Original article

Alcohol Use Trajectories After High School Graduation Among Emerging Adults With Type 1 Diabetes

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A B S T R A C T

Objective: To explore alcohol involvement trajectories and associated factors during the year post-high school (HS) graduation among emerging adults with type 1 diabetes.
Methods: Youth (N = 181) self-reported alcohol use at baseline and every 3 months for 1 year post-HS graduation. Data were also collected on parent–youth conflict, diabetes self-efficacy, major life events, living and educational situations, diabetes management, marijuana use, cigarette smoking, and glycemic control. Trajectories of alcohol use were modeled using latent class growth analysis. Associations between trajectory class and specific salient variables were examined using analysis of variance, chi square, or generalized linear mixed model, as appropriate.
Results: Identified alcohol involvement trajectory classes were labeled as (1) consistent involvement group (n = 25, 13.8%) with stable, high use relative to other groups over the 12 months; (2) growing involvement group (n = 55, 30.4%) with increasing use throughout the 12 months; and (3) minimal involvement group (n = 101, 55.8%) with essentially no involvement until the ninth month. Those with minimal involvement had the best diabetes management and better diabetes self-efficacy than those with consistent involvement. In comparison with those minimally involved, those with growing involvement were more likely to live independently of parents; those consistently involved had more major life events; and both the growing and consistent involvement groups were more likely to have tried marijuana and cigarettes.
Conclusions: This sample of emerging adults with type 1 diabetes has three unique patterns of alcohol use during the first year after HS.

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IMPLICATIONS AND CONTRIBUTION

Among youth with type 1 diabetes in the year post-high school (HS) graduation, alcohol involvement knowledge was extended by identifying patterns of such use. Further research of alcohol use patterns is needed to guide health care professionals in their assessments and researchers in testing interventions that target unique patterns.

Youth with type 1 diabetes use alcohol [1] and may be similar to their emerging adult peers who use alcohol more than other age groups [2]. Arnett [2] hypothesizes that emerging adults' substance use may be associated with the freedom to experiment with substances as part of seeking their identity, the lack of expectations for adult behavior, the lack of perceptions of substance use consequences, self-medication in response to the stress of the many changes in their life, confusion about their identity, and/or pessimism about their future. Congruent with various underlying reasons for alcohol use, experts have described patterns such as "abstainers," "light drinkers," and "very heavy drinkers" among youth in the general population [3].

However, a paucity of research exists on alcohol use patterns among those with diabetes. Some could be abstainers, especially if they are methodical managers of their diabetes [4], who likely would not want to risk severe hypoglycemic events and poor glycemic control, known to be associated with alcohol use [5]. Others could be light drinkers who feel free to experiment with alcohol use. Finally, some could be relatively heavy drinkers who are self-medicating with alcohol in response to stress.

Identification of factors that discriminate various patterns of alcohol use is essential to intervene with individuals with various underlying reasons for alcohol use [3]. Congruent with salient behavioral, social, psychological, and sociodemographic factors noted for the general population [3], alcohol use among emerging adults with type 1 diabetes is proposed to be associated with environmental and individual characteristics, transitional events, other health behaviors, and health outcomes [6]. Examination of such factors during the year after HS graduation would be important because it is known as a critical year for substance use [7]. Salient environmental characteristics during this period include relationships with parents, such as parent–youth conflict [8]; individual characteristics of diabetes-specific self-efficacy [9]; health behaviors that are diabetes related such as diabetes management [10] and typical youth behaviors such as marijuana use and cigarette smoking [11]; the health outcome of glycemic control [10]; and life events such as major ones including deaths or divorce in the family [12], ones specific to this age group including moving out of parental homes, and enrolling in schools [13].

An examination of alcohol involvement trajectories and associated factors would increase understanding of these youth's alcohol use and guiding development of interventions specific to unique patterns. An exploratory study of emerging adults with type 1 diabetes during the first year post-HS was conducted to (1) identify alcohol involvement trajectories and (2) examine associations among the identified trajectories and environmental characteristics (parent–youth conflict), individual characteristics (diabetes self-efficacy), health behaviors (diabetes management, marijuana use, and cigarette smoking), health outcomes (glycemic control), and life events (major life events, living independently of parents, and school enrollment) as well as sociodemographic and diabetes-related factors.

Methods

Design

To control the transitional event of HS graduation and the year after, a critical time for substance use [7], this report enrolls 181 HS graduates of 204 participants from a larger exploratory-descriptive longitudinal study. The larger study, described elsewhere [14–18], described changes in salient outcomes in the contexts of education and living situations and examined key factors associated with specified outcomes during the transitional time of emerging adulthood. This transition has been little explored, yet extremely important for youth with type 1 diabetes who are expected to assume diabetes care responsibility [19] and known to have poor glycemic control [5].

Procedures

This institutional review board-approved study obtained consent from youth 18 years of age or older and parental consent/youth assent from those <18 years of age. HS seniors with type 1 diabetes were recruited in four consecutive years from outpatient clinics providing diabetes care in the Midwest. Study information was sent to a potential pool of 17- to 19-year-olds with type 1 diabetes. Study staff screened interested youth for being 17–19 years of age and in the last 6 months of HS; diagnosed with type 1 diabetes for at least 1 year; ability to speak and read English; living with their parent or guardian; and being without a serious psychiatric disorder or a second chronic illness that would interfere with becoming independent. Only 3% of participants were permanently lost to follow-up (three requested to be withdrawn, two died, and two were lost to contact by staff after 6- or 9-month data collection points). Participants who missed a data collection point were not considered withdrawn because they often completed later data collection points.

Data collection

Data were collected using youth self-completed questionnaires through the format of their choice (Web-based system or paper and pencil). Baseline-only data included sociodemographics and diabetes-related information. Data collected at baseline and every 3 months over the 12 months post-HS graduation included parent–youth conflict, diabetes self-efficacy, living situation, school enrollment, diabetes management, marijuana use, cigarette smoking, alcohol use, and glycemic control. Major life events data were collected 12 months after baseline. Glycemic control values were obtained from the medical records of their health care providers and were, on average, within 41.8 days (SD = 48.7) of the completion of questionnaires.

Sociodemographic and diabetes-related information

Data were collected on gender, mother's and father's education level, years with diabetes diagnosis, and method of insulin administration, either continuous subcutaneous insulin infusion or multiple daily injections. Because only a few of the mothers (n = 7) and fathers (n = 8) had less than a HS education, these data were broken down to college or no-college categories.

Environmental characteristics

Parent–youth conflict was measured by the 15-item Parent–Adolescent Diabetes Conflict Scale, with known reliability and validity [20]. Although a revised scale exists [21], the version used was the one available at the initiation of the study. Participants were asked the frequency of arguments around diabetes management over the last 3 months from 1 (never) to 5 (all the time). Responses were summed for a total score (potential range from 15 to 75), with higher scores reflecting greater conflict. The Cronbach's coefficient was .94.

Individual characteristics

Diabetes-specific self-efficacy was measured by a revised eight-item Diabetes Self-Efficacy Scale [22], an assessment of confidence in one's ability to perform diabetes management tasks. Revisions involved addition of an item differentiating hypoglycemia and hyperglycemia management and to better reflecting contemporary treatment. Participants were asked how well they could do the tasks, grading themselves from an "A+" (could not do better) to an "F" (you are a disaster). A summed total