Research Brief



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Transitioning to Adulthood:

THE ROLE OF
ADOLESCENT
DEPRESSION AND
SUICIDAL IDEATION

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OVERVIEW

Prior research suggests that depression and suicidal ideation put adolescents at risk for unhealthy development later in life. Although this research is compelling, much of it is limited by (a) a reliance on cross-sectional data that has made it difficult to disentangle the influence of depressive and suicidal symptoms from the influence of other co-occurring risk factors, (b) the use of small, clinic-based samples, and (c) a focus on single outcome variables rather than a constellation of outcomes associated with positive development. The purpose of this study was to assess the long-term influence of moderate-to-severe depressive or suicidal symptoms in adolescence on the transition to adulthood. Thirteen years of data from Waves I to IV of the National Longitudinal Study of Adolescent Health (Add Health, N=11,186) were analyzed to assess the likelihood that study participants were positioned to make a healthy transition to adulthood by their mid/late twenties and early thirties.

KEY FINDINGS

- Young adults who, as adolescents, reported experiencing moderate-to-severe
 depressive or suicidal symptoms, had a greater likelihood of experiencing moderate
 or multiple problems in young adulthood (their late teens and early twenties).
 Problems examined include heavy alcohol use, illicit drug use, financial difficulties,
 and criminal behavior.
- Young adults who, as adolescents, reported experiencing moderate-to-severe
 depressive or suicidal symptoms, had a greater likelihood of higher-risk transitions
 from the late teens and early twenties into the late twenties and early thirties.



BACKGROUND

In comparison with previous generations, young adults today are delaying the completion of tasks commonly associated with a successful transition to adulthood (for example, marriage, parenthood, and career development and advancement; Cote & Bynner, 2008; Shanahan et al. 2005). This delay can be attributed to (1) a major change in the social and economic context of the U.S. (such as the shift to a post-industrial economy, changes in women's roles, and the availability of living-wage jobs for those without a college education; Furstenberg, 2010; Settersten & Ray, 2010), and (2) a shift in priorities, as young adults increasingly put the development of personal interests, the pursuit of higher education, social activities, and the exploration of romantic relationships over the achievement of the tasks traditionally associated with this period in development. Accordingly, this period, which spans the ages of 18 to 29, has been re-characterized as "emerging adulthood" (Arnett, 2000; Cote & Bynner, 2008).

Given these shifts, the tasks once considered to be indicators of successful development during this period are inappropriate. Although the field has yet to reach a consensus on indicators of healthy development in emerging adulthood, researchers largely agree that avoiding financial hardship, and abstaining from substance use and involvement in criminal behavior, are essential to successfully navigating the transition to adulthood. Building on this work and prior research conducted by Child Trends (Terzian, Moore & Constance, 2014a; Terzain, Moore & Constance, 2014b), this brief explores factors that may derail adolescents from a healthy transition into adulthood.

Research from the fields of prevention science and risk and resilience indicate that the presence of various internal (such as self-regulation and motivation), relational (such as positive parent-child relationships, relationships with pro-social adults), and contextual protective factors (such as effective schools, community resources) promote positive development. On the other hand, the presence of risk factors, such as exposure to trauma, living in poverty, and having mental health problems, contributes to unhealthy development (IOM & NRC, 2009).

Research conducted in this area has been limited to child development, and there is comparatively less information available regarding the influence that risk and protective factors have on development in emerging adulthood. Nevertheless, research has found that certain risk factors have cascading and enduring effects on later development.

Child abuse is one risk factor that has been identified as a strong predictor of later internalizing problems (such as depression), substance use problems, and delinquency problems (IOM & NRC, 2014)—all of which have also been identified as having a detrimental influence on later development. Although there is evidence documenting both the comorbidity of these problems (Armstrong & Costello, 2002), and the negative influence of these problems on later development, a reliance on cross-sectional data has undermined the ability to identify the unique influence each of these problems has on later development. Moreover, research examining the influence these problems have on development has been limited by a focus on predicting individual outcomes rather than a constellation of outcomes associated with healthy development (Bagwell, Newcomb & Bukowski, 1998). These issues are problematic because they limit both our understanding of the factors that precipitate risky transitions to adulthood, and our ability to accurately identify adolescents in the greatest need of support services.

To address these limitations, this brief uses *National Longitudinal Study of Adolescent Health* (Add Health) data to identify predictors of problematic transitions to adulthood. Because of the wide prevalence of depression and suicidal ideation among U.S. adolescents, it is important to identify the unique influence of moderate-to-severe depressive and suicidal symptoms in adolescence on the transition to adulthood. Recent public health data indicate that one in six



adolescents report having seriously considered suicide, and one in twelve adolescents report experiencing depressive symptoms at a level that suggests they had experienced a major depressive episode in the past year (Centers for Disease Control and Prevention, 2012; Substance Abuse and Mental Health Services Administration, 2012).

This brief builds on and extends prior research conducted by Child Trends, described in companion briefs (Terzian, Moore & Constance, 2014a; Terzain, Moore & Constance, 2014b) that analyzed Add Health data to identify three groups of adolescents: those that experienced "minimal problems," "moderate problems," or "multiple problems" during the transition to adulthood. These categories, or "classes," were based on measures of heavy alcohol use, illicit drug use, criminal activity, and financial difficulties in their twenties. Analyses assessed the influence socio-demographic characteristics and relational protective factors (i.e., supportive relationships and religious involvement) had on their transition to adulthood. Males were more likely to experience multiple problems, as were whites and native-born youth, while youth who had, as an adolescent, a caring parent, religious involvement, and caring teachers, were less likely to have problems in young adulthood. In this brief, we explore the implications of depression and suicide ideation on youth's having minimal, moderate, or multiple problems in their twenties.

DATA AND METHODS

SAMPLE

This brief uses data from the *National Longitudinal Study of Adolescent Health* (Add Health; Harris et al., 2009). Our analyses follow 11,186 adolescents aged 11 to 19 years at Wave I (1994-1995) across a 13-year time period. Participants included in the sample used in these analyses completed Waves I, III (ages18-26, 2001-2002), and IV (ages 24-32, 2007-2008) of the survey, were not still attending high school at Wave III, and had no missing data on any of the predictor variables examined in the analyses.

Half of the sample was female (50 percent), and the majority of participants were non-Hispanic white (69 percent), followed by non-Hispanic black (15 percent), Hispanic/Latino (12 percent), and other non-Hispanic (5 percent). On average, participants included in the sample were 15.6 years of age (SD=1.7) at Wave I (1994-1995).¹ Finally, approximately 24 percent of the sample reported experiencing moderate-to-severe depressive or suicidal symptoms as an adolescent, 24 percent reported being either physically or sexually abused prior to age 13, and 24 percent reported engaging in childhood substance use (tobacco, alcohol, or marijuana) prior to age 13. A detailed overview of the sample's background characteristics can be found in the section entitled "Data Source and Methodology."

ANALYSIS METHOD

This study used latent class analysis (LCA) and latent transition analysis (LTA) methods, using Proc LCA and Proc LTA in SAS 9.3 (Methodology Center, 2012; SAS Institute, 2011) to estimate the long-term effects of adolescent depressive or suicidal symptoms, childhood substance use, and child abuse on class membership at Wave III and on transition patterns between Waves III and IV class membership or "category." Various models were tested and fit statistics were compared to inform the determination of the final models. For detailed information about items used and variable coding, see the section entitled "Data Source and Methodology."



Analyses were conducted to answer the following two research questions:

- 1. What is the relationship between experiencing moderate-to-severe depressive and suicidal symptoms in adolescence, and class membership (minimal, moderate or multiple problems) in early adulthood, taking the influence of childhood risk factors into account?
- 2. What relationship do these symptoms have with the transition to adulthood (late twenties and early thirties)?

Experiencing moderate-to-severe depressive and suicidal symptoms in adolescence was expected to increase the risk for experiencing moderate and multiple problems in early adulthood, as well as to promote higher-risk transitions as youth move into adulthood. Because research has demonstrated that child abuse and early substance use are related to depression and suicidal ideation, as well as predictors of maladaptive development, these variables were incorporated into the model that predicted class membership at Wave III to enable us to both control for their influence, and to understand how they are related to later development. Similarly, because socio-demographic characteristics are also associated with the quality of the transition to adulthood (see Terzian, Moore & Constance, 2014a), these were also used as control variables in the analysis. By incorporating socio-demographic characteristics, child maltreatment, and early substance use as control variables in our analyses at varied stages, we were able to identify the unique influence that experiencing moderate-to-severe depressive and suicidal symptoms in adolescence has on the transition to adulthood.

FINDINGS

FACTORS PREDICTING MODERATE OR MULTIPLE PROBLEMS

After taking into account the influence of socio-demographic factors, all risk factors significantly predicted belonging to either the moderate or multiple problems group at Wave III, when the respondents were young adults (ages 18 to 26).

Risk Factors

- Depressive or suicidal symptoms. Young adults who reported moderate-to-severe depressive or suicidal symptoms as adolescents had 52 percent higher odds of belonging to the moderate risk (moderate problems group), and 65 percent higher odds of belonging to the high risk (high problems group) at Wave III than young adults who did not report experiencing moderate-to-severe depressive or suicidal symptoms as adolescents.
- Childhood abuse. Young adults who reported childhood abuse had 58 percent higher odds of belonging to the moderate risk (moderate problems group), and 135 percent higher odds of belonging to the high risk (high problems group) at Wave III than young adults who did not report childhood abuse.
- Childhood substance use. Young adults who reported childhood substance use had 118 percent
 higher odds of belonging to the moderate risk (moderate problems group), and 228 percent
 higher odds of belonging to the high risk (high problems group) at Wave III than young adults
 who did not report childhood substance use.



PREDICTING HIGHER-RISK TRANSITIONS BETWEEN WAVES III AND IV

Experiencing moderate-to-severe depressive or suicidal symptoms in adolescence significantly predicted risky transitions during young adulthood (the transition from Wave III to Wave IV in our sample).

Depressive or suicidal symptoms

Among young adults belonging to the moderate or multiple problems group at Wave III, those who had reported moderate-to-severe depressive or suicidal symptoms in adolescence were more likely to remain in a higher risk group or transition to a higher risk group between Waves III and IV than those who did not report moderate-to-severe depressive or suicidal symptoms in adolescence.

- Young adults who were in the moderate problems group at Wave III, who had reported
 experiencing moderate-to-severe depressive symptoms in adolescence, had 117 percent
 higher odds of transitioning to the multiple problems group and 54 percent higher odds of
 remaining in the moderate problems group, compared to those who did not report moderateto-severe depressive symptoms in adolescence.
- Similarly, young adults who were in the multiple problems group at Wave III, who reported
 experiencing moderate-to-severe depressive symptoms, had 15 percent higher odds of
 remaining in the multiple problems class, compared to those who did not report moderate-tosevere depressive symptoms in adolescence.

DISCUSSION AND CONCLUSION

Results from analyses that follow adolescents into early adulthood (from the late teens to the early thirties) indicate that childhood abuse, childhood substance use, and experiencing moderate-to-severe depressive or suicidal symptoms during adolescence puts youth at an elevated risk for experiencing problems in early adulthood. Moreover, results from our analyses of youth transitions from the late teens and early twenties to the late twenties and early thirties indicate that experiencing moderate-to-severe depressive or suicidal symptoms during adolescence puts youth at high-risk for rocky transitions to adulthood.

Together, these findings emphasize the need to identify and provide targeted treatment to adolescents who are experiencing depression and suicidal ideation. Unfortunately, while much progress has been made in identifying evidence-based programs to prevent adolescent drug use and delinquency [see Child Trends" LINKS Database, the National Registry of Evidence-based Programs and Practices (NREPP, maintained by SAMHSA); Programs (maintained by the University of California, San Francisco), Blueprints for Healthy Youth Development, Crime Solutions.Gov, and CDC's Community Guide], we lack evidence about how best to prevent adolescent depression and suicidality (Kataoka, Zhang & Wells, 2002).

Equally important to the identification of evidence-based programs and practices for preventing internalizing problems in adolescence is the need to increase access to these programs and services. Recent data suggest the rate of mental health service use is low, with only one in five children and adolescents (Wu et al., 2010), less than half of suicidal adolescents (at about 45 percent; Yu et al., 2008), and a small proportion of depressed young adults accessing these services (Rushton, Forcier & Schecktman, 2002), suggesting a strong need to develop innovative ways to reach these vulnerable populations.



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Data and Methods

This study uses data from three waves of the National Longitudinal Study of Adolescent Health (Add Health; Waves I through IV). High schools (and their middle school feeder schools) served as the primary sampling unit for this study; geographic region, as defined by the U.S. Census Bureau, served as the stratification variable. Conducted from 1994-1995, the first wave of the study collected data from a nationally representative sample of 20,745 adolescents in grades 7 through 12 who were attending 132 middle schools and high schools in the United States. Wave II data were collected one year later, among adolescents in grades 8 through 12 (N=14,738). In 2001-2002, a third wave of data was collected, this time including students who were in the twelfth grade in Wave I (who had been excluded from the Wave II sample), for a total of 15,197 respondents ages 18 to 26. Respondents were interviewed once more at Wave IV, in 2007-2008, at ages 24 to 32 (N=15,701). Additional information about the Add Health survey design can be accessed online (Harris et al., 2009)

Measures Measures	
Outcome Variables	Latent Class or Group Membership. In a preliminary study, data from Waves III and IV were used to identify young adult latent classes based on behaviors with the potential to derail young adults from a successful transition to adulthood (Terzian, Moore & Constance, 2014a) - heavy alcohol use, illicit drug use, marijuana use, serious delinquent behavior, and serious financial problems. Three classes or groups were identified, based on their probability of reporting these problems: a 'minimal problems' group, a 'moderate problems' group, and a 'multiple problems' group.
	Transition Patterns. Four transition patterns were modeled: minimal problems at both waves
	moderate/multiple to minimal
	minimal to moderate/multiple
	moderate or multiple problems at both waves
Indicators Used to form Latent Classes	Criminal Behavior. Seven questions were used to assess criminal behavior at Waves III and IV. These included (a) damaged property that did not belong to you; (b) sold marijuana or other drugs; (c) broke into a house or building to steal something; (d) damaged property that did not belong to you; (e) used or threatened to use a weapon to get something; (f) stole something worth over \$50; (g) stole something worth less than \$50; and (h) took part in a group fight. The variable was coded as "1" if the respondent reported not committing any of the offenses, as "2" if the respondent answered yes to one or two offenses, and as "3" if the respondent answered yes to three or more offenses.
	Heavy Alcohol Use. Heavy alcohol use was defined as binge drinking during one or more days in a week. Respondents were asked how many days they consumed five or more drinks consecutively during the past 12 months. The variable was coded as "2" if the respondent answered to drinking five or more drinks consecutively one to two days a week, three to five days a week, or everyday or almost every day; and as "1" if the respondent reported drinking five drinks or more consecutively one to two days in the past 12 months, once a month or less, two to three days a month, or not drinking five drinks or more consecutively.



Measures	
Indicators Used to form Latent Classes	Marijuana Use. Marijuana use was measured as any reports of marijuana use in the past year. In Wave III, respondents were asked whether or not they use marijuana in the past twelve months. In Wave IV, respondents were asked to indicate how many days in the past twelve months they used marijuana. This item-wording difference did not affect the meaning of the measure, as the variable was coded as "2" if they reported any marijuana use in the last year and a "1" if they did not.
	Illicit Drug Use. Illicit drug use was measured as the use of any illicit drugs (aside from marijuana) in the past year. In Wave III, respondents were asked to identify whether they used cocaine, crystal meth, injection drugs, or any other illegal drugs such as LSD, PCP, ecstasy, mushrooms, inhalants, ice, heroin, steroids, or prescription medicines not prescribed. In Wave IV, respondents were asked to rate the use of their "favorite" illicit drug. This item-wording difference did not affect the meaning of this measure in the current study, since respondents received a "2" if they had used any illicit drugs in the last year and a "1" if they had not.
	Financial Hardships. Five items were used to assess the degree of financial problems among young adults in our sample. These items assessed whether, in the past 12 months, there was a time when the respondent or his/her household was: (a) without telephone services; (b) did not pay the full amount of rent or mortgage because of lack of money; (c) was evicted from his/her/their residence for not paying the rent or mortgage; (d) did not pay the full amount of a gas, electricity, or oil bills because of lack of money; or (e) service was turned off by the gas/electric/oil company because payments were not made. The variable was coded as "2" if the respondent experienced any of the financial problems, and as "1" if the respondent experienced none of these problems.
Covariates	Socio-Demographic Factors. All analyses included a set of socio-demographic covariates to account for differences at Wave III on these factors. The covariates included were race/ethnicity (White, Black, Latino, or Another race), gender, age at Wave I (11-15 or 16-19 years old), whether or not the youth was foreign-born (or born outside of the U.S.), and family structure (two bio parent, single parent, or other).
	Childhood Risk Factors. Early substance use was defined as the non-experimental use of substances by age 13. It was assessed using items from the Wave I questionnaire which asked at what age the respondent first smoked a whole cigarette; first drank beer, wine or liquor without family members; and first tried marijuana.



Measures Measures		
Covariates	Early childhood abuse was considered a risk factor if, if during their Wave III interview, respondents reported having been physically or sexually abused by an adult caregiver by the time they started sixth grade, or if, during their Wave IV interview, they reported having been physically or sexually abused by an adult caregiver before the age of 13. Early physical abuse was assessed by the question: 'How often had your parents or other adult caregivers slapped, hit, or kicked you?' Respondents were coded as having been physically abused if they reported that this had occurred three or more times before the 6th grade or the age of 13 for Waves III and IV, respectively. Early sexual abuse was assessed by the question: 'How often had one of your parents or other adult caregivers touched you in a sexual way, forced you to touch him or her in a sexual way, or forced you to have sexual relations?' Respondents were coded as having been sexually abused if they reported that this had occurred one or more times before the sixth grade or the age of 13 for Waves III and IV, respectively. The effects for socio-demographic characteristics and childhood risk factors were only estimated the effects of these covariates on latent class membership at Wave III, and were absent from the final transition model that examined the transition from class membership in Wave III to Wave IV.	
Predictor Variables	Experiencing moderate-to-severe depressive or suicidal symptoms. Adolescent depressive symptoms were measured using the Center for Epidemiologic Studies Depression Scale (CES-D), an 18-item scale that asks respondents to rate their mood and behavior during the past seven days on a scale from 0 to 3 (0= Never or Rarely, 3=Most of the time or All of the time). Items were summed after reverse-coding negative items. Consistent with current clinical research, the score was dichotomized using a cut-off of 20 for males and a cut-off of 22 for females (Massoglia & Uggen., 2010). Scores equal to or above these cut-offs indicated the presence of moderate to severe depressive symptoms. One item was used to assess whether respondents, during the past 12 months, had ever seriously considered suicide. If respondents reported that they had, they were coded as having suicidal ideation. Respondents who reported having moderate to severe depressive symptoms or suicidal ideation at Wave I or II were coded as being "depressed or suicidal" in our analyses. For those respondents who only participated in Wave I, their Wave I report of depressive or suicidal symptoms was used; for those respondents who completed a Wave II interview, reports from both waves were used to measure adolescent mental health. Also, respondents who did not answer at least 75 percent of the CES-D items were coded as missing	





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