



The long-term effects of school dropout and GED attainment on substance use disorders



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ABSTRACT

Background: Epidemiologic research suggests that 14% of the population do not complete high school, and dropout has been linked to mental health conditions, substance use, chronic health problems, and criminal behavior. Few studies have assessed whether attainment of the general education development (GED) credential is protective from substance use.

Purpose: To assess the long-term outcomes of school dropout and GED attainment on past year substance use disorders, age of onset, and current smoking status.

Methods: Longitudinal data were included for lifetime substance users who participated in the National Epidemiological Survey on Alcohol and Related Conditions (Waves I and II). Eligible participants ($N=30,608$) were classified as having completed high school, dropped out of high school and did not complete a GED, or completed GED at Wave I. Survey logistic regression analyses were used to determine whether high school graduation status was associated with substance use disorders and smoking at Wave II.

Results: Multivariate results suggest that participants who dropped out of high school ($OR=1.53$; $p<.01$) or attained a GED were more likely to have a past year marijuana use disorder ($OR=1.62$ $p<.01$) compared to high school graduates. High school dropouts were also more likely to be current smokers ($OR=1.88$; $p<.05$) than graduates.

Conclusions: High school dropouts have higher long-term rates of marijuana use disorder and smoking in adulthood than graduates. Attainment of a GED does not appear to be protective from marijuana use disorders in adulthood.

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1. Introduction

The Obama Administration has underscored the importance of K-12 education, noting: "In today's global economy, a high-quality education is no longer just a pathway to opportunity—it is a prerequisite for success" (White House, 2015). And yet, many young

people across the USA continue to leave the educational system without earning a high school diploma. According to the US Census Bureau (United States Census Bureau, 2012), 7–10% of young people report having dropped out of secondary schools each year. This is consistent with recent estimates suggesting that as many as one in seven (14.5%) US adults having never completed high school, with particularly high dropout rates among African-Americans (17.7%) and Hispanics (36.0%; Vaughn et al., 2014). In light of these disconcerting figures, leading commentators have begun to speak of the nation's struggles with school completion in terms of a "Dropout Crisis" that has broad implications for the health and well-being of the nation (Rumberger, 2011). Such concern is clearly reflected in the identification of high school graduation as an objective and leading adolescent health indicator by the Federal Government's Healthy People 2020 initiative (U.S. Department of Health and Human Services, 2014).

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School completion is not simply an academic issue. Indeed, dropping out of school has important implications with respect to a wide variety of social, economic, and health outcomes. Compared to high school graduates, high school dropouts report lower levels of civic engagement (Milligan et al., 2004), experience greater job instability (Day and Newburger, 2002), and economic hardship (Chapman et al., 2010; Rouse, 2007). Epidemiological research has highlighted the relationship between high school dropout, mental health conditions, and chronic health conditions such as asthma, diabetes, and heart disease (Muennig et al., 2010; Vaughn et al., 2014). Evidence also points to a relationship between dropout status and criminal behavior including violence, larceny, assault, and drug-related crime (Maynard et al., 2015; Olate et al., 2012; Thornberry et al., 1985; Vaughn et al., 2015, 2014). Of particular relevance to this study, a growing body of evidence also suggests that individuals who drop out of high school may face elevated risk for problems related to the use of tobacco, alcohol, marijuana, and other illicit drugs (Bachman et al., 2008; Crum et al., 1998; Johnson and Hoffmann, 2000; Maynard et al., 2015; Swaim et al., 1997; Townsend et al., 2007; Wichstrom, 1998).

Several explanations have been put forth to account for the relationship between school dropout and problems related to substance use. First, it is well established that greater educational attainment is positively associated with health and wellbeing during adulthood (Lleras-Muney, 2005). While multiple factors may explain this positive association, scholars have noted that greater education likely influences the decisions that individuals make regarding health promoting and health-risk behavior (Cutler and Lleras-Muney, 2006). Within this framework, it is reasonable to surmise that—compared to dropouts—individuals who complete high school and pursue higher education may make more informed decisions with respect to the use of tobacco, alcohol, and illicit drugs. Evidence also suggests that education is predictive of increased help-seeking behavior among those who initiate drug use and develop substance use problems (Dawson et al., 2006). Another possibility relates to the influence of peer networks. Specifically, it is possible that individuals who drop out of high school are more likely to be involved in peer networks that endorse the use and abuse of tobacco, alcohol, marijuana, and other illicit drugs. Involvement in such peer networks, in turn, has implication for the likelihood of involvement in health-risk behaviors, including alcohol and drug abuse (Salas-Wright et al., 2013). Finally, it is possible that individuals who use licit and illicit substances during adolescence are at greater risk of dropping out of high school and, in turn, continuing to use and develop substance use problems during adulthood. Recent evidence documenting a robust association between substance use and well-established risk factors for dropout (e.g., truancy, poor grades) lends further credence to this possibility (Maynard et al., 2012; Salas-Wright et al., 2014).

Of course, there are alternatives to simply dropping out or graduating with a regular high school diploma. Most notably, individuals who drop out of high school have the option of obtaining a general educational development (GED) credential by passing a series of tests deemed equivalent to earning a high school diploma (American Council on Education, 2015). Millions of Americans have pursued this option. Indeed, the US Census Bureau (United States Census Bureau, 2012) reports that roughly 17 million American adults have earned a GED certificate and more than half a million adults complete the GED test annually (American Council on Education, 2015). Despite the popularity of the GED, scholars have cautioned that in individuals who earn GEDs generally do not fare as well as traditional high school graduates with respect to labor market earnings and other measures of psychosocial well-being (Heckman et al., 2010; Heckman and Rubinstein, 2001). Recent scholarship on “Prison GEDs”—that is, GEDs that are pursued while individuals are incarcerated—has highlighted the fact that the GED

is an option pursued by many individuals who have their educational trajectories interrupted by involvement in the criminal justice system (Zgoba et al., 2008).

While a number of studies have examined the association between dropping out of high school and substance use, only a small number of studies have systematically examined the differences in substance use risk among high school graduates, high school dropouts, and those who earn a GED. In fact, it has been noted that there is inconsistency in the literature with respect to the classification of individuals who report having dropped out of high school but earned a GED (Townsend et al., 2007). In some instances, such individuals are not considered dropouts (Brooks-Gunn et al., 1993) whereas in other studies individuals with a GED are lumped together with individuals who dropped out of high school and did not earn a GED (Fleming et al., 2012). Among studies that have specifically examined substance use risk among individuals who earned a GED, results are somewhat mixed with some studies suggesting that those who have earned a GED are at lower risk for substance use disorders than high school dropouts (Crum et al., 1993; Silas Obot et al., 1999) whereas others have found no significant differences between those who did and did not earn a GED (Bergman et al., 2014). Further, no studies to date have tested whether those who attained a GED have lower rates of smoking, alcohol and other substance use disorders compared to traditional graduates and dropouts who did not pursue a GED. Simply, there is a pressing need for further research examining the prevalence of substance use among high school graduate, high school dropouts, and those who did not complete high school but earned a GED.

This study employs a longitudinal, nationally representative survey of adults (National Epidemiologic Survey on Alcohol and Related Conditions [NESARC]) to systematically examine the long-term effects of school dropout on age of onset, past year substance use disorders, and smoking status in adulthood. Specifically, using data from NESARC Waves I and II, we aim to determine if adults who did not complete high school were more likely than traditional high school graduates to: 1) have initiated alcohol or tobacco use during the high school years; 2) have an alcohol, marijuana, other substance use disorder in the past year; or, 3) be a current smoker. Additionally, we examine potential differences in substance use onset and past year dependency risk between high school dropouts and those who attained a GED credential.

2. Materials and Methods

Data were obtained from Waves I and II of the national epidemiologic survey on alcohol and related conditions (NESARC; Chen et al., 2010). Respondents ($N = 34,653$) included a nationally representative sample of the US adult population. Of these, only lifetime users of one or more substances (tobacco, alcohol, marijuana, or other illicit drugs) were included in the analysis, as never-users are not at risk for substance use disorder (final $N = 30,608$). Participants were included in the current analyses if they participated in Wave I (2001–2002) and Wave II (2004–2005) of the NESARC study. Wave I used a multistage stratified design, oversampling young adults (ages 18–24) in Non-Hispanic, African-American, and Hispanic households. Inverse probability weights for the longitudinal sample were used to account for the unequal probability of selection in the NESARC study. A university institutional review board determined that all secondary analyses of the NESARC data were exempt from human subjects review.

Trained, experienced interviewers from the US Census Bureau conducted all in-person interviews. Surveys were conducted in either English or Spanish using computerized software that included built-in skip, logic, and consistency checks. For quality

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