Published in final edited form as:

J Health Soc Behav. 2008 December ; 49(4): 468–483.

Family Antecedents and Consequences of Trajectories of Depressive Symptoms from Adolescence to Young Adulthood: A Life Course Investigation

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Abstract

Using prospective data from 485 adolescents over a 10-year period, the present study identifies distinct segments of depressive symptom trajectories—a nonsignificant slope during adolescence and a significant negative slope during the transition to adulthood. The study hypothesized that different age-graded life experiences would differentially influence these depressive symptom growth parameters. The findings show that early stressful experiences associated with family of origin SES affect the initial level of depressive symptoms. Experiences with early transitional events during adolescence explain variation in the slope of depressive symptoms during the transition to adulthood. The growth parameters of depressive symptoms (level and two slope segments) and an early transition from adolescence to adulthood constrain young adult social status attainment. Consistent with the life course perspective, family of origin adversity is amplified across the life course by successively contingent adverse circumstances involving life transition difficulties and poor mental health. The findings also provide evidence for intergenerational transmission of social adversity through health trajectories and social pathways.

There is growing recognition that early socioeconomic adversity during childhood may initiate not only trajectories of poor mental and physical health (Kessler 1990; Rueter et al. 1999; Wickrama, Conger, and Abraham 2005) but also a stressful social pathway (Gore, Aseltine and Schilling 2007; O’Rand and Hamil-Luker 2005). Consistent with the life course perspective, some youth are capable of avoiding the damaging influence of early adversities, while others may experience detrimental processes involving mutually reinforcing trajectories of poor health and life transition difficulties (O’Rand 1996).

Especially important, adolescents’ early socioeconomic adversity seems to contribute to poor mental health trajectories that appear to disrupt their successful transition into adulthood, thus endangering their social, academic, and occupational attainment during early adulthood (McLeod and Kaiser 2004; Wickrama et al. 2005). Also consistent with the life course perspective, adolescents’ difficulties during the transition to adulthood include events, such as

the birth of a child at an early age, that deviate from normative timing, especially in terms of assuming adult roles or responsibilities while still an adolescent (Elder, George, and Shanahan 1996).

Building on the life course perspective and the empirical evidence just described, the present study uses data from a prospective, longitudinal study of 485 adolescents to investigate the transition from adolescence to young adulthood. Specifically, we examine (a) how early socioeconomic adversity in the family of origin influences both long term trajectories of depressive symptoms and also the occurrence of early transition events during adolescence and (b) the influence of depressive symptom trajectories and early transitional experiences on young adult social status attainment.

THE THEORETICAL MODEL

Figure 1 provides the theoretical model that guides the study. This model proposes specific study hypotheses. The first box on the left considers a set of characteristics in the family of origin that we propose will initiate adverse mental health trajectories during early adolescence. We also expect that family of origin characteristics will set a process in motion that disrupts or jeopardizes a successful transition to adulthood by accelerating the acquisition of adult roles such as parenthood, marriage or cohabitation, and independent living. These early transitional events are predicted to increase risk for adverse changes in mental health trajectories during the transition to adulthood and these trajectories are hypothesized to combine with early transitions to impede young adult social status attainment. The following discussion provides details regarding each path in the model and the specific hypotheses to be evaluated.

Family of Origin Social and Economic Characteristics

The theoretical model begins with basic markers of family of origin SES (parent education and single or two-parent family structure) that are associated with family of origin adversities, including stressful life events and parental rejection of children. Research has shown that families with single-parent mothers and/or poorly educated parents experience more stressful events and circumstances and employ less effective childrearing practices than do families with two-parents or more highly educated parents (Conger and Donnellan 2007; Wickrama et al. 1998).

Negative parental affect (e.g., rejection, hostility, and reduced levels of parental support and warmth) and poor child management (e.g., lack of involvement or supervision and ineffective discipline) reflect two aspects of ineffective parental practices (Conger and Donnellan 2007; Sroufe et al. 2000). We propose that the depressogenic effect of negative parental affect is stronger than that of parental management. In particular, we believe that parental rejection operates as a chronic stressor and as a source of “identity disruption” (Thoits 1995) for adolescents. The rejected child is especially likely to feel worthless, divorced from family ties, unhappy, and pessimistic about the future.

Early Family Adversity and Mental Health Trajectories

The lower box in Figure 1 considers the first major endogenous variable in the study - trajectories of depressive symptoms from adolescence to early adulthood. During adolescence, youth experience an increase in life stress as well as changes in peer expectations and roles within the family and other contexts. Over time they are expected to take increasing responsibility for their personal support and well-being, especially as they contemplate the transition to adulthood. Adolescents also experience biological changes such as sexual maturation, with most of these transformations being unpredictable and outside one's personal control (Larson et al. 2002). Research documents that the stressful demands and circumstances

associated with these transitions result in heightened levels of and average increases in negative emotions, including depressive symptoms during early- and mid-adolescence (Ge et al. 1994; Larson et al. 2002).

Previous research also suggests that the influence of stressful demands and circumstances experienced during adolescence begins to diminish in later adolescence (Brooks-Gunn and Peterson 1991). Although negative emotions generally increase during adolescence, the increase levels out and may even begin to decline at the end of adolescence, with this decreasing trend continuing into the young adult years. However, findings are less conclusive regarding the age span over which the increasing trend of negative emotions occurs, or the age at which this trend ceases (see Ge et al. 1994; Larson et al. 2002). Some research suggests that the decline in negative emotions during late adolescence may be due to increasing capacity for, and greater priority given to, emotional regulation (Carstensen, Isaacowitz, and Charles 1999; Larson et al. 2002). Thus, we expect to observe these same developmental processes in this study and predict an average increase in depressive symptoms during adolescence followed by an average decrease during the transition to adulthood. Therefore, we model this trajectory with an initial level and two separate slope segments characterizing adolescence (slope 1) and the transition to adulthood (slope 2).

With regard to family of origin influences on these trajectories of depressed mood, we expect that family SES will influence these symptoms primarily through its impact on stressful events and parenting problems. Our theoretical framework (Figure 1) is consistent with the *family stress model* which proposes that low SES increases parental emotional and behavioral problems and the overall level of family stress (Conger et al. 1994; Wickrama 1998). Distressed parents, in turn, are more irritable, authoritarian, rejecting, and hostile toward their children, resulting in stressful parent-child relationships, which in turn contribute to the impaired mental health of children and adolescents. In addition, high overall levels of family stress, e.g., having to move to a different home in order to live within the confines of low family income, are expected to increase adaptive challenges for an adolescent already dealing with the rapid biological, cognitive, and social changes that occur during this period of life.

Early Family Adversity and Early Transitional Events

As proposed in Figure 1 and consistent with the life course perspective, adversity in the family of origin is likely to be amplified across the life course (O'Rand and Hamil-Luker 2005). In the present investigation, we drew on the results of earlier research to predict that individual differences in early risk, characterized by a disadvantaged family, will contribute to the occurrence of off-time developmental transitions such as early entry into family responsibilities such as marriage and parenthood (Bernhardt, Gahler, and Goldscheider 2005; Wickrama et al. 2003).

Previous developmental research documents that family adversity contributes to the occurrence of early life transitions primarily through several stressful events and conditions that occur at above average levels in disadvantaged families. These stressors serve to push the adolescent away from the nuclear family because of the aversive or stressful environment it provides. These stressors include parental marital problems (Amato and Booth 2001), parents' employment problems (Hagan and Wheaton 1993), ineffective parenting practices (Scaramella et al. 1998), family resource limitations (Lynch, Kaplan, and Shema, 1997), and residential adversity (Wickrama, Merten, and Elder 2005). Moreover, adolescents from disadvantaged and troubled families are more likely to have unsuccessful school experiences, form weak bonds to normative social institutions (e.g., school and community organizations) due to poor social skills, and curtail or abandon conventional aspirations. These youth may pursue precocious entry into adult roles and are less deterred from such early transitions by conventional pursuits and social relationships (Sampson and Laub 1993).

The life course perspective suggests that the *timing* of transition events gives structure to the life-course through social timetables for the occurrence and order of specific events such as completing one's education, beginning a career, and entry into family responsibilities. Studies document that youth (particularly white youth) benefit from following normative sequences of major life events (Jackson 2004). But numerous studies (Schoen, Landale, and Daniels 2007) have shown a considerable heterogeneity in the timing and sequence of youth transition events. That is, youth take variety of divergent paths from adolescence to adulthood. However, we argue that regardless of the divergent paths taken by youth, early occurrence of major life transition events (i.e., precocious development) may have a greater chance of negative consequences for individual well-being (Booth, Rustenbach, and McHale 2008). Therefore, we focus particularly on the early occurrence of transition events in the present study.

Youth early transitional events may include teenage pregnancies, leaving the parental home earlier than normal, severing relationships with parents or entering into early cohabitation or marriage. For most adolescents, these early transitional events represent chronically stressful life situations that place excessive demands on an individual not sufficiently prepared emotionally, socially, or financially for adult and family responsibilities (Wickrama et al. 2003;2005). Previous research on the transition to adulthood has demonstrated the stressfulness and negative health consequences of early transitional events among youth (Kessler et al. 1997;Wheaton and Gotlib 1997).

In addition, adolescents with poor mental health may not fully develop the social, psychological, cognitive, and academic competencies necessary for a successful transition to adulthood. Instead, they are vulnerable to the kinds of early life events just described (McLeod and Kaiser 2004; Kessler et al. 1997). Early adversities create a successively contingent process whereby earlier disadvantages lead to later disadvantages in a continuous and cumulative manner (O'Rand and Hamil-Luker 2005). Thus, as shown in Figure 1, we predict that adverse family circumstances will influence an early transition to adulthood both directly and indirectly through adolescent impaired mental health (Conger et al. 1994; Rohde, Lewinsohn, and Seeley 1991).

Early Transitions, Mental Health Trajectories, and Adult Social Status Attainment

As shown in Figure 1, we expect that an early transition to adulthood will have a deleterious influence on depressive symptom trajectories during the transition to adulthood (Wickrama et al. 2003;2005) (Figure 1). We also predict that the occurrence of early life transitional events during late adolescence will increase risk for later failures in social status attainment during young adulthood (Goldscheider and Goldscheider 1998). Early transitions interfere with young adult educational achievement and restrict access to vital opportunity structures (Pearlin et al. 2005). For example, the competing demands of early pregnancies and early marriages impede education in young adulthood (Brown 2002). Simply put, adolescents who acquire adult responsibilities at a relatively early age and who separate from parental support too soon are less likely to have the time and resources required to continue in school or to pursue the material and social benefits of higher status occupations.

The Influence of Mental Health Problems on Young Adult Social Status Attainment

Figure 1 also indicates predicted direct paths from mental health trajectories during adolescence and the transition to adulthood to young adult social status attainment. Separating the analysis of depression trajectories into two segments allows us to test the hypothesis that one will be increasing on average (adolescence) and the other will demonstrate a decline (the transition to adulthood). This strategy also provides a more fine-grained analysis of the potentially unique contributions of changes in depressed mood during these adjacent periods of the life course on early adult social status attainment.

Evidence suggests that poor mental health both during adolescence and the transition to adulthood is associated with young adult social status attainment through several mechanisms (McLeod and Kaiser 2004; Miech et al. 1999). First, youth with poor mental health may not develop the competencies necessary for typical levels of educational, occupational, and relationship attainment. These competencies include knowledge, information, and psychological and cognitive capabilities and skills. Second, depressed individuals, compared with non-depressed persons, receive less social support, a resource that can aid individual success (Miech et al. 1999). Third, depressed youth may have low levels of social, occupational, and relationship expectations (Figure 1). Thus, we expect that the severity of depressive symptoms as reflected by the absolute level at a point in time (intercept) as well as by growth or decline during adolescence and the transition to adulthood (slopes) will independently influence young adult social status attainment. The following analyses evaluate the predictions just described in relation to the model in Figure 1.

METHODS

Sample and Procedures

The data used in these analyses come from the Family Transitions Project (FTP). This study combines participants from two earlier research projects: the Iowa Youth and Families Project (IYFP) and the Iowa Single Parent Project (ISPP). Participants in the two projects came from the same rural areas in Iowa, were matched in terms of age. Thus, they comprise a single cohort of rural youth beginning during early to mid- adolescence. The theoretical model was tested with a total sample of 485 individuals from the Family Transitions Project, consisting of 391 adolescents from 2-parent families (IYFP) and 94 adolescents from single-parent families (ISPP). Although only 445 participants provided complete information for all of the study variables, data from 485 participants (some with missing values) were used for the analysis. Models were estimated using the Full Information Maximum Likelihood (FIML) methods available in the AMOS software package (Arbuckle and Wothke 1999).

The IYFP began in 1989 and involved 451 families in eight counties in Iowa. The site for the research was determined by our interest in rural economic stress and well- being. Because many of the outcomes and processes considered in the overall study were concerned with adolescent development, families selected had at least two adolescents. Families were eligible to participate if the target adolescent (7th grade, median age of 12.7 years) lived with two biological parents and a sibling within four years of the target's age. Couples in the sample had been married for at least 14 years.

At the first wave of data collection in 1989, 97 percent of the husbands and 78 percent of the wives were employed. The median yearly income in 1989 was \$22,000 for the men and \$10,000 for the women. The average occupational prestige scores for the men and women in our sample were 43 and 34, respectively, on a scale of 1 to 100 (Nakao and Treas 1994). The median age for the men and their wives was 39 and 37 years, respectively. The median number of years of education for both spouses was 13. Because of the rural location of the study in the upper Midwest, all families in the sample were white.

The ISPP was initiated two years later in 1991. The households were selected because they had adolescents who were in the same grades as those in the IYFP. Data came from 107 mother-only families with adolescents in the same grade (9th grade) at the time as the IYFP targets. Mothers were permanently separated from their husbands, the separation happened in the past 2 years, and the ex-husband was the biological father of the target adolescent. As noted, the IYFP and the ISPP used the same measures and procedures, allowing these two data sets to be merged up to 1992.

Beginning in 1994, the IYFP and ISPP samples were combined to create the Family Transitions Project. The combined sample of families provided data for the present study, which included measures from as early as 1991 to as late as 2001. Preliminary analyses of the initial wave of matched data for the two samples showed that they were similar on important characteristics. The two groups were nearly identical in educational attainment of mothers and they were approximately the same age (38 years). The distribution of pre-divorce incomes for divorced families was very similar to those of the married families.

Measures

Family socioeconomic status—Family socioeconomic status was assessed using measures of family structure and parental education in 1991, when the target adolescents were in the 9th grade. For adolescents from two-parent families, father's and mother's years of education in 1991 were used as two indicators of a *parental education latent construct*. For adolescents from divorced families, the same procedure was followed except that mothers' level of education was used for father's education when information about father's education was unavailable (Wickrama et al. 1998). *Family structure* was coded 0 for single-parent families and 1 for two-parent families.

Family negative life events—The lists of economic problems and negative life events were adapted from Dohrenwend et al. (1978). Summing mothers' "yes" responses in 1991 to each of 51 items that indicate family economic problems and other stressful events experienced by the family (1 = yes, 0 = no) during the previous year yielded the measure of *negative life events*. The list of family economic problems included items such as "start receiving government assistance such as AFDC, FIP, TANF, SSI, food stamps, or something else," "sell property because of financial difficulties," "move to worse residence or neighborhood," "change jobs for a worse one," "get demoted", have trouble at work," "get fired," "get laid off," "take wage cut," and "other financial problems." Other *negative life events* included stressful events related to one's self, children, parents, and entire family such as an accident of a family member, the death of a family member, being robbed or assaulted, or getting involved in a lawsuit.

Parental rejection (ineffective parenting)—As noted earlier, we consider parental rejection to be an especially important marker of ineffective parenting in terms of adolescent risk for depression. Thus, we use parental rejection as our measure of poor parenting in these analyses. Rejection by a parent was assessed as a latent construct by mother and father reports obtained in 1991 as two indicators. Mothers and fathers responded to five items on a scale from 1 (strongly disagree) to 5 (strongly agree). The items asked whether the parent (a) "really trusts this child," (b) "feels this child has a number of faults", (c) "experiences strong feelings of love for the child", (d) "is dissatisfied with the things the child does", and (e) "feels the child causes me a lot of problems." AMOS estimates the model under the assumption that the unobserved covariances due to the missing fathers' reports for the single parent families are similar to those of the observed covariances for two parent families. This scale had internal consistencies of .80 and .85 for mothers' and fathers' reports, respectively.

Early transition to young adulthood—Adolescent disrupted transition was indexed by counting the number of early life events and experiences reported by adolescents during their high school years (1991 and 1994) (Wickrama et al. 2005). The timing of these experiences allows us to assess the degree of early transition among the adolescents in this study. These events included early sexual intercourse (at an average of 14 years of age, 1991) and by an average of 17 years of age (1994) any of the following: early pregnancy, early cohabitation or early marriage, early parenthood, or leaving the parental home early. The existence of any of these events was scored one and otherwise zero and the items were summed to create an index.

Thus, an individual achieving the highest possible score on this index would have been sexually active by an average of 14 years of age and would have been pregnant, become a parent, lived with a romantic partner and left their parents' home by an average of 17 years of age. This index ranged from 0 to 5 with a mean of .70, a standard deviation of .92, and skewness of 1.70. This measure was transformed by taking the natural logarithm which had an acceptable skewness of .28.

Depressive symptoms during adolescence and young adulthood—Depressive symptoms were measured in 1991, 1992, 1994, 1995, 1997, 1999, and 2001 using the 13-item depressive symptoms subscale of the Symptom Checklist (SCL-90-R) (Derogatis and Melisaratos 1983). One item related to the loss of sexual interest was omitted from the scale because it was considered inappropriate at mid-adolescence. Thus, 12 items were used from the scale. Respondents used a 5-point scale, ranging from not at all (1) to extremely (5), to indicate how often during the past week they were bothered by symptoms of depressed mood such as crying easily, feeling trapped or caught, blaming themselves for things, feeling lonely, feeling blue, feeling worthless, and feeling hopeless about the future. Scores on the depressive symptoms subscale could potentially range from 1 to 60. Skewness estimates for the depressive symptom measures at the seven different waves of assessment were acceptable ranging from 1.44 to 2.59. Internal consistencies (Cronbach's alpha) exceeded .90 for all waves of data collection.

Young adult social status attainment—As previously mentioned, the life course perspective suggests a normative sequence of age-graded life events. Accordingly, at around 25 years of age we would expect most young people to have completed their education, to be pursuing advanced education, or to be engaged in full-time work. Young adults at this time are usually involved in ongoing romantic relationships and typically experiencing more stable lives than during the transitions from adolescence to adulthood. And although several studies (Schoen, Landale, and Daniels 2007; Shanahan, 2001) have shown considerable heterogeneity in the timing and sequence of youth transition events (divergent paths), we would expect to see these types of developmental changes on average at this age. With these ideas in mind, we evaluated young adult social status attainment using a cumulative index that was created by summing the scores on six variables related to these dimensions of life (1 = yes, 0 = no). The respondents were asked about the following items when they were 25 years of age: if they have (a) completed a high school education or GED, (b) completed an associate or bachelors degree, (c) fulltime employment or full-time self-employment or fulltime student status, (d) a satisfying work situation with opportunities for advancement (if full time employed) or are in enrolled in a post graduate educational or professional training program (if full time student) or own assets, equipment, etc (if self-employed), (e) a place of residence (own or buying), and (f) a relatively stable intimate relationship. This index ranged from 0 to 6. This measure had an approximately normal distribution with a mean of 3.86, a standard deviation of 1.89, a skewness of -.31, and kurtosis of -.89.

Analysis Plan

We used latent growth curves (LGC) in the Structural Equation Modeling (SEM) framework to estimate individual trajectories and to investigate their correlates. LGC estimation begins by constructing line segments (intra-individual trajectories) describing change over time for each individual in the study (for technical and statistical references, see Jöreskog and Sörbom 1993; Willett and Sayer 1994). To describe these individual trajectories, two latent variables, initial level and change (rate of change), are defined using structural equation modeling. Measurements of the variables at different time points (y_{t1} , y_{t2} , y_{t3}) serve as multiple indicators of the two latent variables (the initial level and slope) in this model.

The form of the individual level relationship (trajectory) may be linear, quadratic, or otherwise. The form can even have more than one slope (slope segments or slope pieces), if growth rates are expected to differ for successive periods, as in the present study. Returning to Figure 2, two slope segments can capture two different growth rates/patterns for adolescence and transition to adulthood (1st through 3rd time points, and 4th through 7th time points, respectively (Raudenbush and Bryk 2002). Thus, the LGC model in Figure 2 estimates individual depressive symptom trajectories defined by growth parameters: the initial level, and two different rates of change (slope 1 and slope 2). When a growth parameter covaries significantly with a predictor variable or/and with outcome variable, inter-individual differences in change are considered systematic (Willett and Sayer 1994).

The variables used in this study were, in general, continuous and distributed within acceptable limits of normality. Empirical tests have shown that Maximum Likelihood Estimation is robust to violations of the normality assumption and provides reliable and accurate estimates of model parameters even with departures from normality (Satorra and Saris 1985). Thus, we estimated structural equation models treating study variables as continuous variables using AMOS 4 software (Arbuckle and Wothke 1999). As additional steps to guard against distortions based on non-normal variables, however, we used a natural logarithm transformation of the early transitions variable, as described earlier. We also conducted a second SEM analysis in which we treated young adult social status attainment as an ordered categorical outcome using Mplus software (Muthen and Muthen 2004). This adjusts for the fact that this is a count variable derived from a cumulative index.

RESULTS

As noted earlier, we expected that depressive symptoms would increase across the years of adolescence and then decline with the transition to early adulthood. To evaluate these predictions, the latent growth curve model with the initial level and two segmental slopes (one for the adolescent years and the other for the early adult years) for depressive symptoms was estimated using covariances and FIML (Arbuckle and Wothke, 1999). This comprehensive growth curve model showed a reasonably good fit with the data (see Figure 2). The CFI was .93 and the RMSEA was .08.

The results showed that the mean initial level of depressive symptoms was 18.32 in 1991. The variation in initial level was significantly different from zero and large (29.75, $t = 6.50$). This finding indicates a wide range in depressive symptoms for the youth in the study during the 9th grade, with some participants suffering high levels of depressive symptoms while others had no symptoms at all. As expected, the average rate of change during adolescence (adolescent slope) was positive (average rate of change = .10, $t = 1.00$), but the slope was not significantly different from zero. However, the results also showed that the variation among adolescents in rates of change for depressive symptoms was significantly different from zero (variance in the rate of change = 1.81, $t = 4.45$), indicating that depressive symptoms likely increased for some adolescents, decreased for others, and remained relatively constant for some from 1991 through 1994. During adolescence, then, we can conclude that at least some adolescents were experiencing growth in depressive symptoms and that, even if there was not evidence for an average upward trend in depressed mood, neither was there evidence for an average decline in mood problems.

The average rate of change during transition to adulthood (slope from 1995 to 2001) was negative and significantly different from zero (average rate of change = -.31, $t = -6.21$), indicating the predicted average decrease in depressive symptoms during the transition to adulthood. This negative slope for depressive symptoms may partly reflect regression to the mean. That is, adolescents who had lower levels of depressive symptoms in 1995 experienced

more of an increase in symptoms from 1995 to 2001 compared to adolescents who had relatively high levels of symptoms in 1995. Results also showed that variation among emerging adults in rates of change for depressive symptoms was significantly different from zero (variance in the rate of change = .53, $t = 6.14$), indicating that, although there was an average decline in depressed mood, not all youth demonstrated this type of decline from 1995 through 2001. Given this significant variability in the growth parameters for depressed mood of youth, we next evaluated the overall theoretical model for the total sample (Figure 3).

We identified the most parsimonious model that best fits the data. Figure 3 represents this model. The overall fit of this model with the data was quite good ($\chi^2_{(98)} = 179$, CFI=.95, RMSEA=.04) and explained 18% of the variance in young adult social status attainment.

The results in Figure 3 indicate that both the adolescent slope and young adult slope for depressive symptoms were negatively associated with the initial level in 1991 ($\beta = -.16, p < .01$, and $\beta = -.07, p < .01$, respectively). These negative influences likely indicate regression to the mean; that is, on average adolescents who had lower initial levels of depressive symptoms in 1991 experienced a steeper increase in symptoms from 1991 to 1994 compared to adolescents who had relatively higher initial levels of symptoms. Similarly, adolescents who had lower levels of depressive symptoms in 1991 experienced more of an increase in symptoms from 1995 to 2001 compared to adolescents who had relatively high levels of symptoms in 1991. With regard to change over time, these results make intuitive sense inasmuch as youth with lower initial levels have more room for growth in symptoms in subsequent years.

As expected, the results in Figure 3 show that parent education and family structure (two-parent family status vs. single-parent family status) related negatively to both negative life events (NLE) and parental rejection of children. Both NLE and parental rejection predicted the initial level of depressive symptoms ($\beta = .35, p < .01$ and $.43, p < .01$ respectively). The residual covariance between NLE and parental rejection was .15. Unexpectedly, only NLE predicted an early transition to adulthood ($\beta = .07, p < .05$). However, parental education was negatively related to an early transition ($\beta = -.22, p < .05$). Together, the family variables and the initial level of depressive symptoms explained 09% of the variance in adolescent early transition.

As shown in Figure 3, and consistent with theoretical expectations, the initial level of depressive symptoms also predicted early transition to adulthood ($\beta = .04, p < .05$). The residual covariance between adolescent early transition events and adolescent slope was negative and not significant. However, consistent with expectations, an early transition predicted growth in depressive symptoms during the transition to adulthood ($\beta = .09, p < .05$). More importantly, all of the depressive symptom growth parameters (initial level, adolescent slope, and young adult slope) jeopardized young adult social status attainment ($\beta = -.13, -.66$, and $-.57$, respectively; all $ps < .05$). Adolescents who experienced a higher level of depressive symptoms at the initial level show lower levels of young adult social status attainment than do adolescents who experienced a lower level of depressive symptoms regardless of subsequent changes. Although the mean adolescent slope is not statistically significant (i.e., the average trend does not differ from zero), adolescents who demonstrated relatively greater rates of increase in the slope for depressive symptoms demonstrated relatively lower levels of young adult social status attainment. Conversely, adolescents who experienced a decline in depressive symptoms during adolescence experienced relatively higher levels of young adult social status attainment.

As a final step in the analysis, we re-estimated the right side of the model in Figure 2 treating social status attainment as an ordered categorical variable using Mplus software (not shown in the figures). We predicted the increase in the odds of social status attainment for a one level increase in each predictor (depressive symptom growth parameters and early transitions). The results were consistent with the previous SEM findings. The log-odds of moving from a given

level to any higher category of young adult social status attainment significantly decreased by -.09, -.15, -.88, and -.01 (or odds decreased by 9%, 14%, 59% and 1%) for each one unit increase in the initial level, adolescent slope, transition to adulthood slope, and early transitions, respectively, when all these four predictors were in the model.

Although the average transition to adulthood slope for depressive symptoms is negative, participants who demonstrated relatively less decline or even increases in symptoms of depression during this time demonstrated relatively lower levels of adult social status attainment. That is, youth who experience slower rates of decline in depressive symptoms (a less negative slope) during the transition to adulthood showed lower levels of young adult social status attainment than do youth who experience a faster rate of decline (a more negative slope) in depressive symptoms during the transition to adulthood, regardless of the initial level and previous changes during adolescence. These results are consistent with the prediction that the initial level and growth in depressive symptoms will decrease young adult social status attainment during the early adult years. Support for the theoretical model also came from the finding that an early transition to adulthood had a negative relationship with later young adult social status attainment ($\beta = -.16, p < .05$).

Gender Differences

We also estimated growth curve models (see Figure 2) for males and females separately. Although males and females differed significantly in their initial levels of depressive symptoms (16.70 vs. 19.10, respectively), we did not find significant gender differences in the remaining growth parameters. The adolescent slope was not significantly different from zero for boys (.06) or girls (.11), whereas the transition to adulthood slope was statistically significant for both groups (-.33 and -.31 for boys and girls, respectively). However, the variances of both the adolescent and the transition to adulthood slope parameters were statistically significant for both boys and girls. Although adolescent girls experienced higher average initial levels of depression than did adolescent boys, they did not experience increases or decreases in depressed mood that were significantly different from the increases and decreases experienced by adolescent boys over the study period (these analyses are not shown in the figures).

In addition to the results for the gender-specific growth curves, gender only predicted the initial level of adolescent depressive symptoms in the overall model, with a marginal positive influence ($p < .10$) on the adolescent slope. We also estimated the overall model in Figure 3 for males and females separately. All of the associations summarized in Figure 3 were consistent for girls and boys. None of the path coefficients differed significantly for boys and girls, indicating that gender did not moderate the associations summarized in Figure 3.

DISCUSSION

The present study examined a model of the transition from adolescence to adulthood that began with adversities in adolescence and culminated with the social status of participants during the early adult years. A key element in this model involved depressive symptom trajectories assessed over the early years of life course. At a descriptive level and consistent with expectations, analyses showed that there are two different slope segments of depressive symptoms corresponding to adolescence and to the transition to adulthood. The initial level and two different slope segments of depressive symptoms showed significant inter-individual variability. Given the close fit of the data with both theoretical reasoning and the reports of study participants, we argue that the two-slope approach nicely summarizes the actual experiences of these young people over this period of the life course.

Tests of the Model

An Investigation of Early Life Course

The results showed that different age-graded life experiences, including early family of origin stressful experiences and stressful transitions, differentially explain the variabilities of depressive symptom growth parameters.

Family of origin stressful experiences and depressive symptoms trajectories

Consistent with the life course perspective, the results showed that family of origin adversity exerts a persistent influence over the early life course through two main mechanisms: depressive symptom trajectories and a stressful social pathway involving adolescent transition and young adult social status attainment.

First, adversity in family of origin appears to play an important role in initiating adolescent depressive symptom as indicated by its affect on initial level of depressive symptoms. Consistent with the family stress model (Conger et al. 1994), the results showed that family socioeconomic characteristics influenced depressive symptoms primarily through stressful events and parenting problems in early adolescence. As we expected, the depressogenic effect of parental rejection appears to be strong and operates as a chronic stressor for adolescents generating depressive symptoms. To the extent that level of depressive symptoms corresponds to the severity of depressed mood, the results showed that depressed adolescents are more likely to experience early transitional events.

Second, family of origin characteristics initiate a stressful social pathway by directly influencing the occurrence of adolescent early transition events which in turn contribute to failures in young adult social attainment, as indicated by successively contingent adverse circumstances over the life course. More importantly, early transitional events are largely responsible for the relative changes in (slope of) depressive symptoms that influence young adults during the early adult years. Early transitions in social events can generate a risk for increases in both a depressed mood and failures in young adult social attainment. Thus, regardless of the divergent paths taken by youth, early occurrence of major life transition events, often referred to as “precocious development,” appears to increase the chance of negative consequences for young adults.

Although both the social pathway and depressive symptom trajectories are initially influenced by adverse conditions of family of origin, the association between is not spurious. Instead, it seems that there are mutually reinforcing reciprocal process between stressful social pathways and depressive symptom trajectories over the life course.

These findings suggest that both the level (severity) and changes (recovery or deterioration) in different segments of depressive symptoms over the lifespan have long- term social consequences, regardless of the time and rate of their occurrence. For example, the initial level of depressive symptoms influences young adult social status attainment regardless of later recovery or deteriorations (build-up), despite the fact that the depression trajectories began ten years earlier. Similarly, later recovery or deterioration contributes to young adult outcomes independent of early levels of depressive symptoms. That is, young adult failures not only correspond to the severe end of a continuum of symptoms (the level) but also to the course of build-up of or recovery from symptoms. The results showed that nearly one-fifth of the variance in young adult failures is attributed to their experiences during adolescence and to the trajectories of their depressive symptoms. Future research should attempt to elucidate proximal mechanisms such as social, behavioral, and psychological competencies through which changes in symptoms over time influence later young adult social status attainment.

The interweaving of SES, social events and conditions, and emotional distress is consistent with both a social causation and a social selection perspective (Conger and Donnellan 2007). Consistent with the social *causation* tradition, our findings showed that early family adversity produces negative mental health consequences and contributes to an early assumption of adult roles, thus initiating a possibly self-perpetuating process of social and economic disadvantage. The cycle continues as poor mental health *selects* young adults into adverse life circumstances (Conger and Donnellan 2007; Wickrama et al. 2005). In this regard, poor young people are particularly vulnerable. Youth from disadvantaged families may be trapped in a self-perpetuating cycle of adverse life circumstances and poor health across the life course and across generations, involving both social causation and social selection processes.

Results revealed a gender difference only in the initial level of depressive symptoms, indicating that girls had significantly higher levels of depressive symptoms than did boys. This may be attributed to the fact that the major growth in depression had already occurred for the girls in this study and their greater risk is captured by the intercept in our model.

Change in mean depressive symptom trajectories over the early life course

Building on earlier developmental research (e.g., Ge, Conger, Lorenz, Elder and Simons 1994), we expected a general increase in depressive symptoms during the adolescent years and then a decrease during the transitions to adulthood. Contrary to expectations, our findings showed no significant average increase in depressive symptoms during the adolescent years. There are at least two primary reasons for these unexpected results. First, the present study investigated only a part of the adolescent trajectory, from 9th to 12th grade. Second, the present analysis tested a different type of model that included two incremental slopes which separates an average overall slope from mid- adolescence to the transition to adulthood into more distinct segments of change.

Study Limitations

Although the findings from the present study are generally consistent with the hypothesized model, several factors limit the generalizability of the results. First, these analyses need to be replicated in samples that are more representative in terms of family demographic characteristics, including family size, family structure, and residence in urban and rural areas. For example, a particularly important characteristic of this sample is the omission of single-child families and families in which child ages are more widely spaced. Adolescents from single-child families may receive more care, warmth, and less rejection, resulting in relatively low levels of depressive symptoms. Adolescents from families with widely spaced children lack relationships with similar aged siblings, which may negatively influence school success and educational attainment. In addition, attempts to replicate these findings must involve a broader cross-section of the population that includes racial/ethnic minorities. Hypothesized associations should reflect such ethnic differences. Third, future replication should involve diagnostic measures to better ascertain that the outcome of interest involves clinically significant mental health problems. Finally, future research should also seek to extend these findings by examining additional factors that may operate to mediate or moderate the observed associations among the study constructs. In particular, consistent with the life course perspective, some youth may be capable of avoiding the damaging influence of early transition.

Despite the above limitations in this research, the findings from this study have several theoretical and practical implications. This study demonstrated that early social disadvantage contributes to poor mental health of adolescents directly and indirectly through an early adolescent transition. These findings emphasize the need for federal, state, and local level policies and programs designed to reduce childhood adversity. In addition, the findings emphasize the need for programs to promote characteristics that convey resilience in coping

with adolescent mental health risks. Several recent intervention and prevention programs such as Community Coalitions (Spoth et al. 2004) have shown a certain degree of success and illustrate the importance of involving not only disadvantaged families but also local communities and schools in this effort. In addition, the results of the present study suggest that improved understanding of the reciprocities between mental health and life transitions may lead to more effective health interventions and medical treatments that consider these mutual influences.

Acknowledgments

This research is currently supported by grants from the National Institute of Child Health and Human Development, the National Institute on Drug Abuse, and the National Institute of Mental Health (HD047573, HD051746, and MH051361). Support for earlier years of the study also came from multiple sources, including the National Institute of Mental Health (MH00567, MH19734, MH43270, MH59355, MH62989, and MH48165), the National Institute on Drug Abuse (DA05347), the National Institute of Child Health and Human Development (HD027724), the Bureau of Maternal and Child Health (MCJ- 109572), and the MacArthur Foundation Research Network on Successful Adolescent Development Among Youth in High-Risk Settings.

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Figure 1.
The Theoretical Model and the Study Timeline.

Figure 2.
Trajectories of Depressive Symptoms during Adolescence and Transition to Adulthood.

Note: NLE = Negative Life Events

Figure 3.
Early Family Adversity, Youth Depressive Symptom Trajectories, and Social Pathways
(Unstandardized coefficients; standard errors in parentheses).

Table 1

Descriptive Statistics of All Study Variables

Study Variable	Observed Minimum	Observed Minimum	Mean	Std. Deviation
Depression 1991	12	51	18.19	6.26
Depression 1992	12	60	18.59	7.09
Depression 1994	12	55	19.72	7.70
Depression 1995	12	59	17.74	6.95
Depression 1997	12	60	17.41	6.66
Depression 1999	12	47	16.38	5.50
Depression 2001	12	55	17.18	6.43
Father's education	7	20	13.56	2.11
Mother's education	8	19	13.47	1.72
Negative life events	0	15	2.97	2.58
Family structure (intact)	0	1	0.81	
Mother's rejection	5	20	9.43	2.90
Father's rejection	5	19	9.45	3.05
Early transition	0	5	.70	.91
Young adult social status attainment	0	6	3.86	1.89
Gender (female)	0	1	0.53	