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Indicators of Adolescent Depression and Relationship Progression in Emerging Adulthood

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Abstract

Adolescent depression may be associated with future relationship problems that have long-term consequences given the developmental importance and health benefits of forming committed unions in emerging adulthood. The authors examined associations between emotional and behavioral indicators of adolescent depression (depressive symptoms, alcohol problems, and suicidal ideation) and romantic relationship and union formation and dissolution in emerging adulthood (n = 14,146) using the National Longitudinal Study of Adolescent Health. Adolescent alcohol problems were associated with more romantic relationships in emerging adulthood. Emerging adults with depressive symptoms or alcohol problems in adolescence were significantly more likely to enter into a cohabiting union, and those with adolescent alcohol problems were less likely to marry. Cohabiting emerging adults with a history of adolescent depressive symptoms were less likely to marry, whereas suicidal ideation was associated with a decreased likelihood of cohabitation dissolution. Implications for future research are discussed.

Keywords

adolescence; depression; relationship processes; union formation

Establishing intimate relationships with romantic partners is a critical task of adolescence and emerging adulthood (Arnett, 2000; Erikson, 1968). Adolescent romantic relationships are often short term and recreational (Arnett, 2000) as adolescents seek to separate from their parents and establish independence (Erikson, 1968). As adolescents progress into emerging adulthood, the developmental period from the late teens throughout the 20s, a central developmental task is the formation of satisfying, committed intimate relationships (Arnett, 2000). As such, emerging adults desire to establish serious, long-term relationships and emotional and physical intimacy with their partner (Arnett, 2000). Hence, romantic relationships in emerging adulthood are associated with higher well-being (Kamp Dush & Amato, 2005) and increased social support (Coombs, 1991; Frech & Williams, 2007).

A history of depression in adolescence measured here as internalizing (depressive symptoms and suicidal ideation) and externalizing (alcohol problems) symptoms, may be associated with emerging adults' entrance into and progression within romantic relationships. Manning, Trella, Lyons, and du Toit (2010) suggested that depressed women with internalizing and externalizing symptoms experience obstacles in the marriage market. Specifically, they suggested that depressed women were less "marriageable" and struggled to enter and sustain intimate relationships. Depression in emerging adulthood often has developmental roots in adolescence (Kessler, McGonagle, Swartz, Blazer, & Nelson, 1993), with potential

implications for the developmental tasks of emerging adulthood. Thus, using data from the National Longitudinal Study of Adolescent Health (Add Health; see http://www.cpc.unc.edu/projects/addhealth), we empirically tested the hypothesis that emerging adults with a history of adolescent depression will face greater barriers to entering into and sustaining romantic relationships and unions as compared to emerging adults with fewer emotional or behavioral indicators of depression in adolescence.

Emotional and Behavioral Indicators of Adolescent Depression

Adolescence is a unique developmental period marked by rapid physical, psychosocial, and sexual development (Steinberg & Morris, 2001). Because of the rapid changes in adolescence, mental health declines are relatively common in comparison to other developmental time periods (Patel, Flisher, Hetrick, & McGorry, 2007). Indeed, suicide is the leading cause of death among adolescents (Patel et al., 2007), and the risk period for the development of depressive symptoms and alcohol problems is highest in adolescence (Burke, Burke, Regicr, & Rae, 1990). Suicidal ideation in adolescence is strongly linked to future depression or alcohol abuse diagnoses in emerging adulthood (Fergusson, Horwood, Ridder, & Beautrais, 2005). Depressive symptoms are positively associated with alcohol problems in adolescence (Marmorstein, 2009) and fluctuate during this time period (Wight, Sepúlveda, & Aneshensel, 2004).

Gender differences in depression began to emerge in adolescence and persist into adulthood (Kessler et al., 1993). Compared to men, adolescent women are more likely to express overall distress through internalization (Simon, 2002) and twice as likely to experience depressive symptoms (Nolen-Hoeksema, 2001; Rao, Hammen, & Daley, 1999). Although depressive symptoms in adolescence are a risk factor for suicidal ideation for both genders (e.g., Kandel, Raveis, & Davies, 1991), adolescent women are slightly more susceptible than men to suicidal ideation (Harlow, Newcomb, & Bentler, 1986). Contrary to women, men may be more likely to underreport depressive symptoms on self-reported scales (Sigmon et al., 2005). Adolescent males are more likely to express distress through externalizing behaviors than females (Simon, 2002), engage in reckless behavior when dealing with depression (Cochran & Rabinowitz, 2000), and turn to alcohol when depressed (Harlow et al., 1986). Thus, we examined both emotional and behavioral indicators of depression in adolescence: depressive symptoms, suicidal ideation, and alcohol problems.

Depression and Romantic Relationships

Life course theory relies on five general principles to illustrate how social pathways, developmental trajectories, and social change alter an individual's life course (Elder, Johnson, & Crosnoe, 2003). The *principle of life span development* states that an individual will continue developing across the life course, and the *principle of timing* states that an event could affect one's life differently depending on when the event occurred (Elder et al., 2003). According to these principles, romantic relationships in emerging adulthood are developmentally unique from relationships in adolescence or adulthood and are meaningful for predicting future relationship trajectories.

Romantic relationships in emerging adulthood are particularly salient because emerging adulthood is a developmental stage marked by the forming of romantic relationships and transitioning within these relationships (Erikson, 1968), with the main developmental task being to find a long-term, satisfying intimate relationship (Arnett, 2000). Yet individuals with a history of depression may "churn" through relationships in comparison to those without a history of depression, making the fulfillment of a key developmental task of emerging adulthood difficult. *Relationship churning* (Sassler, 2010) is defined as a quick,

successive cycling through romantic partners. Coyne's (1976) *interaction model* states that the behavior and affect of depressed individuals negatively influence their intimate relationships and increase the probability of rejection. Experiencing rejection exacerbated depression, creating a cycle that may be difficult to escape (Coyne, 1976). This cycle may lead to poorer outcomes, such as fewer committed romantic relationships and more relationship churning. Thus, adolescent depression may lead to fewer positive relationship experiences in adolescence and into emerging adulthood, which in turn may worsen depression. In support of this model, psychological distress has been linked with problems in primary social relationships, including romantic relationships in both adulthood (T. P. Johnson, 1991) and late adolescence (Daley & Hammen, 2002). Alcohol problems have been linked to increased infidelity and risky sexual behavior (Hall, Fals-Stewart, & Fincham, 2008); thus, alcohol problems may increase relationship churning.

Casual, short-term relationships may be developmentally appropriate in adolescence as adolescents explore and experiment with intimate relationships (Arnett, 2000). However, depressed adolescents may withdraw from the exploration and experimentation associated with adolescent romantic relationships and thus may not be emotionally equipped to enter into more committed unions in emerging adulthood. Indeed, romantic experiences in adolescence are crucial because they provide adolescents with relationship skills, such as emotional regulation (Larson, Clore, & Wood, 1999), and conflict management skills (Shulman, Tuval-Mashiach, Levran, & Anbar, 2006). Whereas nondepressed adolescents gain relationship skills in adolescence that are applied to later relationship formation, depressed adolescents may experience a stagnation of their relationship and personal development. This stagnation may become more apparent in emerging adulthood, when individuals desire long-term, committed relationships (Arnett, 2000) with the potential for cohabitation or marriage. Indeed, emerging adults with alcohol problems are less likely to marry (Horwitz & White, 1991). Furthermore, individuals have different expectations for their future partners when they want a short-term versus a long-term relationship (Stewart, Stinnett, & Rosenfeld, 2000). Attributes relating to intrinsic characteristics, such as personality or affect, are more likely to influence the decision to engage in committed, long-term relationships (Regan, Levin, Sprecher, Christopher, & Cate, 2000), hence placing depressed emerging adults at a disadvantage.

Depression and Relationship Progression

Among developed countries, the pressure to get married shortly after high school has dissipated, the age at marriage has risen, and emerging adults have the freedom to enter several intimate relationships as they search for the "best" partner for life (Cherlin, 2010). Relationship progression and union formation may differ for individuals with a history of depression in adolescence. *Social exchange theory* (Nye, 1979) proposes that individuals weigh the rewards and costs of prospective partners before progressing toward committed relationship states. An individual with emotional and behavioral indicators of adolescent depression may be able to successfully enter into a romantic relationship in emerging adulthood, but his or her partner's perceived "cost" of the depression may prevent relationship progression (i.e., moving from dating to cohabitation, or from cohabitation to marriage). In Britain, cohabiting individuals with psychological distress were found to be more likely than those without psychological distress to experience cohabitation dissolution (Pevalin & Ermisch, 2004). In the United States, qualitative evidence from low-income mothers suggested that drug and alcohol problems are barriers to relationship maintenance and progression (Edin & Kefalas, 2005).

Emerging adults do not consider cohabiting unions to be akin to marriage (Manning & Smock, 2005). Cohabiting unions are perceived as the next step in the dating process

whereby a couple "slides" into a cohabiting union (Manning & Smock, 2005; Stanley, Rhoades, & Markman, 2006), treating the union as a "trial run" for marriage (Bumpass, Sweet, & Cherlin, 1991). Sassler (2004) found that the threshold for entering into cohabitation may be lower than the threshold for entering into marriage; emerging adults entered cohabiting unions after short periods of dating, and commitment developed primarily after the transition into cohabitation. Given the distinctions between cohabiting and marital unions, emerging adults may be less concerned about partner characteristics prior to cohabitation because they do not necessarily view the relationship as long term, whereas those planning to marry may be more concerned with partner characteristics. Emerging adults may view a history of depression as an undesirable partner characteristic when considering marriage, but they may not consider their partner's history of depression when sliding into cohabitation. Thus, emerging adults with a history of depression may have more difficulty entering into marriage as compared to cohabitation.

Potential Confounding Variables

Unaccounted heterogeneity associated with both depression and romantic relationship formation and progression posed a threat to the validity of this study; hence, we controlled for several potential sources of third-variable bias. Cohabiting unions were more common among respondents who were younger, Black or Hispanic, and not foreign born (Lichter, Turner, & Sassler, 2010). Furthermore, those who were more disadvantaged—for instance, individuals whose mothers had low educational attainment, who grew up in a single-parent household, or who were dependent on public assistance—were more likely to form cohabiting unions than marital unions (Bumpass & Lu, 2000; Lichter et al., 2010). Each of these characteristics associated with entrance into cohabiting unions was also associated with depression (Mirowsky & Ross, 2003). Depression was also linked to premarital relationship experiences, such as casual sexual relationships (Grello, Welsh, Harper, & Dickson, 2003), which have been linked to earlier cohabiting union entrance (Raley, Crissey, & Muller, 2007). Prior romantic relationship dissolutions may negatively affect one's depression and dissuade future union entrance (Coyne, 1976). To account for these observed sources of heterogeneity, we controlled for the variables mentioned above.

Hypotheses

In the current study we aimed first to explore whether adolescent depression is associated with romantic relationship churning in emerging adulthood and, second, to examine whether adolescent depression is linked to union formation and progression. On the basis of these goals, we formed the following three hypotheses:

Hypothesis 1 A history of depression in adolescence, measured by depressive symptoms, suicidal ideation, and alcohol problems, will be associated with higher numbers of romantic relationships in emerging adulthood.

Hypothesis 2 A history of depression in adolescence will be associated with an earlier entrance into cohabitation and a delayed entrance into marriage in emerging adulthood.

Hypothesis 3 Cohabiting emerging adults with more emotional and behavioral indicators of depression in adolescence will be less likely to progress into marriage and more likely to dissolve their union as compared to emerging adults with fewer emotional and behavioral indicators of depression in adolescence.

Method

We used the National Longitudinal Study of Adolescent Health (Add Health) data designed to examine the influences of the environment and individual characteristics on health (Harris et al., 2009). Data were collected from adolescents nationwide in Grades 7 through 12 during the 1994–1995 school year; 80 high schools and 52 middle schools were chosen using stratified random sampling from all high schools in the United States. Subsequent data collection was conducted a year later in 1996 (Wave 2); in 2001–2002, when the participants were 18 to 26 years old (Wave 3); and in 2008, when the participants were 24 to 32 years old (Wave 4; Harris et al., 2009). We used data from Waves 1, 3, and 4. Out of the initial sample of 20,745 adolescents who completed in-home interviews in which depression indicators issues were assessed, the sample size was restricted to those who had completed Wave 3 or Wave 4 (n = 17,814) and those who were not missing weight variables (n = 14,638). Furthermore, only those emerging adults who reported that their age at first union was at least 1 year more than their age at Wave 1 were included, because those whose first union began at the same age as their Wave 1 interview could have had their adolescent depressive indicators measured after entrance into their first union (n = 14,146). For the subsample of cohabiting unions, the sample size was further restricted to emerging adults who had reported a cohabiting union at either Wave 3 or Wave 4 and were interviewed at Wave 4 and had valid sampling weights at that wave (n = 5,978).

We conducted an attrition analysis (logistic regression) of adolescents at Wave 1 who were lost between Wave 1 and either Waves 3 or 4 (results not shown). Sixteen percent of adolescents were lost to attrition during this time period. Overall, respondents who were older, foreign born, Hispanic, indicated an “other” racial category, or male were more likely to be lost to attrition; in addition, those from a single-parent or stepfamily household were also more likely to be lost to attrition than those who lived with their biological parents in adolescence. Those whose mothers had some college or more education were less likely to be lost to attrition as compared to those respondents whose mothers had a high school education. None of the emotional and behavioral indicators of adolescent depression were significantly associated with attrition.

To account for missing data due to nonresponse, we used multiple imputation, specifically, the multivariate imputation using chained equations method. Chained equation methods impute missing data by treating each variable as the dependent variable and regressing all other variables in the model onto the dependent variable (D. R. Johnson & Young, 2011). Also, chained equation models are tailored to the measurement level of each variable (e.g., dichotomous variables are estimated using logistic regression) and have been shown to produce reliable estimates (D. R. Johnson & Young, 2011). Following von Hippel (2007), we imputed the dependent variable in the imputation model but excluded imputed values for the dependent variable in our final analyses to prevent error. Omitting respondents without information on the dependent variable meant that, overall, the final sample size was 11,733 when predicting number of romantic relationships, 14,124 when predicting union entrance, and 5,546 when predicting cohabitation progression.

Variables

Romantic relationships—At Wave 3, emerging adults reported all romantic and sexual relationships since the summer of 1995. For each relationship, respondents responded to the question “Do/did you and [partner] have a romantic relationship?”; the actual interpretation of what constituted a romantic relationship was left up to the individual. A count variable of the number of romantic relationships in the past 5 years was created from these data. From the full sample, 82% of emerging adults reported entering into a romantic relationship, whereas 18% reported not entering a romantic relationship by Wave 3.

Union entrance—Emerging adults were dropped if their first union began before age 15. At both Waves 3 and 4, a *cohabiting union* was defined as whether the respondent lived with someone in a marriage like relationship for more than 1 month. Eighty-three percent of first unions began as cohabiting unions. Among cohabiting unions, 21% transitioned to marriage and 38% dissolved without transitioning to marriage; transitions or dissolutions were reported at either Waves 3 or 4.

Depressive symptoms—Depressive symptoms were measured at Wave 1. An abridged version of Radloff's (1977) Center for Epidemiological Studies Depression Scale was used. Participants were asked to indicate how often they had experienced nine emotions within the past 7 days. The frequency of emotions experienced within the past 7 days was coded on a scale that ranged from 0 (*never*) to 3 (*most of the time or all of the time*). Questions measuring instances of positive affect (e.g., "In the past week, you enjoyed life") were reverse scored, so that a higher score on the abridged Center for Epidemiological Studies Depression scale was indicative of increased depressive symptoms ($\alpha = .79$). Depressive symptom responses were positively skewed; thus, we transformed the variable by taking the log of the variable +1.

Alcohol problems—The alcohol problems measure at Wave 1 was composed of the sum of nine items ($\alpha = .78$) designed to address problematic adolescent drinking within the past 12 months. Participants were asked to indicate how often they had experienced problems related to their drinking, such as problems with parents, friends, school, and health. The frequency of alcohol problems experienced within the past 12 months was coded on a scale that ranged from 0 (*never*) to 4 (*5 or more times*). The alcohol problems measure was positively skewed; thus, we transformed the variable by taking the log of the variable +1.

Suicidal ideation—Suicidal ideation was measured at Wave 1 as whether the respondent seriously thought about committing suicide within the last 12 months, coded 0 (*no*) or 1 (*yes*).

Control variables—Race/ethnicity, nationality, gender, family structure, mother's education, public assistance, and sex-only relationships were measured at Wave 1; with the exception of public assistance, which was reported by the focal parent, all variables came from the adolescent reports. Data on age, emerging adult reports of sex-only relationships, and romantic relationships were taken from Wave 3. *Race/ethnicity* was measured as White, Black, Hispanic, and "other." The "other" category comprised Asians (8% of respondents at Wave 1), American Indians (4% of respondents at Wave 1), mixed heritage (10% of respondents at Wave 1) and adolescents who did not know their race (<1% of respondents at Wave 1). *Nationality* was measured as foreign born or U.S. born. *Gender* was measured as female or male. *Family structure* was coded from the adolescent's household roster as single-mother household, stepfamily household, or biological two-parent household. *Mother's education* was measured as the adolescent's report of the highest degree obtained by their mother: less than a high school degree, high school degree, some college, or college degree. The mother or female head of household indicated whether or not public assistance was received.

We also controlled for sex-only relationships in adolescence (at Wave 1) and emerging adulthood (at Wave 3). In adolescence, the number of sex-only relationships was reported in response to the question: "Since January 1, 1994, with how many people, not including romantic relationship partners, have you had a sexual relationship?" Because the number of sex-only relationships ranged from 0 to 555 at Wave 1, we constrained our analyses to those adolescents reporting 20 sex-only relationships or fewer to exclude outliers ($n = 20{,}471$;

99.66% remained in the analysis). Results from models using both the constrained and nonconstrained sex-only relationship indicator were comparable. In emerging adulthood, the sex-only relationships variable was a count of the number of relationships in the past 5 years in which the emerging adult reported he or she was "only having sex with [partner]" in response to the question "Which of the following best describes your relationship with [partner] at the present time?": dating partner exclusively, dating partner frequently but not exclusively, dating partner once in awhile, or only having sex with partner. We also controlled for number of romantic relationships in our analyses that tested union entrance and union progression.

Analytic Plan

We used both negative binomial regression models and competing-risks Cox proportional hazards models to test our hypotheses. For Hypothesis 1, we used a negative binomial regression model because our dependent variable, a count variable of the number of romantic relationships in the 5 years preceding Wave 3 data collection, was skewed toward 1 and violated the assumptions of ordinary least squares regression. The negative binomial regression model predicted the number of romantic relationships from adolescent depressive symptoms, alcohol problems, suicidal ideation, and controls. Emerging adults who did not enter a romantic relationship by Wave 3 were omitted from the analyses. If elevated adolescent depression was significantly associated with a lack of romantic relationships by Wave 3, our sample could have been biased because emerging adults with greater than average adolescent depression would have been excluded. To check for this potential selection bias, we conducted a logistic regression analysis predicting a dichotomous indicator of any romantic relationship by Wave 3. Overall, emerging adults with a history of adolescent suicidal ideation and adolescent alcohol problems were actually more likely to have had any romantic relationship by Wave 3, as were women as compared to men. Black and foreign-born respondents were significantly less likely to have had any romantic relationship. Thus, our sample was not underselected for adolescent depression; instead, the sample was slightly overselected for adolescent depression.

We tested Hypothesis 2 with competing-risks Cox proportional hazards models predicting entrance into either (a) a first marital union versus remaining single or (b) a first cohabiting union versus remaining single from adolescent depressive symptoms, alcohol problems, suicidal ideation, and controls. Emerging adults were at risk beginning at age 15, and failure occurred at the date emerging adults transitioned into either a first marital or cohabiting union. If they had never cohabited or married by the Wave 4 interview date, emerging adults were censored at the Wave 4 interview date. If emerging adults were not interviewed at Wave 4 and had not entered a cohabiting or marital union by the Wave 3 interview, they were censored at the Wave 3 interview date. There were some discrepancies as to when the first union began between Waves 3 and Wave 4. We examined models that used Wave 3 dates when there was a discrepancy, as well as models that used Wave 4 dates, and the results were consistent regardless of the wave used for discrepancies. Wave 4 dates were used here.

We tested Hypothesis 3 with competing-risks Cox proportional hazards models predicting whether first cohabiting unions ended in (a) marriage versus continuing cohabiting or (b) cohabitation dissolution versus continuing cohabiting from adolescent depressive symptoms, alcohol problems, suicidal ideation, and controls at Wave 1. For both models, emerging adults were at risk beginning when they entered their first cohabitation. Failure occurred when emerging adults transitioned out of cohabitation for either cohabitation dissolution or marriage. If emerging adults did not transition out of a cohabiting union, they were censored at the Wave 4 interview date. In all models, we included interaction terms between gender and each indicators of adolescent depression to examine gender differences.

Results

Because of the clustered nature of the Add Health sample, all analyses were run in Stata 12 using the survey suite of commands, which adjust for the three levels of weights (individual, school, and region) in the Add Health sample. Wave 3 weights were used in the negative binomial regression models predicting number of romantic relationships. Wave 4 weights were used in the Cox proportional hazard models predicting transitions to and within unions.

Sample Characteristics

The sample was predominately White and native born, and lived with their married, biological parents at the first wave (see Table 1). Most of the respondents did not receive public assistance, and the largest majority of the mothers had a high school degree. Males and females were represented equally within the sample; sample characteristics were similar between the genders. Most of the respondents reported few indicators of emotional and behavioral depression; on average, 13% reported suicidal ideation, the mean score of depressive symptoms was 5.64 on a scale from 0 to 27, and mean score of alcohol problems was 1.53 on a scale from 0 to 36. In regard to gender differences, adolescent females scored higher on the depressive symptoms scale and were more likely to report suicidal ideation compared to adolescent males. In contrast, adolescent males reported more alcohol problems than adolescent females. The total number of romantic relationships reported in emerging adulthood at Wave 3 ranged from 1 to 48, with an average of 3.49 relationships per person; these results were comparable by gender. Few individuals engaged in sex-only relationships in both adolescence (2%) and emerging adulthood (3%). Mean age at first union was 22 for the full sample; by gender, the mean union ages were 22 and 21 for males and females, respectively. When examined by union type, the mean age was 21 for the first cohabiting union and 22 for the first marital union (not preceded by cohabitation). When marriages preceded by premarital cohabitation were included, the mean age at first marriage was 24 for the full sample.

Number of Romantic Relationships

Negative binomial regression model results indicated that adolescent depressive symptoms or adolescent suicidal ideation were not significantly associated with the number of romantic relationships in emerging adulthood (see Table 2). Adolescent alcohol problems significantly predicted an increased number of romantic relationships; that is, for every one-unit increase in alcohol problems, the risk of an additional romantic relationship increased by 6%. Several control variables were also significant. Individuals who were older, male, Black or Hispanic, or whose families received public assistance reported significantly fewer romantic relationships. Individuals with mothers who had some college or more education, and individuals who engaged in more sex-only relationships in emerging adulthood, reported significantly more romantic relationships. Interactions between each indicator of adolescent depression and gender indicated that there were significant differences between males and females only for alcohol problems ($\beta = -.05$, $p < .05$); for both sexes, adolescent alcohol problems increased the number of romantic relationships. As adolescent alcohol problems increased, the increase in the number of romantic relationships was more pronounced for females than for males. Interactions between gender and suicidal ideation or gender and depressive symptoms were nonsignificant. In addition, we found that the association between adolescent alcohol problems and the number of romantic relationships in emerging adulthood was significantly greater in magnitude than the association between adolescent depressive symptoms and the number of romantic relationships in emerging adulthood, $F(2, 126) = 12.62$, $p < .001$, and the association between adolescent suicidal ideation and the number of romantic relationships in emerging adulthood, $F(2, 126) = 13.24$, $p < .001$.

Timing of Entrance Into First Union

Using competing-risks Cox proportional hazard regression models, we examined whether adolescent depression was associated with the hazard of earlier cohabitation and marriage (see Table 3). The results indicated that every one-unit increase in adolescent depressive symptoms or alcohol problems was significantly associated with a 7% or a 22% (respectively) increase in the hazard of entering earlier into a first cohabiting union. Adolescent suicidal ideation was not significantly associated with entering earlier into cohabitation or marriage; depressive symptoms were not significantly associated with the hazard of entering into marriage. Nevertheless, for every one-unit increase in adolescent alcohol problems, the hazard of entering earlier marriage decreased by 13%.

Several control variables were also significant. Individuals who reported a greater number of romantic relationships in emerging adulthood, who reported a greater number of sex-only relationships in adolescence, who came from a single-parent household or stepfamily household, or whose families received public assistance were significantly more likely to enter earlier into a first cohabiting union. Individuals who were older, male, Black, Hispanic, foreign born, or who had a mother with some college or more education were significantly less likely to enter earlier into a first cohabiting union. Individuals who were foreign born were significantly more likely to enter earlier into a first martial union, whereas individuals who were Black, male, who reported a greater number of romantic relationships in emerging adulthood, who were from a single-parent household, or who had a mother with a college education were significantly less likely to enter earlier into a first marital union. When predicting earlier entrance into a first cohabiting union, interactions between each indicator of depression and gender indicated that there were significant differences between men and women only for depressive symptoms ($\beta = -.08$, $p < .05$). Overall, females entered cohabitation earlier across all levels of depressive symptoms than males. As the number of depressive symptoms increased, the magnitude of the difference between males and females increased; females were increasingly likely to enter into earlier cohabitation as depressive symptoms increased. When predicting earlier entrance into a first marital union, no interactions were significant. Furthermore, we found that the magnitude of the association between alcohol problems and entrance into a cohabiting union was significantly greater than both the association between depressive symptoms and entrance into a cohabiting union, $F(2, 126) = 32.51$, $p < .001$, and the association between suicidal ideation and entrance into a cohabiting union, $F(2, 126) = 43.94$, $p < .001$. In addition, the magnitude of the association between alcohol problems and entrance into a marital union was significantly greater than both the association between depressive symptoms and entrance into a marital union, $F(2, 126) = 3.97$, $p = .02$, and suicidal ideation and entrance into a marital union, $F(2, 126) = 4.39$, $p = .01$.

Timing of Transitions Out of First Cohabitation

Using competing-risks Cox proportional hazard regression models, we examined whether adolescent depression of respondents in a first cohabiting union was significantly associated with the hazard of earlier marriage to that same partner or earlier cohabitation dissolution (see Table 4). For the full sample, adolescent depressive symptoms were significantly associated with the hazard of delayed entrance into a marital union. For every one-unit increase in depressive symptoms, the hazard of entering into a marital union decreased by 10%. Adolescent depressive symptoms or alcohol problems were not significantly associated with the timing of cohabitation dissolution. Nevertheless, for every one-unit increase in adolescent suicidal ideation, the hazard of cohabitation dissolution decreased by 11%.

Several control variables were also significant. Individuals who were Black, Hispanic, older, or who came from a single-parent household were significantly less likely to dissolve their cohabitation earlier; those who were foreign born or who reported a greater number of sex-only relationships in emerging adulthood were significantly more likely to dissolve their cohabitation earlier. Individuals who were Black, Hispanic, who reported a greater number of romantic relationships in emerging adulthood, or who came from a single-parent household were significantly less likely to transition into an earlier marital union from a cohabitation; those who were foreign born or whose mothers had some college or more education were significantly more likely to transition earlier into a marital union. When predicting earlier cohabitation dissolution, no interactions between each indicator of depression and gender in the full sample were significant; when predicting transition from a cohabitation into a earlier marital union, interactions indicated that there were significant differences between men and women only for depressive symptoms ($\beta = .30$, $p < .05$); specifically, men and women had similar hazards of transitioning from cohabitation to earlier marriage at low levels of adolescent depressive symptoms, but at higher levels of adolescent depressive symptoms women were less likely to enter into earlier marriage following their first cohabitation than were men.

Discussion

A key developmental task of emerging adulthood is to sustain a committed intimate relationship (Arnett, 2000), but people with a history of depression have been hypothesized to have a more difficult time maintaining them because such individuals may have been unable to develop the relationship and personal skills in adolescence that are necessary for committed intimate relationships in emerging adulthood. In support of this proposition, we found that greater adolescent alcohol problems were associated with more relationship churning in emerging adulthood. As Coyne's (1976) interaction model states, behavioral indicators of depression, such as adolescent alcohol problems, can increase the likelihood of rejection because emerging adult partners may perceive alcohol problems as a barrier to establishing a long-term, committed intimate relationship. Furthermore, behavioral indicators have been linked to risky sexual behavior and infidelity (Hall et al., 2008). No research has yet examined relationship churning as a risk factor for unsafe sexual behaviors and sexually transmitted diseases, but the quick cycling through of relationships that is the hallmark of relationship churning could put emerging adults at risk.

On the other hand, emerging adults with a history of depression could be more selective of potential partners; that is, relationship churning could be beneficial if it encourages partner selectivity and thus higher quality relationships. Although more committed unions have been shown to improve one's subjective well-being (Kamp Dush & Amato, 2005), entering into unions that are of low quality has been shown to decrease psychological well-being (Hawkins & Booth, 2005). Quickly leaving low-quality relationships may decrease depression, leaving emerging adults free to explore other relationships that could lead to a commitment. It is interesting that young adults who were more economically advantaged also engaged in more relationship churning. Thus, further research on the implications of relationship churning for depressed emerging adults is needed.

Emerging adults view cohabitation and marriage differently (Manning & Smock, 2005), with cohabitation often perceived as a "trial run" for marriage or the "next step" in the dating process (Bumpass et al., 1991; Stanley et al., 2006). Social exchange theory (Nye, 1979) suggests that emerging adults will weigh the costs and rewards of prospective partners more heavily when considering marriage as compared to cohabitation. In support of this assertion, emerging adults with a history of adolescent depression entered marital unions more slowly, but they actually entered cohabiting unions more rapidly; specifically,

emerging adults with a history of adolescent alcohol problems entered marital unions later, whereas emerging adults with a history of adolescent depressive symptoms and alcohol problems entered cohabiting unions earlier.

Kamp Dush and Amato (2005) found that individuals who entered into more committed relationships improved their well-being. Emerging adults with a history of adolescent depression may seek out (consciously or subconsciously) more committed relationships, such as cohabitation, because of the mental health benefits of committed romantic relationships. Hence, the emerging adults in our study entered cohabitation more rapidly. Nevertheless, their history of adolescent depression was a barrier to marriage, even after they were cohabiting. Adolescents learn relationship skills from their experiences in adolescent relationships (Larson et al., 1999; Shulman et al., 2006), and depressed adolescents may withdraw from relationships and thus not gain critical relationship skills. Hence, emerging adults with a history of adolescent depression may have difficulty progressing from cohabitation to marriage because they had fewer relationship experiences in which to hone their skill. Similar to single emerging adults with a history of adolescent alcohol problems, cohabiting emerging adults with a history of adolescent depressive symptoms had delayed transitions into marriage. Overall, both emotional and behavioral indicators of depression hastened entry into cohabiting unions and delayed marriage for single and cohabiting emerging adults.

Because most emerging adults view cohabitation as a step along the way to marriage (Manning & Smock, 2005), emerging adults who do not quickly transition out of cohabitation may find their development stalled. During emerging adulthood, marriage becomes more expected and desired (Willoughby, 2010); also, psychological benefits are gained from marriage, but not from cohabitation (Lamb, Lee, & DeMaris, 2003). Thus, continuously cohabiting in emerging adulthood may delay emerging adults from achieving a key developmental task of forming and maintaining committed intimate relationships. We found that adolescent suicidal ideation decreased the likelihood of dissolving a cohabiting union and increased the likelihood of continuous cohabitation. These emerging adults' history of adolescent suicidal ideation may be a barrier to achieving the developmental hallmarks of emerging adulthood.

Several gender differences were observed in our findings. For both genders, alcohol problems in adolescence were associated with increased relationship churning, but the positive association between adolescent alcohol problems and relationship churning was significantly more pronounced for females than for males. Females also entered cohabitation significantly earlier than males. Both genders were equally likely to transition from cohabitation to earlier marriage at lower levels of adolescent depressive symptoms, but at higher levels marriage was delayed significantly more for females than for males. Men report that they provide less emotional support to depressed female partners, and they rank their depressed partners as having poorer social skills (Daley & Hammen, 2002). Thus, the partners of women with a history of adolescent depression may consider the depression a cost that would create problems in a long-term committed relationship and thus delay marriage. Even if they desire marriage, women with a history of adolescent depression may settle for romantic relationships or cohabiting unions with partners who do not necessarily want to progress toward marriage, leading to later marriage.

This study has limitations. First, we used data from only one individual; examining data from both partners would provide greater understanding because these associations may be exacerbated when both partners have a history of depression in adolescence. Individuals with psychological distress commonly partner with others with psychological distress (Du Fort, Kovess, & Boivin, 1994), potentially leading to stagnant or unstable romantic

relationships. Second, in this study we were unable to examine the role of relationship quality. Higher relationship quality could buffer difficulties associated with depression, whereas lower relationship quality may exacerbate depression. Furthermore, relationship churning may be beneficial if relationships are of low quality, and progressing toward more committed states in low-quality unions may actually increase depression. Future research should test whether the romantic relationships of individuals with adolescent depression are of sufficient quality to ensure psychological benefits. Third, we were unable to examine indicators of depression at the time of each relationship or union initiation. More frequent measurement of depression, such as daily mood and drinking behavior, would provide insight into emerging adult depression just before one enters a romantic relationship or union. Measurement just prior to relationship or union initiation would also reduce measurement error associated the volatility of adolescent depression (Wight et al., 2004).

Despite these limitations, this study provides insight into the association between emotional and behavioral indicators of adolescent depression and relationship progression in emerging adulthood. Because early romantic relationships influence later relationship patterns (Larson et al., 1999), it is important to understand the development of intimate relationships across the transition to emerging adulthood. Our findings suggest that adolescent depressive symptoms, alcohol problems, and suicidal ideation have long-term implications for relationship outcomes during emerging adulthood. Although our results support the notion that adolescent depression may lead to poorer relationship outcomes, future research might seek to examine intrapersonal and interpersonal characteristics that influence these relationship trajectories during emerging adulthood.

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Table 1

Weighted Descriptive Statistics

	Full				Men				Women			
Variables	***M***	**%**	***SD***	**Range**	***M***	**%**	***SD***	**Range**	***M***	**%**	***SD***	**Range**
Dependent variables												
Romantic relationships	3.49		2.98	1–42	3.46		3.04	1–42	3.53		2.93	1–29
Age at first union	21.55		3.17	15–33	21.98		3.19	15–33	21.08		3.07	15–32
Age at cohabitation	21.39		3.09	15–33	21.79		3.13	15–33	20.95		2.98	15–32
Age at marriage	22.22		2.83	16–32	22.82		2.81	16–32	21.70		2.75	16–32
Independent variables												
Depressive symptoms	5.64		4.14	0–27	5.12		3.75	0–27	6.25	—	4.48	0–27
Suicidal ideation	.13	13.19		0–1	.11	10.83	—	0–1	.16	16.11	—	0–1
Alcohol problems	1.53		3.41	0–36	1.65		3.70	0–36	1.38		3.03	0–28
Control variables												
Age at Wave 3	21.70		1.83	18–28	21.82		1.86	18–28	21.58		1.80	18–27
Sex-only relationship at Wave 3	0.64		1.45	0–20	0.79		1.61	0–20	0.51		1.28	0–15
Sex-only relationship at Wave 1	0.47		1.54	0–20	0.59		1.77	0–20	0.33		1.22	0–20
Male	.54	54.04		0–1								
Mother’s education (ref.: high school)												
Less than high school	.17	16.83		0–1	.16	15.89		0–1	.18	17.90		0–1
Some college	.21	20.68		0–1	.20	19.97		0–1	.21	21.51		0–1
College	.25	25.31		0–1	.26	25.95		0–1	.25	24.57		0–1
Public assistance	.09	9.00		0–1	.09	8.99		0–1	.09	9.01		0–1
Household structure (ref.: biological parents)												
Single parent	.26	25.78	—	0–1	.26	26.30	—	0–1	.25	25.19		0–1
Stepfamily	.14	14.16	—	0–1	.14	14.12	—	0–1	.14	14.21		0–1
Race (ref.: White)												
Black	.15	15.13		0–1	.15	15.02		0–1	.15	15.26		0–1
Hispanic	.12	11.87		0–1	.12	11.96		0–1	.12	11.76		0–1
Other	.04	3.96		0–1	.04	3.94		0–1	.04	3.99		0–1

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Variables	Full				Men				Women			
	M	%	*SD*	Range	*M*	%	*SD*	Range	*M*	%	*SD*	Range
Foreign born	.06	5.75		0–1	.06	5.80		0–1	.06	5.68		0–1
n	14,146				7,114				7,030			

Note: Wave 3 survey weights were used for independent and control variables as well as the romantic relationships dependent variable. Wave 4 survey weights were used for age at first union. ref. = reference category.

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Table 2

Negative Binomial Regression Analyses Predicting Number of Romantic Relationships From Adolescent Depression Indicators (n = 11,733)

	Full sample			Full sample with interactions		
Variables	***b***	***SE***	**IRR**	***b***	***SE***	**IRR**
Depressive symptoms[a]	−0.02	0.01	0.98	−0.01	0.02	0.99
Suicidal ideation	0.06	0.03	1.06	0.08	0.03	1.08*
Alcohol problems[a]	0.06	0.01	1.06***	0.08	0.02	1.08***
Male	−0.10	0.02	0.91***	−0.03	0.05	0.97
Male × depressive symptoms				−0.02	0.03	0.98
Male × suicidal ideation				−0.06	0.05	0.94
Male × alcohol problems				−0.05	0.02	0.95*
Age at Wave 3	−0.02	0.01	0.98***	−0.02	0.01	0.98***
Sex-only relationships at Wave 3	0.23	0.01	1.26***	0.23	0.01	1.26***
Sex-only relationships at Wave 1	0.01	0.01	1.01	0.01	0.01	1.01
Mother's education (ref.: high school)						
Less than high school	−0.03	0.03	0.97	−0.03	0.03	0.97
Some college	0.05	0.03	1.06*	0.05	0.03	1.06*
College	0.11	0.03	1.11***	0.11	0.03	1.11***
Public assistance	−0.12	0.03	0.89***	−0.12	0.03	0.89***
Household structure (ref.: biological parents)						
Single parent	0.03	0.02	1.03	0.03	0.02	1.03
Stepfamily	0.04	0.02	1.04	0.04	0.02	1.04
Race (ref.: White)						
Black	−0.10	0.03	0.91***	−0.10	0.03	0.91**
Hispanic	−0.09	0.04	0.91*	−0.09	0.04	0.91*
Other	0.07	0.05	1.08	0.07	0.05	1.07
Foreign born	−0.08	0.05	0.92	−0.08	0.05	0.92

Note. Romantic relationships were measured in emerging adulthood as a retrospective account of all romantic relationships reported in the last 5 years. IRR = incidence rate ratio; ref. = reference category.

[a] Because of positive skew, alcohol problems and depressive symptoms were transformed (log[var + 1]).

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 3

Competing-Risks Cox Regression Models of the Association Between Adolescent Depression Indicators and the Hazard of Entering a First Cohabiting or Marital Union (n = 14,124)

	Cohabiting union						Marital union					
	Full sample with interactions			Full sample			Full sample with interactions			Full sample		
Variables	***b***	***SE***	**HR**	***b***	***SE***	**HR**	***b***	***SE***	**HR**	***b***	***SE***	**HR**
Depressive symptoms[a]	0.11	0.03	1.12***	0.07	0.03	1.07**	0.05	0.07	1.05	0.05	0.05	1.05
Suicidal ideation	0.13	0.07	1.14	0.07	0.06	1.07	−0.09	0.13	0.91	−0.13	0.11	0.88
Alcohol problems[a]	0.21	0.03	1.23***	0.20	0.02	1.22***	−0.20	0.07	0.82**	−0.14	0.05	0.87**
Male	−0.07	0.06	0.93	−0.24	0.03	0.79***	−0.47	0.16	0.62**	−0.43	0.07	0.65***
Male × depressive symptoms	−0.08	0.04	0.93*				0.01	0.08	1.01			
Male × suicidal ideation	−0.15	0.03	0.86				−0.07	0.19	0.93			
Male × alcohol problems	−0.02	0.10	0.98				0.12	0.10	1.13			
Age at Wave 3	−0.09	0.01	0.91***	−0.09	0.01	0.91***	0.04	0.02	1.04	0.04	0.02	1.04
Romantic relationships	0.02	0.01	1.02*	0.02	0.01	1.02*	−0.04	0.02	0.97*	−0.04	0.02	0.97*
Sex-only relationships at Wave 3	−0.01	0.02	0.99	−0.01	0.02	0.99	−0.02	0.04	0.98	−0.02	0.04	0.98
Sex-only relationships at Wave 1	0.04	0.01	1.04***	0.04	0.01	1.04***	0.01	0.02	1.01	0.01	0.02	1.01
Mother’s education (ref.: high school)												
Less than high school	0.13	0.06	1.14	0.13	0.07	1.14	0.14	0.13	1.15	0.14	0.13	1.15
Some college	−0.13	0.04	0.88***	−0.13	0.04	0.88***	−0.01	0.10	0.99	−0.01	0.10	0.99
College	−0.35	0.04	0.71***	−0.35	0.04	0.71***	−0.23	0.11	0.80*	−0.23	0.11	0.80*
Public assistance	0.22	0.06	1.25***	0.22	0.06	1.25***	−0.11	0.17	0.89	−0.11	0.17	0.89
Household structure (ref.: biological parents												
Single parent	0.29	0.04	1.33***	0.29	0.04	1.33***	−0.21	0.08	0.81*	−0.21	0.08	0.81*
Stepfamily	0.33	0.05	1.38***	0.33	0.05	1.38***	0.01	0.09	1.01	0.01	0.09	1.01
Race (ref.: White)												
Black	−0.24	0.05	0.79***	−0.24	0.06	0.79***	−0.89	0.11	0.41***	−0.89	0.11	0.41***
Hispanic	−0.26	0.08	0.77**	−0.26	0.08	0.77**	−0.07	0.15	0.93	−0.08	0.15	0.93

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Variables	Cohabiting union						Marital union					
	Full sample with interactions			Full sample			Full sample with interactions			Full sample		
	b	*SE*	HR	*b*	*SE*	HR	*b*	*SE*	HR	*b*	*SE*	HR
Other	0.02	0.07	1.02	0.02	0.07	1.02	−0.15	0.17	0.86	−0.15	0.17	0.86
Foreign born	−0.31	0.08	0.74***	−0.31	0.08	0.74***	0.34	0.11	1.41**	0.34	0.11	1.41**

Note: HR = hazard ratio; ref. = reference category.

[a]Because of positive skew, alcohol problems and depressive symptoms were transformed (log[var + 1]).

*$p < .05$.

**$p < .01$.

***$p < .001$.

Table 4

Competing-Risks Cox Regression Models of the Association Between Adolescent Depression Indicators and the Hazard of Entering a Marital Union or Cohabitation Dissolution Among Cohabitors (n = 5,546)

	Cohabitation dissolution						Entrance into marriage					
	Full sample with interactions			Full sample			Full sample with interactions			Full sample		
Variables	***b***	***SE***	**HR**	***b***	***SE***	**HR**	***b***	***SE***	**HR**	***b***	***SE***	**HR**
Depressive symptoms[a]	−0.01	0.07	0.99	0.01	0.05	1.01	−0.25	0.07	0.78***	−0.11	0.05	0.90*
Suicidal ideation	−0.26	0.10	0.77*	−0.24	0.09	0.79**	0.03	0.15	1.03	0.04	0.11	1.04
Alcohol problems[a]	−0.09	0.05	0.92	−0.05	0.04	0.95	0.03	0.06	1.03	−0.02	0.04	0.98
Male	−0.21	0.18	0.81	−0.05	0.07	0.95	−0.32	0.24	0.73	0.13	0.08	1.14
Male × depressive symptoms	0.05	0.09	1.06				0.30	0.13	1.35*			
Male × suicidal ideation	0.10	0.22	1.11				0.07	0.22	1.07			
Male × alcohol problems	0.09	0.07	1.09				−0.12	0.09	0.89			
Age at Wave 3	−0.06	0.02	0.94***	−0.06	0.02	0.94***	0.01	0.02	1.01	0.01	0.02	1.01
Romantic Relationships	−0.01	0.01	0.99	−0.01	0.01	0.99	−0.04	0.02	0.96*	−0.04	0.02	0.96*
Sex-only relationships at Wave 3	0.01	0.03	1.01	0.01	0.03	1.01	−0.02	0.05	0.98	−0.02	0.05	0.98
Sex-only relationships at Wave 1	−0.03	0.02	0.97	−0.03	0.02	0.97	−0.04	0.02	0.96	−0.04	0.02	0.96
Male	−0.21	0.18	0.81	−0.05	0.07	0.95	−0.32	0.24	0.73	0.13	0.08	1.14
Mother's education (ref.: high school)												
Less than high school	0.03	0.09	1.04	0.03	0.09	1.04	0.03	0.12	1.03	0.03	0.12	1.03
Some college	0.08	0.09	1.08	0.08	0.09	1.08	0.24	0.09	1.27*	0.24	0.09	1.27*
College	0.14	0.08	1.15	0.14	0.08	1.15	0.21	0.10	1.24*	0.21	0.10	1.24*
Public assistance	−0.17	0.11	0.85	−0.17	0.11	0.85	0.10	0.13	1.10	0.10	0.13	1.10
Household structure (ref.: biological parents)												
Single parent	−0.22	0.08	0.80**	−0.22	0.08	0.80**	−0.22	0.09	0.81*	−0.22	0.09	0.81*
Stepfamily	−0.04	0.08	0.96	−0.04	0.08	0.96	−0.22	0.12	0.80	−0.22	0.12	0.80
Race (ref.: White)												
Black	−0.33	0.10	0.72***	−0.33	0.10	0.72***	−0.38	0.13	0.69**	−0.38	0.13	0.69**

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Variables	Cohabitation dissolution						Entrance into marriage					
	Full sample with interactions			Full sample			Full sample with interactions			Full sample		
	b	*SE*	HR	*b*	*SE*	HR	*b*	*SE*	HR	*b*	*SE*	HR
Hispanic	−0.28	0.10	0.76**	−0.28	0.10	0.76**	−0.38	0.15	0.68*	−0.38	0.15	0.68*
Other	−0.09	0.13	0.91	−0.09	0.13	0.91	−0.04	0.20	0.96	−0.04	0.20	0.96
Foreign born	0.43	0.12	1.54***	0.43	0.12	1.54***	0.37	0.15	1.45*	0.37	0.15	1.45*

Note: HR = hazard ratio; ref. = reference category.

[a] Because of positive skew, alcohol problems and depressive symptoms were transformed (log[var + 1]).

* $p < .05$.

** $p < .01$.

*** $p < .001$.

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