May 14, 2002

RE: Patterns of Academic Competence and Depressive Symptoms from Early Adolescence to Young Adulthood

To Whom It May Concern:

Attached is a draft of the paper presented at the Society for Research on Adolescence (New Orleans, April 2002) that you requested. Please note that we are currently revising the paper for publication and thus we ask that you do not cite without the permission of the first author.

Sincerely,

Kathleen M. Jodl

Patterns of Academic Competence and Depressive Symptoms From Early Adolescence to Young Adulthood

Kathleen M. Jodl

Mina Vida

Jacquelynne S. Eccles

Kai Schnabel

University of Michigan

Revised 4/1/02

Running Head: Academic Competence & Depressive Symptoms

DO NOT CITE WITHOUT PERMISSION

This research was supported by grants from the NIMH, NSF, NICHD, Spencer Foundation, W.T. Grant Foundation, and the MacArthur Foundation Research Network on Successful Adolescent Development Among Youth in High-Risk Settings awarded to Jacquelynne S. Eccles and Arnold Sameroff. The authors would like to thank: Todd Bartko, Elaine Belansky, Heather Bouchey, Celina Chatman, Diane Early, Kari Fraser, Ariel Kalil, Linda Kuhn, Oksana Malachuk, Karen McCarthy, Alice Michael, Leslie Morrison Gutman, Stephen Peck, Dairia Ray, Kate Rosenblum, Robert Roeser, Sherri Steele, Erica Taylor, Cindy Winston, and Carol Wong.

Inquiries may be addressed to the first author at the Gender and Achievement Research Program, University of Michigan, 204 South State Street, Ann Arbor, MI 48109-1290. Please DO NOT cite without permission.

Patterns of Academic Competence and Depressive Symptoms From Early Adolescence to Young Adulthood

The transition to adulthood is considered by most to be a normative, developmental milestone in a contemporary society. The lack of clarity and continuity surrounding this passage may pose a threat to the well being of adolescents struggling to make sense of themselves and their worlds. Although most adolescents make the transition to adulthood relatively problem-free, others experience more difficulties as they move from high school to college or work. For those adolescents who do not do well academically, the road to adulthood may be especially rocky. Several researchers have argued that difficulties in young adulthood first appear during the early adolescent years (Carnegie Council on Adolescent Development, 1989) when adolescents enter junior high school (Eccles, Midgley, Buchanan, Wigfield, Reuman, & MacIver, 1993; Simmons & Blyth, 1987). Difficulties making the transition to junior high school have been associated with a host of problems including declines in motivation, self-esteem and school grades (e.g., Eccles, Wigfield, Flanagan, Miller, Reuman, & Yee, 1989; Harter, 1981; Simmons & Blyth, 1987; Wigfield, Eccles, MacIver, & Reuman, 1991) and ultimately, school failure, truancy and drop out (e.g., Simmons & Blyth, 1987; see Eccles, Midgley, & Adler, 1984 for a full review). Psychological distress in the form of depressive affect also becomes more common during early adolescence (e.g., Achenbach, Howell, Quay, & Conners, 1991; Roeser & Eccles, 1997). Coupled with heightened levels of depressive symptoms, early adolescents who struggle academically may be ill prepared for life beyond high school and hence experience problems in multiple domains (e.g., mental health, achievement).

The present study investigates patterns of adaptation associated with academic competence and depressive symptoms over time in an ethnically diverse sample of largely middle-class African- and European-American adolescents. A primary aim is to examine the impact of depressive symptoms on later academic achievement and psychological well being using a person-oriented approach. Depression and other affective disorders often interfere with the mastery of age-appropriate developmental tasks (Kovacs, 1989). We expect that early adolescents who are depressed—especially those who are struggling academically—might show disruptions in functioning over time during the transition to adulthood. Adolescence and young adulthood represent particularly critical developmental periods in which individuals must cope with normative changes like the transition to high school and entry into adulthood (Compas, 1992).

Patterns of Academic Competence and Depressive Symptoms Over Time

We know little about how individuals change over time with respect to patterns of adjustment associated with academic competence and depressive symptoms. Evidence from several studies suggests that interindividual variability in functioning and adjustment increases from early adolescence to young adulthood. Pathways appear to diverge over the course of adolescence with some individuals coping more effectively than others to various stressful life transitions and events (e.g., Kazdin, 1993; Peterson, 1993). Eccles and her colleagues (Eccles, Lord, Roeser, Barber & Jozefowicz, 1997), for example, found that adolescents who experience problems after the transition to junior high school are likely to have increasingly severe problems in high school and young adulthood. Similarly, experiencing heightened levels of depressive symptoms in early adolescence may place an individual on a negative developmental trajectory

setting the stage for more problems during the transition to adulthood (Peterson, Leffert, Graham, Alwin & Ding, 1997). Delineating the nature of change and stability over time is critical to understanding why some adolescents do quite well and others not so well during the transition to adulthood.

Relatively few studies have examined relations among academic competence and emotional distress over time (Luthar, 1995). Although several investigators have focused on internalizing symptoms among academically gifted children and adolescents (e.g., Luthar, 1991), only a handful of studies have examined longitudinal patterns of academic and psychological functioning in lower achieving adolescents and young adults (e.g., Dryfoos, 1990). Using a person-centered approach, Roeser, Eccles & Sameroff (1997) explored patterns of adjustment related to school motivation and psychological distress in early adolescence. The patterns identified by Roeser et al. (1997) predicted adolescents' adjustment two years later. Similarly, Eccles and her colleagues (Eccles et al., 1997) found patterns of adaptation following the transition to junior high school predicted adolescents' academic beliefs and performance, self-esteem, and psychological distress up to five years later. These findings suggest considerable continuity in patterns of adjustment in early adolescence; however, we know little about how such patterns change over the course of adolescence and into early adulthood. A primary goal of the present study is to examine patterns of adolescent adjustment associated with academic competence and depressive symptoms over time using a person-oriented approach.

Research on depression and other affective disorders suggest that such emotional difficulties can impair academic performance (Kovacs, 1989) and affect beliefs about oneself and the future (Nolen-Hoeksema, Girgus & Seligman, 1986). Early adolescents who do not do

well in school—especially those who experience heightened levels of depressive symptoms—might be particularly at risk for problems during the transition to adulthood. With few skills and personal resources, these adolescents may be more likely to experience difficulties entering the worlds of work or college. Alternatively, those adolescents who are academically competent and/or enjoy positive mental health should be better equipped to cope with the changes associated with entry into adulthood.

The Transition to Adulthood

The emerging literature on young adulthood highlights various aspects of this stage that may impact the well being of adolescents. During this period of the life span, individuals are confronted with a variety of choices regarding the pursuit of higher education, entering the workforce, establishing long-term relationships, marriage and childrearing. Decisions made at this juncture are critical because of the potential to alter one's life course (Jessor, Donovan & Costa, 1991). The nature of becoming an adult may be very different for those who go to college versus those who enter the workforce. For the college bound, the transition to adulthood often means leaving home and entering a more impersonal environment, changes in relationships, and the beginning of financial independence. Although stressful, most negotiate the transition to adulthood successfully with relatively few problems. In contrast, those who forego college to enter the labor force may be faced with multiple life transitions ranging from leaving home, starting a new job, changing or losing jobs, and early marriage and childbearing. The transition to adulthood is typically less structured and more stressful for this group of adolescents (W.T. Grant Foundation, 1988). Moreover, for those early adolescents who do not do well in school with a history of depression, the process of becoming an adult might be especially tumultuous. To date,

we know relatively little about what aspects of the transition to adulthood contribute to difficulties in certain groups of adolescents. Changes in relationships with parents, peers and romantic partners, difficulties establishing autonomy with respect to work and school, and issues related to identity formation have all been implicated as potential contributors (see Schulenberg, Maggs & Hurrelman, 1997). Therefore, a secondary goal of this study is to explore contextual factors that distinguish adolescents who are struggling academically and are depressed from other adolescents entering young adulthood.

Gender Differences in Patterns of Adjustment Over Time

One of the most consistent findings in the empirical literature is the emergence of gender differences with respect to depression in early adolescence. Sometime between the ages of 12 and 14, girls begin to experience higher levels of depressive symptoms than boys—a pattern that persists throughout most of adulthood (Allgood-Merten, Lewinsohn & Hops, 1990; Compas, Ey & Grant, 1993; Nolen-Hoeksema, 1990). A growing body of research suggests that adolescent girls may internalize their distress more than boys in part because of the nature and timing of transitions (e.g., Peterson et al., 1997; Simmons & Blyth, 1987). Girls, for example, usually experience puberty about the same time they are entering junior high school (Peterson, Kennedy & Sullivan, 1991). Once on a negative developmental trajectory, these girls—especially those who struggle academically—may be at risk for various problems in young adulthood. Patterns of adjustment may well differ for girls and boys in the present study. We expect that lower achieving girls who are depressed will be more vulnerable to disruptions in functioning as young adults than similarly depressed and lower achieving boys.

Primary Aims

This paper will investigate patterns of adaptation associated with academic competence and depressive symptoms over time in an ethnically diverse sample of largely middle-class African American and European American adolescents and their families. Our major goal was to examine the patterns of adolescent adjustment associated with academic competence and depressive symptoms over time. Specifically, we are interested in the impact of depressive symptomatology on later achievement and psychological well being from early adolescence to young adulthood. Put simply, are there any long-term costs associated with experiencing heightened levels of psychological distress in early adolescence? Alternatively, are their any long-term benefits to being academically competent and/or experiencing positive mental health? If so, what contextual aspects of the transition to adulthood contribute to difficulties (or lack of difficulties)?

Depression and other affective disorders often interfere with the mastery of age-appropriate developmental tasks (Kovacs, 1989). We hypothesize that those early adolescents who are depressed following entry into junior high school—especially those who are not doing well academically—might show disruptions in functioning during the transition to adulthood. In contrast, we expect that early adolescents who are depressed but academically competent might be better equipped to cope with the stresses associated with the transition to adulthood and ultimately function better as young adults. According to Masten & Coatesworth (1998), competence refers to good adaptation not necessarily superb achievement. Thus, in this study, we defined competence as better than average academic achievement based on grade point average (i.e., GPA).

Method

Sample

The data presented here are drawn from a large prospective study designed to examine the influence of multiple social contexts on adolescent development. The sample includes adolescents from an ethnically diverse county in the mid-Atlantic region (Maryland Adolescent Development in Context (MADIC); J. Eccles and A. Sameroff). Four waves of data from the MADIC study were used in this study. The data were obtained from adolescents and their primary caregivers when the target adolescent was in the 7th grade, 8th grade, 11th grade, and one year after high school at approximately age 19 (Waves 1, 3, 4 and 5 respectively). At Wave 1 (1991/1992), a stratified sampling procedure was used to obtain a representative sample of families from 23 junior high schools in the area. A total of 1961 families expressed an interest in the study by signing a form permitting us to contact them. The first 1500 families contacted were recruited to be study participants, and of these families, 1498 actually took part in the study at Wave 1 when adolescents were in the seventh grade. Analyses conducted to compare this sample to the larger population of adolescents in the county revealed few differences across a variety of demographic characteristics and academic indicators. The MADIC sample is somewhat wealthier and more likely to be European-American than the larger county population (Cook, Habib, Phillips, Settersten, Shagle, & Degirmencioglu, 1999).

The full sample at Wave 1 is comprised of approximately equal proportions of girls and boys (2/3 African American and 1/3 European American). The average total family income ranged from $45,000 to $50,000 per year for African Americans and from $50,000 to $55,000 per year for European Americans. Approximately 32% of one or both African-American parents held at least a college degree compared to 48% of one or both European-American parents in the

sample. Over 1/2 of the families were nondivorced families (compared to 20% single parent/divorced families and 15% stepfamilies) at Wave 1.

The sample at Wave 5 included 62% of the participants from the original sample at Wave 1 (n = 919), an adequate retention rate given the length and nature of the study. Participants who dropped completely out of the study (n = 286) tended to be the least well-functioning people in the initial sample (see Eccles & Sameroff, 2000 for further detail). The adolescents who dropped out of the study displayed lower levels of achievement (assessed using a combination of GPA and test scores) and their parents were less educated on average than those who remained in the study. Although the differences are reliable, the effect sizes are relatively modest in that these variables account for only 3% of the variance in attrition.

To address our specific research objectives, we used data from a subset of participants from the larger MADIC study (n=1268). At Wave 1, adolescents were classified into four groups using a mean-split on academic performance (i.e., GPA) and a cut point of one standard deviation above the mean on depressive symptoms (SCL-90; Derogatis, Rickels, & Rock, 1976). These cut points were chosen for conceptual reasons. A mean-split was used for academic performance in an effort to define competence as better than average achievement (i.e., GPA). In turn, a cut point of greater than one standard deviation above the mean was used for depressive symptoms because our goal was to capture heightened levels of depressive symptoms (although not necessarily clinical levels of depression given the normative nature of the sample). Therefore, based on these criteria, we classified (1) 521 (74% African American; 37% female) adolescents as not competent and not depressed; 2) 100 (81% African American; 40% female) as not competent and depressed;

3) 563 (56% African American; 60% female) as competent and not depressed; and (4) 84 (63% African American; 71% female) as competent and depressed. [1]

Procedure

The data were obtained with face-to-face interviews and self-administered questionnaires collected from the adolescent and their parents in the family's home at Waves 1, 3, and 4. Each participant filled out a large battery of self-administered items and an additional set of questions administered by trained interviewers. The caregiver and adolescent were paid $20 each for their participation in the study.

The fifth wave of data was collected in the summer of 1998, one year after the adolescents finished high school. For this wave, questionnaires were mailed to the participants asking them questions about a range of issues including their mental health and academic self-concept. Participants were sent a $35 check in the mail after successfully completing and mailing the questionnaires back to the researchers.

Measures

Our measures included a variety of closed-ended and open-ended items designed to assess the adolescents' experiences at the individual, peer and family levels as well as their academic performance and mental health over time. Scale construction was guided by theoretical concerns and factor analyses. Many of these items and scales have been used in earlier work by Eccles and her colleagues (e.g., Eccles, 1983; Eccles, Wigfield, Flanagan, Miller, Reuman, & Yee, 1989;

[1] For conceptual reasons, we chose to use a person-oriented approach to classifying adolescents in this study. One issue that arises with such a strategy is whether or not the cut points are merely arbitrary or reflect something unique about the data. As a means of validation, we performed a hierarchical regression analysis to examine the nonlinear relation between GPA and depressive symptoms at Wave 1 as a predictor of depressive symptoms at Wave 5. As expected, the interaction between GPA and the quadratic term for depressive symptoms was significant (especially for

Barber, Eccles, & Stone, 2001), and thus their psychometric properties and validity are well established (see Eccles, Wigfield, Harold, & Blumenfeld, 1993 for full details). The specific constructs used in this study are described below. A summary of all measures including sample items and reliability coefficients is provided in the Appendix.

Demographic measures. Socio-demographic characteristics of the target adolescents and their families used in this study included the adolescents' gender (1=male, 2=female), total family income, and ethnicity (1=African-American, 2=European-American).

Classification constructs. As noted above, adolescents were classified into four groups (i.e., not competent/not depressed, not competent/depressed, competent/not depressed, competent/depressed) based on their academic performance and level of depressive symptoms in the 7th grade (Wave 1). Academic competence was measured based on the adolescents' grade point average (i.e., GPA) computed at the end of the academic year. GPA was an average of grades in the core academic subjects (e.g., English, math, science) drawn from school records and measured using a 5-point scale (0=Failing, 1=D, 2=C, 3=B, 4=A). A modified version of the Symptoms Checklist 90-Revised (SCL-90) was used to classify adolescents as high or low in depressive symptoms (Derogatis, Rickels, & Rock, 1976). This self-report measure assessed adolescents' perception of how frequently they felt sad, hopeless, or alone in the last month. Using a 5-point scale (1=almost never, 5=almost always), adolescents responded to six questions including "During the last month, how often did you feel depressed?" and "During the last month, how often did you feel sad?" Cronbach's alpha was .82 for this scale.

---

girls in the sample) and thus suggests that our approach to classifying individuals holds some merit. Details from this analysis are available from the first author.

Indicators of adolescent adjustment. In this study, we examined patterns of adolescent adjustment associated with adolescents' academic performance and mental health (i.e., depressive symptoms and academic self-concept) over time. As described above, the adolescents' grade point average (i.e., GPA) computed at the end of the 8th and 11th grade was used as an indicator of their academic performance. As before, GPA was an average of grades in the core academic subjects (e.g., English, math, science) drawn from school records and measured using a 5-point scale (0=Failing, 1=D, 2=C, 3=B, 4=A). Self-reported GPA was available at Wave 5 for those in college only. However, we chose not to include GPA at Wave 5 because it severely restricted our sample size.

A modified version of the Children's Depression Inventory (CDI; Kovacs, 1989), a standard and well-validated measure of depression, was used as an indicator of depressive symptoms at Waves 3, 4 and 5. Adolescents responded to six questions using a 3-point scale. Sample questions included: "I am sad..." (1=once in a while, 3=all the time), "I feel like..." (1=I hate myself), 3=I like myself), and "I feel like crying..." (1=every day, 3=once in a while). At each wave, scales displayed good internal consistency as indicated by Cronbach's alphas that ranged from .77 to .79.

Additionally, at Waves 3, 4 and 5, a composite scale was created that assessed adolescents' perceptions of their academic skills in math and other school subjects relative to their same-age peers. Teens responded to four questions that tapped their academic self-concept using a 7-point scale anchored at the extremes (1=much worse, 7=much better). Sample items included "Compared to other kids your age, how well do you do in math?" and "How well do you do in

other school subjects?". Cronbach's alpha was .78 at Waves 3 and 4 respectively and .77 at Wave 5.

Transition to adulthood. Follow-up analyses at Wave 5 examined three aspects of the transition to adulthood that might contribute to difficulties including (1) relationships with parents, peers and romantic partners, (2) problems establishing autonomy with respect to college or work, and (3) expectations and aspirations regarding the future. In the relationship domain, parent-child closeness was measured using youth reports of the degree to which they felt close and positively identified with each parent. Using a 4-point scale (1=not at all, 4=a lot), adolescents were asked to rate how much they wanted to be like their mother or father when they grew up, how much they respected their mother or father, and how close they felt to their mother or father. An additional item using a 6-point scale (1=almost never, 6=almost every day) asked adolescents how often they did things with their mother or father that they enjoyed. An average score was then computed based on these four items. Cronbach's alpha was .77 for mothers and .86 for fathers. A comparable scale was created for peer closeness/rapport using three questions. For example, adolescents were asked about how close they felt to their friends (1=not very close, 4=extremely close) and how often they did things together that they enjoyed (1=almost never, 6=almost every day). Cronbach's alpha was .77 for this scale. Finally, a single item was used as a measure of youths' satisfaction with romantic relationships (i.e., How satisfied are you with your dating life?).

In the college/work domain, adolescents responded to a series of questions designed to assess their ability to successfully negotiate the transition to college and/or work. For example, adolescents were asked a question about their work satisfaction (i.e., How satisfied are you with

your current employment?; 1=very unsatisfied, 7=very satisfied). Two items were used to compute an average score for financial worries. Using a 7-point scale, youth were asked to rate how much difficulty they experienced paying bills over the last 12 months (1=no difficulty at all, 7=a great deal of difficulty) and how worried or upset they were about having enough money to pay for things (1=not at all upset, 7=very upset). Cronbach's alpha was .68 for this scale.

Regarding expectations and aspirations, an average of six items was used as a measure of future life expectations. In this instance, adolescents responded to questions such as "What do you think the chances are that you will find a stable and well-paying job?" and "What do you think the chances are that you will have better opportunities due to the economy?" using a 5-point scale (1=very low, 5=very high). Cronbach's alpha was .74 for this scale. Youths' educational expectations were measured using a single item (i.e., "How likely do you think it is that you will earn the highest degree you would like to get?"; 1=not at all likely, 5=very likely). Additionally, adolescents were asked about their occupational aspirations and expectations at age 30. An open-ended question asked participants about the kind of job they would most like to have in the future. A follow up item asked about the likelihood of actually having this job by age 30 (1=not at all, 4=very likely).

Results

Preliminary Analyses & Descriptive Statistics

One concern in this study was the issue of random versus selective attrition over time. To assess whether sample attrition was at random controlling for key demographic variables, we created composite scores for each measure of adjustment (e.g., depressive symptoms, academic

self-concept) by using the participant's last available score on that measure. Whether or not a participant dropped out of our study did not predict adolescent adjustment once key demographic variables (e.g., gender, ethnicity, family income, marital status) were included in the equation.

Tables 1 and 2 present the means and standard deviations for the measures used in this study. Given the demographic make-up of the sample, we conducted a preliminary set of analyses to investigate the impact of adolescents' gender, ethnicity, and total family income on patterns of adjustment over time. Analyses were conducted separately by gender and by ethnicity. These subgroup comparisons suggested that ethnicity and family income level were not significant factors to consider with respect to changes over time in depressive symptoms and academic self-concept. Therefore, for the sake of simplicity, we chose not to examine these variables in subsequent analyses; only the adolescents' gender was included in the models described below.

Stability and Change in Adolescent Adjustment

Repeated-measure MANOVAs (4 (group) X 3 (time)) using three time points from grade 8 to age 19 were performed to investigate patterns of adjustment over time in this sample (see Table 3).[2] As shown, a significant wave X group interaction was observed in these analyses ($F(3, 465)=3.15$, $p<.01$). Lower achieving and depressed 7th graders reported a sharp increase in depressive symptoms at age 19 ($M=1.80$, $SD=.58$) whereas the remaining groups continued to report lower levels of depressive symptoms at each wave (see Figure 1). In contrast, higher achieving and depressed 7th graders improved somewhat over time and 7th graders classified as lower in depressive symptoms continued to maintain lower levels of distress at subsequent time

points (see Table 3 and Figure 1). When analyzed separately by gender, however, it appears that this effect is limited largely to the girls in the lower achieving and depressed group (F (3, 279)=3.04, $p<.01$ and $F(3, 183)=.37$, $p=.51$ for girls and boys respectively; see Tables 4 and 5).

A complementary pattern of findings was observed for academic self-concept (see Figure 2). As displayed in Table 3, a significant wave X group interaction ($F(3, 435)=2.54$, $p<.05$) was found such that lower achieving and depressed 7th graders experienced a precipitous drop in their academic self-concepts as 11th graders ($M=4.09$, $SD=1.10$) with self-perceptions remaining low at age 19 ($M=4.22$, $SD=1.44$). The remaining groups continued to report relatively higher self-perceptions of their academic skills at each time point (see Table 3 and Figure 2). As before, when analyzed separately by gender, we find that this effect for academic self-concept is carried by girls (F (3, 262)=3.47, $p<.01$), and not boys (F (3, 170)=.96, $p=.45$), in the lower achieving and depressed group (see Tables 4 and 5).

A significant wave X group interaction was not found for GPA (see Table 3). As expected, a main effect of group status was observed such that those 7th graders classified as competent performed better academically over time than those classified as not competent at Wave 1 ($F(3,633)=104.10$, $p<.001$). Moreover, a main effect of wave indicated that academic performance declined across time for all groups ($F(1, 633)=7.91$, $p<.01$).

Follow-Up Exploratory Analyses

Additional analyses were performed to explore contextual factors at Wave 5 that might be related to difficulties making the transition to adulthood including: (1) relationships with parents,

---

[2] Repeated-measure MANOVAs also were performed using equal Ns across groups—a more robust statistical design. A similar pattern of findings was obtained with this method. Details are available from the first author.

peers and romantic partners; (2) problems establishing autonomy with respect to college and work; and (3) expectations and aspirations regarding the future.

Quality of Relationships—Parent, Peers & Romantic Partners. A series of one-way ANOVAs investigated mean level differences in the quality of relationships with parents, peers and romantic partners at Wave 5. Post hoc comparisons were performed using Bonferroni's t method. As shown in Table 6, those classified as not academically competent and depressed in the 7th grade later reported lower levels of father-child closeness ($\underline{M}$=2.20, SD=.94) than those in the competent/not depressed group ($\underline{M}$=2.70, SD=.82) ($\underline{F}(3, 592)=4.82$, $\underline{p}<.01$). No significant group differences were found for mother-child closeness or peer closeness/rapport at Wave 5. Competent adolescents who were not depressed ($\underline{M}$=4.73, SD=2.05) at Wave 1 were less satisfied with their romantic relationships at Wave 5 than similarly not depressed but lower achieving adolescents ($\underline{M}$=5.20, SD=1.81) ($\underline{F}(3, 661)=3.04$, $\underline{p}<.05$).

Transition to College & Work. A set of χ^2 analyses and one-way ANOVAs examined group differences with respect to entering college and/or work at Wave 5. Approximately 7% of the full sample did not graduate from high school. Of this number, 22% of lower achieving and depressed 7th graders dropped out of high school compared to 14% of those categorized as not competent and not depressed at Wave 1. Only 2.2% of those originally classified as competent and not depressed and 3.3% of the competent and depressed 7th graders reported leaving high school without a diploma ($\chi^2(3)=41.96$, $\underline{p}<.001$).

At Wave 5, 497 participants reported being in college full-time. Of those in college full-time, 65.8% were classified as competent and not depressed in the 7th grade (versus 21.3% of not competent/not depressed and only 2.3% and 10.5% of not competent/depressed and

competent/depressed groups respectively). Approximately 75% of competent adolescents (both depressed and not depressed) were in college full-time compared to just 40% of those labeled not competent/not depressed. Only 1 out of 4 classified as not competent and depressed at Wave 1 were attending college at Wave 5 (χ^2 (3)=100.94, $p<.001$).

In contrast, 318 adolescents were not attending college full-time at age 19. Of those in the workforce, 50.7% were classified as not competent and not depressed in the 7th grade compared to 32.8% of competent and not depressed adolescents and 10.2% and 6.2% of not competent/depressed and competent/depressed adolescents respectively. Across all groups, most reported working part- (27%) or full-time (42%) or as currently unemployed (20%). No significant differences were observed across groups in the likelihood of being employed part- or full-time or unemployed at Wave 5.

No mean level differences were observed in satisfaction with current employment among those working at Wave 5 (see Table 6). For both those in college and in the workforce, competent 7th graders who were not depressed (M=2.81, SD=1.54) expressed fewer concerns about their financial situation at age 19 than either not competent/not depressed (M=3.19, SD=1.68) and competent/depressed (M=3.56, SD=1.78) (F (3, 653)=5.10, $p<.01$) adolescents.

Aspirations/Expectations. Mean level differences (i.e., ANOVAs) with respect to future life expectancies as well as educational and occupational aspirations and expectations were examined at Wave 5. As shown in Table 6, lower achieving and depressed 7th graders (M=3.68, SD=.55) were the most pessimistic about their futures at age 19 relative to other adolescents in the sample especially competent adolescents who were not depressed (M=4.01, SD=.58) at Wave

1 ($F(3, 660)=4.55$, $p<.01$). No significant group differences were found for educational expectations or occupational expectations at Wave 5.

Regarding occupational aspirations, the vast majority of competent adolescents (whether depressed or not depressed) wanted a professional career in either the sciences (71.2% and 58.4% respectively) or business (19.2% and 23.9% respectively) at Wave 5. Not surprisingly, lower achieving 7th graders were somewhat more likely to want to be a service worker (e.g., fire fighter, health services) or technician (e.g., lab tech, electrician) at age 19 (28.9% and 30.6% for depressed and not depressed adolescents respectively); however, like their competent peers, most aspired to a career in business or science at Wave 5 (approximately 70% across both groups) ($\chi^2(9)=28.85$, $p<.001$).

Discussion

The present study examined patterns of adjustment associated with academic competence and depressive symptoms over time. Our results suggest that adolescents (especially girls) who are depressed and struggling academically in the 7th grade may be vulnerable during the transition to adulthood. Relative to their peers, lower achieving and depressed 7th graders reported a decrease in academic self-concept in the 11th grade followed by a sharp increase in depressive symptoms at age 19. One reason behind such difficulties is the lack clarity surrounding the passage to adulthood in our society (National Research Council, 1993) that stems from issues achieving a sense of identity and establishing autonomy with respect to work and family. We find in the present study that the quality of father-child relationships, dropping out of high school and entering the workforce versus going to college, and occupational aspirations and expectations about the future may be related to difficulties making the transition to adulthood.

A primary goal of this study was to identify individual differences in the patterns of adjustment associated with academic competence and depressive symptoms from early adolescence to young adulthood. Our data indicate that adolescents (especially girls) who are depressed and struggling academically in the 7th grade may be vulnerable during the transition to adulthood. Relative to their peers, lower achieving and depressed 7th graders reported a decrease in academic self-concept in the 11th grade followed by a sharp increase in depressive symptoms at age 19. Such a finding suggest that there may be some long-term costs associated with the *combination* of experiencing heightened levels of psychological distress and a lack of academic competence in early adolescence—at least for girls in this sample. Once on a negative developmental trajectory, these girls appear to be at greater risk for more severe problems during the transition to adulthood. Alternatively, there may be some long-term benefits to being academically competent and/or experiencing positive mental health (i.e., a lack of depressive symptoms) in early adolescence. Better mental health at age 19 was observed even among higher achieving but depressed 7th graders and lower achieving adolescents who were not depressed in the 7th grade.

Consistent with a few other studies (e.g., Carbonell, Reinherz, & Giaconia, 1998), we did not find any group differences with respect to academic performance over time. Contrary to expectations, depressive symptoms did not appear to affect the academic performance of adolescents in this sample over time. Although grade point averages dropped somewhat from 8th to 11th grade across all groups, both groups of depressed adolescents managed to maintain previous levels of academic achievement across time. That is, depressed adolescents were no more likely to experience a drop in their classroom performance than their non-depressed peers.

A secondary goal of this study was to examine contextual factors that might be related to difficulties making the transition to adulthood. A variety of factors have been implicated as potential contributors to problems becoming an adult including changes in relationships with parents, peers, and romantic partners, difficulties establishing autonomy with respect to work and family, and issues related to identity formation (see Schulenberg, Maggs & Hurrelman, 1997). Consistent with this body of evidence, our data suggest that poor father-adolescent relationships, dropping out of high school and entering the labor force, and lower occupational aspirations and negative expectations about the future may be related to differences making the transition to adulthood. Although preliminary, these findings are consistent with the notion that adjustment problems stem from the nature of the transition to adulthood (W.T. Grant Foundation, 1988). With few skills and personal resources, early adolescents who struggle academically—especially girls who experience heightened levels of depressive symptoms—may be ill-equipped to cope with the challenges associated with entering young adulthood.

Conclusions

In the current study, we examined patterns of adjustment associated with academic competence and depressive symptoms from early adolescence to young adulthood. Our results suggest that adolescents—especially girls—who are depressed and struggling academically in the 7th grade may be vulnerable during the transition to adulthood. A major strength of this study is its longitudinal design. Nevertheless, although longitudinal studies allow for the opportunity to examine potentially causal processes better than cross-sectional research, it is not possible to draw any causal conclusions based on these findings. Additionally, attrition is clearly an issue in the present study. Although this is a problem common to nearly all longitudinal studies, it is an

issue that warrants further consideration because it may limit our interpretation of the data as well as the generalizability of the findings. Future research should seek to examine patterns of adjustment related to academic competence and depressive symptoms using more sophisticated models (e.g., latent growth curve).

Taken together, these findings highlight the need to identify patterns of change over time associated with academic competence and depressive symptoms from early adolescence to young adulthood. Delineating individual differences in patterns of academic competence and depressive symptoms over time provides insight into why some adolescents make the transition to adulthood relatively problem-free and others experience considerably more difficulties moving beyond high school into the adult worlds of college or work. One reason behind such difficulties may be the lack clarity surrounding the passage to adulthood in our society (National Research Council, 1993). Problems achieving a sense of identity and establishing autonomy with respect to work and family may contribute to these difficulties.

References

Achenbach, T. M., Howell, C.T., Quay, H.C., & Conners, C.K. (1991). National survey of problems and competencies among four to sixteen year olds. Monographs for the Society of Research in Child Development, 56(3).

Allgood-Merten, Lewinsohn & Hops (1990).

Barber, B.L., Eccles, J.S., & Stone, M.R. (2001). Whatever happened to the jock, the brain, and the Princess? Young adult pathways linked to adolescent activity involvement and social identity. Journal of Adolescent Research, 16, 429-455.

Carnegie Council on Adolescent Development, (1989). Turning points: Preparing American youth for the 21st century. New York: Carnegie Corporation.

Compas, (1992).

Compas, Ey & Grant (1993).

Cook, T.D., Habib, F., Phillips, M., Settersten, R.A., Shagle, S.C., & Degirmencioglu, S.M. (1999). Comer's School Development Program in Prince George's County: A theory-based evaluation. American Educational Research Journal, 36, 543-597.

Derogatis, L.R., Rickels, K., & Rock, A.F. (1976). The SCL-90 and the MMPI: A step in the validation of a new self-report scale. British Journal of Psychiatry, 128, 280-289.

Doernberger, (1992).

Eccles, J. S., Lord, S. E., Roeser, R. W., Barber, B.L., Hernandez Jozefowicz, D.M. (1997). The association of school transitions in early adolescence with developmental trajectories through high school. In J. Schulenberg, J.L. Maggs, & K. Hurrelman (Eds.), Heath risks and developmental transition during adolescence. New York, NY: Cambridge University Press.

Eccles, J. S., Midgley, C., & Adler, T. (1984). Grade-related changes in the school environment: Effects on achievement motivation. In J.G. Nicholls (Ed.), The development of achievement motivation (pp. 283-331). Greenwich, CT: JAI Press.

Eccles, J.S., Midgley, C., Buchanan, C.M., Wigfield, A., Reuman, D., & MacIver, D. (1993). Development during adolescence: The impact of stage/environment fit. American Psychologist, 48, 90-101.

Eccles, J. S., & Sameroff, A. (2000). Risk and promotive effects on adolescent development. National Institute for Child Health and Development- Grant #2R01-HD33437-06A1.

Eccles, J.S., Wigfield, A., Flanagan, C.A., Miller, C., Reuman, D.A., & Yee, D. (1989). Self-concepts, domain values, and self-esteem: Relations and changes in early adolescence. Journal of Personality, 57, 283-309.

Harter, S. (1981). A new self-report scale of intrinsic versus extrinsic orientation in the classroom: Motivational and informational components. Developmental Psychology, 17, 300-312.

Hymel, Rubin, Rowden & LeMare, (1990).

Jessor, R., Donovan, J. E., & Costa, F. M. (1991). Beyond adolescence: Problem behavior and young adult development. New York, NY: Cambridge University Press.

Kazdin, A. E. (1993). Adolescent mental health. American Psychologist, 48, 127-141.

Kovacs, (1989).

Kovacs, M. (1992). Children's Depression Inventory manual. North Tonawanda, NY: Multi-Health Systems.

Luthar, S.S. (1991). Vulnerability and resilience: A study of high-risk adolescents. Child Development, 62, 600-616.

Luthar, S.S. (1995).

Luthar, S.S., & Zigler, E. (1991).

Masten & Coatesworth (1998).

Nolen-Hoeksema, S. (1990).

Nolen-Hoeksema, Girgus, & Seligman, (1992).

Peterson (1993).

Peterson, A. C., Kennedy, R. E., & Sullivan, P. (1991). Coping with adolescence. In M.E. Colten & S. Gore (Eds.), Adolescent stress: Causes and consequences (pp. 93-110). New York: Aldine de Gruyter.

Peterson, A.C., Leffert, N., Graham, B., Alwin, J., & Ding, (1997). Promoting mental health during the transition into adolescence. In J. Schulenberg, J.L. Maggs, & K. Hurrelman (Eds.), Heath risks and developmental transition during adolescence. New York, NY: Cambridge University Press.

Roeser, R. & Eccles, J. (1997).

Simmons, R. G., & Blyth, D. A., (1987). Moving into adolescence: The impact of pubertal change and school context. Hawthorn, NY: Aldine de Gruyter.

Wigfield, A., Eccles, J. S., MacIver, D., & Reuman, D. (1991). Transitions during early adolescence: Changes in adolescents' domain-specific self-perceptions and general self-

esteem across the transition to junior high school. Developmental Psychology, 27, 552-565.

William T. Grant Foundation (1988). The forgotten half: Non-college youth in America. Washington, DC: William T. Grant Foundation Commission on Work, Family & Citizenship.

Table 1. Means and standard deviations for the primary measures used in the study.

	7th Grade		8th Grade		11th Grade		Age 19	
Variable	M	SD	M	SD	M	SD	M	SD
Depressive Symptoms	1.86	.71	1.32	.40	1.31	.39	1.35	.40
Academic Self-Concept	---	---	5.22	1.13	5.04	1.09	4.83	1.15
Youth's GPA	2.60	.89	3.11	.63	2.89	.73	---	---

Table 2. Means and standard deviations for the transition to adulthood measures at Wave 5.

Variable	M	SD
Mother-Child Closeness	3.05	.65
Father-Child Closeness	2.60	.84
Peer Closeness/Rapport	3.32	.62
Satisfaction with Romantic Relationships	4.90	1.97
Educational Expectations	4.29	1.39
Work Satisfaction	4.25	1.73
Financial Worries	3.05	1.63
Future Life Expectations	3.96	.58
Occupational Expectations	3.27	.82

Table 3. Results from repeated-measure MANOVAs (controlling for the adolescent's gender).

			Group Means (SD)											
			Not Competent/ Not Depressed			Not Competent/ Depressed			Competent/ Not Depressed			Competent/ Depressed		
Construct	*F*	*df*	8th	11th	19	8th	11th	19	8th	11th	19	8th	11th	19
Depressive Symptoms (n=470)			1.30	1.28	1.30	1.66	1.49	1.80	1.22	1.26	1.27	1.51	1.43	1.41
Wave	0.01	2, 464	(.38)	(.34)	(.36)	(.47)	(.40)	(.58)	(.30)	(.36)	(.36)	(.47)	(.41)	(.46)
Group	17.57***	3, 465												
Wave X Group	3.15**	3, 465												
Academic Self-Concept (n=440)				4.82	4.82	4.53	4.95	4.09	4.22	5.61	5.39	5.14	5.29	5.23
5.13														
Wave	3.93*	2, 434	(1.06)	(.98)	(1.13)	(1.16)	(1.10)	(1.44)	(.95)	(.99)	(1.07)	(1.26)	(1.10)	(1.14)
Group	21.10***	3, 435												
Wave X Group	2.54*	3, 435												
Academic Performance (n=638)			2.78	2.55	---	2.56	2.52	---	3.46	3.16	---	3.33	3.08	---
Wave	7.91**	1, 633	(.54)	(.76)		(.57)	(.76)		(.41)	(.58)		(.46)	(.59)	
Group	104.1***	3, 633												
Wave X Group	1.73	3, 633												

Note—*p<.05, **p<.01, ***p<.001.

Table 4. Repeated-measure MANOVAs for girls only.

			Group Means (SD)											
			Not Competent/ Not Depressed			Not Competent/ Depressed			Competent/ Not Depressed			Competent/ Depressed		
Construct	*F*	*df*	8th	11th	19	8th	11th	19	8th	11th	19	8th	11th	19
Depressive Symptoms (n=283)			1.31	1.25	1.27	1.82	1.57	2.03	1.25	1.29	1.31	1.54	1.48	1.49
Wave	5.78**	2, 278	(.35)	(.35)	(.36)	(.44)	(.40)	(.49)	(.33)	(.39)	(.38)	(.44)	(.43)	(.50)
Group	18.05***	3, 279												
Wave X Group	3.04**	3, 279												
Academic Self-Concept (n=266)			4.72	4.87	4.61	4.73	3.73	3.62	5.52	5.31	5.03	5.32	5.19	5.12
Wave	14.11***	2, 261	(1.06)	(.92)	(.98)	(.73)	(1.03)	(1.32)	(.95)	(1.01)	(1.00)	(1.01)	(1.15)	(1.10)
Group	14.42***	3, 262												
Wave X Group	3.47**	3, 262												
Academic Performance (n=323)			2.85	2.70	---	2.57	2.43	---	3.53	3.23	---	3.42	3.17	---
Wave	14.77***	1, 319	(.54)	(.74)		(.55)	(.71)		(.40)	(.59)		(.50)	(.61)	
Group	49.90***	3, 319												
Wave X Group	1.21	3, 319												

Note—*p<.05, **p<.01, ***p<.001.

Table 5. Repeated-measure MANOVAs for boys only.

			Group Means (SD)											
			Not Competent/ Not Depressed			Not Competent/ Depressed			Competent/ Not Depressed			Competent/ Depressed		
Construct	*F*	*df*	8th	11th	19	8th	11th	19	8th	11th	19	8th	11th	19
Depressive Symptoms (n=187)			1.27	1.30	1.30	1.38	1.33	1.38	1.17	1.22	1.22	1.45	1.32	1.26
Wave	0.22	2, 182	(.41)	(.33)	(.37)	(.43)	(.36)	(.51)	(.25)	(.32)	(.30)	(.54)	(.31)	(.29)
Group	2.64*	3, 183												
Wave X Group	0.37	3, 183												
Academic Self-Concept (n=174)			4.98	4.80	4.50	5.32	4.75	5.32	5.77	5.51	5.32	5.10	5.25	5.04
Wave	1.86	2, 169	(1.05)	(1.03)	(1.25)	(1.71)	(.96)	(.94)	(.94)	(.95)	(1.17)	(1.85)	(1.01)	(1.30)
Group	9.43***	3, 170												
Wave X Group	0.96	3, 170												
Academic Performance (n=315)			2.71	2.42	---	2.54	2.57	---	3.38	3.08	---	3.22	2.97	---
Wave	8.85**	1, 311	(.52)	(.76)		(.61)	(.81)		(.43)	(.56)		(.31)	(.52)	
Group	54.96***	3, 311												
Wave X Group	1.32	3, 311												

Note—*p<.05, **p<.01, ***p<.001.

Table 6. One-way ANOVAs and post hoc comparisons at Wave 5.

Construct	F	df	Group Means (SD): Not Competent/ Not Depressed	Not Competent/ Depressed	Competent/ Not Depressed	Competent/ Depressed	Post-Hoc Comparisons
Relationships							
Mother-Child Closeness	0.56	(3, 657)	3.05 (.66)	3.06 (.57)	3.11 (.62)	3.02 (.63)	
Father-Child Closeness	4.82**	(3, 592)	2.53 (.82)	2.20 (.94)	2.70 (.82)	2.42 (.87)	NC/D<C/ND
Peer Closeness	2.83	(3, 732)	3.27 (.66)	3.13 (.74)	3.36 (.58)	3.24 (.62)	
Romantic Satisfaction	3.04*	(3, 661)	5.20 (1.81)	5.28 (1.92)	4.73 (2.05)	4.73 (2.12)	C/ND<NC/ND
College/Work							
Work Satisfaction	2.11	(3, 226)	4.39 (1.52)	3.43 (1.75)	4.08 (1.89)	3.33 (2.06)	
Financial Worries	5.10**	(3, 653)	3.19 (1.68)	2.94 (1.42)	2.81 (1.54)	3.56 (1.78)	NC/ND>C/ND C/D>C/ND
Aspirations/Expectations							
Future Life Expectations	4.55**	(3, 660)	3.91 (1.59)	3.68 (1.70)	4.01 (1.21)	3.88 (1.38)	NC/D<C/ND
Educational Expectations	2.64	(3, 724)	4.13 (.57)	4.03 (.55)	4.40 (.58)	4.46 (.50)	
Occupational Expectations	0.22	(3, 713)	3.32 (.76)	3.23 (.77)	3.29 (.80)	3.29 (.89)	

Appendix

Summary of Measures and Sample Items

Classification Constructs (Wave 1)	*Sample Item*	*Items*	*Alpha*
Depressive Symptoms (SCL-90)	In the last month, how often did you feel depressed? (1) *almost never*, (3) *almost always*	6	.82
Grade Point Average (GPA)	---	---	---

Adjustment Constructs (Waves 3, 4 & 5)	*Sample Item*	*Items*	*Alpha(s)*
Depressive Symptoms (CDI)	I am sad. (1) *once in a wh*ile, (3) *all the time*	6	.78, .79, .77
Academic Self-Concept	Compared to other kids your age, how well do you do in math? (1) *much worse*, (7) *much better*	4	.78, .78, .77
Grade Point Average (GPA)	---	---	---

Transition to Adulthood (Wave 5)	*Sample Item*	*Items*	*Alpha(s)*
Parent-Child Closeness	How close do you feel to your mother (father)? (1) *not very close*, (4) *extremely close*	4	.77 (.86)
Peer Closeness/Support	How close do you feel to these friends? (1) *not very close*, (4) *extremely close*	3	.77
Romantic Satisfaction -	How satisfied are you with your dating life? (1) *not at all satisfied*, (7) *very satisfied*	1	--
Work Satisfaction	How satisfied are you with your current employment? (1) *very unsatisfied*, (7) *very satisfied*	1	---
Financial Worries	Over the past 12 months, how much difficulty have you had paying your bills? (1) *no difficulty*, (7) *a great deal of difficulty*	2	.68
Future Life Expectations	What do you think the chances are that you will find a stable and well-paying job?	6	.74

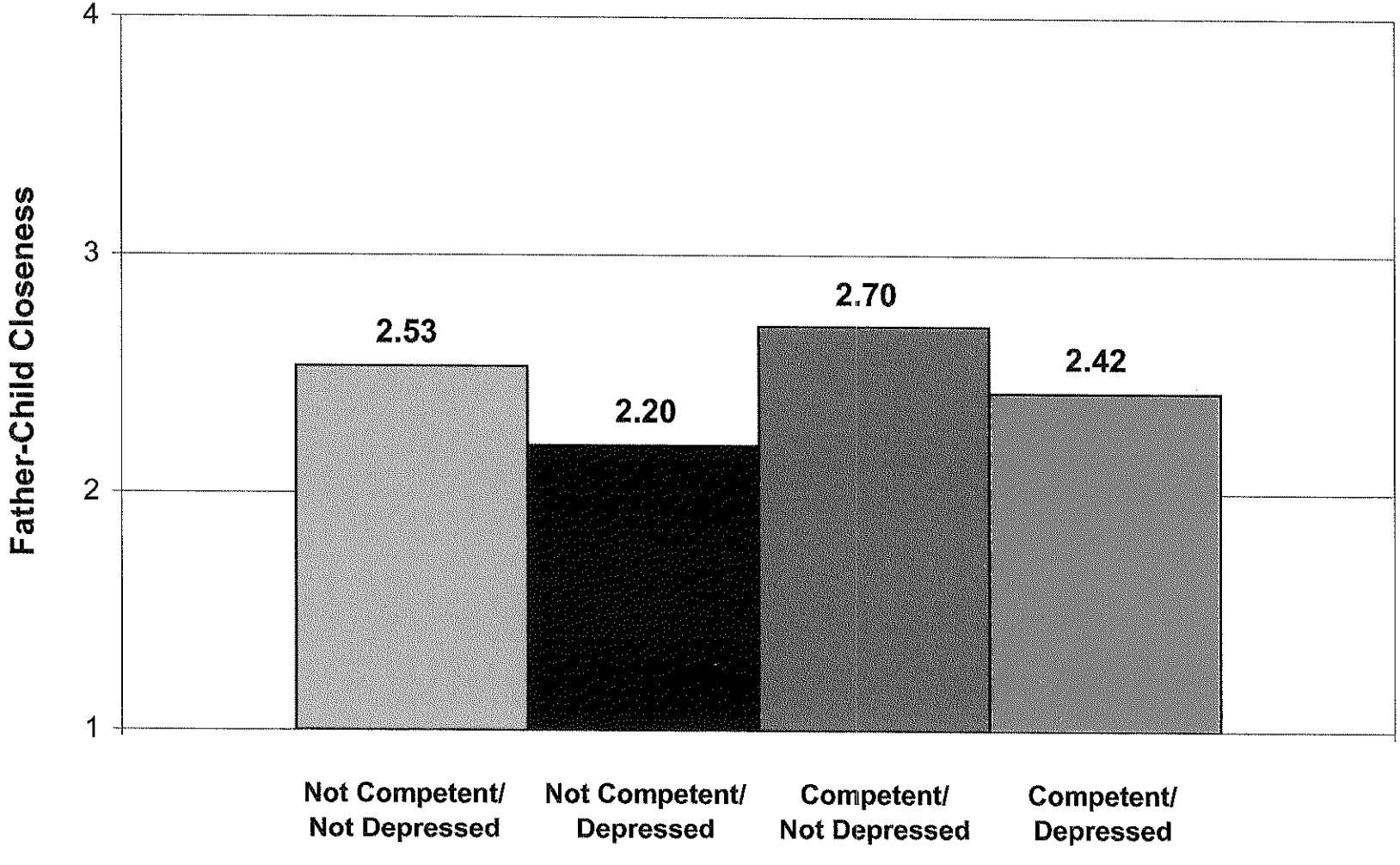
	(1) *very low*, (5) *very high*		
Educational Expectations	How likely do you think it is that you will earn the highest degree you would like to get? (1) *not at all likely*, (5) *very likely*	1	---
Occupational Aspirations (open-ended)	If you could have any job you wanted, what kind of job would you most like to have when you are about age 30?	1	---
Occupational Expectations	How likely is it that you will have this kind of job when you reach age 30? (1) *not at all*, (4) *very likely*	1	---

Figure Captions

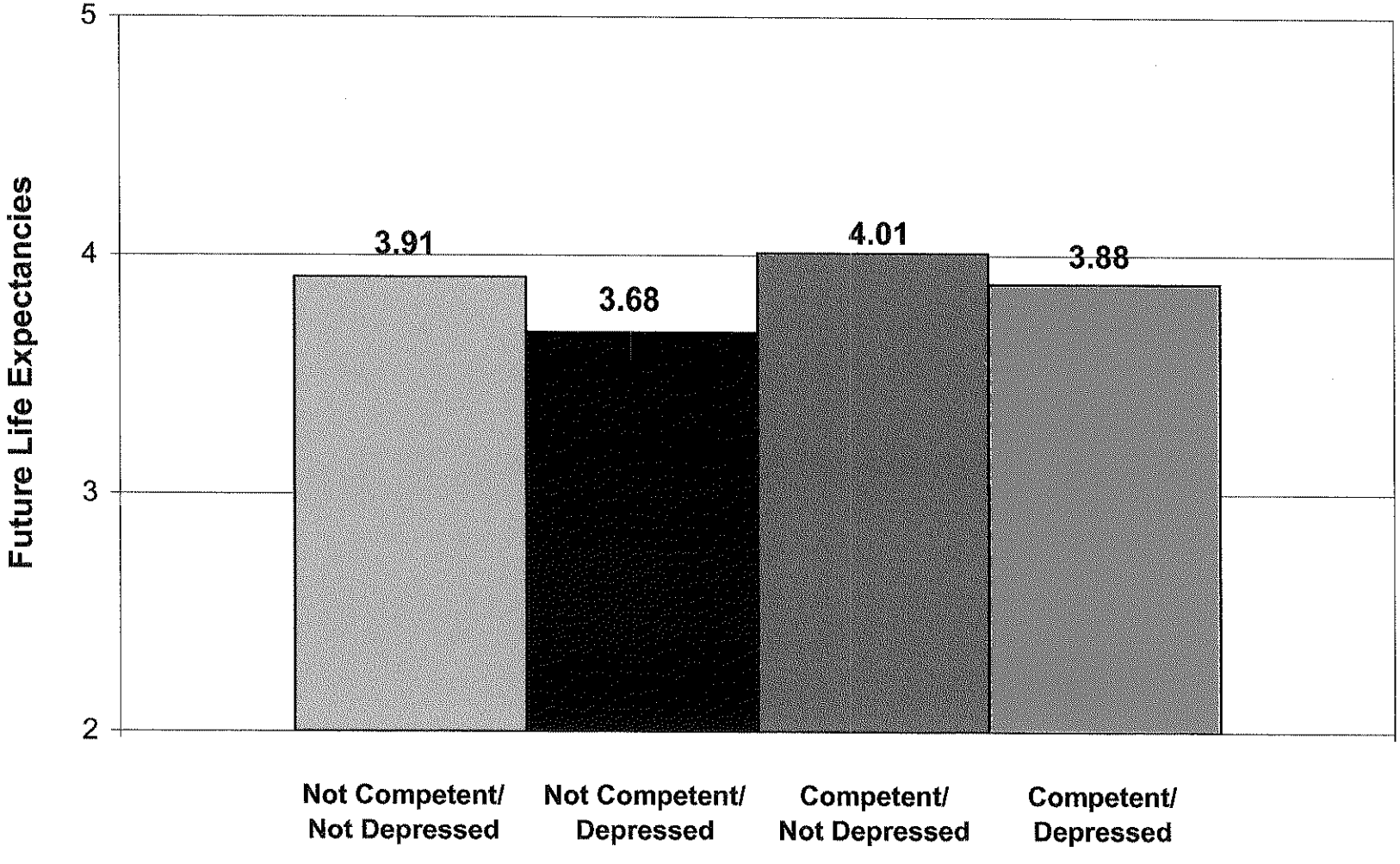
Figure 1. Mean level differences in depressive symptoms over time.

Figure 2. Mean level differences in academic self-concept over time.

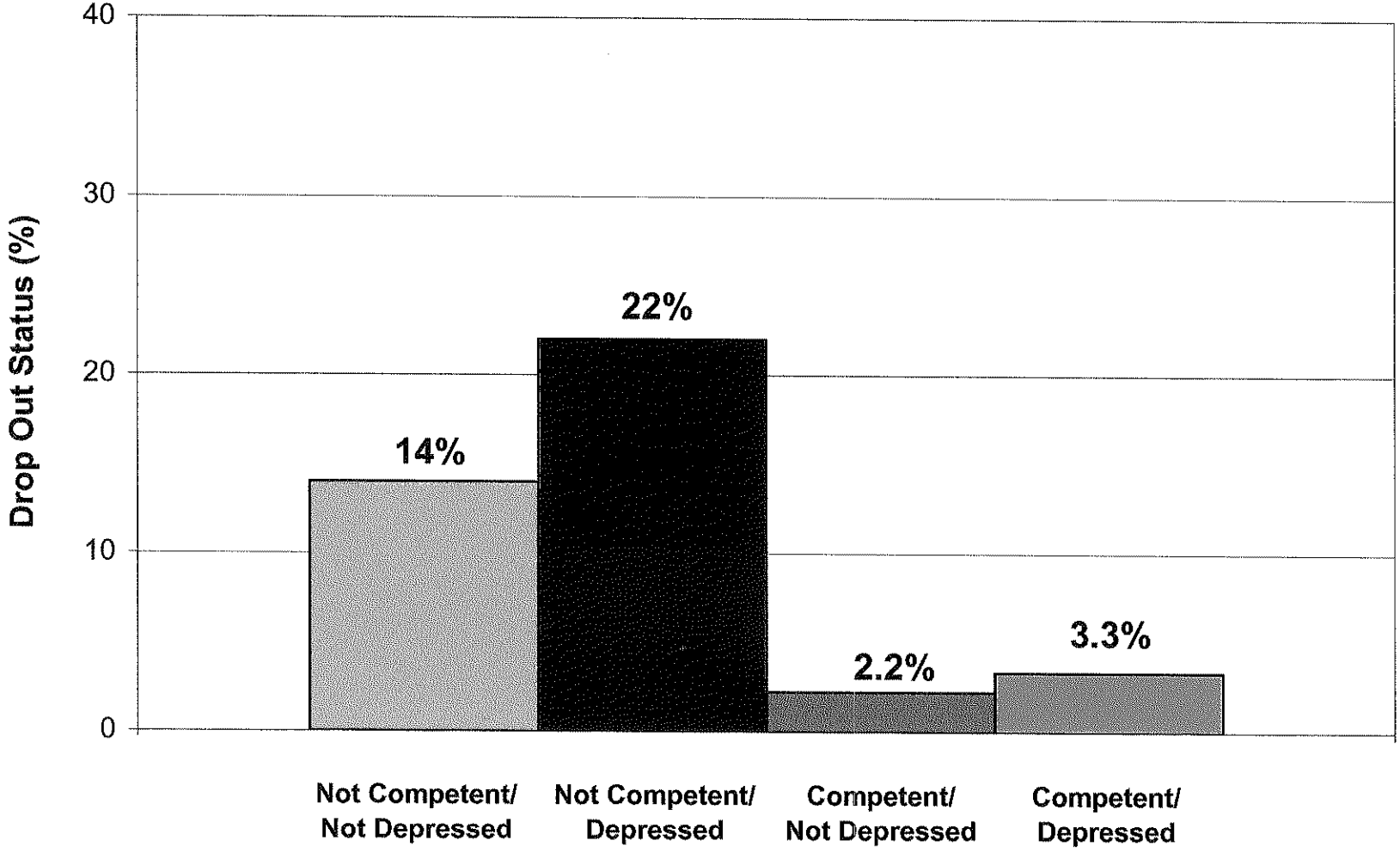
Mean Level Differences in Father-Child Closeness



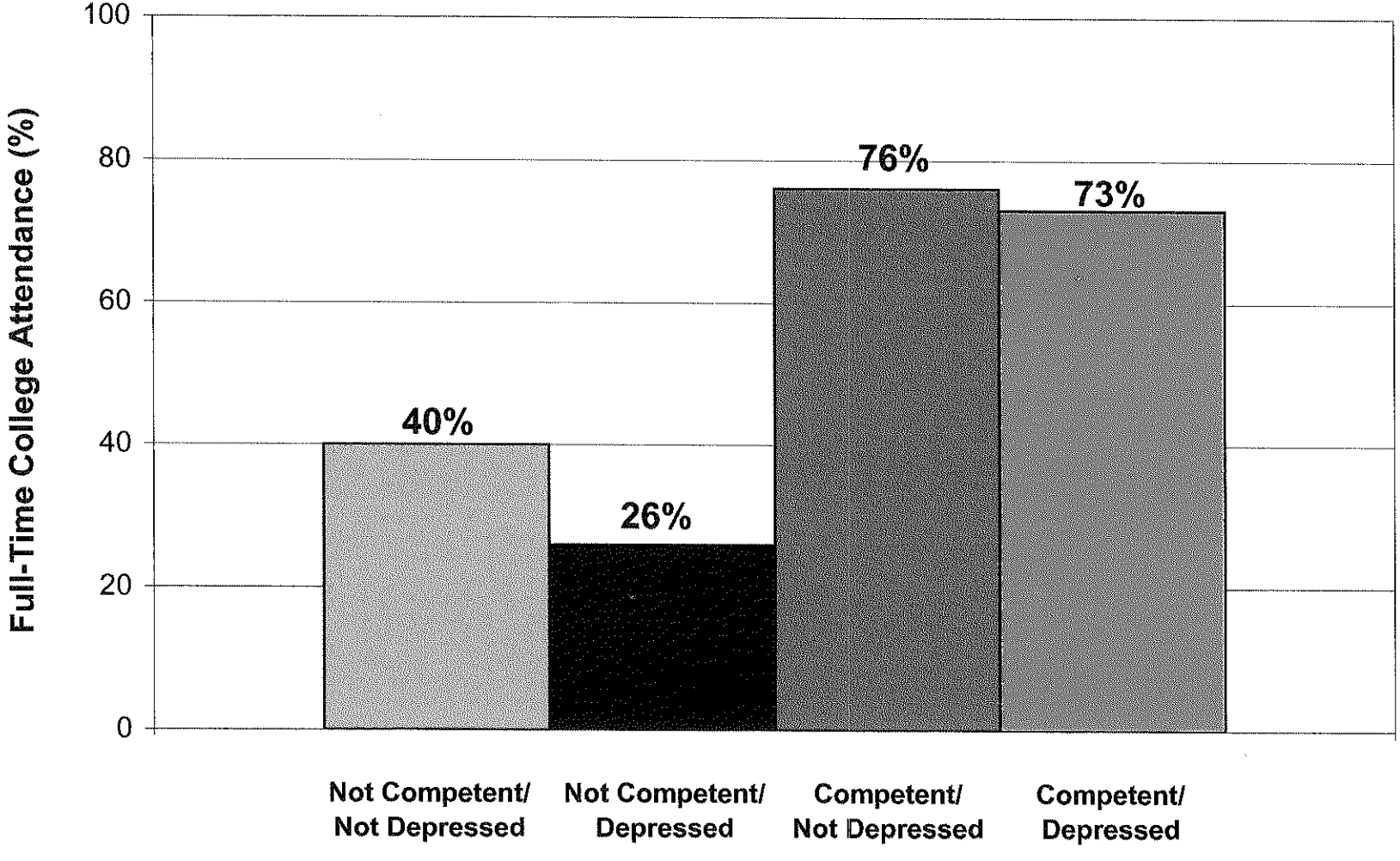
Mean Level Differences in Future Life Expectancies



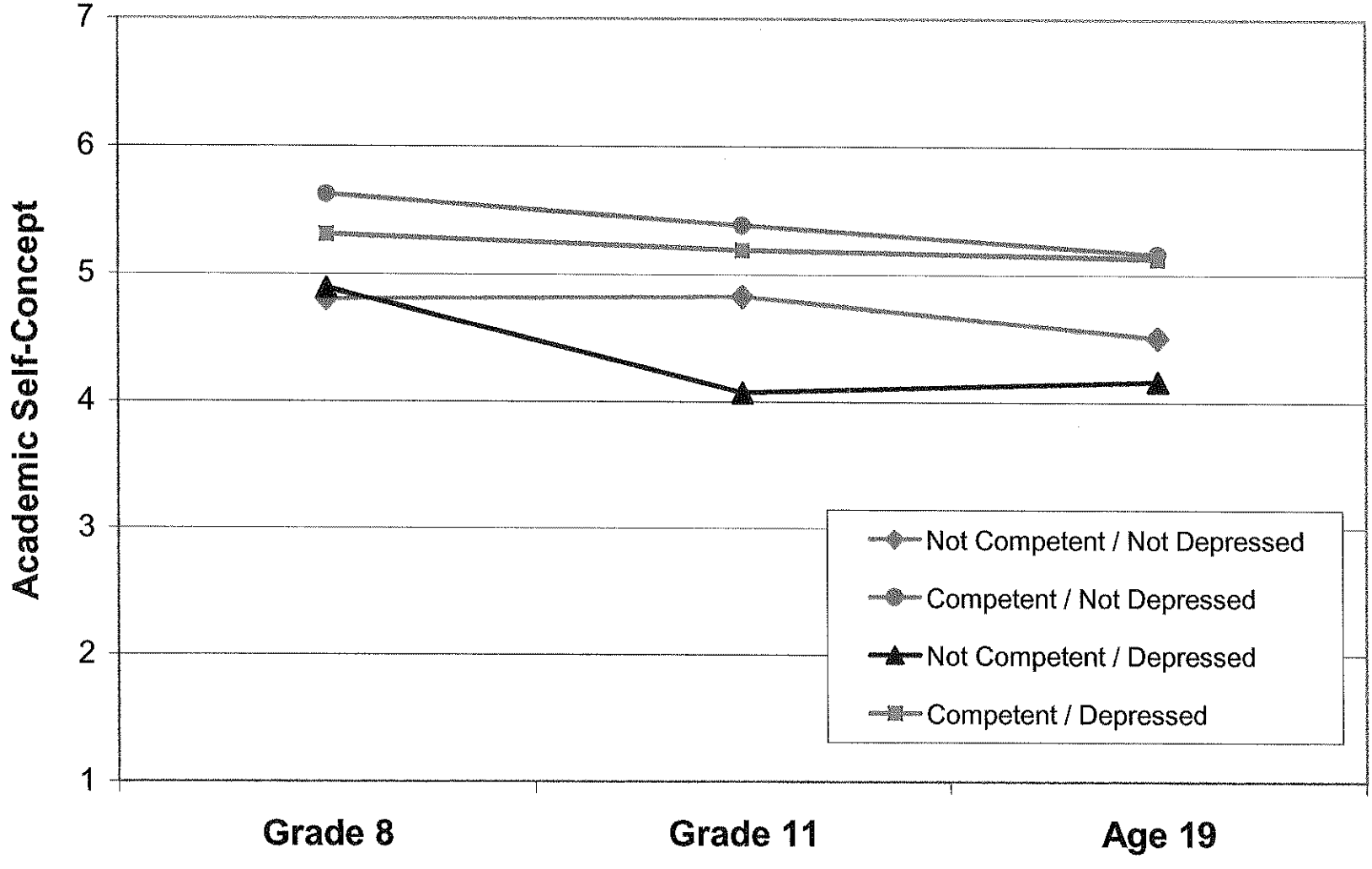
Percentage of High School Drop-Outs



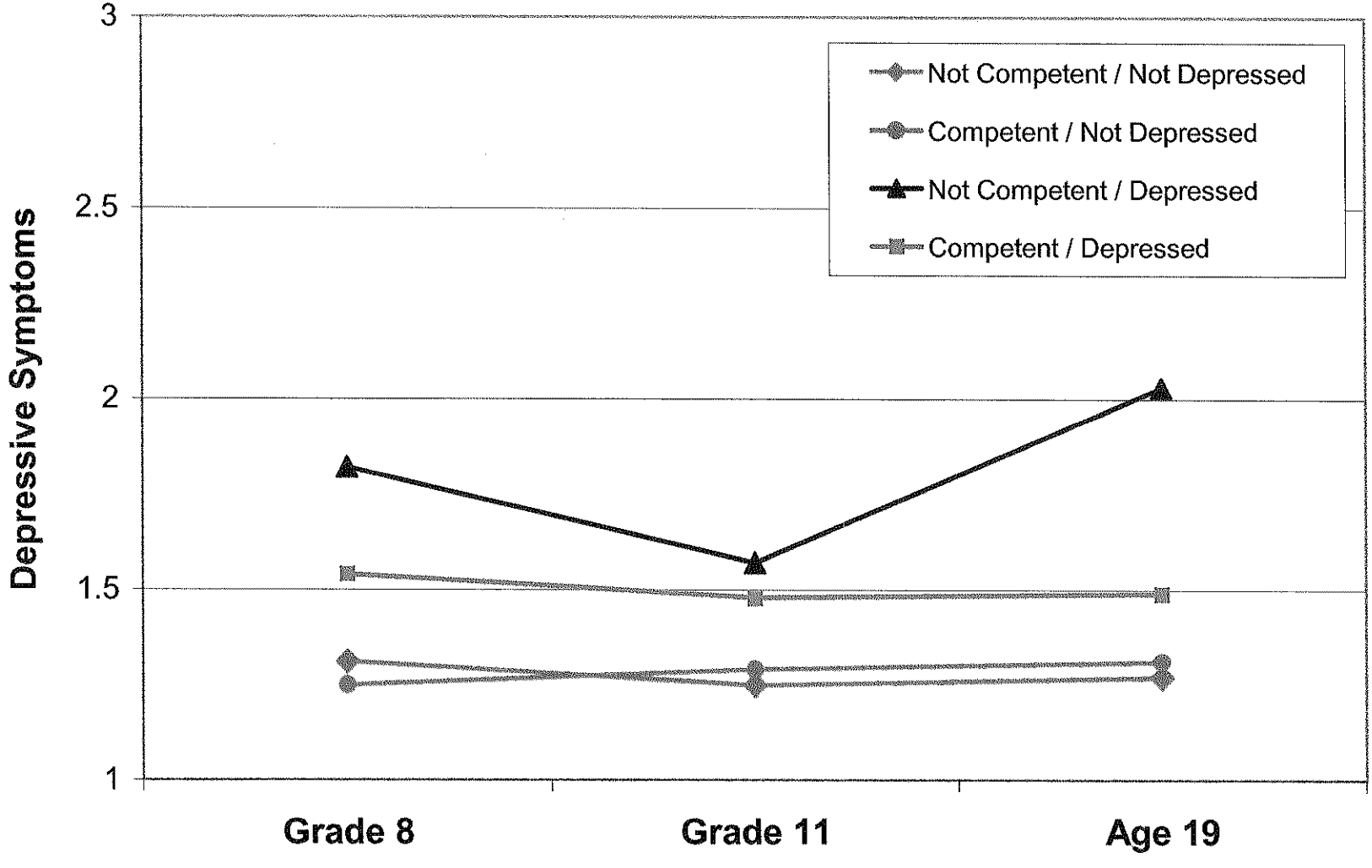
Percentage Attending College Full-Time



Mean Level Differences in Academic Self-Concept



Mean Differences in Depressive Symptoms for Girls



Mean Differences in Depressive Symptoms for Boys