2002; McLeod & Owens, 2004), while a second approach, given the fact that African-Americans often report higher psychological well-being than European Americans, focuses on the resiliency of African-Americans. One problem with the first approach is that it not supported empirically. Compared to their single-marginalized status counterparts (e.g., African-American males, or European-American females), African-American females have just as good, if not better, self-esteem and similar, if not lower, levels of depressive symptomatology (Dubois et al., 2002; Kling, Hyde, Showers, & Buswell, 1999; McLeod & Owens, 2004). One problem with the second approach is that resiliency alone cannot explain why the psychological well-being of African-Americans

¹ Psychological well-being has been conceptualized in various ways. While Bradburn's (1969) conceptualization of psychological well-being is limited to positive and negative mental affect, more recent work by Ryff and colleagues (Ryff, & Keys, 1995; Ryff, Keys, & Hughes, 2003) conceptualizes psychological well-being more broadly and focuses on various dimensions of overall "life satisfaction" – of which mental affect is just one dimension. While this broader conceptualization of psychological well-being is certainly useful, the substantive interest of this dissertation is limited to mental affect, and therefore, Bradburn's (1969) more limited conception of psychological well-being, which focuses solely on mental affect, is used.

is *better* than European Americans. As such, currently, there is no theoretical approach that completely accounts for how race and sex intersect to impact psychological well-being.

The interplay of race and sex status and its impact on psychological well-being likely reflect a very complicated process. A process that, likely, is better understood from a developmental perspective that (1) focuses on “at-risk” status opposed to just marginalized status, and (2) takes into account when and how over the course of development each individual social status impacts the developmental course of psychological well-being. From such a perspective, hopefully the current inconsistencies regarding the intersection of race and sex status will be clarified as well as when over the lifespan the impact of the interaction between race and sex status on levels of psychological well-being actually manifests. Not only will this line of work contribute to the field’s knowledge regarding social status and psychological well-being, but it also has implications for the development of interventions focused on marginalized and at-risk children, youth, and adults, as well as for parents, school administrators, and teachers hoping to help guide at-risk youth through the developmental challenges that they face.

Social status and psychological well-being: Variable impact across the lifespan

If, when examining social status and its impact on psychological well-being, one ignores how the impact of social status on psychological well-being may vary across the life span, then necessarily one implicitly assumes that the size and quality of the impact is constant across the life span. However, there is ample reason to suspect that the impact of social status on levels of psychological well-being does in fact vary across the lifespan. For example, researchers have shown again and again that the well-being disparities

across both sex status (Kling, Hyde, Showers, & Buswell, 1999; McLeod & Owens, 2004) and race status (Gray-Little & Hafdahl, 2000; McLeod & Owens, 2004) emerge during adolescence. Thus, at the population level anyway, the impact of race and sex status on levels of psychological well-being does vary across the lifespan, and specifically the impact appears to be the most pronounced during adolescence. Subsequently, there is reason to believe that the assumption that the impact of social status on psychological well-being does not vary across the life span is invalid, and therefore, it appears that a perspective that takes into account issues of development is required when examining the impact of social status on psychological well-being.

Conceptualizing the impact of age – vulnerable period: Given that the impact of social status on levels of psychological well-being varies across the lifespan, it is clear that if one wishes to understand the psychological well-being implications of social status, then one cannot ignore age. Instead, one must recognize that for any given social status there is at least one *vulnerable period* over the course of development that is characterized by non-parallel growth in psychological well-being across the levels of a given social status and coincides with when the disparities in psychological well-being emerge across the levels of that social status. For example, at the population level, females report lower self-esteem than males (Kling et al., 1999; Simmons & Blythe, 1987; Wigfield, Eccles, Mac Iver, Reuman, & Migley, 1991). Moreover, the size of this effect is not constant over time (Kling et al, 1999; McLeod & Owens, 2004). That is, it is not the case that females are simply born with lower self-esteem than males, and the size of the effect is constant across development, which, if it was the case, would be characterized over time by parallel trajectories with a simple level difference initiating at

birth. Instead, sex differences in self-esteem first emerge around age 10, and continue to widen through mid- to late-adolescence (Kling et al., 1999; McLeod & Owens, 2004). Thus, concerning self-esteem, the period of non-parallel growth (i.e., the vulnerable period) across males and females occurs between late-childhood and mid- to late-adolescence.

In addition, the period of non-parallel growth that characterizes a vulnerable period does not occur at random, but instead coincides with other developmental changes that themselves interact with a given social status and subsequently result in differential growth across the levels of that social status. Sticking with the example of sex status, developmental changes that coincide with the vulnerable period associated with sex status and interact with sex status (i.e., differentially impact the growth of psychological well-being across males and females) are the hormonal (Angold, Costello, Erkanli, & Worthman, 1999; Angold, Costello, Worthman, 1998; Nolen-Hoeksema, 1990) and body changes (Galambos, Leadbeater, & Barker, 2004; Kessler, 2003; Nolen-Hoeksema & Girgus, 1994) associated with puberty, as well as the formation of gender identity (Hill & Lynch, 1986; Orlofsky & O'Heron, 1987). Though the developmental changes that interact with sex status are changes occurring at the biological (hormonal changes/bodily changes associated with puberty) and cognitive (identity formation) levels, potentially developmental changes occurring at the contextual level could also interact with social status and result in a period of non-parallel growth across the levels of that social status (Crocker, 1999; Ethier & Deaux, 2001).

Current social psychological approaches to the impact of race and sex on psychological well-being

As addressed earlier, there are two distinct approaches to understanding the intersection of race and sex and its impact on psychological well-being, and both originated within the social psychology literature: (1) *The double-marginalized approach*, and (2) the *moderating the moderator approach*. One consistency is that both approaches ignore issues of development, and instead implicitly assume, by virtue of ignoring the issue of age, that the impact of social status on psychological well-being is constant across the lifespan. Another consistency between the two approaches is that, with respect to the impact of race and sex on psychological well-being, both models assume that impact of each social status is not independent from the other, but instead assume that the impact of each is dependent on the other. However, the exact nature of that dependence does vary across the two approaches. Conceptually speaking, when a given social status is paired with another, those two social statuses can interact in three ways: (1) independent (the impact of each on psychological well-being is unaffected by the presence of the other); (2) dependent-complementary (the impact of each on psychological well-being is amplified in the presence of the other); or (3) dependent-compensatory (the impact of each on psychological well-being is muted in the presence of the other). Concerning race and sex, the double-marginalized approach posits that the relationship between both marginalized statuses is dependent-complementary, while the moderating the moderator approach postulates that the relationship is dependent-compensatory.

The double-marginalized approach: This approach focuses specifically on the intersection of marginalized status and posits that the impact of each marginalized status on levels of psychological well-being is amplified in the presence of the other (i.e.,

dependent-complementary). A marginalized group is any social group that is disadvantaged or stigmatized due to their being underrepresented, de-valued, and/or disliked by the dominant group(s) of society. Beyond the term “marginalized”, the terms “minority” or “disadvantaged” are also often used to refer to these particular social groups (Branscombe & Ellemers, 1998; Crocker, 1999; Russell, Hadder, Carvajal, Chapman, & Alexander, 2006). Both African Americans and females are marginalized groups within the United States. Individual members of marginalized social groups are themselves of marginalized social status, and by virtue of that status they are more likely to endure discrimination (Branscombe & Ellemers, 1998; Mays & Cochran, 2001), loss of opportunity (Dohrenwend & Dohrenwend, 1969; Wheaton, 1985), and increased levels of stress (Aneshensel, 1992; Turner, Wheaton, & Lloyd, 1995) than are individuals who are not members of a marginalized group, and all of these challenges associated with marginalized status are all thought to translate into deficits in psychological well-being (Aneshensel, 1992; Dannefer, 2003; O’Rand, 1996; & Turner, Wheaton, & Lloyd, 1995). Adopting this line of thinking, researchers approaching the interplay of race and sex and its impact on psychological well-being from the *double-marginalized* perspective typically posit that the challenges associated with each marginalized status of African-American females compound, rendering these individuals at acute risk for poor psychological well-being (Beale, 1970; Dowd & Bangston, 1978; DuBois et al, 2002; McLeod & Owens, 2004)

However, there are at least two problems with the double-marginalized approach. First, as addressed earlier, the approach fails to take into account how the impact of social status varies across the lifespan. Second, the approach’s expectation that multiple

marginalized statuses will interact in a dependent-complementary fashion does not bear out empirically. That is, concerning race and sex statuses, compared to their single-marginalized status counterparts (e.g., African-American males, or European American females), African American females have just as good, if not better, self-esteem and similar if not lower, levels of depressive affect (Dubois et al., 2002; Kling et al., 2002; McLeod & Owens, 2004).

The moderating the moderator approach: While it makes sense to focus on marginalized status since intuitively the marginalized group should be the group at-risk for deficits in psychological well-being, the marginalized group is not always the “at-risk” group for deficits in psychological well-being - with the “at-risk” group being defined simply as those social groups who show deficits in well-being relative to other social groups. Note that the distinction between “marginalized” and “dominant” is sociological in nature (i.e., based on power structures within a given society) while the distinction between “at-risk” and “not at risk” is empirical in nature (i.e., based on which group reports deficits in well-being relative to another group). For example, research has clearly demonstrated that African-Americans, the marginalized group, report higher self-esteem (Gray-Little & Hafdahl, 2000; McLeod & Owens, 2002) and equivalent or perhaps even lower depressive affect (Dornbusch, Mont-Reynaud, Ritter, Chen, & Steinberg, 1991; McLeod & Owens, 2001) than European-Americans, the dominant group.

Ever since it became clear that African Americans report better psychological well-being than European Americans, a substantial amount research has been devoted to understanding the apparent resiliency of the African-American community. Based on

this line of research several factors thought to contribute to the resiliency of African Americans are: The positive impact of racial identity on psychological well-being (Branscombe, Schmitt, & Harvey, 1999; Phinney, Cantu, & Kurtz, 1997; Rowley, Sellers, Chavous, & Smith, 1998; Wong, Eccles, & Sameroff, 2002), discrimination and stigma possibly serving as protective factors in that they provide external causes to which one can attribute failure (Crocker & Major, 1989), the extensive family networks within the African American community that provide increased monitoring and social support (Hill, 1998; Li, Stanton, Pack, Harris, Cottrell, & Burns, 2002; McAdoo, 2001); and focused socialization from parents regarding how to deal and understand discrimination (Bowman & Howard, 1985; Oyserman & Harrison, 1998; Thornton, 1997). Though valuable, most of this research has been limited in scope, and has ignored the impact of sex when examining the resiliency of African-Americans.

However, a subset of the research examining the resiliency of the African American community has focused on the impact of sex. Specifically, this subset of research attempts to clarify the process by disentangling (1) the mechanisms underlying the effect of sex status on psychological well-being, and (2) how race status in turn moderates the impact of those mechanisms. This series of interactions can be thought of as the impact of one moderator itself being moderated by a second moderator, and from this point forward will be referred to as *moderating the moderator*. For example, both gender identity formation (Hill & Lynch, 1986; Marsh, 1987; Orlofsky & O'Heron, 1987) and the changes in body mass associated with puberty (Galambos, Leadbeater, & Barker, 2004; Kessler, Avenevoli, & Marikangas, 2001; Nolen-Hoeksema, 1990; Nolen-Hoeksema & Girgus, 1994) differentially impact the psychological well-being of males

and females, and each are thought to contribute to the psychological well-being disparities across sex. However, researchers investigating the intersection of race and sex have shown that, relative to European American females, the impact of each of these mechanisms on levels of psychological well-being is muted among African-American females. First, concerning the impact of gender identity formation, because, relative to European American females, African American females are more likely to describe themselves with masculine or androgynous traits (Harris, 1996; Molloy & Herzberger, 1998), gender identity formation does not appear to have as large of an impact on the psychological well-being of African American females. Second, concerning the changes in body mass associated with puberty, because the African-American community has less rigid, and more realistic standards concerning what female body types are considered attractive (Miller & Downey, 1999; Molloy & Herzberger, 1998), the bodily changes associated with puberty do not have as large of an impact on the body satisfaction of African American females (Biro, Striegel-Moore, Franko, Padgett, & Bean, 2006; Molloy & Herzberger, 1998; Siegel, 2002).

While the moderating the moderator approach has indeed helped to disentangle the intersection of race and sex and its impact on levels of psychological well-being, there are at least two key problems with the approach. First, as addressed earlier, just like the double-marginalized approach, the moderating the moderator approach fails to consider how the impact of social status may vary across the life span. Second, the approach focuses on resiliency of the African American community, and resiliency alone cannot explain why African Americans have higher levels of psychological well-being than European-Americans. That is, in the most ideal situation resiliency would at best

fully mitigate the potentially negative impact of marginalization on psychological well-being (i.e., both races would show equivalent levels of psychological well-being). As such, resiliency cannot explain why African-Americans have higher psychological well-being.

A developmental approach to the impact of race and sex on psychological well-being

Perhaps the failure of both the double-marginalized approach and the moderating the moderator approach to fully account for the intersection of race and sex and its impact on psychological well-being reflects the approaches' focus on marginalized status versus at-risk status, and the approaches failure to take into account how the impact of social status varies across the life span. That is, if one's aim is to understand how problematic social statuses intersect within the individual, then one would be wise to focus on at risk status opposed to marginalized status, since marginalized status does not always equate to at-risk status. In addition, given that there is clear reason to believe that the impact of at-risk status varies across the lifespan, one would be wise to incorporate the notion of vulnerable periods into the model. Perhaps a new approach (here after referred to as the Social Status/Vulnerable Period (SS/VP) model) that (1) focuses on at-risk status opposed to marginalized status and (2) takes into account how the impact of social status varies across the life span will better capture the interaction between multiple social statuses, such as the interaction between race and sex, and its impact on levels of psychological well-being.

More specifically, after switching focus to at-risk status and incorporating the notion of vulnerable periods, perhaps the interplay of two at-risk statuses will interact in a dependent-complementary fashion if and only if the vulnerable periods associated with

each at-risk status overlap over the course of development. That is, perhaps the double-marginalized approach is correct if (1) applied to at-risk statuses, and (2) if the vulnerable periods for those at-risk statuses overlap. In order to test this assertion, using available literature, the vulnerable periods during development when race and sex are likely to impact the growth of well-being must first be identified.

Vulnerable periods, race and sex status, and the growth of psychological well-being

For the purposes of this study, the focus is limited to two domains of psychological well-being (self-esteem and depressive affect) and two social statuses (race and sex). As such, there are four different vulnerable periods that need to be clarified: (1) sex status and self-esteem (already addressed earlier), (2) sex status and depressive affect, (3) racial status and self-esteem, and (4) racial status and depressive affect.

Sex status and depressive affect: With respect to sex, researchers have consistently found that females report both higher levels of depressive affect and depression relative to males. The period of non-parallel growth appears to initiate during late-childhood - around age 10 - (Angold & Rutter, 1992; Twenge & Nolen-Hoeksema, 2002; Galambos, Leadbetter, & Barker, 2004; McLeod & Owens, 2004), and it continues until mid- (Galambos et al., 2004; McLeod & Owens, 2004) to late adolescence (Angold & Rutter, 1992; Twenge & Nolen-Hoeksema, 2002). Similar to the sex vulnerable period for self-esteem, the following developmental changes coincide with this period of development and are thought to contribute to its timing: hormonal and bodily changes associated with puberty (Kessler, Avenevoli, & Marikangas, 2001; Nolen-Hoeksema, 1990), and gender identity formation (Hill & Lynch, 1986; Marsh, 1987).

Racial status and self-esteem: As addressed earlier, both cross-sectional and longitudinal research suggests that African Americans have higher self-esteem than European Americans (Gray-Little & Hafdahl, 2000; Hughes & Demo, 1989; van Laar, 2000). Based on large-scale meta-analyses and/or longitudinal research, the period of non-parallel growth appears to initiate during late-childhood - around age 10 - and differential growth continues through late adolescence (Gray-Little & Hafdahl, 2000; McLeod & Owens, 2004). With respect to the developmental changes that coincide with this period of development and perhaps contribute to its timing, racial identity formation accelerates during this period (Cross, 1991; DuBois et al, 2002; & Phinney & Kohatsu, 1997; Wong, Eccles, & Sameroff, 2003), which appears to be positively related to the psychological well-being of African-Americans but unrelated to the psychological well-being of European Americans. In addition, during this period the formation of self-concept is also accelerated (Dusek & McIntyre, 2003; Izard & Ackerman, 1998), and research by Twenge & Crocker (2002) suggests that (1) individuals from cultures with more individualistic (opposed to collectivist) self-concepts are more likely to have higher self-esteem, and (2) the African-American community tends to exhibit more individualism than does the European American community.

Racial status and depressive affect: Concerning racial status and depressive affect, it appears that there may be two distinct key periods between early adolescence and early adulthood. First, during the high school years there is some research to suggest that the growth in depressive affect is slightly lower among African Americans (Dornbusch, Mont-Reynaud, Ritter, Chen, & Steinberg, 1991; McLeod & Owens, 2004). Second, there may be a reversal as youth transition out of high school with growth in

depressive affect being slightly higher among African Americans (Gore & Aseltine, 2003; Chapter I of this dissertation).

Predictions based on SS/VP model: With respect to depressive affect and the impact of race and sex, the vulnerable periods do appear to overlap. That is, between late-childhood and early to mid-adolescence the periods of non-parallel growth across race and sex appear to overlap with one another. As such, based on the SS/VP model, for those individuals with both at-risk statuses (i.e., European American and female), the interaction between these two at risk statuses should be dependent-complementary in fashion, and this interaction should occur between late-childhood and early to mid-adolescence, which is when the vulnerable periods overlap.

With respect to self-esteem and the impact of race and sex, the vulnerable periods also appear to overlap. Again, between late-childhood and early adolescence the periods of non-parallel growth across race and sex appear to overlap with one another. As such, based on the SS/VP model, for those individuals with both at-risk statuses (i.e., European American and female), the interaction between these two at-risk statuses should be dependent-complementary in fashion, and this interaction should occur between late-childhood and early adolescence, which is when the vulnerable periods overlap.

Complementary models: Incorporating the SS/VP model within the moderating the moderator approach

As addressed earlier, while the moderating the moderator approach proves predictive, it is limited in that it does not fully explain the interaction between race and sex and its impact on levels of psychological well-being (i.e., it focuses on resiliency of the African American community, and resiliency alone cannot explain why African

Americans report higher levels of psychological well-being relative to European Americans). Recall that one potential drawback of the moderating the moderator approach is that it ignores whether or not the impact of social status on levels of psychological well-being varies across the life span. Perhaps a hybrid model – one that incorporates the developmental perspective of the SS/VP approach into the moderating the moderator approach - will prove to be superior to the moderating the moderator approach, thus demonstrating the complementary nature of the two models. More specifically, the moderating the moderator approach posits that certain mechanisms (e.g., increases in body mass and increases in gender identity) do not impact the psychological well-being of African American females as much as they do European American females. Incorporating the SS/VP approach into the moderating the moderator approach, perhaps the differential impact of these mechanisms across race and sex also varies across time such that they only hold between late-childhood and early to mid-adolescence when the vulnerable periods for race and sex status overlap.

Hypotheses

The first and second hypotheses focus on testing the validity of the SS/VP model. With respect to both self-esteem and depressive affect, the impact of race and sex on depressive affect is expected to interact in a dependent-complementary fashion such that the double at-risk group, European-American females, will report extremely low psychological well-being, and this interaction will take place while the vulnerable periods overlap (*Hypotheses 1 and 2*). Though exploratory in nature, the third hypothesis focuses on testing the utility of the hybrid model over and above the moderating the moderator approach, and tests whether or not the differential impact across race of changes in

gender identity and changes in body mass on the psychological well-being of females varies across mid-adolescence and early adulthood (*Hypothesis 3*).

Methods

Sample

The data for this study come from the Maryland Adolescent Development in Context Study (MADICS), a multi-wave community-based, longitudinal study of adolescents and their families (principle investigators: Jacquelynne S. Eccles and Arnold J. Sameroff). Participants were recruited via a note from the school to the adolescents' parents. In September, 1991, there were 7,841 7th grade students in the district enrolled in the 23 middle schools of focus. Of these, 5,452 parents/guardians authorized their child's participation in The Comer and Cook school evaluation study (CCSES). The MADICS sample is a purposive sub-sample (based on the parents' willingness to participate and on a stratified sampling procedure designed to get proportional representations of families from each of the 23 middle schools being studied) of those families who authorized their child's participation in the CCSES. The number of adolescents in each middle school participating in MADICS ranged from 30 to 90 depending on volunteer rates and school size; all but 2 of the schools had 40 or more participating adolescents and families. Although the MADICS participants are not a random sample from their cohort, there is evidence that there is very little systematic bias in the MADICS sample. Administrators of the CCSES were able to compare the characteristics of the MADICS Wave 1 sample with the characteristics of the larger CCSES sample (from which the MADICS participants were drawn). In general, the differences are quite small and usually non-significant despite the large sample size. Primarily, the

MADICS sample is slightly wealthier and more likely to be European-American than the CCSES sample.

MADICS participants have been assessed at five time points ranging from early adolescence (7th grade) through late adolescence/young adulthood (3 years post-high school graduation). During the 7th grade, 1,482 adolescents and their families participated. At each subsequent wave of data collection attempts were made to solicit data from all MADICS participants who initially participated at the 7th grade assessment. The majority of adolescents who did not participate in follow-up assessments did not participate because they moved out of the district. For the present investigation, we report on information collected at five time points (Wave 1 - Grade 7, Wave 2 - summer before Grade 9, Wave 3 - Grade 11, Wave 4 - 1-year post high school, and Wave 5 - 3-years post high school²) from those participants who had complete data for the two status variables – race and sex – and who reported data on at least two time points for both depressive affect and self-esteem ($N = 948$). For effects of attrition see section below labeled *attrition and missing data strategy*.

Procedure

Both the focal child and his or her primary caregiver were interviewed in their home at waves 1, 2, and 3 (Grade 7, summer before Grade 9, and Grade 11). These questionnaires included a broad range of items about family dynamics, family and peer relationships, resources, and stressors, as well as a broad array of indicators of adolescent development including measures of racial identity. Waves 4 and 5 (1-year post high school and 3-years post high school, respectively) took place 2 and 4 years respectively

² The Waves actually used are Waves 1, 3, 4, 5, & 6 of MADICS. However, the original Wave 2 of MADICS is unusable, and as such there are only 5 usable Waves of data. Thus to avoid confusion, the waves used in the present study are referred to here as Waves 1, 2, 3, 4, & 5.

after Wave 3. For Waves 4 and 5, only the focal children (now adults) were surveyed using a mailed questionnaire. Data collected during these later waves included all measures of development assessed at Waves 1-3 as well as measures of work, college, and romantic experiences.

Measures

Depressive affect: The scale for depressive affect is a 7-item scale, and is a truncated version of the Child Depressive Inventory (CDI) (Kovacs, 1992). The CDI items used are: *I am sad, I feel like nothing will ever work out for me, I am worthless all the time, I feel like I hate myself, I feel like crying everyday, things bother me all the time, I feel that I have plenty of friends.* Possible responses range from 1 (once in a while) – 3 (all the time). Data are available for Waves 2, 3, 4, and 5. Cronbach alphas are .78, .81, .78 and .81 respectively.

Self-esteem: The scale for youth self-esteem is a 3 item scale, and is a truncated version of the Rosenberg (1965) self-esteem scale. The 3-items used are: *Do you wish you were different than you are (reverse coded), would you like to change lots of things about yourself if you could (reverse coded), and are you pretty sure about yourself.* Possible responses ranged from 1 (strongly disagree) to 5 (strongly agree). Data are available for Waves 1, 2, 3, 4, and 5. Cronbach alphas are .67, .73, .77, .77, and .81 respectively.

Body Mass Index (BMI): Consistent with previous research assessing the impact of body change on psychological well-being (Biro et al., 2006; Snooks & Hall, 2002), BMI was used to quantify body type across time. The equation for BMI is weight in kilograms divided by height in meters squared ($\text{weight}/[\text{height}^2]$). Data for height and

weight were available at Waves 1, 2, 3, 4, and 5. Using these data, individuals' BMI were calculated based on the equation above for all waves where data for height and weight were available.

Gender Identity: At wave 1, the scale for gender identity was based on two measures: "I feel as though I am...", and "I look as though I am...". Both measures had the same response scale ranging from 1(very masculine) to 7(very feminine). The Cronbach alpha for the Wave 1 scale was .91. At Waves 2, 3, 4, and 5, the scale for gender identity was based on four measures: "I feel as though I am very feminine," "I feel as though I am very masculine" (reverse coded), "I look as though I am very feminine," and "I look as though I am very masculine (reverse coded). All measures had the same response scale ranging from 1(strongly disagree) to 7(strongly agree). For males, all measures were coded so that higher responses indicated higher masculinity, and for females, all measures were coded so that higher responses indicated higher femininity. Cronbach alphas for Waves 2, 3, 4, and 5 are .92, .95, .97, and .97 respectively.

The distinction between the Wave 1 scale and the later scales are that the Wave 1 scale conceptualizes masculinity and femininity as the opposite ends of a single dimension, while the later scales conceptualize masculinity and femininity as distinct dimensions. Regardless of whether or not the questions framed masculinity and femininity as separate dimensions, based on inter-correlations, it does not appear, for the most part, that respondents conceptualized masculinity and femininity as separate dimensions. Instead, they appear to have largely conceptualized masculinity and femininity as opposite ends of a single continuum. For example, the Wave 1 scale of

gender identity correlates with the Wave 2 through 5 scales at or above .70. Moreover, within the Wave 2 through 5 scales, the answers regarding masculinity (or lack thereof) and femininity (or lack thereof) correlate at or above .75, which suggests that they are tapping into the same construct or at least tapping into two highly related constructs. In addition, over Waves 2, 3, 4, & 5 (when masculinity and femininity were measured on separate continuums) on average only around 4% of respondents indicated that they were either high (i.e., answered 5, 6, or 7 on the 7-point scale) on both masculinity and femininity or low (i.e. answered 1, 2, or 3 on the 7-point scale) on both masculinity and femininity. Thus, even though the content of the scale changes after Wave 1, there is reason to believe that the scale is comparable across all Waves.

However, even if it is not, the differential impact of change in gender identity on the psychological well-being of European American females and African American females is of key interest, and if the scales of gender identity are not completely comparable across time, the ability to assess the differential impact of gender identity on the psychological well-being of these two groups is not impacted provided the disjointed measurement of gender identity is systematic across the two groups.

Attrition and Missing Data Strategy

Out of the 1,482 total participants, 1,340 had complete data for both race and sex and were either European-American or African-American - thus 142 individuals were not included in the analyses because they were either not of European-American or African-American descent ($n = 129$), or they had missing data for race ($n = 13$). Out of these 1,340, 948 individuals reported data for at least two of the time points that data for depressive affect and self-esteem were collected. Though Multiple Imputation (Rubin,

1987) is used to account for missing data (described in next section) and minimize bias due to attrition, for the sake of caution those individuals who reported data for depressive affect or self-esteem at one or fewer time points ($n = 392$) were dropped from the analyses. After all, this study is interested in trajectories of psychological well-being, and imputing all but one or even all time points may introduce more bias than it alleviates. Subsequently, only those who reported data for two or more of the four possible time points for depressive affect and reported data for two or more of the five possible time points for self-esteem were included in the analyses ($n = 948$).

Measure of depressive affect and attrition: Compared to the individuals who reported data for depressive affect at one or fewer time points ($n = 392$) those who reported data for depressive affect at two or more time points ($n = 948$) reported lower levels of depressive affect at Wave 3, $t(939) = 2.68$, $p < .01$, $R^2 = .007$, but reported equivalent levels of depressive affect at Waves 4, 5, & 6. Also, both males, $X^2(1) = 18.95$, $p < .001$, and African Americans, $X^2(1) = 9.13$, $p < .01$, were overrepresented among those who reported data for depressive affect at 1 or fewer time points ($n = 392$)³.

Measure of self-esteem and attrition: Compared to the individuals who reported data for self-esteem at one or fewer time points ($n = 392$) those who reported data for self-esteem at two or more time points ($n = 948$) reported equivalent levels of self-esteem at Waves 1, 2, 3, 4, & 5.

Measure of body mass index and attrition: Among the 948 individuals who reported data for both depressive affect and self-esteem at two or more time points, all

³ Note that the differential representation of males and African American individuals among the 948 individuals included in the analyses and the 392 individuals not included in the analyses is the same for depressive affect, self-esteem, body mass, and gender identity (after all, for all 4 measures the same 948 individuals are compared to the same 392 individuals and therefore the race by sex distribution is exactly the same). As such this particular set of analyses is not repeated for the remaining measures.

948 individuals also reported data for BMI at least two or more time points. Compared to the individuals who reported data for psychological well-being at one or fewer time points ($n = 392$) those who reported data for psychological well-being at two or more time points ($n = 948$) did not differ on levels of body mass at Waves 1, 2, 3, 4, & 5.

Measure of gender identity and attrition: Among the 948 individuals who reported data for both depressive affect and self-esteem at two or more time points, all 948 individuals also reported data for gender identity for at least two or more time points. Compared to the individuals who reported data for psychological well-being at one or fewer time points ($n = 392$) those who reported data for psychological well-being at two or more time points ($n = 948$) did not differ on levels of gender identity at Waves 1, 2, 3, 4, & 5.

Missing data strategy: Using the PROC MI procedure available in SAS (SAS Institute Inc., 1999), missing data were imputed using Multiple Imputation (MI) (Rubin, 1987). Compared to other missing data procedures, MI is superior when it comes to minimizing bias due to attrition (Graham, Hofer, & Piccinin, 1994; & Little & Rubin, 1987; Schafer & Olsen, 1998). In the same regard, MI is also far superior to simple case-wise deletion (Little & Rubin, 1987; & Schafer & Olsen, 1998). Moreover, not only are the parameter estimates more trustworthy when using MI (due to its accounting for attrition more effectively), but also standard errors associated with the parameter estimates are not artificially decreased, and as such inferences are trustworthy as well (Graham, Hofer, & Piccinin, 1994).

An assumption of the multiple-imputation (MI) procedure is that the data imputed are missing at random (MAR), though it is a loose assumption (Rubin, 1987). By

definition, a variable is missing at random if its state of missing has nothing to do with its actual value, but instead is due to the state of some secondary variable(s) (Schafer & Olsen, 1998). In more concrete terms, an individual's missing value for depressive affect is MAR if the state of missing is unrelated to that person's actual level of depressive affect at that very point in time, but instead is related to other variables at that point in time (e.g., they are sick, working full-time, have low-income, etc.), or is related to depressive affect at earlier or future points in time. When utilizing MI, the first step is to empirically identify as many variables as possible that are related to the missingness of the variables to be imputed. Once identified, these variables are included in the imputation process as "auxiliary variables", and their inclusion helps to insure that the imputed data resulting from the MI procedure are unbiased. However, once the data are imputed, the auxiliary variables are dropped, and the imputed data are then analyzed separately from the auxiliary variables. Because the auxiliary variables are not included in the actual analyses, they are not equivalent to control variables.

Using the number of missing time points for depressive affect and self-esteem as separate grouping variables, a series of one-way ANOVA's were conducted to determine what auxiliary variables were significantly related to missingness. The variables related to missingness and included as auxiliary variables covered the following domains: school/academic achievement, relations with peers, relations with parents, family characteristics, neighborhood characteristics, spirituality/religion, puberty/physical health, sexual experiences and dating, and risky behavior. The mean percent missing across the 66 variables imputed (7 observations for the depressive affect scale at 4 time points, 3 observations for the self-esteem scale at 5 time points, 1 observation for BMI at

5 time points, and 2 observations for the gender identity scale at Wave 1 and 4 observations at Waves 2, 3, 4, & 5) was 24.1%. Based on this percent missing, 5 data sets were imputed to reach an efficiency above .95 (Rubin, 1987).

Analysis Strategy

Means and standard errors for the multiply imputed data were calculated using PROC MIANALYZE within SAS (SAS Institute Inc., 1999), which was developed to estimate standard errors of multiply imputed data. The imputation option within M-Plus (Muthen & Muthen, 1998-2006), also developed for multiply imputed data, was used to conduct growth model analyses and longitudinal structural equation model (SEM) analyses.

Hypotheses 1 & 2: Both *Hypothesis 1* and *Hypothesis 2* posit that the differential growth in psychological well-being across race and sex will vary across development depending upon whether or not the vulnerable periods associated with each social status overlap or not. Using piece-wise, latent growth curve modeling (Li, Duncan, Duncan, & Hops, 2001), growth in both depressive affect (Figure 3.1) and self-esteem (Figure 3.2) was separated into two distinct pieces of growth, with one piece corresponding to the period of development when the vulnerable periods are thought to overlap (based on available literature) and another piece corresponding to the period of development when the vulnerable periods are thought to not overlap (based on available literature). For depressive affect, since the vulnerable periods for race and sex appear to overlap during the high school years, *Piece 1* is the piece that best corresponds with the high school years (change between Grade 9 and Grade 11), and *Piece 2* is the piece that corresponds to the remaining years when the vulnerable periods do not overlap (change between

Grade 11 and 3-years after the end of high school) – see Figure 3.1. For self-esteem, since the vulnerable periods for race and sex appear to overlap during early adolescence, *Piece 1* is the piece that best corresponds with early adolescence (change between Grade 7 and Grade 9), and *Piece 2* is the piece that corresponds to the remaining years when the vulnerable periods do not overlap (change between Grade 9 and 3-years after the end of high school – see Figure 3.2).

In order to examine the independent impact of race and sex status on both depressive affect and self-esteem, both a race dummy variable (African American = 1) and a sex dummy variable (Female = 1) are included in Figures 1 and 2 as exogenous predictors (Curran, Bauer, & Willoughby, 2004). Note that the race dummy and sex dummy are included as exogenous predictors in separate models. Since both the race dummy and sex dummy are binary variables, the regression of each on the intercept, the *Piece 1* growth factor, and the *Piece 2* growth factor is analogous to binomial regression, and in this case European Americans serve as the reference group for race and males serve as the reference group for sex (Curran, Bauer, & Willoughby, 2004).

In order to examine the dependent impact of race and sex status on the levels and growth of depressive affect and self-esteem, the sex dummy (Female = 1) is included as an exogenous predictor (as in the previous model), and, using multiple group, latent growth curve analyses (Duncan, Duncan, Strycker, Li, & Alpert, 1999), race status is included as a grouping variable. Looking at Figures 1 and 2 then, the “exogenous predictor” is the sex dummy (Female = 1), and racial status is included as a grouping variable. Note that combining the Curran et al. (2004) approach to testing for group differences with the more traditional multiple group approach (Duncan et al., 1999) is the

only way to test for a two-way interaction within SEM⁴. More specifically, by constraining the path estimate for the sex dummy on the intercept, the piece 1 growth factor, or the piece 2 growth factor to be equivalent across the two race groups, whether or not the impact of sex on each of these three estimates differs across the two races can be directly addressed empirically.

Hypotheses 3: Hypothesis 3 posits that differential impact of changes in gender identity and body mass on the psychological well-being of African American and European American females is variable over time, and more specifically, the differential impact across African American and European American females will be more pronounced during middle adolescence (approximately when the vulnerable periods for race and sex appear to overlap). In order to examine these relationships, a quasi-simplex structural equation model (SEM) (Joreskog, 1970; Marsh, 1993) was utilized for both depressive affect and self-esteem (Figure 3.3). Utilizing multiple group SEM (Kline, 1998), both race and sex were included as grouping variables. Whether or not the racial and sex differences in the simultaneous correlations are stable across time was assessed. Note that measures for depressive affect, self-esteem, and gender identity were all based on scales, and in order to adjust for the reliability of each measure at each time point, errors were fixed based on the following equation: $e = \text{Variance} * [1 - \alpha]$ (Joreskog, 1970). Since the measure for BMI is based on a single observation, no alpha is available, as such a reliability of .85 was applied. Note in Figure 3.3, the cross-lags are correlations

⁴In separate analyses, I empirically verified that when including both race and gender as grouping variables (i.e., 4 group analyses: (1) European American/males, (2) European American/females, (3) African American/males, and (4) African American/females) a two way interaction between race and gender cannot be assessed. That is, one cannot assess if the impact of sex differs across race or vice-versa. Instead, all one can do is test for the additive main effects (i.e., assess the impact of one status while allowing for the impact of the other).

opposed to paths. Since changes in each construct over time are the key focus, only autoregressive pathways were included in the models. If the differential impact of changes in gender identity and body mass on the psychological well-being of African American and European American females does vary over time, then the race and sex differences in synchronous correlations should also vary over time. Note that the two way interaction between race and sex cannot be assessed here since both race and sex are included as grouping variables (see footnote #4).

Results

Basic descriptive statistics

The imputed means and standard errors for all of the measures are presented in Table 3.1. Within Table 3.1, the means and standard errors are presented for the whole sample and are presented separately for race, sex, and race by sex. Using the imputed means, the trajectories of depressive affect and self-esteem are presented in Figures 3.4 and 3.5 respectively. Within each figure, trajectories are presented separately for race and sex. Since there are 5 imputed data sets, and 4 different groups (2 racial groups by 2 sex groups), there are 20 covariance matrices in all. As such the covariance matrices are not presented here, but are available from the author upon request.

Race, sex, and growth in psychological well-being

Independent impact of race and sex: In order to assess the extent to which race and sex independently impact the growth of depressive affect and self-esteem, a race dummy variable (African American= 1) and a sex dummy (Female = 1) were each regressed on the intercept, piece 1 growth, and piece 2 growth of both depressive affect (Figure 3.1) and self-esteem (Figure 3.2). For self-esteem, modeling Piece 2 as a linear

growth factor proved problematic since the growth in self-esteem across Piece 2 (Grade 9 through 3-years after high school) does not prove at all linear (See Figure 3.5).

Subsequently, the model presented in Figure 3.2 (minus any exogenous predictor) resulted in a poor fit ($X^2(8) = 83.86$, $p < .01$, CFI = .93, RMSEA = .10). The model was altered so that Piece 2 was freely estimated (See Figure 3.2b), which resulted in a better fit, ($X^2(6) = 21.33$, $p < .01$, CFI = .99, RMSEA = .05). The impact of race and sex was assessed in separate models, and the impact of both race and sex on depressive affect and self-esteem was assessed in separate models. Thus a total of 4 models were ran: (1) impact of race on depressive affect ($X^2(3) = .40$, $p = .94$, CFI = 1.00, RMSEA = .00), (2) impact of race on self-esteem ($X^2(8) = 27.25$, $p < .01$, CFI = .98, RMSEA = .05), (3) impact of sex on depressive affect ($X^2(3) = .99$, $p = .88$, CFI = 1.00, RMSEA = .00), and (4) impact of sex on self-esteem ($X^2(8) = 29.06$, $p < .01$, CFI = .98, RMSEA = .05). The estimates from these 4 models are presented in Table 3.2.

Concerning depressive affect, African Americans did not differ from European Americans at Grade 9 (-.01), but did report a lower rate of growth during high school/Piece1 (-.06) and a higher rate of growth after the end of high school/Piece 2 (.05). Relative to males, females reported higher levels of depressive affect at Grade 7 (.07), but reported equivalent levels of growth during both high school/Piece 1(.01) and after the end of high school/Piece 2 (-.02). Concerning self-esteem, African Americans did not differ from European Americans in any respect. Relative to males, females reported lower levels of self-esteem at Grade 7 (-.27), but reported equivalent levels of growth during mid adolescence/Piece 1 (.00), and late adolescence/Piece 2 (.05).

Dependent interaction of race and sex: In order to assess the extent to which race and sex dependently impact the growth of depressive affect and self-esteem, the differential impact of the sex dummy variable (Female = 1) across racial status was examined⁵. Estimates for racial differences in the impact of sex (Female = 1) on psychological well-being are presented in the bottom row of Table 3.2 (estimates listed in the bottom row are simply the result of subtracting the impact of sex (Female = 1) among African Americans from the impact of sex (Female = 1) among European Americans). In order to assess if the impact of sex on psychological well-being varied across racial status, six sets of model comparisons were conducted – one each for the three growth estimates (intercept, Piece 1, and Piece 2) for both well being indices (depressive affect and self-esteem). More specifically, a model where the impact of sex was constrained to be equal across the races was compared to a model where the impact of sex across the races was free to vary. Concerning depressive affect, the impact of sex on Grade 9 levels of depressive affect was only significant among European Americans (.12), and the estimates for African Americans (.04) and European Americans (.12) were significantly different from one another (.08), $\Delta X^2(1) = 3.85, p < .05$. In short, the impact of sex on depressive affect – with females reporting higher depressive affect at Grade 9 – was only found among European Americans. The impact of sex on growth differences during high school/Piece 1 and after the end of high school/Piece 2 was not significant for either race, nor did the estimates differ across race: Piece 1, $\Delta X^2(1) = .03, p = .86$; Piece 2, $\Delta X^2(1) = .39, p = .54$.

⁵ Note that the differential impact of the race dummy (African American = 1) across sex status would lead to equivalent results.

The differential impact of sex status on the self-esteem of European Americans and African Americans appears to be similar to the differential impact of sex status on the depressive affect of European Americans and African Americans. Concerning self-esteem, the impact of sex on Grade 9 levels was significant among both European Americans (-.43), and African Americans (-.18), and the estimates were significantly different from one another (-.25), $\Delta X^2(1) = 4.06$, $p < .05$. In short, the impact of sex on self-esteem – with females reporting lower self-esteem at Grade 9 – was more pronounced among European Americans. Estimates for the impact of sex on growth in self-esteem during high school/Piece 1 and after the end of high school/Piece 2 were not significant for either race, nor did the estimates differ across race: Piece 1, $\Delta X^2(1) = .52$, $p = .47$; Piece 2, $\Delta X^2(1) = .44$, $p = .51$.

Race, sex, and changes in gender identity and BMI: Impact on psychological well-being across time

In order to assess the impact of changes in gender identity and body mass on psychological well-being across time, a series of quasi-simplex structural equation models were conducted (Marsh, 1983; Jorsborg, 1970). Estimates for the entire sample are listed in Figure 3.6. In all, 4 models are presented in Figure 3.6: (1) depressive affect/gender identity, (2) self-esteem/gender identity, (3) depressive affect/body mass, and (4) self-esteem/body mass. For each model, in order to assess if the synchronous correlations differed across time a model comparison was conducted comparing the model where all synchronous correlations were constrained to be the same to the model where all synchronous correlations were free to vary. The association between changes in gender identity and changes in depressive affect varied across time, $\Delta X^2(3) = 40.96$, p

< .01 (Figure 3.6a), as did the association between changes in gender identity and changes in self-esteem, $\Delta X^2(4) = 16.55$, $p < .01$ (Figure 3.6b). More specifically, increases in gender identity were associated with decreases in depressive affect and increases in self-esteem, and the magnitude of these associations decreased steadily over time (Figure 3.6). In addition, the association between changes in body mass and depressive affect, $\Delta X^2(3) = 8.34$, $p < .05$ (Figure 3.6c), and changes in body mass and changes in self-esteem, $\Delta X^2(4) = 22.65$, $p < .01$ (Figure 3.6d) also varied across time. However, because the associations do not vary systematically across time, there does not appear to be a developmental component to the relationship between changes in both body mass index and psychological well-being (Figure 3.6).

Next, race and sex differences were assessed. For each of the four models listed in Figure 3.1, estimates broken out by race and sex are listed in Figure 3.7 to Figure 3.10. Again, for each model, in order to assess if the synchronous correlations differed across race, a model comparison was conducted comparing the model where all synchronous correlations were constrained to be the same across race to the model where all synchronous correlations were free to vary across race. For each model, a similar model comparison was conducted to assess if the synchronous correlations differed across sex. Also, given that synchronous correlations were found to vary across time among the whole sample, when assessing race and sex differences, all synchronous correlations were also free to vary across time. Allowing the association between changes in gender identity and changes in depressive affect to vary across time, the association between changes in gender identity and changes in depressive affect also varied across race, $\Delta X^2(8) = 36.01$, $p < .01$ (Figure 3.7), and sex, $\Delta X^2(8) = 21.82$, $p < .01$ (Figure 3.7).

More specifically, concerning racial differences, the negative relationship between changes in gender identity and changes in depressive affect was more pronounced among European Americans at Grade 9 and Grade 11 (Figure 3.7). Concerning sex differences, the negative relationship between changes in gender identity and changes in depressive affect at Grade 9 appears to be more pronounced among males (Figure 3.7).

Allowing the association between changes in gender identity and changes in self-esteem to vary across time, the association between changes in gender identity and changes in self-esteem did not vary across race, $\Delta X^2(10) = 13.95$, $p = .17$, but did vary across sex, $\Delta X^2(10) = 20.93$, $p < .05$ (Figure 3.8). More specifically, concerning sex differences, the positive relationship between changes in gender identity and changes in self-esteem was more pronounced among males at Grade 9, but more pronounced among females at 1-year post high school (Figure 3.8).

Allowing the association between changes in body mass and changes in depressive affect to vary across time, the association between changes in body mass and changes in depressive affect did not vary across race, $\Delta X^2(8) = 8.82$, $p = .37$, or sex, $\Delta X^2(8) = 7.94$, $p = .44$ (Figure 3.9). Similarly, the association between changes in body mass and changes in self-esteem also did not vary across race, $\Delta X^2(10) = 9.53$, $p = .48$, or sex, $\Delta X^2(10) = 7.95$, $p = .63$ (Figure 3.10).

Discussion

Three main conclusions can be drawn from this study: (a) as expected, race and sex status do appear to interact in a dependent-complementary fashion, and the interaction does vary across development, though the timing appears to be earlier than hypothesized – prior to mid-adolescence; (b) In large part, the impact of race and sex

status on levels of psychological well-being appears to be in place by mid-adolescence, and the period between mid-adolescence and early adulthood is, in large part, marked by stability; (c) as expected, the impact on psychological well-being of changes in gender identity and changes in body mass did vary across time, and did vary across race and sex (though often it was not in a manner consistent with expectations).

Psychological well-being, the SS/VP model, and the interaction of race and sex status:

Consistent with the SS/VP model, the at-risk statuses associated with race (i.e., European American) and sex (i.e., female) do interact in a dependent-complimentary fashion, and the nature of that interaction does vary across development. That is, concerning intercept levels of both depressive affect (Grade 9) and self-esteem (Grade 7), the impact of female status was more pronounced among European Americans – thus, concerning intercept levels anyway, the impact of female status is amplified in the presence of European American status (i.e., a dependent-complementary interaction). However, the nature of the interaction between race and sex status clearly varies across development since race and sex do not interact to impact changes in psychological well-being over the course of adolescence and early adulthood.

However, at least partially inconsistent with the SS/VP model, the period of development when the dependent-complementary interaction between race and sex status takes place (prior to Grade 9 for depressive affect and prior to Grade 7 for self-esteem) does not appear to fully coincide with when the vulnerable periods for race and sex status appear to overlap (late childhood to mid-adolescence for depressive affect and late childhood to early adolescence for self-esteem). That is, since the overlap in vulnerable periods for both depressive affect and self-esteem begins during late childhood (around

age 10 – when youth are typically in the 4th grade), the intercepts for both depressive affect (Grade 9) and self-esteem (Grade 7) fall well within the range of development when the vulnerable periods for race and sex overlap. Thus, it is not really a surprise that already at the intercept the impact of race and sex on psychological well-being is interacting in a dependent-complementary fashion. However, what is inconsistent with SS/VP model is that race and sex do not continue interacting in a dependent-complementary fashion through the remaining range of development when the vulnerable periods for race and sex are thought to overlap (through around the end of high school).

Though the fact that race and sex interact in a dependent-complementary fashion to impact intercept levels of both depressive affect (Grade 9) and self-esteem (Grade 7) is consistent with the SS/VP model, the findings lead to more questions than answers. That is, if one accepts the proposition that the race by sex differences found in both depressive affect found at Grade 9 and self-esteem at Grade 7 are not present at birth, then it is clear that sometime between birth and Grade 9 the race by sex differences in depressive affect emerged and sometime between birth and Grade 7 the race by sex differences in self-esteem emerged. But that is really all that can be surmised from these findings.

What is unclear is (1) when between birth and mid-adolescence the effects emerged (i.e., over what period between birth and mid-adolescence do race and sex status interact in a dependent-compensatory fashion and impact the growth of psychological well-being resulting in the race by sex level differences found at Grade 9 for depressive affect and Grade 7 for self-esteem) and (2) whether or not the period of development when European American status and Females status interact in a dependent-compensatory fashion to impact the growth of psychological well-being falls at

approximately the same point of development for all European American females. Concerning the first point, the SS/VP model would posit that the period of non-parallel growth should initiate around age 10 (which is when the vulnerable periods for race and sex first overlap for both depressive affect and self-esteem), but based on these data there is no way of knowing for sure. Using longitudinal data that both begins in late childhood and extends into early adulthood should allow for a more thorough examination of when the differential growth across race and sex status, which ultimately culminates in European American females' low levels of psychological well-being, actually initiates. Future research should explore this further.

Concerning the second point, though it is clear that race and sex status interact in a dependent-complementary fashion by Grade 9 for depressive affect and Grade 7 for self-esteem such that European American females report, relative to the other groups, especially low psychological well-being, it is not clear if European American females collectively followed similar pathways to those psychological well-being differences found at Grade 7 and Grade 9. That is, though there is a degree of homogeneity in levels of depressive affect at Grade 9 and levels of self-esteem at Grade 7 (in that group differences were found), concerning individual trajectories of psychological well-being, it is possible that there is a tremendous amount of heterogeneity among European American females in pathways to those Grade 9 levels of depressive affect and Grade 7 levels of self-esteem (e.g., equifinality). The SS/VP model would posit that there is a sizable amount of homogeneity among European American females in pathways to those Grade 9 levels of depressive affect and Grade 7 levels of self-esteem (e.g., SS/VP model posits that differential growth in psychological well-being across race and sex is driven by age-

related developmental changes, and as such the age period when growth differences are apparent between European American females and the other race by sex groups should be fairly systematic across individuals). However, based on these data there is no way to know for sure. Again, this phenomenon should be examined further using longitudinal data that both begins in late childhood and extends into early adulthood.

In summary, the SS/VP model appears to be a fruitful approach to understanding the interaction of race and sex and its impact on psychological well-being. As expected, the interaction between multiple at-risk statuses was dependent-complementary in fashion, and the period of development when that interaction takes place appears to roughly coincide with when the vulnerable periods for both race and sex overlap. However, further research is necessary to (1) clarify when the vulnerable periods actually fall so that the overlap of vulnerable periods can be more accurately diagnosed, and (2) identify whether or not the SS/VP model extends to the interaction of other social statuses besides race and sex.

Race and sex status during adolescence: Stable influences on psychological well-being

Generally speaking the impact of race and sex stats on psychological well-being proved quite stable across mid-adolescence and early adulthood. That is, no sex differences were found in the growth of depressive affect or self-esteem, and race and sex did not interact to impact the growth of depressive affect or self-esteem. The only growth differences found were for racial status – where European Americans reported greater increases in depressive affect during high school and African Americans reported greater increases in depressive affect after the end of high school. Since the growth differences

across race with respect to depressive affect were discussed in detail in Chapter I of this dissertation , they will not be discussed further here.

As mentioned above, that fact that race and sex status do not continue interacting in a dependent-complementary fashion between initial assessment of psychological well-being and the remaining range of development, which is when the vulnerable periods for race and sex are thought to overlap (through around the end of high school), is inconsistent with the SS/VP model. While one possible explanation is that the SS/VP model is wrong or perhaps just too vague, another explanation is that the range of development when the vulnerable periods overlap does not in fact extend through the end of high school, but instead ends prior to mid-adolescence. There is reason to suspect that the depressive affect and self-esteem vulnerable periods associated with sex end prior to mid-adolescence, and thus the range of development when the vulnerable periods for race and sex overlap for both depressive affect and self-esteem would also end prior to mid-adolescence. Based on past research, the vulnerable period associated with sex not only appears to initiate well before Grade 7 - both Kling et al. (1999) and McLeod et al. (2004) found that males begin to report higher self-esteem around Grade 4 (or age 10) – it also appears to end before Grade 7 – both Wigfield et al. (1991) and Simmons & Blyth (1987) found that growth in self-esteem is parallel for males and females after the 6th grade. Further, in the data used for the current study, since growth did not differ across sex status for either depressive affect or self-esteem, the sex vulnerable periods for both depressive affect and self-esteem did not extend past Grade 9 for depressive affect or Grade 7 for self-esteem.

Impact of moderating the moderator mechanisms: Variation over time

First and foremost, it does appear that the impact of moderating the moderator-type mechanisms does vary over time, and therefore, the assumption that the impact of moderating the moderator-type mechanisms does not vary across development, which is an assumption made by the moderating the moderator approach, is invalid. As expected, the association between changes in both gender identity and body mass and changes in psychological well-being varied across mid-adolescence and early adulthood. More specifically, concerning the association between changes in gender identity and changes in psychological well-being, gender identity was generally related to positive adjustment, and the associations generally appear to decrease in magnitude across time – and are strongest during mid-adolescence. Though the association between changes in body mass and changes in psychological well-being varied across time, there was no systematic (e.g., increasing over time or decreasing over time) pattern to that variation. Thus, it may be the case that the impact of changes in body mass on psychological well-being does not vary across mid-adolescence and early adulthood, or it could be the case that the BMI is not the best indicator of changes in body mass. Additionally, it may not be that changes in perceived body satisfaction – opposed to changes in body mass – are more directly related to changes in psychological well-being than are actual changes in body mass. Numerous researchers have documented the link between changes in perceived body satisfaction and changes in psychological well-being (Russell & Cox, 2003; Siegel, 2002; Snooks & Hall, 2002).

Also as expected, the associations between changes in gender identity and changes in psychological well-being varied across race and sex – though often not in the direction expected. That is, while research suggests that the impact of changes in gender

identity and changes in body mass are related to lower psychological well-being for females (Galambos, Leadbeater, & Barker, 2004; Hill & Lynch, 1986; Avenevoli, & Marikangas, 2001; Marsh, 1987; Orlofsky & O’Heron, 1987) - and especially so for European American females (Harris, 1996; Miller & Downey, 1999; Molloy & Herzberger, 1998) – gender identity was found to be related to higher levels of psychological well-being for both males and females (though the relationship was stronger for males). In addition, in the current study the positive impact of gender identity on levels of psychological well-being was stronger among European Americans than it was among African Americans. Taken together, while these results suggest that the impact of changes in gender identity is more pronounced among European American females than African American females (consistent with previous research), the results also suggest that the impact of these changes on well being is a positive one (inconsistent with previous research).

In part, the inconsistencies between results from the current studies and previous research may lie in the methodology used – namely, simplex structural equation modeling. That is, simplex SEM assesses change in stability (or changes in rank order) not absolute change in a construct. As such, within the simplex models used in this study, the synchronous correlations (which were the estimates of focus) assess the association between changes in rank order across, say, depressive affect and self-esteem, not the association between changes in levels of depressive affect and changes in levels of gender identity. Instead of simplex modeling, a wiser approach would be to utilize parallel process growth modeling (Muthen & Muthen, 1998-2006) where the growth of two or more outcomes is modeled simultaneously. In such a model, the association

between, say, the growth in depressive affect and the growth in gender identity could be directly assessed. Thus the association between changes in levels (opposed to just changes in rank order) could be assessed.

Limitations

Aside from the use of quasi-simplex modeling to assess the association between changes in both gender identity and body mass and changes in psychological well-being, this study's biggest weakness lies in the fact that the earliest data available for depressive affect and self-esteem were Grades 9 and 7 respectively. Ideally, the data would have started earlier during late childhood allowing for the assessment of growth between late-childhood and early adulthood.

In addition, there are several other potential limitations. First, as described in detail in the second Chapter II of this dissertation, there are unique characteristics associated with the MADICS sample that potentially bring into question the extent to which race effects found within the MADICS sample generalize to the general U.S. population. Finally, the gender identity measure is not based on the same observed measures over time, and though the measure appears to be fairly consistent across time, the change in observed measures may impact the assessment of change in the construct itself.

Final conclusions and next steps

Again, three main conclusions can be drawn from this study: (a) as expected, race and sex status do appear to interact in a dependent-complementary fashion, and the interaction does vary across development, though the timing appears to be earlier than hypothesized – prior to mid-adolescence; (b) In large part, the impact of race and sex

status on levels of psychological well-being appears to be in place by mid-adolescence, and the period between mid-adolescence and early adulthood is, in large part, marked by stability; (c) as expected, the impact on psychological well-being of changes in gender identity and changes in body mass did vary across time, and did vary across race and sex (though often it was not in a manner consistent with expectations).

First and foremost, future research should utilize longitudinal data that begins when the respondents are younger (ideally no later than age 10) when examining the interaction between race and sex and its impact on psychological well-being. Second, the SS/VP model should be examined further and applied to the interaction of social statuses beyond just race and sex. Third, future research should also examine further the impact of moderating the moderator mechanisms and whether or not their impact (1) varies across time, and (2) appears to be more pronounced when the vulnerable periods for the two or more social statuses of focus overlap.

Table 3.1

Overall means: Imputed means and standard errors, whole sample and by race, sex, and race and sex

	Wave of Study				
	Grade 7	Grade 9	Grade 11	1-year post HS	3-year post HS
Whole Sample (<i>n</i> = 948)					
Depressive affect	NA	1.29 (.012)	1.28 (.012)	1.30 (.015)	1.30 (.018)
Self-esteem	3.57 (.031)	3.88 (.030)	3.80 (.029)	3.60 (.036)	3.79 (.035)
BMI	20.16 (.138)	21.42 (.140)	23.15 (.166)	24.24 (.173)	24.86 (.202)
Gender identity	5.32 (.063)	5.65 (.068)	5.94 (.073)	6.19 (.078)	6.13 (.085)
European Americans (<i>n</i> = 345)					
Depressive affect	NA	1.28 (.020)	1.32 (.021)	1.33 (.024)	1.29 (.029)
Self-esteem	3.53 (.053)	3.79 (.051)	3.74 (.050)	3.48 (.063)	3.65 (.057)
BMI	19.44 (.213)	20.52 (.212)	22.22 (.242)	23.23 (.249)	23.93 (.318)
Gender identity	5.36 (.101)	5.64 (.109)	5.75 (.112)	5.97 (.117)	5.90 (.121)
African Americans (<i>n</i> = 603)					
Depressive affect	NA	1.29 (.016)	1.26 (.015)	1.28 (.020)	1.31 (.024)
Self-esteem	3.60 (.038)	3.93 (.036)	3.83 (.036)	3.67 (.042)	3.87 (.044)
BMI	20.58 (.189)	21.93 (.181)	23.68 (.218)	24.82 (.228)	25.40 (.247)
Gender identity	5.31 (.081)	5.66 (.088)	6.00 (.097)	6.31 (.104)	6.26 (.115)
Males (<i>n</i> = 452)					
Depressive affect	NA	1.24 (.017)	1.25 (.016)	1.25 (.020)	1.26 (.026)
Self-esteem	3.72 (.042)	4.00 (.040)	3.92 (.042)	3.65 (.053)	3.93 (.051)
BMI	20.01 (.201)	21.21 (.203)	23.23 (.229)	24.12 (.237)	25.00 (.265)
Gender identity	2.72 (.073)	2.20 (.060)	2.02 (.053)	1.73 (.047)	1.79 (.055)
Females (<i>n</i> = 496)					
Depressive affect	NA	1.33 (.017)	1.31 (.018)	1.34 (.021)	1.34 (.020)
Self-esteem	3.44 (.045)	3.77 (.044)	3.69 (.041)	3.56 (.047)	3.67 (.049)
BMI	20.31 (.219)	21.61 (.200)	23.07 (.244)	24.36 (.252)	24.74 (.298)
Gender identity	5.37 (.057)	5.58 (.054)	5.95 (.048)	6.22 (.041)	6.24 (.054)
European American/Male (<i>n</i> = 155)					
Depressive affect	NA	1.20 (.027)	1.26 (.027)	1.24 (.033)	1.20 (.050)
Self-esteem	3.76 (.073)	4.00 (.070)	3.93 (.068)	3.59 (.095)	3.86 (.079)
BMI	19.60 (.249)	20.55 (.313)	22.82 (.349)	23.69 (.361)	24.67 (.431)
Gender identity	5.43 (.103)	5.82 (.090)	5.89 (.077)	5.99 (.072)	5.95 (.091)
European American/Female (<i>n</i> = 190)					
Depressive affect	NA	1.34 (.028)	1.37 (.031)	1.39 (.033)	1.36 (.032)
Self-esteem	3.33 (.074)	3.62 (.072)	3.58 (.071)	3.39 (.078)	3.49 (.077)
BMI	19.30 (.307)	20.50 (.301)	21.74 (.337)	22.86 (.344)	23.32 (.422)
Gender identity	5.30 (.089)	5.50 (.083)	5.64 (.079)	5.95 (.062)	5.87 (.072)
African American/Male (<i>n</i> = 297)					
Depressive affect	NA	1.26 (.021)	1.25 (.019)	1.26 (.026)	1.29 (.035)
Self-esteem	3.69 (.051)	3.99 (.049)	3.92 (.053)	3.68 (.061)	3.96 (.064)
BMI	20.22 (.285)	21.55 (.254)	23.45 (.289)	24.34 (.308)	25.17 (.327)
Gender identity	5.20 (.097)	5.75 (.076)	6.00 (.072)	6.29 (.060)	6.18 (.077)
African American/Female (<i>n</i> = 306)					
Depressive affect	NA	1.32 (.016)	1.28 (.016)	1.31 (.019)	1.32 (.020)
Self-esteem	3.51 (.041)	3.87 (.039)	3.75 (.037)	3.66 (.043)	3.78 (.043)
BMI	20.93 (.199)	22.29 (.191)	23.90 (.233)	25.29 (.245)	25.63 (.291)
Gender identity	5.41 (.065)	5.57 (.059)	6.08 (.055)	6.34 (.057)	6.34 (.059)

Table 3.2

Growth in depressive affect and self-esteem across race and sex, main effects and interactions

	Depressive affect growth factors		Self esteem growth factors			
	Intercept	Piece 1	Piece 2	Intercept	Piece 1	Piece 2
<i>Growth in well-being and racial status</i>						
Growth Estimates	1.29**	.04	-.02	3.53**	.28**	-.11**
Impact of Race (African American = 1)	-.01	-.06*	.05**	.07	.06	.02
<i>Growth in Well-being and sex status</i>						
Growth Estimates	1.25**	-.01	.03**	3.72**	.31**	-.11**
Impact of Sex (Female = 1)	.07**	.01	-.02	-.27**	.00	.05
<i>Growth in well-being and the interaction of sex and racial status</i>						
Impact of sex (Female = 1) among European Americans	.12**	.00	-.01	-.43**	.03	.06
Impact of sex (Female = 1) among African Americans	.04	.01	-.02	-.18*	-.01	.05
Racial difference in impact of sex (Female = 1)	.08*	-.01	.01	-.25*	.04	.01

Figure 3.1
Piece-wise growth model for depressive affect

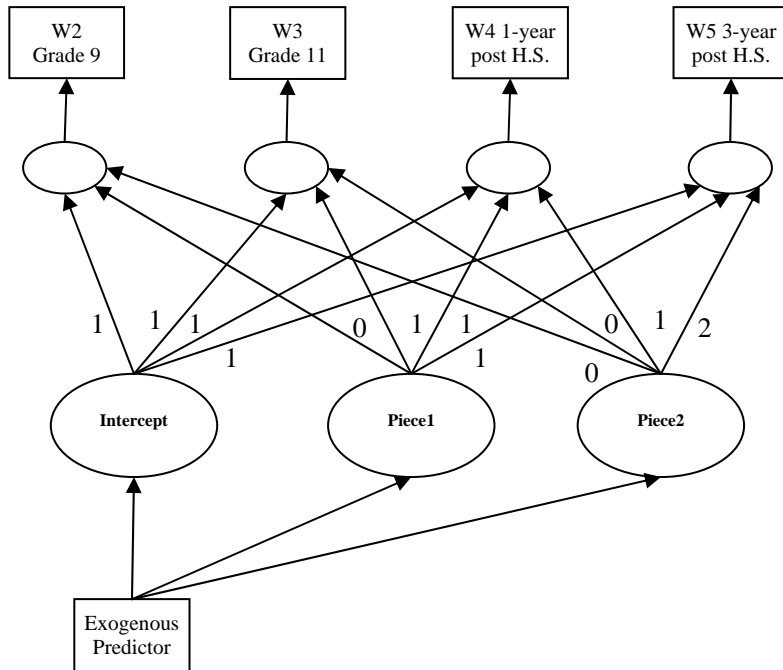


Figure 3.2
Piece-wise growth model for self-esteem

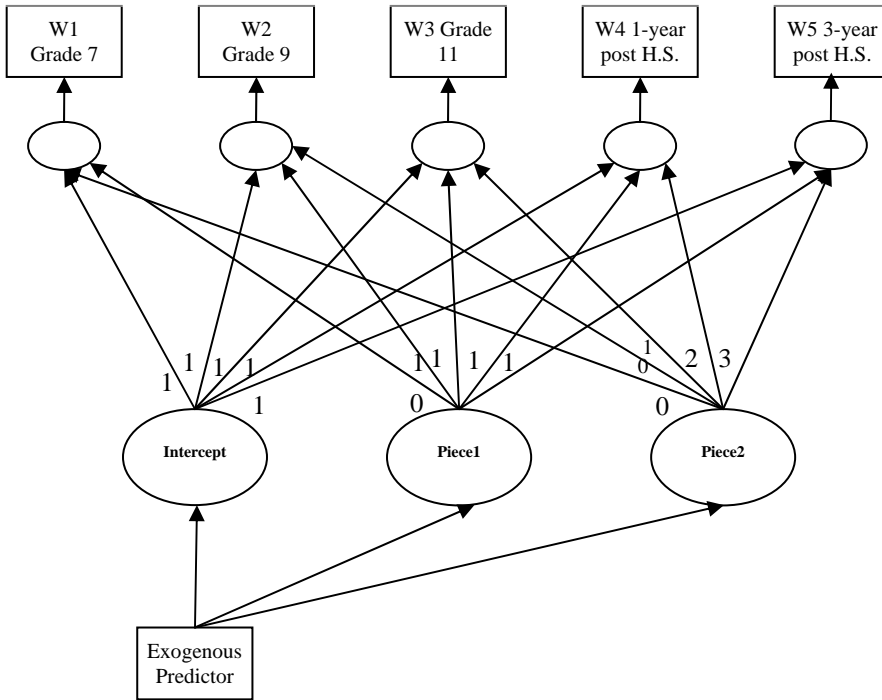


Figure 3.2b
 Revised piece-wise growth model for self-esteem

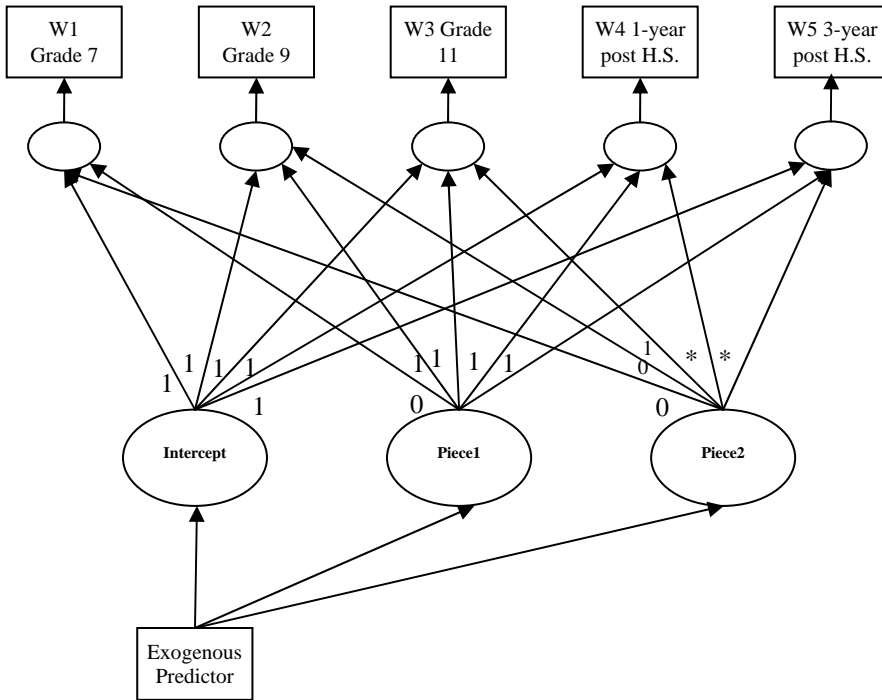


Figure 3.3
 Quasi-structural equation models assessing the association between changes in psychological well-being and changes in both gender identity and body mass

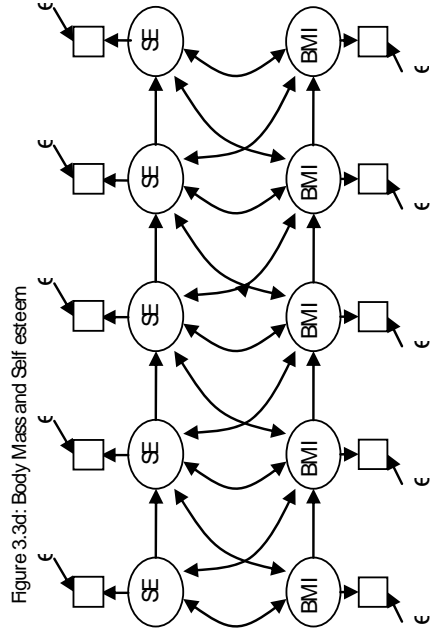
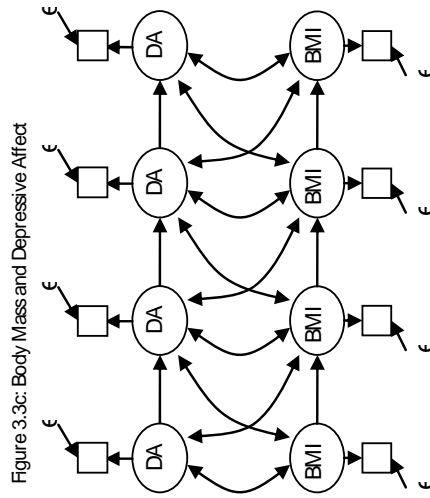
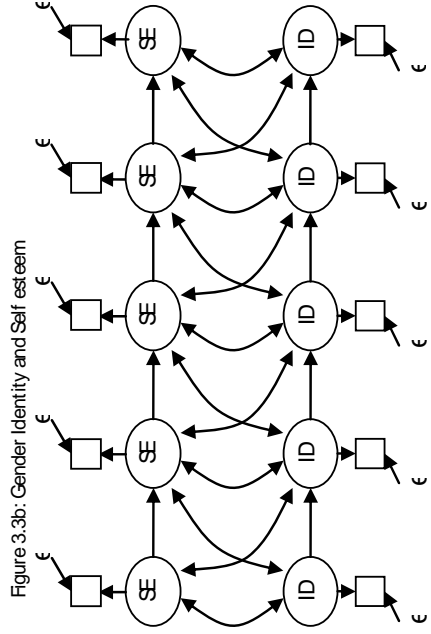
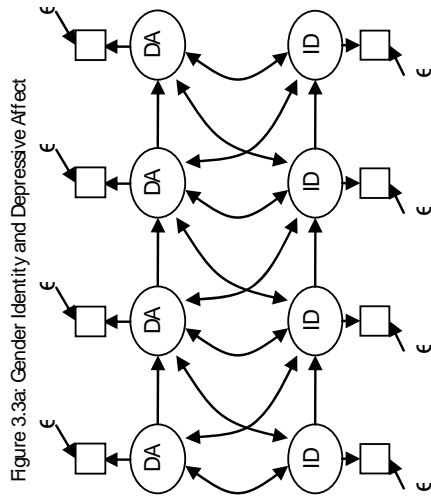


Figure 3.4

Depressive affect trajectories by race, sex, and growth piece (imputed means)

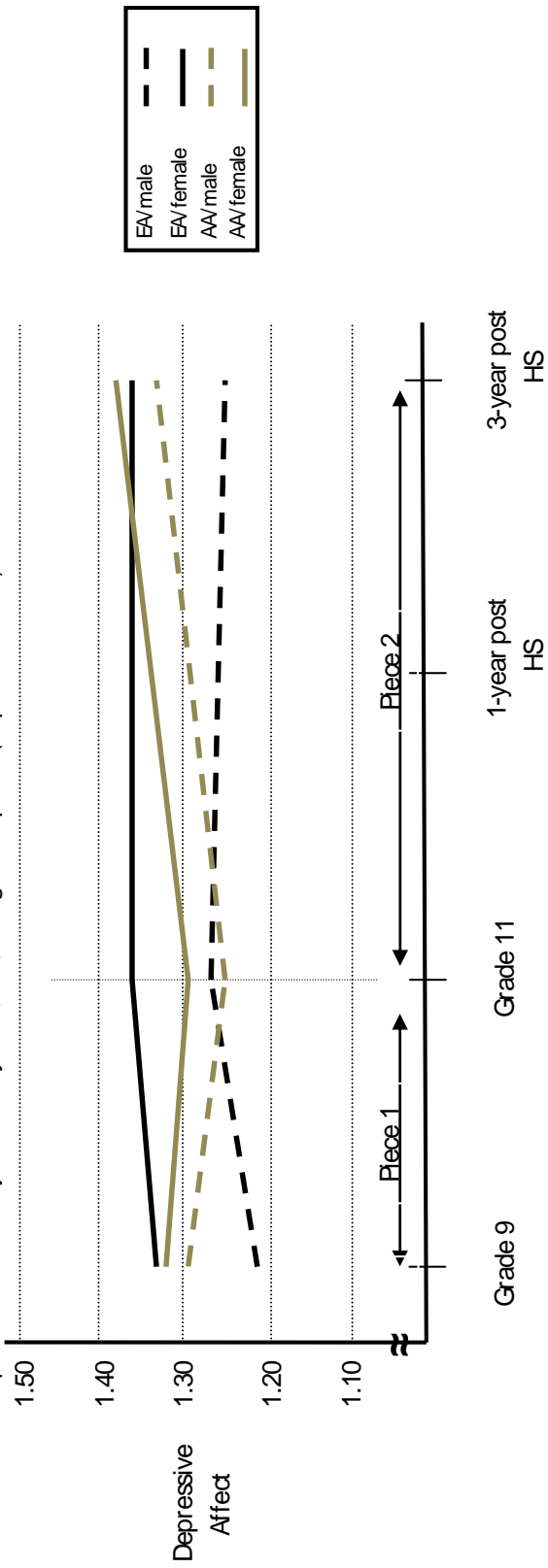


Figure 3.5
 Self-esteem trajectories by race, sex, and growth piece (imputed means)

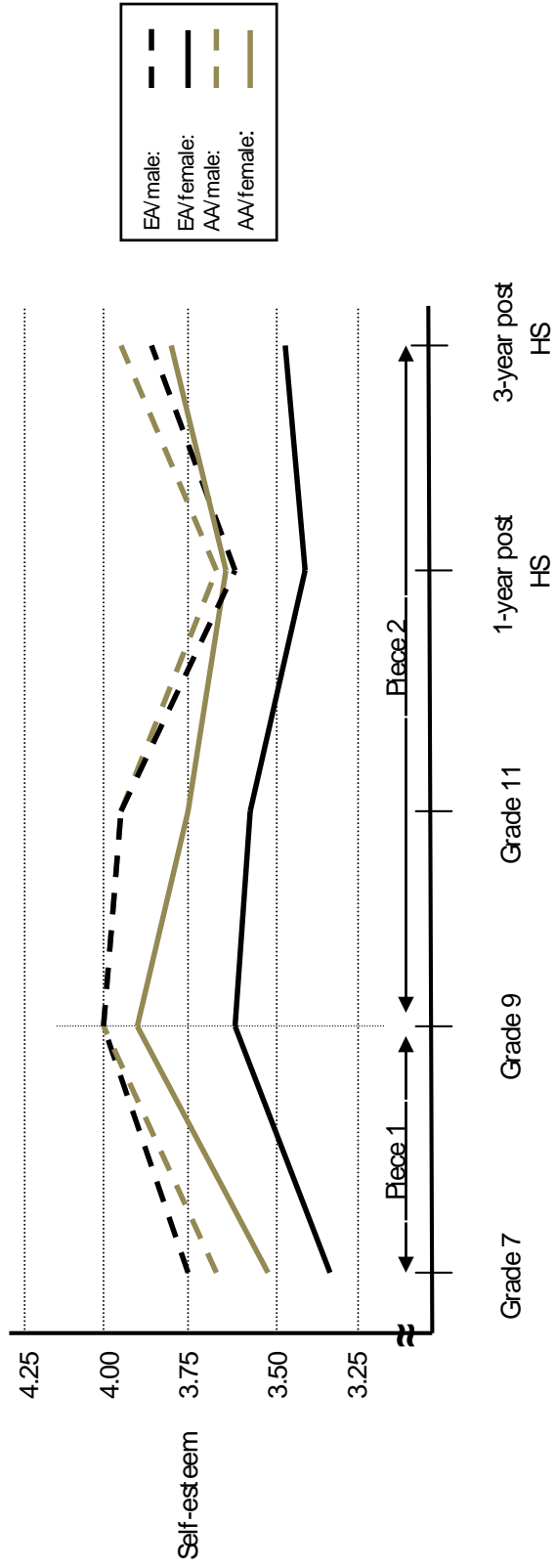
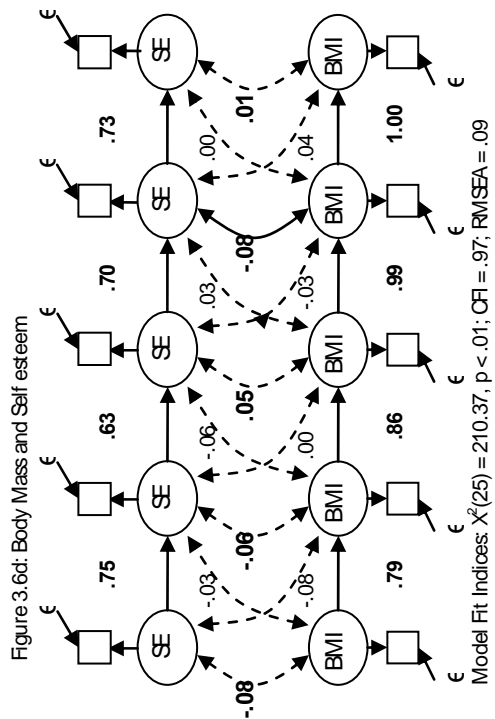
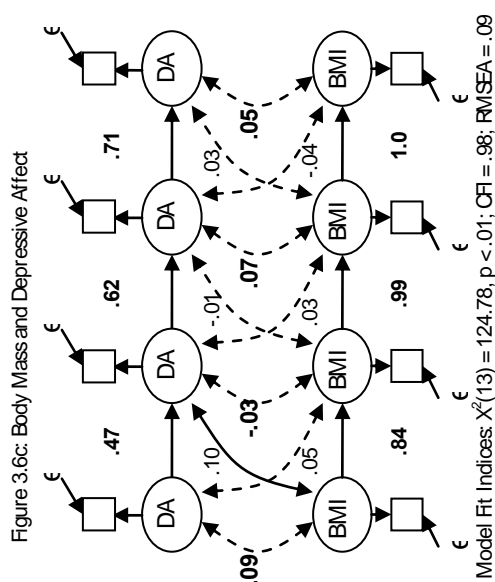
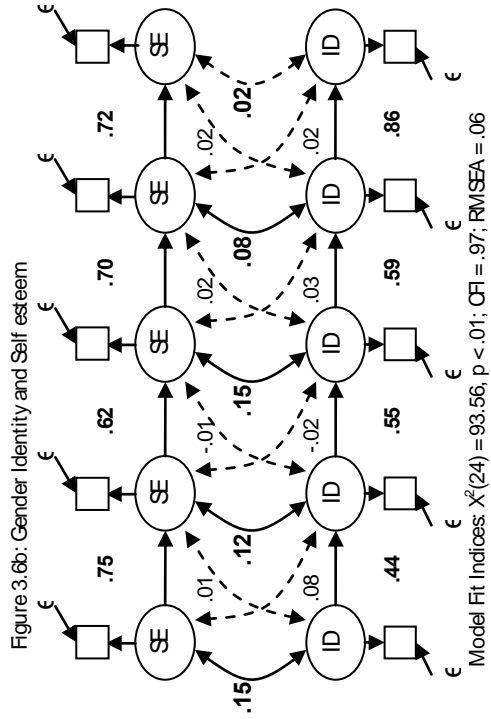
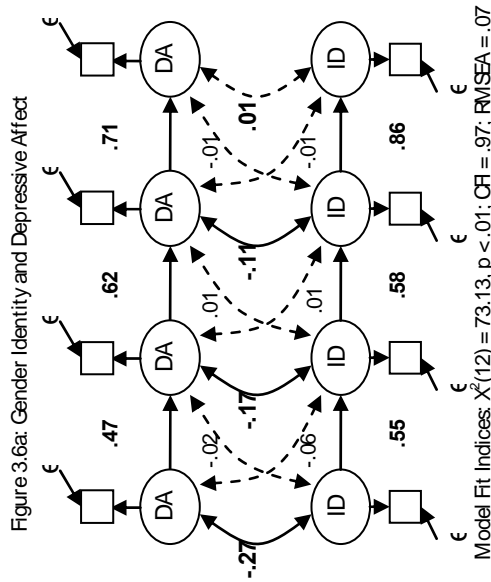


Figure 3.6

Associations between changes in psychological well-being and both gender identity and body mass across time, whole sample



Note: All solid paths are significant at the .05 level

Figure 3.7

Associations between changes in gender identity and depressive affect across time, by race and sex

Figure 3.7a: African American males

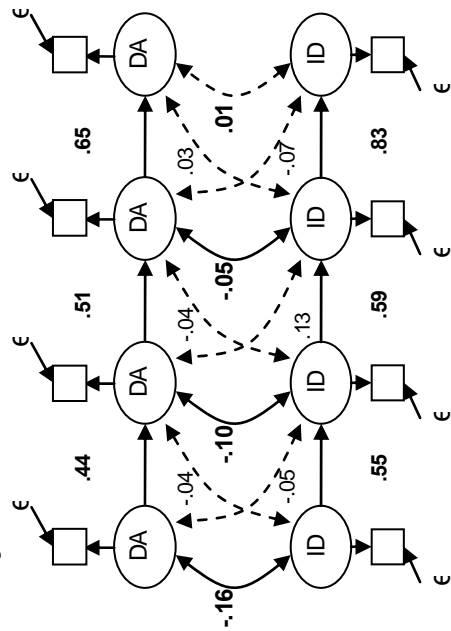


Figure 3.7b: African American females

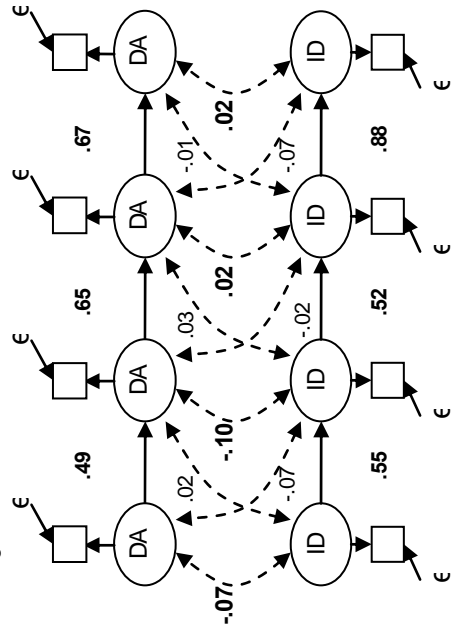


Figure 3.7c: European American males

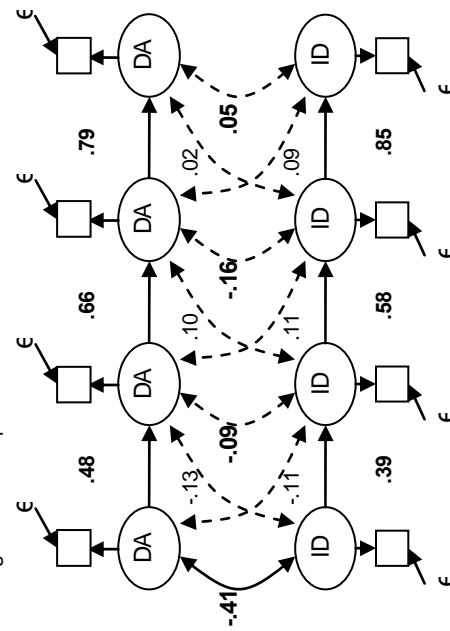
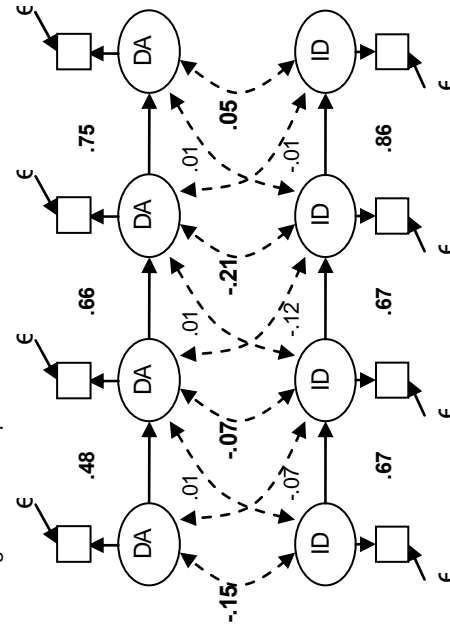


Figure 3.7d: European American females



Model Fit Indices: $\chi^2(48) = 123.90, p < .01$; CFI = .96; RMSEA = .08

Note: All solid paths are significant at the .05 level

Figure 3.8
Associations between changes in gender identity and self-esteem across time, by race and sex

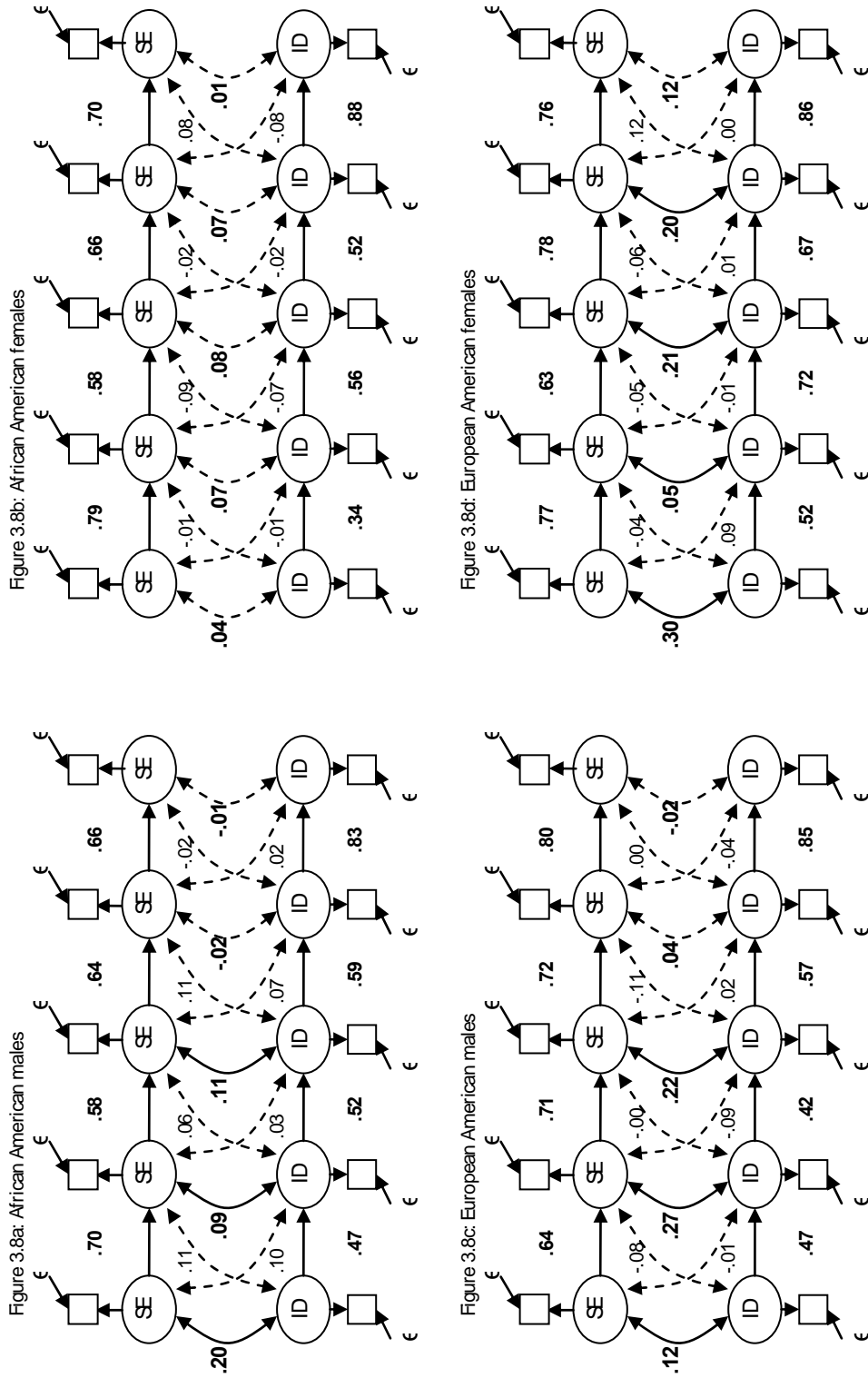


Figure 3.9

Associations between changes in body mass and depressive affect across time, by race and sex

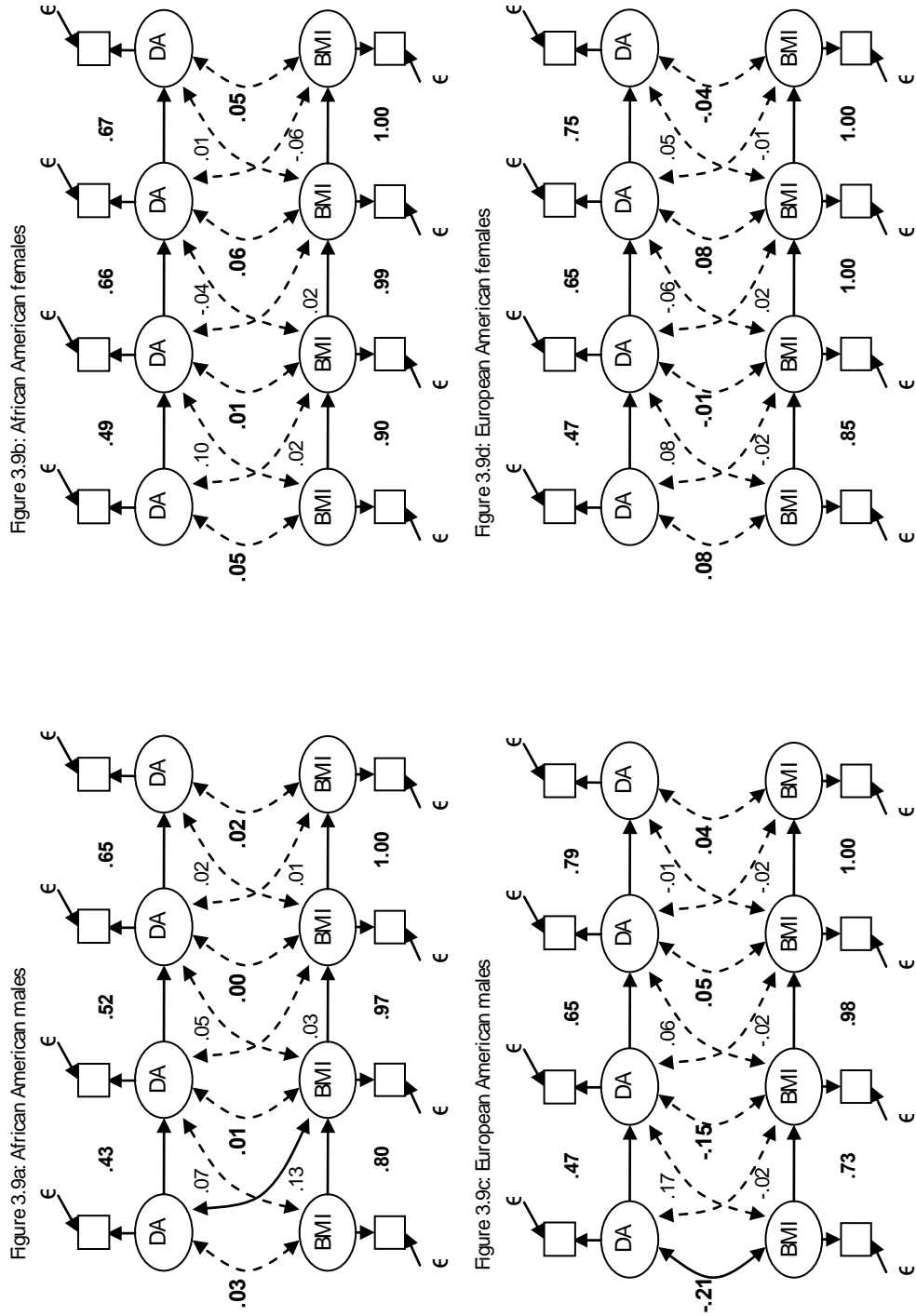


Figure 3.10

Associations between changes in body mass and self-esteem across time, by race and sex

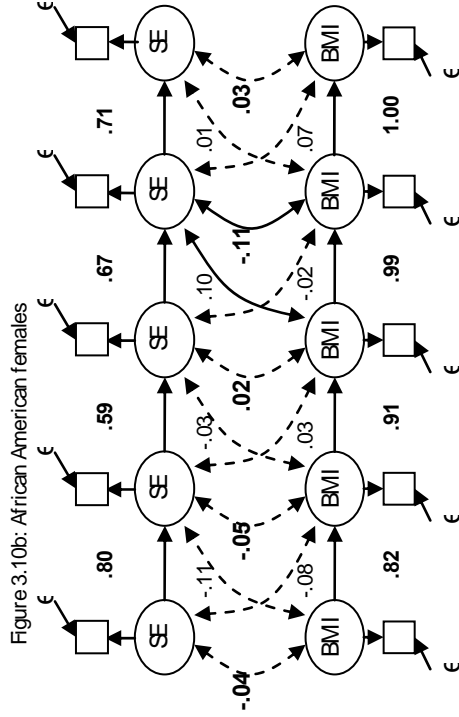
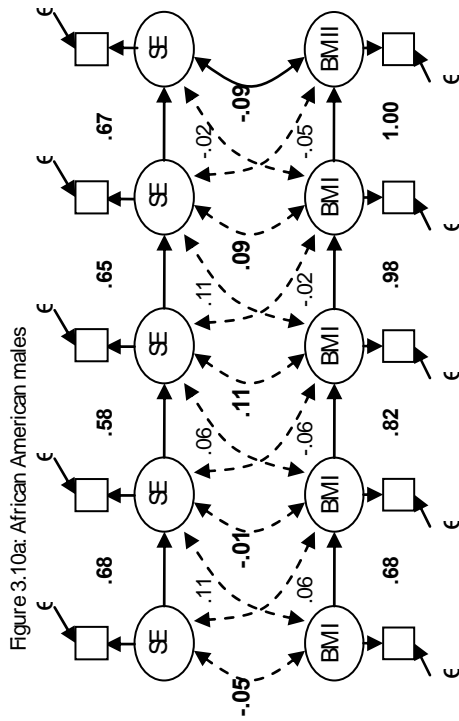


Figure 3.10c: European American males

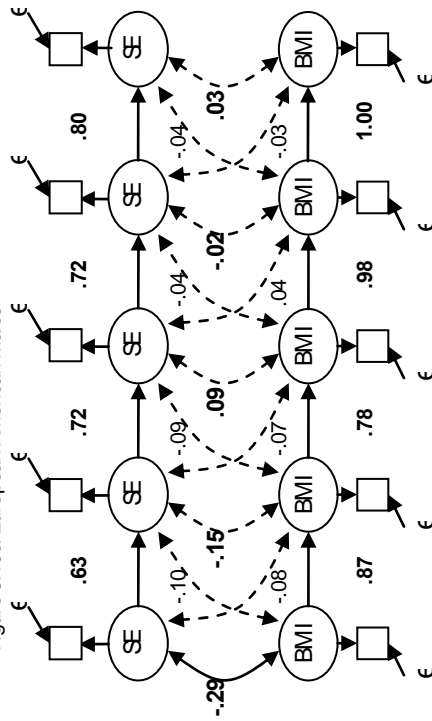
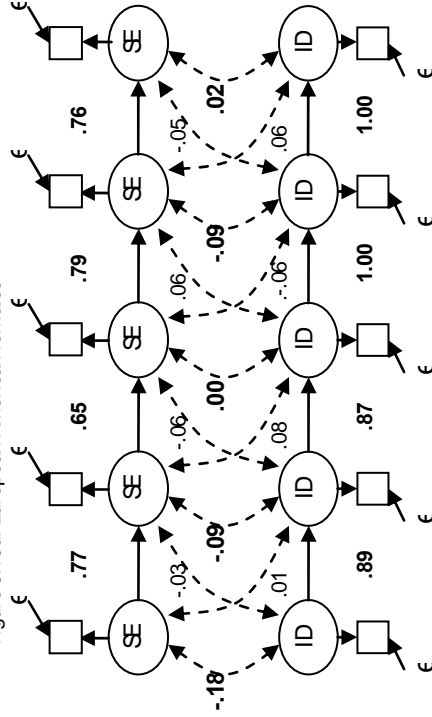


Figure 3.10d: European American females



Model Fit Indices: $\chi^2(120) = 308.50, p < .01, CFI = .96, RMSEA = .09$

Note: All solid paths are significant at the .05 level

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CHAPTER IV

Race, Sex, and Changes in Depressive Affect: Is there a learning-curve when it comes to dealing with at-risk social status?

Abstract

The current study examined whether or not there is a learning-curve to dealing with at-risk status by testing whether or not dealing effectively (i.e., minimal consequences for psychological well-being) with an at-risk status (female status) that impacts psychological well-being during adolescence facilitates how one subsequently deals with an at-risk status (African American status) that impacts psychological well-being after the end of high school. Using data from MADICS – a five-wave longitudinal study consisting of just over 1,600 participants - and limiting the sample to just African Americans, multiple-group, piece-wise latent growth curve modeling was conducted to examine sex differences concerning (1) the growth of depressive affect after the end of high school, and (2) the association between growth in depressive affect during high school and growth in depressive affect after the end of high school. Also, before examining the above, the differential impact across sex of important moderating distal and proximal factors was itself examined and subsequently controlled for when examining the above. Contrary to expectations, no sex differences were found, suggesting that how females deal with their at-risk sex status during adolescence does not relate to how they deal with their at-risk racial status after the end of high school. Possible explanations for the null findings are discussed as well as suggestions for future research.

Introduction

Due to the pervasive influence of social status, a tremendous amount of research has examined the impact of social status on levels of psychological well-being¹. Though a subset of this line of work has focused on the intersection of social status and its impact on psychological well-being, to date, our understanding regarding how multiple social statuses interact within the individual to impact psychological well-being across the life span is still quite limited. Available research focusing on the intersection of social status and its impact on psychological well-being is itself limited in that (1) it limits its focus to the cross-section - though the impact of social status on psychological well-being appears to vary across the lifespan, and (2) generally predicts that, when two social statuses associated with deficits in psychological well-being are coupled together, the impact of each is amplified in the presence of the other resulting in substantial deficits in psychological well-being - though these predictions have largely proven false (Dubois, Burk-Braxton, Swenson, Tevendale, & Hardesty, 2002; Kling, Hyde, Showers, & Buswell, 2002; McLeod & Owens, 2004). Focusing on race and sex statuses, from a developmental perspective, this study hopes to clarify the interaction between multiple social statuses and its impact on depressive affect across adolescence and early adulthood. More specifically, this study hopes to explicate whether or not dealing effectively (i.e., minimal impact in psychological well-being) with one at-risk social status at an earlier point in development is related to dealing effectively with a second at-

¹ Psychological well-being has been conceptualized in various ways. While Bradburn's (1969) conceptualization of psychological well-being is limited to positive and negative mental affect, more recent work by Ryff and colleagues (Ryff, & Keys, 1995; Ryff, Keys, & Hughes, 2003) conceptualizes psychological well-being more broadly and focuses on various dimensions of overall "life satisfaction" - of which mental affect is just one dimension. While this broader conceptualization of psychological well-being is certainly useful, the substantive interest of this dissertation is limited to mental affect, and therefore, Bradburn's (1969) more limited conception of psychological well-being, which focuses solely on mental affect, is used.

risk social status at a later point in development². Namely, whether or not African American females, by virtue of dealing with the challenges associated with their female at-risk status during adolescence, are better equipped than are African American males to deal with the challenges associated with their African American at-risk status that manifest after the end of high school.

Social status and psychological well-being: Why development matters

If, when examining social status and its impact on psychological well-being, one ignores how the impact of social status on psychological well-being may vary across the life span, then necessarily one implicitly assumes the following concerning the impact of social status on psychological well-being: (1) the size and quality of the impact is constant across the life span, and (2) distal factors fail to serve any sort of moderating role. However, there is reason to believe that both of these assumptions are invalid, and therefore, it appears that a perspective that takes into account issues of development is required when examining the impact of social status on psychological well-being.

Impact of social status varies across development: Contrary to the first assumption, there is ample reason to suspect that the impact of social status on levels of psychological well-being does in fact vary across the lifespan. For example, researchers have shown again and again that the psychological well-being disparities across both sex status (Kling, et al., 1999; McLeod & Owens, 2004) and race status (Gray-Little & Hafdahl, 2000; McLeod & Owens, 2004) emerge during adolescence and early adulthood. Thus, at the population level anyway, the impact of race and sex status on

² See Chapters 1 or 3 for detailed definitions of both at-risk status and marginalized status. But in short, the distinction between “marginalized” and “dominant” is sociological in nature (i.e., based on power structures within a given society) while the distinction between “at-risk” and “not at risk” is empirical in nature (i.e., based on which group reports deficits in well-being relative to another group).

levels of psychological well-being does vary across the lifespan, and specifically the impact appears to be the most pronounced during adolescence and early adulthood.

Given that the impact of social status on levels of psychological well-being varies across the lifespan, one must recognize that for any given social status there is at least one *vulnerable period* over the course of development that is characterized by non-parallel growth across the levels of a given social status and coincides with when the disparities in psychological well-being emerge across the levels of that social status. In addition, the period of non-parallel growth that characterizes a vulnerable period does not occur at random, but instead coincides with other developmental changes that themselves interact with a given social status and subsequently result in differential growth across the levels of that social status.

Concerning sex status, sex differences in depressive affect first emerge around age 10, and continue to widen through mid- to late-adolescence (Angold & Rutter, 1992; Galambos, Leadbetter, & Barker, 2004; McLeod & Owens, 2004; Twenge & Nolen-Hoeksema, 2002). Thus, concerning depressive affect, the period of non-parallel growth (i.e., the vulnerable period) across males and females occurs between late-childhood and mid- to late-adolescence. Other developmental changes that coincide with this key period are the hormonal (Angold, Costello, Erkanli, & Worthman, 1999; Angold, Costello, Worthman, 1998; Nolen-Hoeksema, 1990) and body changes (Galambos, Leadbeater, & Barker, 2004; Kessler, 2003; Nolen-Hoeksema & Girgus, 1994) associated with puberty, as well as the formation of gender identity (Hill & Lynch, 1986; Orlofsky & O’Heron, 1987) – all of which are thought to have a differential impact on the psychological well-being of males and females.

Concerning race status, a vulnerable period appears to follow the end of high school when there appears to be a period of non-parallel growth with growth in depressive affect being slightly higher among African Americans relative to European Americans (Gore & Aseltine, 2003; Chapter II of this dissertation). Again, the timing of this period of non-parallel growth is not random, but instead coincides with other developmental changes at the contextual level – namely, moving out on one’s own and/or transitioning into either college or full-time employment. More specifically, the increases in perceived discrimination (Branscombe & Ellemers, 1998; van Laar, 2000) and decreases in race-related social support (Branscombe & Ellemers, 1998; Gore & Aseltine, 2003) potentially associated with these transitions may render African Americans vulnerable to increases in depressive affect during this period of development. In addition, forgoing additional education and transitioning directly into work after the end of high school, which African Americans are more likely to do relative to European Americans (William T. Grant Foundation, 1998), is associated with deficits in psychological well-being and this association appears to be more pronounced among African Americans (Chapter II of this dissertation).

Distal factors as moderators: By ignoring whether or not the impact of social status on levels of psychological well-being varies across age, one implicitly assumes the impact is constant across age, and therefore also necessarily assumes that distal influences fail to impact current levels of adjustment. In fact, if age is ignored then the mere notion of distal influences is all together meaningless. However, a key tenet of developmental science is that development is a cumulative process in which both proximal and distal factors influence current levels of adjustment (Caspi, 2000; Caspi &

Moffit, 1995; Schulenberg & Maggs, 2002). Since vulnerable periods associated with social status do not appear to initiate at birth, but instead initiate at some later point of development, by the time a vulnerable period for a given social status actually initiates, the individuals of that social status are, at least to some extent, already in mid-stream developmentally speaking. That is, they are not a blank slate, but instead are already moving along a developmental trajectory. As such, it may be overly simplistic to assume that distal influences fail to moderate the impact of social status since by the time a given social status begins to impact psychological well-being (i.e., the initiation of the vulnerable period) the individual is already moving along a developmental pathway. After all, to assume as much would be to suggest that once a vulnerable period initiates there is absolutely not carry-over (i.e., complete discontinuity) from earlier developmental experience; that development is the opposite of a cumulative process, and instead simply starts afresh with the slate wiped clean each and every time a vulnerable period associated with one's set of social statuses initiates.

Thus, conceptually speaking, the notion that distal factors completely fail to influence the impact of social status on levels of psychological well-being seems far-fetched. But, to make things more concrete, there are several specific examples of distal factors that appear to influence the impact of social status on levels of psychological well-being. For example, as identified in Chapter II, concerning the vulnerable period for race following the end of high school, for African Americans mid-adolescent levels of family income, race-related social support, and perceived racial discrimination are all distal factors associated with *decreased* growth in depressive affect after the end of high

school. As such, these three distal factors moderate (and in this case lessen) the impact of African-American status on the growth of depressive affect after the end of high school.

Dealing with an at-risk status: A learning curve?

In addition to the distal factors identified above, perhaps there is an additional distal factor. Perhaps dealing with an at-risk status whose vulnerable period falls at an earlier point of development facilitates dealing with an at-risk status whose vulnerable period falls at a later point of development. That is, to the extent that earlier, mid-adolescent levels of family income, social support, and perceived discrimination appear to moderate the extent to which African American status (an at-risk status itself) is associated with increases in depressive affect after the end of high school, so to might earlier experiences with at-risk status – albeit a different at-risk status from African American status.

Regarding the at-risk statuses associated with race and sex status, notice that the vulnerable period associated with female status - which appears to occur between late childhood and mid-adolescence - and the vulnerable period associated with African American status - which appears to occur during the years immediately following the end of high school - do not overlap with one another. Because the vulnerable periods associated with each social status do not overlap, individuals who hold both at-risk social statuses (e.g., African American females) appear to be, in large part, dealing with the challenges associated with each at-risk status at different points of development. Perhaps dealing with these challenges at different points of development results in a “learning-curve” when it comes to dealing with an at-risk status? That is if the vulnerable periods associated with each at-risk status are staggered across the lifespan, and one deals

successfully with the earlier at-risk status (i.e., impact on psychological well-being is minimal), then perhaps one is more likely to deal with later at-risk status(es) successfully and vice-versa.

Why a learning-curve when it comes to dealing with at-risk status? While at-risk statuses certainly differ regarding what it is about the individual that poses a threat to psychological well-being (e.g., racial-minority or female), some of the mechanisms mediating the relationship between those statuses and psychological well-being are similar – namely, increases in levels of stress, and levels of perceived discrimination (whether it is racism or sexism). Concerning stress, higher levels of social support and effective coping strategies can help mitigate the negative impact of stress on psychological well-being (Li, Stanton, Pack, Harris, Cottrell, & Burns, 2002; McCreary, Cunningham, Ingram, & Fife, 2006; Olf, Langeland, & Gersons, 2005; Zimmerman & Bingenheimer, 2002). If, in the process of dealing with the stress associated with one at-risk status whose vulnerable period is earlier in development, one develops a broad network of social support and effective stress-coping strategies, then when one is faced with the increased stress associated with a second at-risk status whose vulnerable period is later in development, the impact of that stress may be mitigated since he or she has already developed effective stress-coping strategies, and has a broad social network from which to draw support. Contrast this to those individuals who are dealing with the same at-risk status later on in development but who (1) never dealt with an at-risk status at an earlier point in development, or (2) dealt with an earlier at-risk status, but dealt with it poorly (i.e., sizable impact on psychological well-being), and therefore did not develop effective stress-coping strategies or broad networks of social support.

Similarly, concerning marginalized status and the impact of perceived discrimination on levels of psychological well-being, acquiring the ability to compartmentalize one's sense of self from discriminatory messages regarding one's in-group (Cross, 1991; McAdoo, 1985; & Porter and Washington, 1993), and learning to focus on the positive messages received from one's marginalized in-group opposed to the negative messages received from the dominant out-group (Miller, 1999; Peters, 1985; Stevenson, 1995; & Thornton, 1997), can both help mitigate the impact of perceived discrimination. As such, if, when one faces discrimination associated with a marginalized status at an earlier point of development, one acquires these effective coping strategies for dealing with discrimination, then when one faces discrimination associated with a second marginalized status whose vulnerable period is later in development one may apply these coping strategies to the novel form of discrimination, and, as a result, the impact of that discrimination may be mitigated. Again, contrast this to those individuals who are dealing with the marginalized status later on in development but who (1) never dealt with a marginalized status at an earlier point in development, or (2) dealt with an earlier marginalized status, but dealt with it poorly (i.e., sizable impact on psychological well-being) due to acquiring ineffective coping strategies for dealing with discrimination.

Supporting literature: Because a sizable majority of research focusing on the intersection of social status and its impact on psychological well-being has been cross-sectional in nature, available research says very little about how social statuses interact in the long term, and therefore says very little about whether or not there is learning-curve when it comes to dealing with at-risk social statuses. Though extremely limited, there is

some empirical evidence to support the notion that there is a learning-curve when it comes to dealing with at-risk status. The vulnerable period associated with elderly status is clearly later in development, while the vulnerable period associated with socio-economic status (SES) appears to end by middle adulthood (Twenge & Campbell, 2002). Thus, concerning elderly status and low-SES, the vulnerable periods do not appear to overlap, with the vulnerable period of low-SES status falling before the vulnerable period for elderly status. Additionally, consistent with the notion of a learning-curve and at-risk status, the impact of elderly status on levels of psychological well-being appears to be smaller among those individuals of low-SES status (Dowd & Bangston, 1978). Though the mechanisms responsible for this relationship are far from clear, perhaps the lessons and life skills acquired while dealing with low-SES status prior to late adulthood facilitated dealing with elderly status during late adulthood (i.e., a learning-curve to dealing with at-risk social status).

Hypotheses and expectations:

With respect to increases in depressive affect after the end of high school, the increases are expected to be more modest among African-American females than among African American males, since African-Americans females have dealt with the female at risk status at a previous point of development – *Hypothesis 1*. With respect to the association between levels of depressive affect during mid-adolescence (vulnerable period for females) and changes in depressive affect after the end of high school (vulnerable period for African-Americans), the magnitude of the association is expected to be more positive (i.e., higher level of continuity) among African American females than African American males, since for African American females the lessons they

learned (whether good or bad) from dealing with their at-risk female status are more likely to carry over to how they deal with their at-risk African American status –

Hypothesis 2. Finally, in order to more directly examine whether or not there is a learning-curve when it comes to dealing with African American and female at-risk statuses, certain confounding factors will be controlled for. That is, as addressed earlier in this introduction and examined in detail in Chapter II, several distal factors (mid-adolescent levels of family income, race-related social support, and perceived racial discrimination) and a single proximal factor (non-college status) all moderate the impact of race status on the growth of depressive affect after the end of high school. If (1) the mean levels of any of these moderating factors varies across sex, and (2) the moderating impact of any of these moderating factors on growth of depressive affect after the end of high school varies across sex, then a potential confound is introduced. As such sex differences regarding these moderating factors will be explored, and the impact of the moderating factors themselves will be controlled for when examining whether or not there is a learning-curve when it comes to dealing with African American and female at-risk statuses (i.e., when testing hypotheses 1 & 2).

Methods

Sample

The data for this study come from the Maryland Adolescent Development in Context Study (MADICS), a multi-wave community-based, longitudinal study of adolescents and their families (principle investigators: Jacquelynne S. Eccles and Arnold J. Sameroff). Participants were recruited via a note from the school to the adolescents' parents. In September, 1991, there were 7,841 7th grade students in the district enrolled

in the 23 middle schools of focus. Of these, 5,452 parents/guardians authorized their child's participation in The Comer and Cook school evaluation study (CCSES). The MADICS sample is a purposive sub-sample (based on the parents' willingness to participate and on a stratified sampling procedure designed to get proportional representations of families from each of the 23 middle schools being studied) of those families who authorized their child's participation in the CCSES. The number of adolescents in each middle school participating in MADICS ranged from 30 to 90 depending on volunteer rates and school size; all but 2 of the schools had 40 or more participating adolescents and families. Although the MADICS participants are not a random sample from their cohort, there is evidence that there is very little systematic bias in the MADICS sample. Administrators of the CCSES were able to compare the characteristics of the MADICS Wave 1 sample with the characteristics of the larger CCSES sample (from which the MADICS participants were drawn). In general, the differences are quite small and usually non-significant despite the large sample size. Primarily, the MADICS sample is slightly wealthier and more likely to be European-American than the CCSES sample.

MADICS participants have been assessed at five time points ranging from early adolescence (7th grade) through late adolescence/young adulthood (3 years post-high school graduation). During the 7th grade, 1,482 adolescents and their families participated. At each subsequent wave of data collection attempts were made to solicit data from all MADICS participants who initially participated at the 7th grade assessment. The majority of adolescents who did not participate in follow-up assessments did not participate because they moved out of the district. For the present investigation,

information is reported for data collected at four time points (Wave 2 - Grade 9, Wave 3 - Grade 11, Wave 4 - 1-year post high school, and Wave 5 - 3-years post high school³) from those participants who indicated that they were African American, had complete data for sex, and reported data on at least two of the four time points data for depressive affect were collected - $N = 603$. For effects of attrition see section below labeled *attrition and missing data strategy*.

Procedure

Both the focal child and his or her primary caregiver were interviewed in their home at Waves 2 and 3 (Grade 9 and Grade 11). These questionnaires included a broad range of items about family dynamics, family and peer relationships, resources, and stressors, as well as a broad array of indicators of adolescent development including measures of racial identity. Waves 4 and 5 (1-year post high school and 3-years post high school, respectively) took place 2 and 4 years respectively after Wave 3. For Waves 4 and 5, only the focal children (now adults) were surveyed using a mailed questionnaire. Data collected during these later waves included all measures of development assessed at Waves 2 & 3 as well as measures of work, college, and romantic experiences.

Measures

Depressive affect: The scale for depressive affect is a 7-item scale, and is a truncated version of the Child Depressive Inventory (CDI) (Kovacs, 1992). The CDI items used are: *I am sad, I feel like nothing will ever work out for me, I am worthless all the time, I feel like I hate myself, I feel like crying everyday, things bother me all the time,*

³ The Waves used are literally Waves 3, 4, 5, & 6 of MADICS. However, the original Wave 2 of MADICS is unusable, and as such there are only 5 usable Waves of data – the last four of which are used for the purposes of this study. Thus to avoid confusion, the waves used in the present study are referred to here as Waves 2, 3, 4, & 5.

I feel that I have plenty of friends (reverse coded). Possible responses range from 1 (once in a while) – 3 (all the time). Data are available for Waves 2, 3, 4, and 5. Cronbach alphas are .78, .81, .78 and .81 respectively.

Family income at Grade 7: Family income was included as an indicator of SES. When respondents were in the 7th grade, their parent or legal guardian was asked to indicate their total family income before taxes. The possible response increased in increments of \$5,000, and ranged from 1 (less than \$5,000) to 16 (more than \$75,000).

Grade 9 race-related social support: The scale for race-related social support is based on four measures. The first two - *People of my race are very supportive of each other*, and *I have a close community of friends because of my race* – are on a scale that ranges from 1 (strongly disagree) to 5 (strongly agree). The third and fourth items – *How often do you participate in community activities with people of your racial background?*, and *How often do you celebrate any special days connected to your racial background?* – were also on a 5-point scale, but with responses ranging from 1 (never) to 5 (frequently). The Cronbach alpha for the Wave 2 scale is .47.

Grade 9 perceived racial discrimination: The scale for perceived discrimination is based on two items: (1) *How much do you think discrimination because of your race might keep you from getting the job you want?*; (2) *How much do you think discrimination because of your race might keep you from getting the amount of education you want?*. Possible responses range from 1 (not at all) to 5 (a lot). The Cronbach alpha for the Wave 2 scale is .74.

Non-college status: At waves 4 and 5, respondents were asked the following question, “Are you in college?” Possible responses were: “No”, “Yes, part-time”, and

“*Yes, full-time*”. For the purposes of this study, individuals who answered “*No*” or “*Yes, part-time*” were categorized as “working” (non-college status = 1) since both groups do not represent traditional college status, and those who answered “*Yes, full-time*” were categorized as “in college” (non-college status = 0). Unless missing, respondents’ college status was based on their response at Wave 4. If data were missing at Wave 4, then college status was based on respondents’ answers at Wave 5 (if available).

Attrition and Missing Data Strategy

Out of the 1,482 total participants, 886 had complete data for both race and sex and were of African American status - thus 596 individuals were not included in the analyses because they were either not of African-American descent ($n = 583$), or they had missing data for race ($n = 13$). Out of these 886 individuals, 603 individuals reported data for at least two of the four time points that data for depressive affect were collected. Though Multiple Imputation (Rubin, 1987) is used to account for missing data (described in next section) and minimize bias due to attrition, for the sake of caution those African Americans who reported data for depressive affect at one or fewer time points ($n = 283$) were dropped from the analyses. After all, this study is interested in trajectories of depressive affect, and imputing 3 out of 4 or even 4 out of 4 time points may introduce more bias than it alleviates. Subsequently, only those who reported data for two or more of the four possible time points for depressive affect were included in the analyses ($n = 603$).

Measure of depressive affect and attrition: Compared to the African Americans who reported data for depressive affect at one or fewer time points ($n = 283$) those who reported data for depressive affect at two or more time points ($n = 603$) reported lower

levels of depressive affect at Wave 2, $t(611) = 2.40, p < .05, R^2 = .008$, and Wave 5, $t(299) = 2.14, p < .05, R^2 = .012$, but reported equivalent levels of depressive affect at Waves 3 & 4. Also, males, $X^2(1) = 12.99, p < .001$, were overrepresented among those who reported data for depressive affect at 1 or fewer time points ($n = 283$).

Measures of distal and proximal factors and attrition: Compared to the African Americans who reported data for depressive affect at one or fewer time points ($n = 283$) those who reported data for depressive affect at two or more time points ($n = 603$) reported higher family income Grade 7, $t(854) = 3.11, p < .001, R^2 = .011$, and were more likely to go onto college, $t(544) = 4.59, p < .001, R^2 = .036$. Concerning Grade 9 levels of both race related social support and perceived racial discrimination, there were no differences between these two groups.

Missing data strategy: Using the PROC MI procedure available in SAS (SAS Institute Inc., 1999), missing data were imputed using Multiple Imputation (MI) (Rubin, 1987). Compared to other missing data procedures, MI is superior when it comes to minimizing bias due to attrition (Graham, Hofer, & Piccinin, 1994; & Little & Rubin, 1987; Schafer & Olsen, 1998). In the same regard, MI is also far superior to simple case-wise deletion (Little & Rubin, 1987; & Schafer & Olsen, 1998). Moreover, not only are the parameter estimates more trustworthy when using MI (due to its accounting for attrition more effectively), but also standard errors associated with the parameter estimates are not artificially decreased, and as such inferences are trustworthy as well (Graham, Hofer, & Piccinin, 1994). Only missing data for depressive affect, race related social support, and perceived racial discrimination were imputed (i.e., data for race and sex were not imputed), and again the imputation process was limited to those African

Americans that reported data for depressive affect for at least two time points ($n = 603$). Once again for the sake of caution, missing data for measures based on a single time point (family income and work status) were not imputed.

An assumption of the multiple-imputation (MI) procedure is that the data imputed are missing at random (MAR), though it is a loose assumption (Rubin, 1987). By definition, a variable is missing at random if its state of missing has nothing to do with its actual value, but instead is due to the state of some secondary variable(s) (Schafer & Olsen, 1998). In more concrete terms, an individual's missing value for depressive affect is MAR if the state of missing is unrelated to that person's actual level of depressive affect at that very point in time, but instead is related to other variables (e.g., they are sick, working full-time, have low-income, etc.) at earlier points in time, that point in time, or future points in time, or is related to depressive affect at earlier or future points in time. When utilizing MI, the first step is to empirically identify as many variables as possible that are related to the missingness of the variables to be imputed. Once identified these variables are included in the imputation process as "auxiliary variables", and their inclusion helps to insure that the imputed data resulting from the MI procedure are unbiased. However, once the data are imputed, the auxiliary variables are dropped, and the imputed data are then analyzed separately from the auxiliary variables. Because the auxiliary variables are not included in the actual analyses, they are not equivalent to control variables.

Using the number of missing time points for depressive affect as a grouping variable, a series of one-way ANOVA's were conducted to determine what auxiliary variables were significantly related to missingness. The variables related to missingness

and included as auxiliary variables covered the following domains: school/academic achievement, relations with peers, relations with parents, family characteristics, neighborhood characteristics, spirituality/religion, puberty/physical health, sexual experiences and dating, and risky behavior. In addition, to aid in the imputation of Grade 9 race-related social support and Grade 9 perceived racial discrimination (both of which were assessed at Wave 2), the measures for both scales at Waves 3, 4, and 5 were also included in the imputation process. Among the 603 respondents included in the analyses, the mean percent missing across the 34 measures for which missing values were imputed (7 observations for the depressive affect scale at 4 time points, 2 observations for perceived racial discrimination at 1 time point, and 4 observations for race-related social support at 1 time point) was 19.86%. Based on this fraction, 5 data sets were imputed to reach an efficiency level above .95 (Rubin, 1987).

Analytical Strategy

Means and standard errors were calculated using PROC MIANALYZE within SAS (SAS Institute Inc., 1999), which was developed to estimate standard errors of multiply imputed data. The imputation option within M-Plus (Muthen & Muthen, 1998-2006), also developed for multiply imputed data, was used to conduct growth model analyses.

Step 1 – Concerning the influence of distal and proximal factors on the growth of depressive affect after the end of high school, assess the differential influence across sex:

The first step in the analyses was to examine (1) whether or not there are mean differences across sex concerning Grade 7 levels of family income, Grade 9 levels of race-related social support, Grade 9 levels of perceived racial discrimination, and levels

of non-college status, and (2) whether or not there are sex differences concerning the associations between both distal factors (Grade 7 levels of family income, and Grade 9 levels of race-related social support and perceived racial discrimination) and proximal factors (non-college status), and the growth in depressive affect following the end of high school. In order to examine these issues, piece-wise, latent growth modeling was utilized (Li, Duncan, Duncan & Hops, 2001). Overall, growth of depressive affect was broken into two growth pieces: *Piece 1* is the piece that best corresponds with the high school years (change between Grade 9 and Grade 11), and *Piece 2* is the piece that best corresponds with the post high school years (change between Grade 11 and 3-years after the end of high school) – which is the period of development when African American individuals appear to be vulnerable to increases in depressive affect (Figure 4.1). Distal factors were included in separate models as exogenous predictors of Piece 2 growth in depressive affect (Figure 4.1). The impact of the single proximal factor (non-college status) was first examined separately and was included as the only exogenous predictor. Next, the distal factors were also included as exogenous factors (thereby controlling for the impact of the distal factors) and the impact of the single proximal factor (non-college status) was again examined. In order to assess group differences across sex in both mean levels of the exogenous predictors themselves as well as their association with Piece 2 growth in depressive affect, multiple-group growth curve analyses were conducted (Duncan, Duncan, Strycker, Li, & Alpert, 1999).

Step 2 – Assess if there is a learning-curve while controlling for meaningful distal and proximal factors as found in Step 1: Building off of the model in Figure 4.1, all meaningful distal and proximal factors as found in Step 1 were controlled for by

including them simultaneously as exogenous variables. In order to assess group differences across sex status, multiple-group, growth curve analyses were conducted (Duncan, Duncan, Strycker, Li, & Alpert, 1999). More specifically, in order to assess if increases in depressive affect after the end of high school are more modest among African American females than among African American males (Hypothesis 1), whether or not there are sex differences in Piece 2 growth in depressive affect was assessed. In order to assess if correlations between both the intercept and Piece 1 growth and Piece 2 growth are more positive (i.e., higher level of continuity) among African American females than they are among African-American males (Hypothesis 2), sex differences in associations between Piece 2 growth and both the intercept and Piece 1 growth were assessed.

Results

Basic descriptive statistics

The imputed means and standard errors for depressive affect, Grade 7 family income, Grade 9 race-related social support, Grade 9 perceived racial discrimination, and non-college status are all presented in Table 4.1. Within Table 4.1, the imputed means and standard errors are presented for the whole sample as well as separately for males and females. The male and female trajectories of depressive affect (based on imputed means) are presented in Figure 4.2. Since there are 5 imputed data sets, and 2 different sex groups, there are 10 covariance matrices in all. As such the covariance matrices are not presented here, but are available from the author upon request. Additionally, due to space constraints, fit indices are not presented for each model, though in every case the fit

ranged from excellent to good - e.g., CFI > .95 and RMSEA < .06 (McDonald & Ringo Ho, 2002).

Distal and proximal risk factors: Variation across sex status

In Table 4.2 the estimated mean and variance for each of the distal and proximal factors that were, based on analyses completed in Chapter II, significantly related to the growth of depressive affect after the end of high school are listed separately for each sex. Also listed separately for each sex in the last column of Table 4.2 is the association between each factor and growth in depressive affect after the end of high school (Piece 2). Finally, sex differences in mean and variance estimates for each factor as well as sex differences in the association between each factor and the growth in depressive affect after the end of high school are listed in the lower portion of Table 4.2. For all estimates in Tables 2 and all subsequent tables, level of significance pertains to whether or not a given estimate is different from zero. Concerning the estimates for each sex status, levels of significance were obtained directly from the multi-group analyses within Mplus (Muthen & Muthen, 1998-2006). Concerning the estimates of sex status differences (i.e., whether or not the estimates differed across males and females), levels of significance were obtained from model comparisons. The procedure is similar to conventional multiple group analyses within SEM where certain parameters are constrained to be equal across groups in a more parsimonious model and then unconstrained across groups in a less parsimonious model. The fit of the models were then compared to one another by conducting standard chi-square difference tests (Kline, 1998).

Distal factors: Regarding mean estimates and sex differences in those estimates, the mean estimates for both sexes were themselves significantly different from zero, but

were not significantly different from one another for Grade 7 family income (.18), $\Delta X^2(1) = .48$, $p = .49$, Grade 9 race-related social support (.02), $\Delta X^2(1) = .28$, $p = .60$, and Grade 9 perceived racial discrimination (-.03), $\Delta X^2(1) = .24$, $p = .58$. Regarding the associations between distal factors and growth in depressive affect after the end of high school, among females, family income at Grade 7 was negatively related to growth in depressive affect (-.01) indicating that as family income increases growth in depressive affect after the end of high school decreases. Among African-American males the size of the estimate was similar but was itself non-significant, and did not differ from the estimate for African-American females, $\Delta X^2(1) = .99$, $p = .32$. For both sexes, levels of race-related social support at Grade 9 proved unrelated to growth in depressive affect after the end of high school. Moreover, there were no sex differences concerning the relationship between growth in depressive affect after the end of high school and Grade 9 levels of race-related social support, $\Delta X^2(1) = 2.66$, $p = .10$. Finally, the association between Grade 9 levels of perceived racial discrimination and growth in depressive affect after the end of high school proved negative for both African-American females (-.04) and African-American males (-.04), and while both estimates themselves differed from zero, they were not significantly different from one another (.01), $\Delta X^2(1) = .30$, $p = .58$.

Proximal factors: The mean estimate for non-college status for both African-American females (.42) and African-American males (.55) significantly differed from zero. In addition, the estimates significantly differed from one another, $\Delta X^2(1) = 6.76$, $p < .01$, with African-American males being more likely to forego college and transition directly into the work setting. Without controlling for the distal factors identified immediately above, among both African-American females (.06) and African-American

males (.07), non-college status was positively associated with growth in depressive affect after the end of high school, and both effects were significant at the .05 level. While both estimates were themselves significantly different from zero, the estimates did not differ from one another (.01), $\Delta X^2(1) = .24, p = .63$. Similarly, after controlling for the distal factors, collectively the associations between non-college status and growth in depressive affect after the end of high school remained significant among both African-American females (.05) and African-American males (.05); however, the estimates did not differ from one another (.00), $\Delta X^2(1) = .19, p = .66$ (results not tabled). Thus, regardless of whether or not the distal factors were included as controls or not, the impact of non-college status on growth in depressive affect after the end of high school appears to be positively associated with growth in depressive affect after the end of high school, and equally so for both African-American females and males, though there was a mean difference across sex, with the rate of non-college status being higher among African American males.

Growth in depressive affect among African American males and females

Table 4.3 lists separately for males and females the mean estimates for the intercept (Grade 9), Piece 1 growth (growth during high school), and Piece 2 growth (growth after the end of high school). Table 4.4 is similar to Table 4.3 except the impact of distal (Grade 7 levels of family income, Grade 9 levels of race-related social support, and Grade 9 levels of race-related perceived discrimination) and proximal (non-college status) factors are controlled for.

Sex differences in growth after the end of high school: Without controlling for distal and proximal factors, the intercept level of depressive affect for both African

American males (1.26) and African American females (1.31) were both significantly different from zero; however, the two estimates did not differ from one another, $\Delta X^2(1) = 2.35$, $p = .13$. For both African American males (-.02) and African American females (-.03), the Piece 1 estimates of growth in depressive affect proved non-significant. Moreover, the estimates did not differ from one another (.01), $X^2(1) = .22$, $p = .64$. The estimates of key interest in Table 4.3 are the estimates of growth in depressive affect after the end of high school (Piece 2 growth). As noted in Table 4.3, for both African American males (.03) and African American females (.02), growth in depressive affect did not differ from zero, nor did the two estimates differ from one another (.01), $\Delta X^2(1) = .56$, $p = .45$.

For the most part, results were similar after controlling for distal and proximal factors (Table 4.4). The only difference concerned the growth in depressive affect after the end of high school for African American females. More specifically, after controlling for all distal and proximal factors, the growth in depressive affect for African American females proved significantly positive (.16). However, this estimate still proved equivalent to the non-significant estimate for African American males (.06), $\Delta X^2(1) = 1.62$, $p = .20$. Thus, with or without controlling for distal and proximal factors, contrary to expectations growth in depressive affect after the end of high school does not prove more positive among African American males than African American males.

Sex differences in continuity of depressive affect: The estimates of key interest are the estimates in the last two columns of Tables 3 & 4, which list separately for males and females the correlation between Grade 9 (Intercept) levels of depressive affect and growth in depressive affect after the end of high school (Piece 2) and the correlation

between growth in depressive affect during high school (Piece 1) and growth in depressive affect after the end of high school (Piece 2). Without controlling for both distal and proximal factors, the correlations between growth in depressive affect after the end of high school (Piece 2) and both growth in depressive affect during high school (Piece 1) and Grade 9 (Intercept) levels of depressive affect proved non-significant for both males and females (Table 4.3). Additionally, the correlations did not differ across sex status. That is, male (-.11) and female (-.04) correlations between Grade 9 depressive affect and growth in depressive affect after the end of high school did not themselves differ from zero, nor did they differ from one another (-.07), $\Delta X^2(1) = .43$, $p = .51$. In addition, male (-.27) and female (-.33) correlations between growth in depressive affect during high school and growth in depressive affect after the end of high school did not themselves differ from zero, nor did they differ from one another (.06), $\Delta X^2(1) = .15$, $p = .70$. In addition, results did not differ after controlling for distal and proximal factors (Table 4.4). Thus, contrary to expectations, the level of continuity in depressive affect across early adolescence and young adulthood does not appear to be higher among African American females than African American males.

Discussion

Overall, little can be concluded from this study regarding whether or not there is a learning-curve when it comes to dealing with at-risk social status. That is, the expectation that African American females, by virtue of dealing with the challenges associated with their female status during adolescence, would be better equipped than African American males to deal with the challenges associated with their African American at-risk status after the end of high school was not supported. However,

regarding the impact of perceived discrimination and non-college status on the growth of depressive affect after the end of high school, this study revealed the following (1) that the protective distal factor of perceived racial discrimination appears to equally apply to African-American males and females, and (2) though African American males are more likely to forego college and transfer directly into the work setting than are African American females, the negative impact of non-college status on the growth of depressive affect after the end of high school appears to be equivalent across African American males and females.

Race, sex, and depressive affect: Possible explanations for the lack of a learning-curve

Of course, the safest and most parsimonious explanation is that, concerning depressive affect, there simply is, at the population level, no “learning-curve” when it comes to dealing with the at-risk statuses associated with race and sex status during the period of development covered in the present study (mid-adolescence to early adulthood). Another possible explanation is that the size of the effect, if any, is rather small, and neither the size of the available sample nor the specificity of the measures utilized were sufficient to capture that effect.

Concerning sample size, research examining the impact of both race and sex status on psychological well-being suggests that the effect, while robust, is quite small (Twenge & Nolen-Hoeksema, 2002). Also, in the current study the magnitude of the race differences in depressive affect after the end of high school was also very small. Thus, to detect differences across males and females in the impact of racial status on depressive affect, which itself is a small effect, likely requires a very large sample. Thus, the sample utilized for the purposes of the present study ($n = 603$), while respectable, may not be

sufficiently large to detect group differences in an effect that itself is quite small to begin with. With that said, in the present data it is not the case that the effects found were consistent with expectations, but simply non-significant, which at least would be consistent with notion that the effect exists in the population but is quite small and therefore requires a larger sample to obtain significant differences. Instead, in the current study the effects were not only non significant statistically speaking, they were also close to zero, which suggests that there is no effect to be found in the population, and as such a larger sample may also yield non-significant results.

While insufficient sample size is a potential – though admittedly unlikely – reason for the current findings proving inconsistent with expectations, a more likely reason for the current findings proving inconsistent with expectations is the lack of specificity in the measures utilized. As is often the case with secondary data analysis, available measures are not well-suited to address the question at hand, and the secondary data utilized in the present study itself had its shortcomings. As outline in the introduction, if there is a learning-curve to dealing with at-risk statuses, it likely is due to the fact that at-risk social statuses (regardless of the specific status) entail to some degree increases in both stress and perceived discrimination – both of which at least partially mediate the relationship between at-risk status and psychological well-being. As such, at-risk social statuses (regardless of the specific status) entail, to a degree, very similar challenges, and, given these similar challenges, for individuals with multiple at-risk statuses whose vulnerable periods occur at distinct points of development, there may be a “carry-over” effect in that how one deals with an at-risk status at an earlier point of development may relate to how he or she deals with an at-risk status at a later point of development. Put another way, the

extent to which dealing with the stress and perceived discrimination associated with one social status at an earlier point of development may impact how one deals with the stress and perceived discrimination associated with another social status at a later point in development is the extent to which there is a learning-curve when it comes to dealing with at-risk status.

Thus, the potential link between dealing with multiple at-risk social statuses and psychological well-being is an indirect one, and is mediated by the impact that dealing with multiple at-risk social statuses has on how one deals with stress and perceived discrimination, which then in turn impacts psychological well-being. Of course one way to empirically address this phenomenon is to examine whether or not the impact of a given social status on psychological well-being varies depending upon whether or not one dealt with an at-risk status at an earlier point of development (i.e., leave out the mediating mechanisms – increases in stress and perceived discrimination – and just test the link between dealing with multiple social statuses and psychological well-being directly) – as was done in the current study. However, a more direct assessment of the phenomenon would be to include the mediating mechanisms and examine whether or not the psychological well-being impact of stress and perceived discrimination associated with a given social status (say African American status) varies depending upon how one specifically dealt with the stress and perceived discrimination associated with a different at-risk status at an earlier point of development (say female status). It is possible that a more focused examination that includes not just indices of psychological well-being but also specific indices of stress and perceived discrimination associated with each at-risk status and their relation to changes in psychological well-being would lead to different

results that are consistent with this study's expectations. At the very least, if after a more focused examination there appears to be no learning-curve to dealing with at-risk status, then the null findings in the current study are more conclusive.

Proximal and distal factors and growth in depressive affect after high school: Sex status as a moderator?

Based on analyses conducted in Chapter II, it appeared that the impact of Grade 7 levels of family income, Grade 9 levels of race-related social support, and Grade 9 levels of perceived racial discrimination as well as non-college status all contributed to the differential growth across race in depressive affect after the end of high school. More specifically, relative to European Americans, growth in depressive affect after the end of high school proved more positive for African Americans, and non-college status, a proximal factor, contributed to that effect while Grade 7 levels of family income, race-related social support and perceived racial discrimination proved to all be distal protective factors (i.e., negatively related to growth in depressive affect after the end of high school). The current study built off of these findings by examining whether or not the impact of these distal and proximal factors on the growth of depressive affect after the end of high school varied across African American males and females. Interestingly, the impact of these factors, for the most part, appears to be equivalent across African-American males and females. That is, concerning the three distal factors (Grade 7 levels of family income, and Grade 9 levels of race-related social support and perceived racial discrimination) and the single proximal factor (non-college status) and their relationship with growth in depressive affect after the end of high school, the association did not vary across sex.

Thus, it appears that for both males and females, higher levels of perceived discrimination during adolescence (or more specifically Grade 9) appear to serve as a protective factor later on and soften the impact of challenges associated with early adulthood on levels of depressive affect. As discussed in Chapter II, the fact that perceived discrimination appears to serve as a distal protective factor is intriguing since levels of perceived discrimination are associated with *increases* in concurrent levels of depressive affect (Cassidy, O'Connor, Howe, & Warden, 2004; Phinney, Madden, & Santos, 1998; Verkuyten, 1998). As stated in Chapter II, two possible explanations for this effect are that individuals who experience higher levels of racial discrimination during high school are (1) better equipped to deal with discrimination during the years immediately after the end of high school and/or (2) are less surprised by experiences of discrimination during the years after the end of high school. In order to more completely unpack the processes underlying this phenomenon, additional research is required. However, what can be ascertained from the current study is that the phenomenon itself appears to apply equally to African American males and females.

Concerning non-college status, it appears that for both African American males and females foregoing college and transitioning directly into the work place is associated with increased growth in depressive affect after the end of high school. However, while the impact of non-college status on growth in depressive affect after the end of high school is equivalent across sex, the rate of non-college status is substantially higher among African American males than it is among African American females. This differential rate of college status among African American males and females has been documented in other studies (William T. Grant Foundation, 1998), and it appears to bear

out in the current study as well. Thus, overall the negative consequence of non-college status may be more pronounced among African American males. With that said, in the current study there was no evidence that African American males reported more problematic levels of depressive affect over all. As such, even if the negative consequence of non-college status is more pronounced among African American males - due to the higher rate of non-college status among African American males - overall levels of depressive affect as well as the rate of growth in depressive affect appears to be similar across African American males and females during the years immediately following the end of high school.

Future research and next steps

Clarify whether or not there is a learning-curve: First and foremost, whether or not there is a learning-curve when it comes to dealing with at-risk social statuses needs to be further explored. More specifically, as addressed immediately above, whether or not dealing with the stress and perceived discrimination associated with one social status at an earlier point of development impacts how one deals with the stress and perceived discrimination associated with another social status at a later point in development needs to be directly explored. Further, examination should be extended to other social statuses and their at risk sub-groups such as sexual-orientation (sexual-minorities), body size (obese/overweight), socio-economic class (low-SES), life-stage (elderly), and marital status (unmarried). After all, whether valid or not, the notion that there is a learning-curve to dealing with at-risk statuses in theory applies to all forms of social status, not just race and sex status, and as such, whenever the vulnerable periods for two or more at-risk social statuses happen at distinct periods of development, whether or not there is a

learning-curve concerning the impact of each at-risk status on levels of psychological well-being should be explored.

Beyond the analytic technique used in the present study (i.e., multiple-group, piece-wise growth modeling), growth-mixture modeling (GMM) (Muthen & Muthen, 1998-2006) may also be useful for examining whether or not there is a learning-curve when it comes to dealing with at-risk social status. After all, if there is a learning-curve, it likely does not generalize to all, or at the very least does not generalize equally to all, and as such the “effect” may only be present among a sub-set of the overall population. More specifically, using GMM, different sub-groups or “latent classes” can be identified based on the correlation between pieces of growth across different points of development (i.e., identify sub-groups whose growth across time is characterized by increased continuity). In addition, different sub-groups can be identified based on actual growth patterns across different points of development, and perhaps a sub-group of individuals that exhibits a growth pattern consistent with a learning-curve can be identified and then further examined.

Explore potential moderators: When and if future research establishes that there is a learning-curve when it comes to dealing with at-risk social statuses, the scope of examination should be expanded to assess whether or not certain characteristics of one’s social status moderate the extent to which there is a learning curve between two or more at-risk social statuses. That is, future research should explore if the extent to which there is a learning-curve varies depending upon whether or not a given social status is (1) at risk for deficits in psychological well-being, (2) a marginalized status, or (3) both at-risk and marginalized. That is, during adolescence European Americans (the dominant

group) are at-risk for deficits in psychological well-being not African-Americans (the marginalized group) (Dubois et al., 2002; Kling et al, 2002; McLeod & Owens, 2004). As such marginalized does not always equate to at-risk, and there may be more of learning-curve to dealing with marginalized at-risk statuses (which likely entail perceived discrimination as a mechanism that mediates the relationship between that social status and psychological well-beings) versus dealing with just at-risk statuses (which do not entail perceived discrimination as a mediating mechanism). That is, the more common challenges there are between two social statuses, perhaps the more dealing with one social status is likely to be related to dealing with the other, and marginalized statuses entail at last two common challenges (increased levels of stress and increased levels of perceived discrimination) while at-risk non-marginalized statuses appear to entail one common challenge (increased levels of stress).

Another potential moderator - beyond at-risk versus marginalized statuses – is the level of perceived control over social status membership. That is concerning overweight social status (Crocker & Garcia, 2005) and low-SES (Twenge & Campbell, 2002), group membership is perceived by both in-group and out-group members, at least to a certain degree, as within the control of group members. To the extent that group membership is perceived as a negative thing and viewed as within the control of group members, the harder it may be for individuals to (1) establish a positive in-group identity and (2) compartmentalize perceived discrimination by explaining it away as bogus and unjust. Thus, some of the remedies to the “common challenges” of at-risk status may not generalize as well to at-risk statuses for which group membership is perceived to be, at least to a certain degree, within the control of group members.

Clarify scope of resilience – self-concept specific or more generalized: If there does in fact prove to be a learning-curve when it comes to dealing with at-risk social statuses – it will be important to disentangle if the learning-curve is due to a general level of resilience or a more specialized form of resilience related to the self-concept. That is, it may be that by virtue of dealing with the stress and/or discrimination associated with a given social status one develops specialized cognitive strategies and support structures that uniquely help buffer one's self-concept from the impact of stressors and perceived discrimination associated with a given social status on levels of psychological well-being. Moreover, these specialized cognitive strategies and support structures may help buffer one's self-concept from the impact of stressors and perceived discrimination associated with *other* social statuses as well, but, due to their specialized nature, may fail to help buffer the individual from the impact of other forms of stress or negative evaluation unrelated to social status (say, for example, dealing with one's parents getting a divorce). In such a scenario, this focused resiliency could be characterized as a sort of self-concept resiliency in that one's self-concept is buffered from the risks posed by his or her social statuses.

However, it is also possible that by virtue of dealing with the stress and discrimination associated with a given social status, one develops a more generalized form of resiliency (or relies on an already developed generalized form of resiliency) that buffers the youth's self-concept from the impact of that particular social status, buffers the youth's self-concept from the impact of additional at-risk social statuses, and buffers the youth from the impact of other forms of stress and negative social evaluation unrelated to social status (again, say dealing with one's parents getting a divorce). Future

research should tease apart, where possible, whether or not the learning-curve associated with dealing with multiple at-risk social statuses, if any, is driven by the development of a specialized self-concept resiliency, the development of a generalized resiliency, or the presence of an already developed generalized resiliency.

Limitations

This study's biggest weakness lies in the fact that there are not specific across-time (repeated) measures of stress and perceived discrimination associated with one's race and sex status. Though it is asking much of the data, longitudinal data with measures of stress and discrimination attributable to each social status are required in order to determine if there is in fact a learning-curve when it comes to dealing with at-risk social statuses

In addition, there are several other potential limitations. First, as described in detail in Chapter II of this dissertation, there are unique characteristics associated with the MADICS sample that potentially bring into question the extent to which race effects found within the MADICS sample generalize to the general U.S. population. Second, given the study's focus on vulnerable periods, ideally available data would not begin in mid-adolescence, but instead extend into earlier points of development, since the vulnerable period for sex status appears to initiate during late-childhood.

Final conclusions

Again, little can be concluded from this study regarding whether or not there is a learning-curve when it comes to dealing with at-risk social status. That is, the expectation that African American females, by virtue of dealing with the challenges associated with their female status during adolescence, would be better equipped than

African American males to deal with the challenges associated with their African American at-risk status after the end of high school was not supported. However, regarding the impact of perceived discrimination and non-college status on the growth of depressive affect after the end of high school, this study revealed the following (1) that the protective distal factor of perceived racial discrimination appears to equally apply to African-American males and females, and (2) though African American males are more likely to forego college and transfer directly into the work setting than are African American females, the negative impact of non-college status on the growth of depressive affect after the end of high school appears to be equivalent across African American males and females.

Table 4.1

Overall means: Provided for all African Americans and each sex status

	Available n	Wave of assessment				
		Grade 7	Grade 9	Grade 11	1-year post HS	3-year post HS
Depressive Affect						
All African Americans	603	N/A	1.28 (.015)	1.26 (.014)	1.30 (.018)	1.32 (.021)
African American Males	297	N/A	1.26 (.021)	1.24 (.019)	1.29 (.027)	1.32 (.032)
African American Females	306	N/A	1.30 (.023)	1.28 (.021)	1.30 (.024)	1.32 (.025)
Family income						
All African Americans	597	9.77 (.174)	N/A	N/A	N/A	N/A
African American Males	293	9.86 (.245)	N/A	N/A	N/A	N/A
African American Females	304	9.68 (.248)	N/A	N/A	N/A	N/A
Race-related social support						
All African Americans	603	N/A	2.84 (.032)	N/A	N/A	N/A
African American Males	297	N/A	2.85 (.044)	N/A	N/A	N/A
African American Females	306	N/A	2.83 (.044)	N/A	N/A	N/A
Perceived racial discrimination						
All African Americans	603	N/A	2.03 (.042)	N/A	N/A	N/A
African American Males	297	N/A	2.03 (.055)	N/A	N/A	N/A
African American Females	306	N/A	2.03 (.058)	N/A	N/A	N/A
Non-college status						
All African Americans	470	N/A	.47 (.023)	N/A	N/A	N/A
African American Males	198	N/A	.55 (.035)	N/A	N/A	N/A
African American Females	272	N/A	.42 (.030)	N/A	N/A	N/A

Note: Standard errors in parentheses

Table 4.2

Estimates of distal factors and their relationship with change in depressive affect, by sex

	Mean estimates		Depressive affect Piece 2
	Mean	Variance	
African American males			
Family income at Grade 9	9.86**	17.52**	-.00
Race-related social support at Grade 9	2.86**	.52**	-.01
Perceived racial discrimination at Grade 9 non-college status	2.01**	.84**	-.04**
African American females			
Family income at Grade 9	9.68**	18.75**	-.01*
Race-related social support at Grade 9	2.84**	.56**	-.04
Perceived racial discrimination at Grade 9 non-college status	2.04**	.77**	-.04*
Differences across sex status			
Family income at Grade 9	.18	-1.23	.01
Race-related social support at Grade 9	.02	-.04	.03
Perceived racial discrimination at Grade 9 non-college status	-.03	.07	.00
	.13**	.01	.01

Note: All estimates unstandardized

* p-value < .05

** p-value < .01

Table 4.3

Growth in depressive affect by sex status and growth piece

	Depressive affect growth factors			Difference between B & C	r's between growth factors	
	Intercept(A)	Piece 1(B)	Piece 2(C)		A & C	B & C
Estimates						
African American males	1.26**	-.02	.02	-.04	-.11	-.27
African American females	1.31**	-.03	.03	-.05	-.04	-.33
Difference between sexes	-.05	.01	-.01		-.07	.06

* p-value < .05

** p-value < .01

Table 4.4

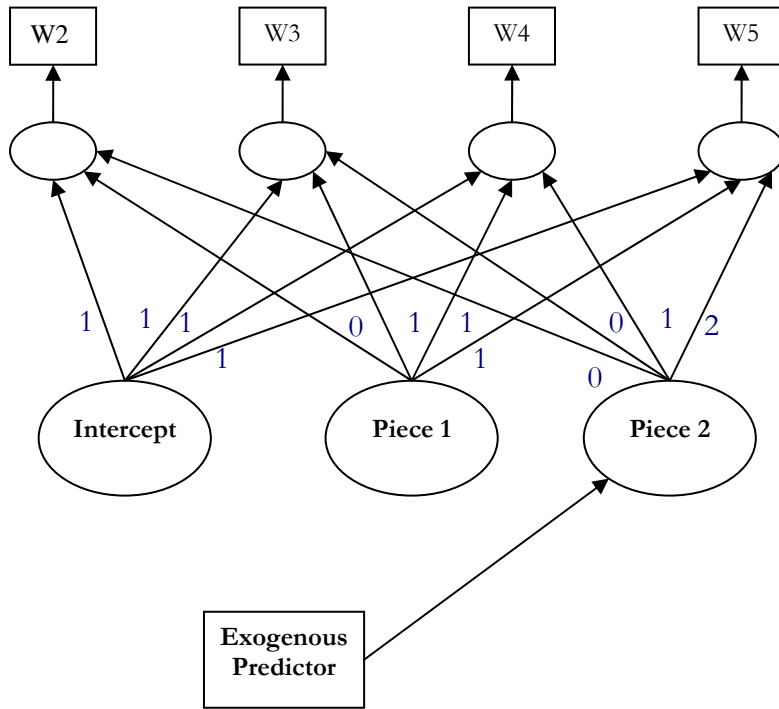
Growth in depressive affect by sex status and growth piece after controlling for distal and proximal factors

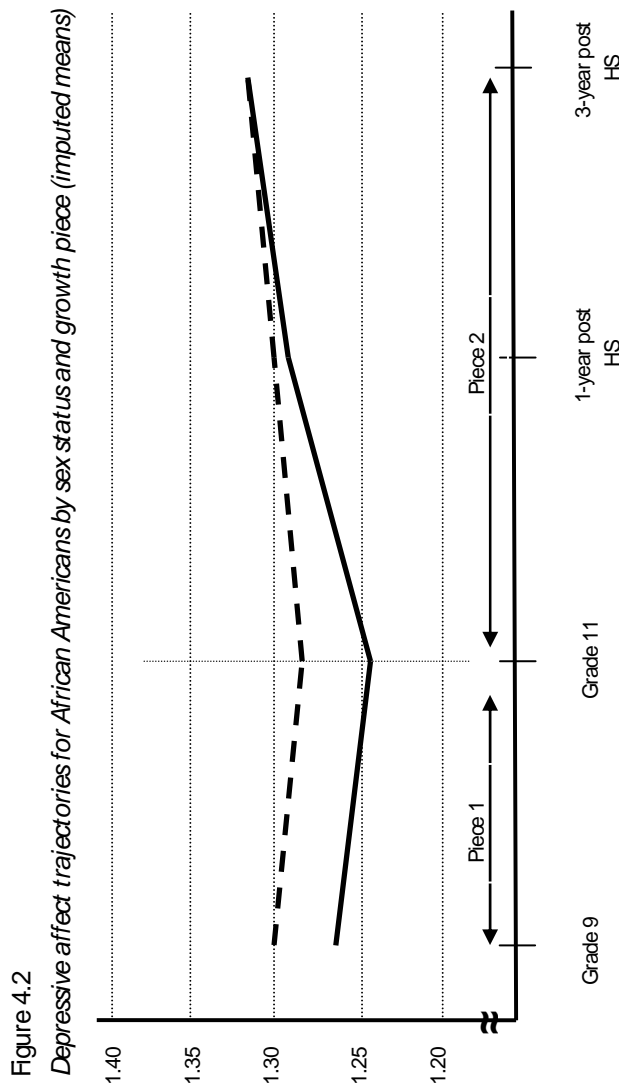
	Depressive affect growth factors			Difference between B and C	r's between growth factors	
	Intercept(A)	Piece 1(B)	Piece 2(C)		A & C	B & C
Estimates						
African American males	1.27**	-.03	.06	-.09	-.17	.11
African American females	1.29**	-.02	.16*	-.18	.11	-.37
Difference between sexes	-.03	-.01	-.10		-.28	.48

* p-value < .05

** p-value < .01

Figure 4.1
Depressive affect piece-wise growth curve model with exogenous predictor





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CHAPTER V

Grand Discussion

Imagine you are in 4th grade. It is the first day of class, and you just walked into a classroom full of unfamiliar people. You immediately look around and “size-up” the kids around you as they do the same to you. Likewise, the teacher quickly sizes you up and immediately his or her initial impression of you is formed. Regardless of our age or setting, this process plays out day-after-day and year-after-year in every social situation we find ourselves in. It is so ubiquitous to social interaction that it often takes place without our even being overtly aware. These snap-shot impressions are often based, at least in part, on readily available yet rather superficial qualities such as our sex, race, social class, overweight status, age, height, degree of physical attractiveness, perceived sexual orientation, and so forth. Depending on your age, the situation, and the age and composition of individuals around you, which superficial qualities stand out and whether or not they have a negative or positive valence varies. Though these impressions may themselves be individually short lived, given the fact that they begin anew in social situation after social situation, their impact collectively can be quite profound, and, depending upon the valence of these impressions, their impact can be either positive or negative, and more specifically can have an impact on levels of psychological well-

being¹ The superficial qualities that often drive these initial impressions are all forms of social status, which can be defined as any aspect or trait one has whose meaning is largely derived from the societal context within which one operates.

To date, a sizable amount of research has been devoted to disentangling the relationship between social status and psychological well-being; however, given the obvious complexity inherent in the process by which social status impacts psychological well-being over time, most of the research has fallen short in one way or another. The goal of this dissertation was to develop and test a model that more adequately captures the complex process by which social status impacts psychological well-being over time. In all, the model developed – the social status/vulnerable period (SS/VP) model – was examined in three separate empirical studies. This chapter summarizes the extent to which the findings from each of the three empirical studies supported the SS/VP model, and then discusses some of the broader conclusions that can be reached based on these collective findings. More specifically, the reasons one must be sensitive to issues of development when examining the impact of social status on psychological well-being are reviewed. Second, the overall support for the SS/VP model is discussed. Third, the SS/VP model and the moderating the moderator approach are compared and discussed. Fourth, some of the components of the SS/VP model that are underdeveloped conceptually are discussed in more detail and then the overall SS/VP model is

¹ Psychological well-being has been conceptualized in various ways. While Bradburn's (1969) conceptualization of psychological well-being is limited to positive and negative mental affect, more recent work by Ryff and colleagues (Ryff, & Keys, 1995; Ryff, Keys, & Hughes, 2003) conceptualizes psychological well-being more broadly and focuses on various dimensions of overall "life satisfaction" – of which mental affect is just one dimension. While this broader conceptualization of psychological well-being is certainly useful, the substantive interest of this dissertation is limited to mental affect, and therefore, Bradburn's (1969) more limited conception of psychological well-being, which focuses solely on mental affect, is used.

summarized. Fifth, specific suggestions for future research and areas of focus are offered. Sixth, the need for richer data and some possible avenues for obtaining such data are discussed.

SOCIAL STATUS AND PSYCHOLOGICAL WELL-BEING: REVIEWING WHY DEVELOPMENT MATTERS

As delineated in Chapter I, when ignoring issues related to age one implicitly assumes the following concerning the impact of social status on psychological well-being: (1) the size and quality of the impact is constant across the life span, and (2) distal factors fail to serve any sort of moderating role. Across Chapters II, III, & IV there were – based both on past research and research completed for the purposes of this dissertation – numerous examples of the first assumption proving false. After all the notion of a vulnerable period is completely at odds with the first assumption, yet there are numerous examples of vulnerable periods throughout this dissertation. In addition, based on research completed for this dissertation, there is also clear empirical evidence that the second assumption is false. That is, though no evidence was found to support the notion that dealing with one at-risk status at an earlier point of development (itself a distal factor) moderates the impact of a second at-risk status at a later point of development (i.e., a learning-curve), other distal factors do appear to moderate the impact of social status on psychological well-being. As identified in Chapter II, concerning the vulnerable period for race following the end of high school, for African Americans mid-adolescent levels of family income, race-related social support, and perceived racial discrimination are all distal factors associated with decreased growth in depressive affect after the end of

high school. As such, these three distal factors moderate (and in this case lessen) the impact of African-American status on the growth of depressive affect after the end of high school.

Also as delineated in Chapter I, given the fact that the above two assumptions concerning social status and its impact on psychological well-being both prove false, when it comes to examining social status and its impact on psychological well-being, it appears that, in at least three distinct ways, issues of development must be taken into consideration. First, given the fact that the impact of social status on psychological well-being is characterized by vulnerable periods, one must take into account the variable impact across age. Second, because the timing of a vulnerable period is not random but instead appears to coincide with other proximal developmental changes, one must identify the one or more proximal developmental changes that interact with a given social status and in turn differentially impact psychological well-being across the different levels of that social status. Third, given the moderating role of various distal factors concerning the impact of social status on psychological being, the extent to which distal factors themselves moderate the impact of the proximal developmental changes, which themselves are the driving force behind the non-parallel growth in psychological well-being, must also be assessed.

OVERALL SUPPORT OF SS/VP MODEL

As stated in Chapter I of this dissertation, given the shortcomings of current, popular theoretical approaches (e.g., the double-marginalized approach and the moderating the moderator approach) to the intersection of social status and its impact on

psychological well-being, a developmental model (Figure 5.1) was proposed and described in detail (see Table 5.1 for a brief summary of all of the approaches). The SS/VP model will not be described in detail again, but in short, the SS/VP model is comprised of the following key components:

- (1) The impact of social status on levels of psychological well-being varies across the life span (i.e., vulnerable periods)
- (2) Vulnerable periods are not random but coincide with proximal developmental changes (Interaction 1; Figure 5.1)
 - a. Changes that occur at the individual level (biological or cognitive)
 - b. Changes that occur at the contextual level
- (3) The impact of those proximal developmental changes can itself be moderated by distal factors (Interaction 2; Figure 5.1)
- (4) Regarding the interaction of social status and its impact on psychological well-being...
 - a. One should focus on at-risk social statuses (i.e., social statuses at-risk for deficits in psychological well-being) opposed to marginalized social statuses (i.e., social statuses at risk for marginalization/discrimination).
 - b. If the vulnerable periods for two or more at-risk social statuses overlap then the interaction should be dependent-complementary, and the period of development when this interaction takes place should be when the vulnerable periods overlap (Interaction 3; Figure 5.1)
 - c. If the vulnerable periods for two or more at-risk social statuses do not overlap then the interaction should be dependent-compensatory such that the psychological well-being impact of the social status with the later occurring vulnerable period should be somewhat muted. (Interaction 2; Figure 5.1)

As addressed repeatedly in earlier chapters, there is already ample empirical evidence for Component 1. That is, research limited in scope to a single social status has shown that the impact on psychological well-being of race (DuBois, Burk-Braxton, Swenson, Tevendale, & Hardesty, 2002), sex (Angold & Rutter, 1992; Galambos, Leadbeater, & Barker, 2004; Kessler, 2003; Nolen-Hoeksema, 1990), overweight status (Carr & Friedman, 2005; Crocker & Garcia, 2005; Miller & Downey, 1999), and SES

(Gray-Little & Hafdahl, 2000; Twenge & Campbell, 2002) all vary across the lifespan. In addition, Component 2a – namely, that vulnerable periods coincide with and are, at least in part, driven by individual changes – has also been empirically verified. For example, numerous researchers have shown that the emergence of psychological well-being disparities across sex are associated with hormonal (Angold, Costello, Erkanli, & Worthman, 1999; Angold, Costello, Worthman, 1998; Nolen-Hoeksema, 1990) and body mass changes (Galambos, Leadbeater, & Barker, 2004; Kessler, 2003; Nolen-Hoeksema & Girgus, 1994) associated with puberty and changes in gender identity – all of which are developmental changes occurring at the individual level. However, Component 2b (i.e., that vulnerable periods coincide with and are driven, at least in part, by proximal contextual changes), Component 3 (i.e., that the impact of proximal developmental changes can be moderated by distal factors), as well as Components 4a, 4b, and 4c, which all involve the interaction of two or more social statuses and its impact on psychological well-being, have not been empirically verified. In order to test the validity of the previously untested components of the SS/VP model, three distinct empirical studies were carried out. Taken together, the collective results of the three studies offered modest support for Components 2b, 3, 4a, and 4b, but failed to support component 4c.

Vulnerable periods and stable, developmentally-driven contextual changes

Findings from Chapter II offer support for Component 2a of the SS/VP model – namely that vulnerable periods can coincide with developmental changes occurring at the contextual level. More specifically, concerning the social status of race, there is non-parallel growth in depressive affect with African Americans increasing in levels of depressive affect relative to European Americans, and the period of development when

this differential growth takes place appears to occur during the years after the end of high school. The years after the end of high school coincide with several contextual changes – moving out of one’s parents’ home and transitioning from high school into the college or work settings - and there are certain characteristics associated with these contextual changes that appear to be associated with the differential growth in depressive affect across European Americans and African Americans. In short, as expected, results revealed that the proportion of individuals transitioning directly into work was higher among African Americans. In addition, the positive relation between changes in depressive affect and transitioning directly into work (opposed to transitioning into college) was more pronounced among African Americans, and the effect remained after controlling for differences in family income at Grade 7. As such, the period of non-parallel growth in depressive affect not only coincides with several stable, developmentally-driven contextual changes, but one of those changes – transitioning into work vs. college after the end of high school – is a key mediator of the racial differences in growth of depressive affect. Thus, consistent with Component 2b of the SS/VP model, it does appear that a vulnerable period associated with a social status can coincide and, at least in part, be driven by proximal developmental changes at the contextual level.

Distal factors as moderators of the impact of proximal changes

Findings from Chapter II also offer support for component 3 of the SS/VP model – namely that the impact of proximal developmental changes can be moderated by distal factors. For example, as identified in Chapter II, concerning the vulnerable period for race following the end of high school, for African Americans mid-adolescent levels of family income, race-related social support, and perceived racial discrimination are all

distal factors associated with decreased growth in depressive affect after the end of high school. As such, these three distal factors moderate (and in this case lessen) the impact of African-American status on the growth of depressive affect after the end of high school. Thus, consistent with Component 3 of the SS/VP model, concerning the period of non-parallel growth that characterizes a vulnerable period, it does appear that within a given at-risk group there is heterogeneity concerning the severity of growth differences during the vulnerable period. Moreover, it appears that distal factors, at least in part, help explain that heterogeneity.

Focusing on at-risk status opposed to marginalized status

Findings from Chapter III offered support for Component 4a – namely, that one should focus on at-risk social status versus marginalized social status². Given the shortcomings of the double-marginalized approach (i.e., its predictions concerning the interaction of marginalized statuses and the impact of that interaction on psychological well-being were often not supported) and its focus on marginalized status, the SS/VP model itself proposed switching focus to at-risk status, since marginalized status does not always equate to at-risk status, when attempting to understand (i.e., predict) the interaction between two or more social statuses and its impact on psychological well-being. When attempting to understand the interaction of race and sex status and its impact on psychological well-being, switching focus from marginalized status (i.e., African American status and female status) to at-risk status (i.e., European American status and female status) proved fruitful in that the at-risk statuses interacted in a dependent-

² See Chapters 1 or 3 for detailed definitions of both at-risk status and marginalized status. But in short, the distinction between “marginalized” and “dominant” is sociological in nature (i.e., based on power structures within a given society) while the distinction between “at-risk” and “not at risk” is empirical in nature (i.e., based on which group reports deficits in well-being relative to another group)

complementary fashion (which is consistent with the SS/VP model) while the marginalized statuses did not interact in a dependent-complementary fashion (which is inconsistent with the double-marginalized approach).

Overlapping vulnerable periods and a dependent-complementary interaction

Findings from Chapter III are largely consistent with Component 4b – namely, that when the vulnerable periods for two or more at-risk social statuses overlap, the interaction is dependent-complementary, and the period of development when this interaction takes place is when the vulnerable periods overlap. First, concerning race and sex status, the two statuses at-risk for deficits in psychological well-being during adolescence (i.e. European American status and female status) do interact in a dependent-complementary fashion (i.e., impact of one at-risk status is more pronounced in the presence of the other) for both levels of depressive affect and self-esteem. That is, as discussed in detail in Chapter III, female status and European American status do appear to interact in a dependent-complementary fashion such that European American females report deficits in psychological well-being that go beyond the additive main effects of European American status and female status. Second, the nature of the interaction also appears to vary across development. That is, the interaction between European American status and female status only proved dependent-complementary at the intercept (Grade 9 for depressive affect and Grade 7 for self-esteem), and, concerning the growth in depressive affect and self-esteem between mid-adolescence and early adulthood, race and sex status *did not* interact in a dependent-complementary fashion. Thus, as expected, the interaction between the two at-risk statuses for deficits in psychological well-being (European American and female) was dependent-complementary in fashion and the

nature of that interaction did vary across development in that it only applied to level differences found at the initial point of assessment (Grade 9 for depressive affect and Grade 7 for self-esteem).

However, regarding when the dependent-complementary interaction takes place between two at-risk statuses whose key periods overlap, the SS/VP model goes beyond positing that the nature of the interaction will vary across development, but it specifically posits that the dependent-complementary interaction will be contained within the period of development when the vulnerable periods overlap, which in the case of European American status and female status is believed to be late-childhood to mid-adolescence. However, given data limitations, it is not clear if the dependent-complementary interaction between European American and female status is actually contained within this period of development. That is, all that can be ascertained from the findings is that sometime between birth and the initial point of assessment (Grade 9 for depressive affect and Grade 7 for self-esteem) the disparities in psychological well-being across race and sex emerge. Though the span of development when the vulnerable periods for European American status and female status overlap (late-childhood to mid-adolescence) itself overlaps with the period between birth and the initial points of assessment, because the available data does not go back any earlier than 7th grade, there is no way of knowing whether or not the period of development when European-American status and female status interact to impact the growth of psychological well-being is completely contained within when the vulnerable periods are thought to overlap (as the SS/VP model would predict) or whether or not it extends into even earlier points of development.

Summary: Concerning Component 4b, none of the findings are inconsistent with the SS/VP model, and several of the findings are clearly consistent with the SS/VP model (i.e., the interaction between two at-risk social statuses is dependent-complementary in fashion and the nature of that interaction varies across development). However, the finding that the period of development when European-American status and female status interact to impact the growth of psychological well-being is contained within birth and mid-adolescence (i.e., Grade 9 for depressive affect and Grade 7 for self-esteem), while not necessarily inconsistent with the SS/VP model, is not necessarily consistent with the SS/VP model either. Additional research utilizing longitudinal data that extends into earlier periods of development (ideally extends back at least age 10) is necessary to resolve the ambiguous findings concerning when exactly the psychological well-being disparities emerge across race and sex status and whether or not when they emerge is consistent with the SS/VP model.

Non-overlapping vulnerable periods and a learning-curve to dealing with at-risk status:

While, based on findings from Chapter II, certain distal factors, such as Grade 7 levels of family income, and Grade 9 levels of race-related social support, and perceived racial discrimination, do appear to moderate the impact of social status on psychological well-being, the distal factor of dealing with an at-risk status at an earlier point of development does not appear to moderate the impact of social status on psychological well-being. That is, findings from Chapter IV did not offer support for Component 4c – namely, that if the vulnerable periods for two or more at-risk social statuses do not overlap, then the interaction should be dependent-compensatory such that the psychological well-being impact of the social status with the later occurring vulnerable

period should be somewhat muted. In the case of race and sex status, it appears that the vulnerable period for female status, which takes place during adolescence, and the vulnerable period for African American status, which takes place after adolescence during the years immediately following the end of high school, do not overlap. As such, according to the SS/VP model, African American females, by virtue of dealing with their female at-risk status during adolescence, should be better equipped, relative to African American males, to deal effectively with their African American at-risk status after adolescence during the years immediately following the end of high school. However, based on results from Chapter IV, the impact of African American status on levels of depressive affect after the end of high school does not vary across males and females. As such, contrary to the expectations of the SS/VP model, in the case of race and sex status and the period between mid-adolescence and early adulthood, there does not appear to be a learning-curve when it comes to dealing with at-risk status.

MODERATING THE MODERATOR APPROACH AND THE SS/VP MODEL

As addressed in Chapter I, though cross-sectional in nature, the moderating the moderator approach does prove empirically fruitful when it comes to disentangling the interaction between multiple social statuses and the impact of that interaction on well being. However, a key limitation of the approach is its assumption that the impact of social status on psychological well-being does not vary across development, an assumption that is not supported by available literature or the findings of this dissertation, and an assumption that the SS/VP model does not make. As such, the theoretical and empirical utility of the SS/VP model is expected to surpass that of the moderating the

moderator approach. However, given the documented empirical utility of the moderating the moderator approach, the approach cannot simply be disregarded because the proposed development model is the *supposedly* more useful approach. Instead, the two approaches must be compared to one another in some tangible way. One way to assess whether or not the SS/VP model is actually more useful is to gauge the extent to which it (1) answers questions the moderating the moderator approach cannot answer (which it does in that it addresses questions concerning *when* social status impacts psychological well-being) *and* (2) answers with more specificity the questions that the moderating the moderator approach can answer. That is, if the SS/VP model only achieves the former, then the two approaches simply complement one another (i.e., each approach answers different questions), but if the SS/VP model achieves both the former and the latter then the moderating the moderator approach is, to an extent, subsumed within the SS/VP model, rendering the SS/VP model the more useful approach.

One goal of Chapter III was to examine whether or not the questions that the moderating the moderator approach has been successful in answering (i.e., the extent to which moderating the moderator mechanisms contribute to how social statuses interact to impact psychological well-being) can be answered with more specificity by the SS/VP model by establishing that the impact of the moderating the moderator mechanisms varies across time – as the SS/VP model posits (Interaction 4; Figure 5.1). A second goal of Chapter III was to establish not just that the impact of the moderating the moderator mechanisms varies across development, but more specifically that the impact of the moderating the moderator mechanisms is the most pronounced when the vulnerable period for the social statuses in question overlap, which in the case of race and sex would

be late-childhood to mid-adolescence. Establishing (1) that the impact of moderating the moderator mechanisms varies across time and (2) that the impact is most pronounced when the vulnerable periods overlap, as the SS/VP model posits, would provide a level of specificity over and above that provided by the moderating the moderator approach, which simply posits that there is an impact of moderating the moderator mechanisms. In doing so, the SS/VP model would not be simply complementary to the moderating the moderator approach, but be proven more useful to the moderating the moderator approach.

The first goal (i.e., to establish that the impact of the moderating the moderator mechanisms vary across development) was achieved. That is, based on analyses conducted within Chapter III, the association between well being and both changes in gender identity and body mass (both of which are moderating the moderator mechanisms) were found to (1) vary across time, and (2) vary across race and sex status, suggesting that the impact of moderating the moderator mechanisms does vary across development. However, the second goal (i.e., to establish that the impact of moderating the moderator mechanism is the most pronounced when the vulnerable periods for race and sex status overlap) was not achieved. Though discussed in more detail in Chapter III, likely a key reason for why the second goal was not achieved was that, even when held constant across time, the extent to which the associations between changes in psychological well-being and changes in both gender identity and body mass varied across race and sex was not consistent with expectations or previous literature. As a result, the hypotheses regarding changes across time in the associations between psychological well-being and changes in both gender identity and body mass (which assumed that when held constant

across time the associations between changes in psychological well-being and changes in both gender identity and body mass would vary in a manner consistent with expectations and previous literature) were rendered obsolete.

Whether the SS/VP model and the moderating the moderator approach are simply complementary approaches (each answering questions concerning the intersection of social status and its impact on psychological well-being that the other cannot) or whether the SS/VP model is the more useful approach (not only answering questions concerning the intersection of social status and its impact on psychological well-being that the moderating the moderator approach cannot answer but also answering questions the moderating the moderator approach can answer with more specificity), while not crucial, is important to establishing the utility of the SS/VP model. Future research should attempt to further disentangle the extent to which (1) moderating the moderator mechanisms vary across time and (2) the impact of moderating the moderator type mechanisms are more pronounced when the vulnerable periods for multiple social statuses – whatever those social statuses may be - overlap.

THE SS/VP MODEL: FILLING IN THE GAPS AND BRINGING IT ALL TOGETHER

Classifying the causes of vulnerable periods across the lifespan

As discussed in more detail in Chapter I, a vulnerable period is a period of non-parallel growth in psychological well-being across the levels of a given social status. Moreover, putting the impact of distal factors to the side for the moment, that non-parallel period of growth can be characterized as the result of an interaction between some proximal developmental change and a given social status. For example, concerning

sex status, the vulnerable period can be characterized as the result, at least in part, of the interaction between one's sex status and changes in body mass (i.e., the psychological well-being impact of changes in body mass is itself moderated by sex status). In this example the changes in body mass associated with puberty, which interact with sex status to impact psychological well-being during adolescence, are biologically driven, but biological changes are just one example of the types or categories of developmental change that potentially interact with social status to impact psychological well-being. In order to make this clear it may help to take a step back and discuss the types or categories of proximal developmental change that potentially interact with social status to impact psychological well-being. In all, the forms of developmental or age-graded change that interact with social status and result in a period of non-parallel growth across the levels of a given social status can be classified into at least four broad categories: Biological changes, cognitive changes, contextual changes, and social status changes.

Biological changes: As already briefly addressed above, maturational changes driven by biological processes may interact with social status resulting in periods of non-parallel growth in psychological well-being across the different levels of a given social status. As discussed in detail in earlier chapters, the hormonal changes associated with puberty as well as the changes in body mass associated with puberty are thought to contribute to the differential growth in psychological well-being across males and females during late-childhood and mid-adolescence. In addition, for sexual-minority individuals the realization of one's same-sex attraction is associated with deficits in psychological well-being, and the onset of sexual attraction is itself preceded by hormonal changes (Mustanski, Chivers, & Bailey, 2002; Rahman & Wilson, 2003).

Finally, the onset of menopause or the reduction of sexual drive in both males and females as they age, both of which are associated with biological processes that lead to shifts in hormone levels, could also impact one's quality of life and/or how they think about themselves (i.e., do they feel "old" or less happy about being "old" for example).

Cognitive changes: Cognitive changes that facilitate the development of a more coherent self-concept during middle-childhood may interact with social status resulting in the emergence of a vulnerable period. During middle childhood most children undergo noteworthy cognitive changes, and their ability to use more objective criteria and inter-individual comparisons for self-evaluation increases (Harter, 1996; Stipek & MacIver, 1989). The result is that over the course of middle-childhood children's self-concepts switch from highly-positive, unrealistic self-perceptions to more realistic and moderate self-beliefs as they begin to base their self-perceptions on more objective criteria and inter-individual comparisons (Cole et al., 2001; Marsh, Barnes, Cairns, & Tidman, 1984). Due to the cognitive advances over the course of middle childhood, children begin to form more realistic, grounded self-perceptions, and as a result children's beliefs about the self become more in sync with their actual abilities or attributes. For example, research has shown that the relation between achievement self-concept and actual achievement (Davis-Kean, Huessman, Jager, Collins, Bates, & Lansford, 2007; Ruble, Parsons, & Ross, 1976), and the relationship between perceived ability to limit aggressive behavior and actual levels of aggression (Davis-Kean et al., 2007) both become more in sync over the course of middle childhood.

In the same fashion, due to one's perception of the self becoming more objective and outward focused (i.e., based more on inter-individual comparisons and feedback from

others) during middle childhood, the personal meaning attached to one's social statuses (such as race and sex) may suddenly change. That is, in the case of race and sex status, even though youth have likely been aware of their race and sex statuses from a rather early age (Spencer, 1985), and also have likely received evaluative messages from family, peers, and society-at-large regarding those social statuses from an early age (Verkuyten, 2004), those social statuses and the evaluative messages received regarding them may take on new meaning during middle-childhood when youth first have the cognitive capacity to attach those attributes and the messages regarding them to how they feel about themselves. To date, research consistently shows that the disparities in psychological well-being across race and sex manifest during middle-childhood (i.e., around age 10) – the timing of which is consistent with the notion that developmental changes in self-concept underlie the emergence of psychological well-being disparities across race and sex status.

Contextual changes: Broadly speaking, any macro or major contextual change could have a profound impact on the messages one both perceives and receives regarding one's status, which in turn can impact psychological well-being (Crocker, 1999; Ethier & Deaux, 2001; Oyserman & Harrison, 1998). Of particular interest here are relatively stable, developmentally-driven contextual changes that are common to a group of individuals (such as the graduation from high school), opposed to stable, contextual changes that are bound in idiosyncratic circumstances and therefore are unique to a particular individual. That is, a vulnerable period is by definition something that manifests at the group-level, and group-level differences could only be found if a particular contextual change was systematic across the sub-groups of a given social status

– as are stable, developmentally-driven contextual changes. As discussed in detail in Chapter II, some examples of stable, developmentally-driven contextual changes are the transitions that follow the end of high school. Switching focus to elderly social status (i.e., aged vs. non-aged), one potential example of a relatively stable, developmentally-driven contextual change is the transition from independent living to dependent living (e.g., a nursing home). Another example of a stable, developmentally-driven contextual change is when the last of one’s children moves out of the home after “growing-up”, which may lead to an individual starting to think of themselves as “old” or at least may change how they feel about being “old” and therefore may impact levels of psychological well-being.

Social status changes: While the three types of proximal developmental change already described (i.e., biological, cognitive, and contextual developmental changes) have all also been touched upon in earlier chapters of this dissertation, changes in social status itself has not been addressed. Nonetheless, there are also types of developmental changes that can lead to actual changes in social status. For example, for individuals of sexual-minority status, prior to their realization that they are a sexual-minority (which usually takes place between late-childhood and middle adolescence) they typically assume that they are (or at least are going to be) of the sexual-majority. Contrast this with one’s race social status, where there is no shift in social status. That is, one does not by default assume they are European American until they realize they are African American. Instead as soon as one realizes that the category of race exists, he or she is aware of which category they fall into (though the meaning for membership to a given category likely changes as children’s cognitive skills change and develop). Though individuals of

sexual-minority status actually switch social status at some point, the exact age when individuals of sexual-minority status come to realize they are of sexual-minority status varies dramatically (Diamond, 2006; Savin-Williams, 2005). In the end, regardless of the particular age this “developmental change” takes place, for most sexual-minority individuals, simply facing the realization of one’s sexual-minority status likely leads to, at least for a period of time, deficits in psychological well-being (Elze, 2002; Rotheram-Borus, Hunter, & Rosario, 1994; Russell & Joyner, 2001).

There are also other examples of change in social status that occur as individuals reach important developmental milestones such as changing from single to married over the course of adulthood or changing from non-parent to parent. Of course in the cases of switching from “single” to “married” or from “non-parent” to “parent”, the sub-groups of these social statuses that likely are at risk for deficits in psychological well-being are those who remain “single” or remain a “non-parent” (though the extent to which this is the case likely varies across levels of other social statuses such as sex status and sexual-minority status).

Vulnerable periods: Do they end? If so, when and why do they end?

Whether or not vulnerable periods end, as well as what might cause their cessation has, to this point, not really been discussed in detail. While in theory it is possible for a vulnerable period to never end, in reality available research focusing on race status (Dubois et al., 2002; McLeod & Owens, 2004), sex status (Kling, Hyde, Showers, & Buswell, 1999; McLeod & Owens, 2004; Simmons & Blyth, 1987), SES (Twenge & Campbell, 2002), obesity/body type (Miller & Downey, 1999) all suggests that vulnerable periods do end at some point. Concerning when they end, when focusing

on growth, the end of a vulnerable period is when the growth across the levels of a given social status is no longer non-parallel but instead is characterized as parallel.

Conceptually speaking, the end of a vulnerable period is when the proximal developmental changes, which had up to that point interacted with a given social status and thus lead, at a previous point, to the emergence of psychological well-being disparities across the levels of that social status, no longer interact with the given social status, thereby rendering growth in psychological well-being equivalent across the levels of that social status.

Of key interest of course is why a vulnerable period ends. Though such a question is an empirical question, there are several potential reasons for why a vulnerable period might end. One potential reason for the cessation of a vulnerable period is that the developmental changes driving the vulnerable period themselves level off. Though such a relationship would have to be empirically verified, potential examples of vulnerable periods ending due to the leveling off of the developmental changes responsible for the emergence of the vulnerable period are the vulnerable periods that are driven by biological processes. For example, at some point the differential impact of puberty on the body mass of males and females levels off, and at that point, while a level difference in psychological well-being remains, the non-parallel growth in psychological well-being may end.

A second potential reason for the cessation of a vulnerable period is that there may be increases in other protective factors, which in turn compensate for the risk associated with the developmental changes that were responsible for the vulnerable period in the first place. Put another way, when a particular developmental change poses

a challenge to a particular sub-group of a given social status, individuals within this sub-group may over time acquire or develop the skills or strategies necessary for dealing with this challenge, and thus equilibrium is restored and the vulnerable period ends. Some examples of skills or strategies that serve as protective factors concerning the impact of at-risk status on psychological well-being are: levels of social support (Hill, 1998; Li, Stanton, Pack, Harris, Cottrell, & Burns, 2002; McAdoo, 2001), strategies for dealing with stress (Aneshensel, 1992; Dannefer, 2003), strategies for compartmentalizing perceived discrimination from one's sense of self (Cross, 1991; Spencer, 1985), and positive identity formation (Branscombe, Schmitt, & Harvey, 1999; Phinney, Cantu, & Kurtz, 1997; Rowley, Sellers, Chavous, & Smith, 1998; Wong, Eccles, & Sameroff, 2002). As such changes for the better in these protective factors may themselves compensate for the impact of the developmental changes – whatever they may be – that lead to the emergence of the vulnerable period. Though, again the extent to which this is the case requires further empirical examination.

Minority identity: a protective factor or a risk factor?

The manner in which identity formation serves as a protective factor may merit further clarification. That is, though somewhat understandably, individuals who identify as a minority are often assumed to have lower levels of psychological well-being than do those who identify as a majority (i.e., all else being equal those with a minority identity should report lower levels of psychological well-being than those of a majority identity), which is contrary to the notion that minority identity formation may serve as a protective factor. Though it *may* be the case, depending upon what minority/majority distinction one is focusing on, that individuals with a minority identity (say all those who identify as

a sexual-minority) have lower psychological well-being than individuals without a minority identity (all those who identify as a sexual-majority), it is *not* the case that minority identity is a risk factor for lower psychological well-being. That is, for minority individuals who are at-risk for deficits in psychological well-being, it is not the identification with the minority group that poses risks for psychological well-being. In fact, research has roundly shown that for racial minorities (Phinney, Cantu, & Kurtz, 1997; Rowley, Sellers, Chavous, & Smith, 1998; Wong, Eccles, & Sameroff, 2002) and sexual-minorities (Hershberger & D'Augelli, 1995; Miranda & Storms, 1989; Rosario, Hunter, Maguen, Gwartz, & Smith, 2001), a healthy identification is associated with positive psychological well-being. Instead, it is the social status itself that poses risks for psychological well-being. After all, the risks associated with a social status are not bound in how one feels about or identifies with his or her social status, but instead are bound in how others treat the individual due to his or her social status and the messages the individual receives from family, peers, and society regarding his or her social status.

When identification does play a role, it generally plays a protective role. That is, a positive identification with a given social status can help buffer individuals from the negative evaluations an individual might receive from others due to that social status. The only case where identity formation is thought to be a risk factor for deficits in psychological well-being is in the case of gender identity (Hill & Lynch, 1986; Marsh, 1987; Orlofsky & O'Heron, 1987). However, this is only if you operationalize gender identity as masculine/assertive (which is associated with higher levels of psychological well-being) vs. feminine/submissive (which is associated with lower levels of well

being), which is very different from operationalizing gender identity as being proud and/or happy about one's sex.

Characterized by complexity: The interaction of social status and its impact on psychological well-being

The building block of the SS/VP model is the vulnerable period. The vulnerable period itself is a rather simple premise – namely, that developmental changes interact with social status to produce a period of differential growth in psychological well-being across the levels of that social status. However, utilizing the SS/VP model to examine the interaction of multiple social statuses and the impact of that interaction on psychological well-being turns out to be rather complex. That is, in order to even diagnose a single vulnerable period for a single social status, one must first take into account the fact that the emergence and cessation of a vulnerable period can *each* be driven by multiple mechanisms or “proximal developmental changes”, and that those mechanisms or proximal developmental changes can *each* be driven by one or more of the following: biological changes, cognitive changes, contextual changes, and/or changes in social status (Step 1). Second, one must also take into account that certain distal factors may also moderate the impact of those proximal developmental changes (Step 2). Third, while still focusing on the same social status, one next must recognize the potential for one or more additional vulnerable periods that could occur at different points of development, and repeat Steps 1 & 2 for any additional vulnerable period(s) associated with the social status of focus (Step 3). Once these preceding steps are completed, one then has a complete picture of how psychological well-being varies across the levels of this particular social over the entire lifespan and why (i.e., what developmental changes

account for the emergence and cessation of the vulnerable period(s) associated with that social status) psychological well-being varies in the manner that it does. Fourth, focusing now on a different social status, one must again complete Steps 1, 2, & 3 in order to get a complete picture of how psychological well-being varies across the levels of this additional social status over the entire lifespan and why psychological well-being varies in the manner that it does (Step 4). Fifth, now that the picture is complete for both social statuses, one can compare the two social statuses to ascertain if there are period(s) of development where vulnerable periods overlap, if so then the relationship between the two social statuses when vulnerable periods overlap should be dependent-complementary, if not then the relationship between the two social statuses should be dependent-compensatory such that the psychological well-being impact of the later occurring vulnerable period should be muted (Step 5).

Realistically speaking, in most cases of course, data (let alone theory) are not available to properly complete Steps 1, 2, & 3 (i.e., steps necessary to get a complete picture across the entire lifespan of how psychological well-being varies across the levels of a particular social status and why psychological well-being varies in the manner that it does) for a single social status, let alone two or more social statuses. However, given the current state of knowledge in the field, simply empirically clarifying for a single social status the emergence and cessation of a single vulnerable period and the processes underlying that emergence and cessation would, in many cases, itself be a dramatic step forward. As such, even when not utilized to its full potential, the SS/VP model still has a lot to offer regarding our understanding of when and why social status impacts psychological well-being.

FUTURE DIRECTIONS: EXPANDING THE SCOPE OF INQUIRY

At best, the three empirical studies completed for this dissertation were just a small step towards adequately testing the SS/VP model. Though small steps, the studies completed for this dissertation did help clarify the interaction between multiple social statuses and the impact of that interaction on psychological well-being. Building off of this initial work, future research should dramatically expand the scope of examination by (1) focusing on additional social statuses beyond race and sex, (2) focusing on additional developmental periods beyond adolescence and early adulthood, (3) focusing more directly on the underlying mechanisms responsible for the initiation and cessation of vulnerable periods, (4) focusing on additional distal factors beyond adolescent levels of family income, race-related social support, and perceived racial discrimination, and (5) focusing on additional domains of functioning beyond psychological well-being, such as physical health and substance use/abuse.

Expand the scope to other social statuses

First and foremost, the SS/VP model should be applied to social statuses beyond race and sex. After all, though race and sex status were the two social statuses focused on for the purposes of this dissertation, the SS/VP model is intended to apply to not just race and sex status, but to all types of social status. With that said, there are several specific combinations of social status that would be interesting to examine. Generally speaking, the impact of sexual orientation on psychological well-being as well as how that impact varies across development is poorly understood (Diamond, 2006). As such the extent to which sexual orientation interacts with other social statuses is also poorly

understood. Thus, once the vulnerable period(s) for sexual orientation is empirically verified, the interaction between sexual orientation and race and/or sex status during adolescence, and the interaction between sexual orientation and marital status and/or parental status during adulthood would all be fascinating to examine.

In addition, though leading to methodological complications, the SS/VP model can certainly be applied to more than two social statuses. Theoretically, the SS/VP model is expected to generalize to one's complete set of social statuses, and, as such, ideally the interaction between as many different social statuses as possible would be examined. That is, recall that one critique of examining the relationship between a single social status (say race) and psychological well-being is that in the real-world there is no entity that is just one social status (say just European American, but no sex status, no sexual orientation, and so forth), and therefore the extent to which research limited in focus to a single social status actually generalizes to the real world is not clear. Well, taken a step further, in the real world there is no entity that is just two social statuses (say European American and female, but no sexual orientation, no overweight status, and so forth). Instead, in every one of these cases one is simplifying a real-world process, and examining an entity that technically does not exist in the real-world, which of course may have implications regarding generalizability to the real-world.

As mentioned above, due to limitations in available analytical techniques, when focused on growth differences, testing interactions higher than 2-way interactions, which one must be able to do if testing the interaction between 3 or more social statuses, is (to my knowledge) not possible (or at least not when using SEM techniques). However, one potential way to get around this limitation would be use an approach that is a variation of

an approach used by Sameroff, Seifer, Baldwin, & Baldwin (1993) to assess the influence of multiple social and family risk factors on levels of intelligence. In order to assess if (1) more risk factors were associated with more deficits in intelligence and (2) if the relationship was linear or non-linear, Sameroff et al. (1993) simply created a composite risk index ranging from 1 to n , where n is the number of risk factors. In a similar fashion, one could create a composite index that would range from 1 to n where n is the number of social statuses an individual has with overlapping vulnerable periods during a particular period of development. One could then use this composite index to test whether or not (1) overlapping key periods leads to a dependent-complementary interaction during the period of development when the vulnerable periods overlap, and (2) whether or not dealing with the number of risk statuses one deals with at earlier points of development facilitates dealing with an at-risk status whose vulnerable period emerges at a later point in development (i.e., a learning-curve to dealing with an at risk status).

Expand the scope to include other developmental periods

As described in detail earlier in this chapter, developmental changes responsible for the emergence and cessation of vulnerable periods fall into several different categories (i.e., biological changes, cognitive changes, contextual changes, and social status changes) and potentially occur at different points across the life span. Since the SS/VP model focuses so heavily on the timing of vulnerable periods to determine how two or more social statuses will interact with one another to impact psychological well-being, and the timing of vulnerable periods are spread though out the life span, it is imperative that the SS/VP model be applied to additional periods of development besides just adolescence and early adulthood. Moreover, in order to examine empirically if there

is a learning-curve to dealing with at-risk status, likely a broader range of development is required than the range available for the purposes of this dissertation, which was just 8 years (i.e., Grade 7 to 3-years post-high school). As such, expanding the range of development examined is likely required to assess the extent to which there is a learning-curve when it comes to dealing with at-risk status.

Focus more on underlying mechanisms and focus on more underlying mechanisms

As addressed earlier in this chapter, certain developmental changes are likely the driving force behind the emergence of a vulnerable period. In turn, the leveling off of those developmental changes and/or changes in various protective factors (i.e., increases in social support, the acquisition/development of strategies for dealing with stress and compartmentalizing perceived discrimination from one's sense of self, and increases in/development of group identification) are likely the driving force behind the cessation of a vulnerable period. As such, when possible, future research should examine more directly whether or not the above mechanisms are in fact the driving force behind the emergence and cessation of vulnerable periods. In addition, in order to establish the limitations, if any, of the moderating the moderator approach relative to the SS/VP model, detailed measurement of the moderating the moderator mechanisms across time is required.

Focus on additional distal factors

For the purposes of this dissertation, only a small number of potentially meaningful distal factors were examined. More specifically, concerning the growth of depressive affect after the end of high school, the moderating impact of adolescent levels of family income, race-related social support, and perceived racial discrimination were all

examined. This particular set of distal factors was examined due to their likely relevance to the impact of African American status on the growth of depressive affect after the end of high school. However, even when keeping the focus on African American status, there are other potentially influential distal factors such as racial identity, indicators of resilience, and specific measures of one's ability to cope with adversity. Moreover, when moving beyond African American status and switching focus to other social statuses there are even more potentially influential distal factors that warrant examination – namely, sexual minority status and size of sexual-minority social network (Savin-Williams, 2005), sex status and gender identity, parental status and relationship quality with partner. Thus, the potential impact of these distal factors and others should be addressed in future examinations attempting to clarify the impact across the lifespan of social status on psychological well-being.

Expand scope of inquiry to other domains of functioning

Though the SS/VP model was developed with the impact of social status on psychological well-being in mind, the model may generalize to the impact of social status on other domains of functioning, such as substance use/abuse and physical health. After all, concerning substance use/abuse, there are clear disparities across race (Humara & Sherman, 1999; Wallace & Muroff, 2002), sex (Nolen-Hoeksema & Hilt, 2006), and sexual orientation (Durant, Krowchuck, & Sinal, 1988; Garafalo, Wolf, Kessel, Palfrey, & Durant, 1998; Faulkner & Cranston, 1998). In addition, concerning physical health, there are clear disparities across sex (Carmel & Burnstein, 2003; Haavio-Mannila, 1986), sexual orientation (Diamont & Wold, 2003; Sandfort, de Graaf, & Bijl, 2003), SES (Chamberlain, 1997), and body-type (Han, Tjihuis, Lean, & Seidell, 1998). Similar to

differences in psychological well-being, it is extremely doubtful that these social status disparities across various domains of functioning are present at birth. Instead, they likely emerge at some point during development, and the mechanisms underlying the emergence and cessation of psychological well-being vulnerable periods may be similar to those underlying the emergence and cessation of substance use/abuse vulnerable periods and physical health vulnerable periods. Moreover, the nature of the interaction of multiple social statuses and the impact of that interaction on substance use/abuse and physical health may vary depending upon whether or not the vulnerable periods overlap or not. All of these questions remain, for the most part, unanswered, and should be examined empirically.

ALL SIGNS POINT TO THE NEED FOR RICHER DATA

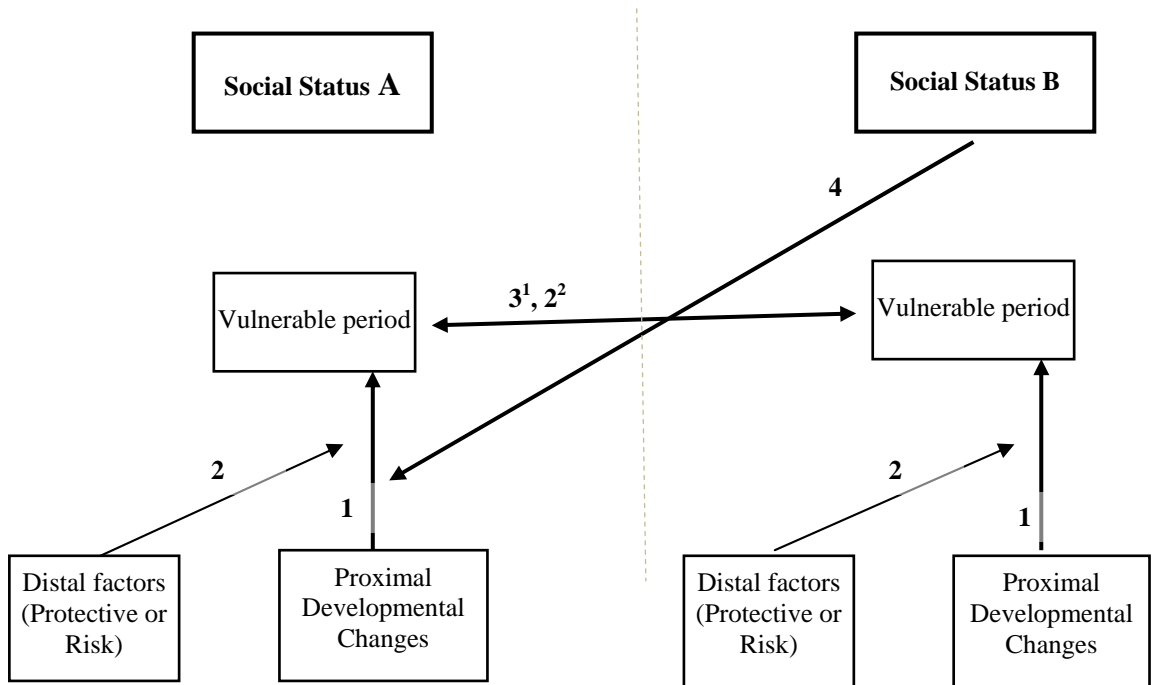
A sizable, longitudinal data set is required to fully test the SS/VP model given the fact that it is a developmental model that applies to the entire lifespan, applies to a host of different social statuses, recognizes the inherent complexity in the relationship between social status and psychological well-being across the life span, and recognizes the potential impact of changes in biological processes, cognitive process, context, and personal understanding,. More specifically, the longitudinal data set would have to include measures on a host of social statuses, and include for *each* social status measures of stress, social support, perceived discrimination, and identification related to that social status, and include potentially influential distal factors. In addition, the longitudinal data set would have to include measures on psychological well-being, mental health, substance use/abuse, and physical health. Finally, the longitudinal data set would also

have to include measures for those mechanisms identified as meaningful by researchers utilizing the moderating the moderator approach. Of course such a data set does not exist, and perhaps never will. But, an initial step in that direction would be to begin collecting data that includes as many of these measures as possible. In addition, web-based data collection, which is more likely than more conventional forms of data collection to result in adequate participation rates when collecting data involving stigmatized groups and adequate response rates when collecting data on sensitive information, is likely a wise choice. Though the data obtained would initially be cross-sectional in nature, age differences could still be assessed, which may help to clarify the timing of vulnerable periods and some of the mechanisms that underlie both their emergence and cessation. In addition, since follow-ups are not terribly difficult to obtain over the web, hopefully before long these processes could also be analyzed longitudinally.

Table 5.1
Summary of approaches to disentangling the relationship between the intersection of multiple social statuses and its impact on psychological well-being

Name of approach	Brief definition	Key Weaknesses
Double-marginalized approach	In the cross-section, focuses on marginalized status and posits that the interaction between two or more marginalized statuses will be dependent-complementary in fashion.	(1) Often not supported empirically (2) Makes unwarranted assumption that the impact of social status on psychological well-being does not vary across development
Moderating the moderator approach	A post-hoc approach that, once the interaction between two or more social statuses is <i>already</i> empirically verified, attempts to disentangle the mechanisms driving that interaction by disentangling (1) the mechanisms underlying the effect of one social status on mental health, and (2) how a second social status moderates the impact of those mechanisms.	(1) Atheoretical - more of a blueprint one might follow to empirically disentangle the relationship between two or more social statuses opposed to a theoretical approach one might utilize to predict the nature of the relationship itself. (2) Makes unwarranted assumption that the impact of social status on psychological well-being does not vary across development
Social status/vulnerable period model	Posits that for each social status there is a period of non-parallel growth across the levels of that social status (i.e., a vulnerable period). Moreover, the interaction between two or more social statuses can be determined based on whether or not the vulnerable periods overlap or do not overlap with one another.	

Figure 5.1
SS/VP model - The interaction of multiple social statuses and its impact on psychological well-being



¹If vulnerable periods overlap, then the at-risk social statuses interact in a dependent-complementary fashion

²If vulnerable periods do not overlap, then the at-risk social statuses interact in a dependent-compensatory fashion, and the previous experience with an at-risk status is simply conceptualized as a distal factor that impacts how one deals with the later at-risk status.

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