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ORIGINAL PAPER

Psychiatric Correlates of Behavioral Indicators of School Disengagement in the United States

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Abstract The current study examined relations between behavioral indicators of school disengagement and psychiatric disorders. Data was derived from a nationally representative sample of U.S. adults ($N = 43{,}093$). Indicators of school disengagement and diagnoses of personality, substance use, mood, and anxiety disorders were assessed with the Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM-IV-version. Findings from multinomial logistic regression analyses revealed that cumulative school disengagement is associated with increased odds of reporting a lifetime psychiatric disorder and general antisociality. Behavioral indicators of school disengagement such as absenteeism and cutting class are potentially important signs of psychiatric distress and conduct problems. In addition to attending to academic achievement outcomes school disengagement prevention strategies should consider targeting these psychiatric conditions in order to reduce school dropout.

Keywords School dropout · School disengagement · Mental health · Comorbidity · Antisocial behavior

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Introduction

The process of school disengagement not only culminates in school dropout but is also an indicator of subsequent life problems [1, 2]. School disengagement and dropout is a national problem that impacts society in a host of ways. High rates of student dropout lead to an economic drain on society [3, 4]. Currently, many jobs depend on having highly educated employees who can deal with complex issues such as increasing communication and technological demands. Students who drop out of high school thus lack appropriate academic and social skills and may not be able to deal with these complex issues or participate successfully in society. Dropouts from American high schools class of 2006, for example, cost the nation more than $309 billion in lost wages, taxes, and productivity over their lifetimes [5]. High school drop outs are more likely to have extra needs such as relying on government health care and related services, thus contributing to a drain on the economy. Overall, dropping out of middle and high school has become a large national concern with broad economic consequences, enhancing the need for educators and policy-makers to effectively and efficiently intervene.

Prior research on school dropout shows that it is typically a gradual process of disengaging or disconnecting from school both physically and mentally [6]. The process of disengagement starts early in the kindergarten years through a phase of "withdrawal," intensifies during fourth to seventh grade with a "disengagement" phase, and results in many students dropping out of school by grade ten [7]. School disengagement has been viewed as synonymous with delinquency and conduct problems since the two often co-occur [8–11]. Although a number of risk factors for school disengagement have been identified such as academic performance (i.e., poor grades stemming from low literacy or verbal ability) and risk factors related to family or social reasons (i.e., students become parents, have to get a job to support their families, or have criminal parents), and dispositional factors (e.g., level of self-directedness) [12–16] it seems likely that school disengagement would be highly comorbid with several behavioral and psychiatric disorders. The impact of several life stressors likely can exacerbate the behavioral and psychiatric disorders. For example, when students transition from the elementary grades to the middle and high school grades, they confront many new academic and social challenges [7]. Academically, they must comprehend and learn a variety of content with complex vocabulary and challenging expository text. To keep up with these demands, they must possess at least average level literacy, verbal, and problem-solving skills. Socially, they may have difficulty fitting in with peers and often face an array of challenges at home. All of these factors may exacerbate the conjoint and intertwined risk of school disengagement and psychiatric comorbidity.

Despite the significance of school disengagement there have been few studies of school disengagement in relation to psychopathology and behavioral functioning using large representative samples. In a study of substance involvement and school dropout using the National Longitudinal Study of Young Adults, researchers Mensch and Kandel found that cigarette and illicit drug use, even after controlling for other risk factors, increased the probability of disengagement from school [17]. A 25 year prospective study employing a sample of 953 adults tracked since first grade found that alcohol dependence was predicted by early school disengagement and dropout [18]. Clearly, there is a gap in the research literature on the relationship between school disengagement and psychiatric comorbidity and filling this gap is necessary to shed light on these relations in order to inform future prevention efforts and inform policy.

Study Purpose

Although we realize that many processes such as academic achievement and cognitive processes are involved in disengagement from school, the focus of the present study is on behavioral indicators (absenteeism, cutting class) of school disengagement. Our purpose was to examine the sociodemographic, psychiatric, and substance use correlates of behavioral indicators of school disengagement using a nationally representative sample of U.S. adults. The primary aims were to (1) compare adults with a lifetime history of school disengagement to individuals without such a history with respect to sociodemographic variables, childhood and adult antisocial behaviors, and lifetime mood, anxiety, substance use, and personality disorders, and (2) to estimate the strength of the associations between these variables and indicators of school disengagement in controlled multivariate analyses. Two hypotheses were advanced. First, we hypothesized that there would be a gradient-based effect whereby increases in school disengagement would be associated with increases in the prevalence of antisocial behaviors and comorbid psychiatric disorders. Second, we hypothesized that school disengagment would be associated with externalizing disorders (i.e., substance use disorders and antisocial personality disorder) even after controlling for sociodemographic characteristics and lifetime psychiatric disorders. Although we realize that many processes such as academic achievement and cognitive processes are involved in disengagement from school, the focus of the present study is on behavioral indicators (absenteeism, cutting class) of school disengagement.

Method

Participants

Study findings are based on data from the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). NESARC is a nationally representative sample of 43,093 non-institutionalized U.S. residents aged 18 years and older [19]. The survey gathered background data and extensive information about a wide range of behaviors including substance use and comorbid psychiatric disorders, including personality disorders, from individuals living in households and group settings such as shelters, college dormitories, and group homes in all 50 states and the District of Columbia. NESARC utilized a multistage cluster sampling design, oversampling young adults, Hispanics, and African-Americans in the interest of obtaining reliable statistical estimation in these subpopulations, and to ensure appropriate representation of racial/ethnic subgroups. The overall response rate was 81%. Data were weighted at the individual and household levels to adjust for oversampling and non-response on demographic variables (i.e., age, race/ethnicity, sex, region, and place of residence). Data were also adjusted to be representative (based on region, age, race, and ethnicity) of the U.S. adult population as assessed during the 2000 Census. Study participants provided fully informed consent and The U.S. Census Bureau and the U.S. Office of Management and Budget approved the research protocol and informed consent procedures.

Diagnostic Assessment and Sociodemographic Measures

Data were collected through face-to-face structured psychiatric interviews conducted by U.S. Census workers trained by the National Institute on Alcohol Abuse and Alcoholism and U.S.

Census Bureau. Interviewers administered the Alcohol Use Disorder and Associated Disabilities Interview Schedule—DSM-IV version (AUDADIS-IV), which in addition to extensive background and sociodemographic data provides diagnoses for mood, anxiety, personality, and substance use disorders. The AUDADIS IV has shown to have good-to-excellent reliability in assessing alcohol and drug use in the general population [20, 21].

The lifetime prevalence of school disengagement was assessed with three items embedded in the conduct disorder and part of the antisocial behavior interview module. All NESARC participants were asked the following questions: "In your entire life, did you ever often cut class, not go to class or go to school and leave without permission?", "In your entire life, did you ever have a time when you were often absent from school, other than when caring for someone who was sick?" and "In your entire life, did you ever more than once quit a school program without knowing what you would do next?" NESARC respondents who did not answer yes to any of these three items were defined as engaged. Respondents who answered yes to one of these items were defined as being moderately disengaged, and those answering yes to two or three items were considered severely disengaged. The test–retest reliability for the antisocial personality disorder diagnosis was adequate ($r = 0.69$) [19]. The internal consistency reliability for the entire antisocial personality disorder criterion set was also good ($\alpha = 0.86$) [22].

Consistent with current conceptualizations of personality disorders, including DSM-IV [23–25], personality disorder diagnoses reflected long-standing impairments, characteristic patterns of behavior, and exclusion of cases where substance use intoxication or withdrawal, other medication use, or physical illnesses could have contributed to reported Axis II personality disorder signs and symptoms. In addition to antisocial personality disorder, other personality disorders assessed included avoidant, dependent, obsessive–compulsive, paranoid, schizoid, and histrionic disorders. Family history of antisocial behavior based on any parental or sibling history of antisocial behavior was also assessed. Response categories for region of residence in U.S., urbanicity, race/ethnicity, sex, age, marital status, educational background, unemployment status, and individual and family income are listed in Table 1.

Statistical Analyses

Weighted prevalence estimates and standard errors were computed using SUDAAN Version 9.0 [26]. This software implements a Taylor series linearization to adjust standard errors of estimates for complex survey sampling design effects including clustered data. Cross tabulations were conducted with moderate and severe disengagement categories and sociodemographic variables and violent and non-violent antisocial behaviors. Multivariate multinomial logistic regression analyses were executed to assess the relationship of indicators of school disengagement to each psychiatric disorder while controlling for sociodemographic covariates and lifetime psychiatric diagnoses. Specifically, control variables used to reduce confounding included lifetime alcohol (alcohol abuse/dependence) and drug (abuse/dependence on heroin, hallucinogens, cocaine/crack, marijuana, stimulants, painkillers, tranquilizers, and sedatives) use disorders, nicotine dependence, pathological gambling, and lifetime DSM-IV mood (major depression, dysthymia, and bipolar disorder) and anxiety (social phobia, generalized anxiety disorder, panic disorder, and specific phobia) disorders. Adjusted odds ratios (AORs) and 95% confidence intervals are presented to reflect association strength. Adjusted odds ratios were considered statistically significant only if associated confidence intervals did not include the value 1.0.

Table 1 Sociodemographic characteristics of individuals with severe, moderate, and no history of school disengagement

Characteristic	Engaged $N = 31755$ % (CI)[a]	Moderate disengagement $N = 8546$ % (CI)	Severe disengagement $N = 1018$ % (CI)	Moderate disengagement Odds ratio[b] 95% CI	Severe disengagement Odds ratio[b] 95% CI
Sex					
Men	44.88 (44.18–45.59)	56.65 (55.30–57.99)	57.18 (52.88–61.37)	**1.35 (1.26–1.44)**	**1.35 (1.11–1.65)**
Women	55.12 (54.41–55.82)	43.35 (42.01–44.70)	31.22 (22.44–41.59)	1.00	1.00
Race					
White	71.43 (68.03–74.61)	70.28 (67.18–73.20)	68.44 (63.46–73.04)	**0.81 (0.70–0.93)**	0.90 (0.47–1.73)
African American	10.69 (9.48–12.02)	11.91 (10.51–13.46)	12.38 (9.66–15.73)	0.99 (0.85–1.15)	0.58 (0.25–1.36)
Native American	1.80 (1.53–2.11)	2.93 (2.39–3.57)	3.82 (2.50–5.79)	0.95 (0.74–1.22)	1.03 (0.30–3.51)
Indian/Alaska/ Asian/Hawaiian Pacific	4.78 (3.73–6.12)	2.84 (2.21–3.64)	3.11 (1.80–5.33)	0.85 (0.67–1.08)	1.24 (0.37–4.15)
Hispanic	11.30 (9.03–14.05)	12.05 (9.63–14.97)	12.26 (9.31–15.98)	1.00	1.00
Nativity					
Born in the U.S.	83.94 (80.34–87.00)	90.11 (88.05–91.85)	92.54 (89.10–94.95)	**1.79 (1.52–1.98)**	1.03 (0.41–2.57)
Born outside the U.S.	16.06 (13.00–19.66)	9.89 (8.15–11.95)	7.46 (5.05–10.90)	1.00	1.00
Age (years)					
65+	18.99 (18.19–19.82)	8.14 (7.44–8.89)	2.77 (1.80–4.25)	**0.38 (0.34–0.44)**	**4.03 (1.71–9.52)**
50–64	22.77 (22.15–23.39)	16.21 (15.24–17.23)	10.26 (8.22–12.74)	**0.51 (0.46–0.56)**	**3.02 (1.49–6.14)**
35–49	30.33 (29.57–31.09)	32.89 (31.57–34.240	36.57 (32.64–40.69)	**0.71 (0.65–0.77)**	1.42 (0.81–2.49)
18–34	27.92 (27.01–28.84)	42.76 (41.27–44.26)	50.40 (46.34–54.45)	1.00	1.00
Education					
Less than high school	14.21 (13.17–15.31)	17.40 (16.12–18.76)	31.34 (27.43–35.54)	**1.80 (1.60–2.01)**	**2.88 (1.53–5.43)**
High school graduate	28.95 (27.77–30.16)	31.30 (29.75–32.89)	26.55 (23.14–30.27)	**1.31 (1.21–1.42)**	**2.72 (1.51–4.88)**
Some college	56.84 (55.56–58.11)	51.30 (49.46–53.14)	42.11 (37.70–46.65)	1.00	1.00
Income					
<19,999	22.98 (22.01–23.98)	23.76 (22.41–25.16)	29.52 (26.02–33.21)	1.00 (0.89–1.12)	1.62 (0.71–3.68)

Table 1 continued

Characteristic	Engaged $N = 31755$ % (CI)[a]	Moderate disengagement $N = 8546$ % (CI)	Severe disengagement $N = 1018$ % (CI)	Moderate disengagement Odds ratio[b]95% CI	Severe disengagement Odds ratio[b]95% CI
20,000–34,999	19.64 (18.95–21.34)	21.34 (20.16–22.56)	25.06 (21.46–29.03)	1.06 (0.95–1.18)	0.98 (0.39–2.46)
35,000–69,999	32.33 (31.57–33.10)	32.26 (31.11–33.44)	30.88 (26.83–35.24)	0.99 (0.91–1.09)	0.76 (0.31–1.90)
70,000+	25.05 (23.63–26.52)	22.64 (20.97–24.40)	14.55 (11.46–18.30)	1.00	1.00
Marital status					
Never married	18.55 (17.63–19.50)	26.80 (25.28–28.38)	34.09 (30.20–38.21)	1.07 (0.98–1.16)	0.76 (0.44–1.33)
Widowed/separated/divorced	17.92 (17.42–18.42)	15.17 (14.32–16.07)	29.16 (21.42–38.34)	0.97 (0.89–1.05)	1.79 (0.99–3.22)
Married/cohabitating	63.54 (62.59–64.48)	58.03 (56.51–59.53)	50.76 (46.38–55.14)	1.00	1.00
Urbanicity					
Urban	28.71 (24.50–33.32)	31.30 (27.38–35.50)	30.76 (25.07–37.10)	**0.08 (1.00–1.17)**	1.49 (0.95–2.35)
Rural	71.29 (66.68–75.50)	68.70 (64.50–72.62)	69.24 (62.90–74.93)	1.00	1.00
Region					
Northeast	19.99 (13.95–27.78)	18.77 (13.11–26.14)	19.28 (12.73–28.11)	0.91 (0.81–1.03)	0.84 (0.46–1.52)
Midwest	23.17 (17.32–30.26)	23.38 (17.91–29.91)	25.65 (18.30–34.70)	**0.80 (0.71–0.89)**	**0.43 (0.22–0.85)**
South	35.74 (29.41–42.61)	33.43 (27.53–39.91)	30.23 (23.67–37.71)	**0.83 (0.74–0.92)**	1.14 (0.64–2.04)
West	21.10 (14.92–28.97)	24.42 (18.15–32.02)	24.84 (17.32–34.26)	1.00	1.00

[a] *CI* confidence interval

[b] *OR* odds ratio. OR values in bold are statistically significant based on a 95% CI that does not bound 1.0

[c] Engaged individuals is the reference group for regression analysis

Results

Sociodemographic Characteristics across Categories of School Disengagement Severity

Table 1 displays sociodemographic characteristics of adults with a lifetime history of school engagement compared to persons who reported a lifetime history of moderate disengagement, and severe disengagement. Compared to engaged persons, those reporting a lifetime history of moderate and severe disengagement were more likely to be men (moderate OR = 1.35, 95% CI = 1.26–1.44, severe OR = 1.35, 95% CI = 1.11–1.65), born in the U.S. (moderate OR = 1.79, 95% CI = 1.52–1.98), and were uniformly more likely to be younger in age. There were little racial and ethnic differences, however, White individuals (moderate OR = 0.81, 95% CI = 0.70–0.93) were less likely to report moderate disengagement compared to other racial and ethnic groups. With respect to educational attainment, persons with a high school education (moderate OR = 1.31, 95% CI = 1.21–1.42, severe OR = 2.72, 95% CI = 1.51–4.88) or less than a high school education (moderate OR = 1.80, 95% CI = 1.60–2.01, severe OR = 2.88, 95% CI = 1.53–5.43) were more likely to report moderate and severe school disengagement compared to persons with some college education. Compared to persons from the western region of the U.S., individuals from the midwest (moderate OR = 0.80, 95% CI = 0.71–0.89, severe OR = 0.43, 95% CI = 0.22–0.85) and south (moderate OR = 0.83, 95% CI = 0.74–0.92) were significantly less likely to report a lifetime history of forms of school disengagement. There were no significant differences with respect to income and marital status.

School Disengagement and Associated Antisocial Behaviors

A consistent graded relationship was observed across the levels of engagement (See Table 2). That is, engaged respondents exhibited the lowest rates of antisocial behaviors, followed by those with a lifetime history of moderate disengagement. Respondents with severe disengagement exhibited substantially higher rates than the other two groups. Specifically, the prevalence of antisocial behaviors was typically five to ten times greater for respondents reporting a lifetime history of severe disengagement from school compared to respondents with no such history. Most prevalent behaviors were staying out late (70.67%, 95% CI = 66.40–74.60%), quitting a job without knowing where to find another (54.41%, 95% CI = 50.24–58.52%), and doing something that you could be arrested for (51.29%, 95% CI = 46.44–56.12%). Aggression and violent behaviors were also relatively high among the severely disengaged. For example, bullying or pushing others around (27.49%, 95% CI = 23.67–31.68%), getting into fight that came to swapping blows with husband/wife or boyfriend/girlfriend (25.56%, 95% CI = 22.22–29.21%), and hitting someone so hard that you injured them (21.14%, 95% CI = 17.62–25.15%). The least prevalent behavior was forcing someone to have sex (0.76%, 95% CI = 0.34–1.70%).

Multivariate Multinomial Logistic Regression Analysis Examining Associations between School Disengagement Severity and Lifetime Psychiatric Comorbidity

Table 3 summarizes results from twenty-two multinomial logistic regression models that compare prevalence rates of lifetime psychiatric comorbidity for persons reporting moderate and severe levels of school disengagement. Recall that odds ratios are adjusted for sociodemographic factors (i.e., race, sex, education, marital status, age, income, region, and

Table 2 Associated antisocial behaviors of individuals with moderate, severe, and no history of disengagement

Behavior	Engaged $N = 31{,}755$ % (CI)	Moderate disengagement $N = 8546$ % (CI)	Severe disengagement $N = 1018$ % (CI)	χ^2	*P*-value
Violent					
Force someone to have sex	0.08 (0.05–0.14)	0.26 (0.16–0.41)	0.76 (0.34–1.70)	6.49	0.003
Get into lots of fights that you started	1.15 (1.00–1.31)	6.69 (6.03–7.41)	16.69 (13.23–20.84)	58.48	<0.001
Swapping blows with Husband/ Wife or Boyfriend/Girlfriend	4.21 (3.85–4.60)	12.83 (11.95–13.77)	25.56 (22.22–29.21)	70.36	<0.001
Use a weapon in a fight	1.30 (1.14–1.48)	6.24 (5.63–6.91)	13.20 (10.77–16.08)	53.60	<0.001
Hit someone so hard that you injure them	3.32 (3.00–3.66)	13.55 (12.66–14.50)	21.14 (17.62–25.15)	73.45	<0.001
Harass/threaten/blackmail someone	0.65 (0.54–0.80)	4.40 (3.83–5.04)	11.04 (8.43–14.33)	50.40	<0.001
Bully/push people	3.12 (2.81–3.46)	14.65 (13.67–15.68)	27.49 (23.67–31.68)	72.55	<0.001
Hurt an animal on purpose	1.22 (1.06–1.41)	3.34 (2.88–3.87)	6.40 (4.73–8.62)	30.88	<0.001
Rob/mug someone or snatch a purse	0.08 (0.05–0.13)	0.82 (0.61–1.10)	1.71 (1.02–2.88)	19.62	<0.001
Do things that could have easily hurt you/others	9.65 (8.83–10.53)	26.40 (24.82–28.04)	42.26 (37.71–46.96)	87.44	<0.001
Physically hurt others on purpose	2.82 (2.54–3.13)	11.09 (10.18–12.07)	19.07 (16.25–22.24)	58.80	<0.001
Non-Violent					
Stay out late at night	16.64 (15.77–17.54)	52.85 (51.57–54.12)	70.67 (66.40–74.60)	81.84	<0.001
Run away from home overnight	2.16 (1.95–2.39)	12.66 (11.73–13.65)	26.69 (23.64–29.98)	73.37	<0.001
Quit a job without knowing where to find another	6.45 (6.00–6.93)	23.54 (22.22–24.91)	54.41 (50.24–58.52)	82.15	<0.001
Travel around more than 1 month without plan	1.70 (1.52–1.90)	6.88 (6.22–7.59)	20.47 (17.32–24.02)	62.34	<0.001
Have no regular place to live at least 1 month	1.24 (1.07–1.44)	5.99 (5.41–6.61)	18.37 (14.82–22.55)	61.38	<0.001
Live with others at least 1 month	7.35 (6.73–8.02)	20.47 (19.39–21.58)	42.69 (38.66–46.80)	80.82	<0.001
Lie a lot	2.13 (1.91–2.37)	13.15 (12.23–14.12)	31.60 (27.75–35.73)	67.32	<0.001
Use a false or made up name/alias	0.92 (0.80–1.07)	5.23 (4.64–5.90)	12.96 (10.51–15.89)	46.50	<0.001
Scam/con someone for money	0.41 (0.33–0.52)	4.05 (3.51–4.66)	12.88 (9.90–16.60)	41.72	<0.001

Table 2 continued

Behavior	Engaged $N = 31{,}755$ % (CI)	Moderate disengagement $N = 8546$ % (CI)	Severe disengagement $N = 1018$ % (CI)	χ^2	*P*-value
Get three or more traffic tickets for reckless driving/causing accidents	6.26 (5.70–6.89)	15.67 (14.49–16.92)	21.58 (18.47–25.04)	58.11	<0.001
Have a driver's license suspended/revoked	5.15 (4.72–5.61)	15.42 (14.34–16.56)	21.47 (18.43–24.85)	74.35	<0.001
Destroy others' property	1.72 (1.52–1.95)	8.83 (8.00–9.74)	20.04 (17.06–23.39)	61.75	<0.001
Fail to pay off your debts	2.29 (2.04–2.56)	8.71 (7.93–9.55)	19.99 (16.83–23.57)	57.88	<0.001
Steal anything from others	5.41 (4.95–5.91)	18.55 (17.46–19.69)	34.85 (30.83–39.10)	72.23	<0.001
Forge someone's signature	1.10 (0.94–1.28)	4.93 (4.36–5.57)	10.30 (8.13–12.98)	42.42	<0.001
Shoplift	6.70 (6.13–7.32)	24.03 (22.74–25.36)	39.97 (35.28–44.85)	73.17	<0.001
Make money illegally	0.94 (0.80–1.10)	7.49 (6.72–8.33)	16.86 (14.06–20.07)	60.91	<0.001
Do something you could have been arrested for	9.81 (9.06–10.61)	31.49 (29.95–33.06)	51.29 (46.44–56.12)	81.82	<0.001
Set a fire on purpose	0.50 (0.40–0.62)	2.64 (2.22–3.13)	6.19 (4.58–8.32)	36.12	<0.001

Table 3 Associations of lifetime psychiatric comorbidity of individuals with severe, moderate, and no history of school disengagement

Comorbid psychiatric disorder	Engaged	Moderate disengagement	Severe disengagement	Multinomial regression[c]	
	$N = 31{,}755$	$N = 8546$	$N = 1018$	Moderate disengagement Odds ratio[b] 95% (CI)	Severe disengagement Odds ratio[b] 95% (CI)
	% (CI)[a]	% (CI)	% (CI)		
Nicotine dependence	13.15 (12.30–14.06)	31.40 (29.76–33.08)	45.40 (40.97–49.90)	**1.62 (1.48–1.77)**	**1.68 (1.31–2.16)**
Marijuana use disorder	4.68 (4.26–5.13)	18.76 (17.63–19.95)	37.76 (33.33–42.39)	**1.62 (1.43–1.85)**	**2.71 (2.11–3.49)**
Any alcohol use disorder	24.01 (22.60–25.48)	49.17 (47.27–51.08)	60.63 (56.34–64.75)	**1.77 (1.64–1.91)**	**1.81 (1.46–2.25)**
Any drug use disorder	2.68 (2.41–2.99)	12.16 (11.12–13.30)	25.54 (22.29–29.08)	**1.34 (1.14–1.57)**	**1.54 (1.22–1.94)**
Mood disorder					
Major depressive disorder	13.74 (13.06–14.44)	24.64 (23.46–25.85)	40.52 (36.54–44.62)	**1.26 (1.14–1.38)**	**1.65 (1.31–2.07)**
Bipolar disorder	3.46 (3.17–3.78)	11.69 (10.83–12.60)	23.39 (19.95–27.22)	**1.55 (1.33–1.81)**	**1.66 (1.26–2.18)**
Dysthymia	3.25 (3.00–3.53)	6.96 (6.34–7.64)	13.16 (10.67–16.13)	1.08 (0.93–1.27)	1.11 (0.79–1.57)
Anxiety disorder					
Panic disorder	3.35 (3.07–3.65)	5.87 (5.32–6.47)	9.03 (6.82–11.86)	1.05 (0.90–1.23)	0.98 (0.69–1.40)
Social phobia	4.07 (3.72–4.46)	7.35 (6.61–8.15)	16.89 (13.86–20.42)	0.91 (0.78–1.07)	1.23 (0.91–1.67)
Specific phobia	8.14 (7.59–8.73)	13.13 (12.13–14.19)	22.85 (19.50–26.57)	**1.12 (1.01–1.24)**	**1.30 (1.02–1.65)**
Generalized anxiety disorder	3.32 (3.03–3.64)	6.30 (5.61–7.07)	12.90 (9.79–16.81)	1.02 (0.85–1.23)	1.10 (0.72–1.68)
Conduct disorder	0.58 (0.47–0.72)	2.73 (2.26–3.31)	1.77 (1.06–2.97)	**3.54 (2.53–4.97)**	**2.19 (1.21–3.93)**
Family history of antisocial behaviors	18.59 (17.62–19.61)	34.65 (33.00–36.34)	52.46 (47.81–57.08)	**1.44 (1.33–1.57)**	**1.98 (1.59–2.47)**
Psychotic disorder	0.53 (0.44–0.62)	1.24 (0.97–1.58)	3.92 (2.36–6.43)	0.89 (0.60–1.31)	1.01 (0.42–2.42)
Personality disorder					
Avoidant	1.49 (1.33–1.67)	4.32 (3.76–4.95)	11.60 (8.78–15.17)	1.25 (0.99–1.56)	1.40 (0.92–2.12)
Dependent	0.26 (0.20–0.34)	0.83 (0.62–1.10)	4.34 (2.90–6.44)	1.06 (0.68–1.63)	1.65 (0.85–3.20)
Obsessive–compulsive	6.20 (5.77–6.67)	12.63 (18.15–26.54)	22.06 (18.15–26.54)	1.23 (1.07–1.41)	1.33 (0.97–1.83)
Paranoid	2.87 (2.61–3.14)	8.15 (7.42–8.96)	19.43 (16.09–23.28)	1.11 (0.94–1.31)	1.15 (0.81–1.63)
Schizoid	2.13 (1.93–2.36)	5.67 (5.09–6.32)	11.96 (9.21–15.38)	1.19 (0.98–1.43)	1.19 (0.84–1.67)

Table 3 continued

Comorbid psychiatric disorder	Engaged	Moderate disengagement	Severe disengagement	Multinomial regression[c]	
	$N = 31,755$	$N = 8546$	$N = 1018$	Moderate disengagement	Severe disengagement
	% (CI)[a]	% (CI)	% (CI)	Odds ratio[b]95% (CI)	Odds ratio[b]95% (CI)
Antisocial	0.98 (0.84–1.15)	10.11 (9.21–11.09)	25.98 (22.36–29.97)	**3.90 (3.13–4.84)**	**6.32 (4.70–8.49)**
Histrionic	1.03 (0.90–1.17)	3.61 (3.13–4.15)	11.80 (9.25–14.94)	1.15 (0.91–1.47)	**1.83 (1.24–2.69)**

[a] *CI* confidence interval

[b] *OR* odds ratio adjusted for sociodemographic variables, lifetime psychiatric disorders, and a family history of antisocial behavior. OR values in bold are statistically significant based on a 95% confidence interval that does not bound 1.0

[c] Engaged individuals is the reference group for regression analysis

urbanicity), previously described lifetime DSM-IV psychiatric disorders, and family history of antisocial behavior. Across comorbid psychiatric disorders, there was a gradient-based response in that severe disengagement was associated with increased probability over and above moderate disengagement. The most prevalent psychiatric disorders among persons with a history of severe school disengagement was any lifetime alcohol use disorder (60.63%, CI = 56.34–64.75%), nicotine dependence (45.40%, CI = 40.97–49.90%), and major depressive disorder (40.52%, CI = 36.54–44.62%). A family history of antisocial behavior was also highly prevalent of the severely disengaged (52.46%, CI = 47.81–57.08%). Following adjustments, significant associations were found for several substance use disorders including nicotine dependence (moderate and severe), marijuana use disorder (moderate and severe), any alcohol use disorder (moderate and severe), and any drug use disorder (moderate and severe). Notably, severely disengaged persons were nearly three times (OR = 2.71, 95%CI = 2.11–3.49) more likely than engaged to possess an alcohol use disorder. Both moderate and severely disengaged were more likely to be diagnosed with major depression, bipolar disorder, and specific phobia. With respect to behavior and personality, a family history of antisocial behavior was more likely among moderate and severely disengaged along with antisocial personality disorder, which was large in effect for both moderate (OR = 3.90, 95% CI = 3.13–4.84) and severe (OR = 6.32, 95% CI = 4.70–8.49) groups. Finally, histrionic personality disorder was significantly more likely among the severely disengaged but not the moderately disengaged.

Discussion

To our knowledge, this is the largest national epidemiological study examining the association between behavioral indicators of school disengagement and psychiatric diagnoses. Findings supported the two hypotheses tested—that there would be a gradient-based effect whereby increases in school disengagement would be associated with increases in the prevalence of antisocial behaviors and comorbid psychiatric disorders and that school disengagement would be associated with externalizing disorders (i.e., substance use disorders and antisocial personality disorder) even after controlling for sociodemographic characteristics and lifetime psychiatric disorders. With respect to sociodemographic patterns, the current investigation found that young males living in the Western region of the U.S. were more likely to be disengaged from school. There persons were also more likely to not have finished high school or go to college and were slightly more likely to be from urban areas. Notably, there were little differences with respect to race/ethnicity and income. One additional empirical trend was that persons born in the U.S. were nearly twice as likely as persons born outside of the U.S. to report school disengagement. This finding suggests that there may be something about American culture that may promote disengagement from school.

An additional finding is that both moderate and severe school disengagement is associated with numerous antisocial behaviors such as getting into numerous physical altercations, property destruction, lying, cruelty to animals, stealing, and harassment. As such, school disengagement can be seen if not as a marker for potential antisocial behavior phenotypes including conduct disorder and antisocial personality disorder, but part and parcel of these syndromes. Multivariate analyses, controlling for sociodemographic, lifetime psychiatric disorders, and family history of antisocial behavior, demonstrated that individuals with a lifetime history of severe school disengagement were approximately six times more likely to possess a antisocial personality disorder diagnosis than their school

engaged peers. These findings support general theoretical viewpoints which suggest that school disengagement is part of a cumulative process of conduct problems which often result in dropout [11].

There was significant comorbidity between school disengagement and alcohol use disorder, cannabis use disorder, nicotine dependence, and any drug use disorder. These effects were relatively modest (odds ratios ranging from 1.34 to 1.81) except for alcohol use disorder with severely disengaged individuals being nearly three times more likely than engaged individuals to possess this disorder. This finding is noteworthy since it converges with prior research that showed a strong association with alcohol dependence over long periods of time [18].

There was also significant comorbidity between school disengagement and two mood disorders, major depression and bipolar disorder, and one anxiety disorder, specific phobia. To our knowledge, no other studies have documented these internalizing disorders in relation to school disengagement in a nationally representative sample. Bipolar disorder can be associated with significant affective lability including rage responses, difficulty getting along socially with others, and problems with task completion. The association with major depression, although a consequence rather than a precursor to school disengagement, impacts the motivational requirements needed to finish school and we speculate that aspect increments the probability of disengaging from school. Following adjustments, a significant association was also found for histrionic personality disorder. Histrionic personality disorder, often characterized by flagrantly provocative behavior, could serve to place individuals at higher risk for school disengagement perhaps via the stimulation of harsh counterresponses from school administrations.

Despite the serious consequences of school disengagement, there has been relatively few rigorous dropout prevention intervention studies conducted to confirm practices associated with effective dropout prevention. For example, in 2002 the Institute of Education Sciences created the What Works Clearinghouse (http://ies.ed.gov/ncee/wwc) as a central source of scientific evidence of what works in education. Of the 11 dropout prevention programs cited on the What Works Clearinghouse, Check & Connect is the intervention cited as having the highest impact for helping students stay in school and is one of the most widely used dropout prevention/school engagement programs [27, 28]. Although Check & Connect is widely used and cited as a dropout prevention program with strong potential for decreasing dropout rates and increasing engagement in school, this intervention program has undergone only minimal rigorous experimental evaluation. Check & Connect has only two experimental studies associated with positive outcomes, and both of these studies were conducted in one particular area in the north west, targeting one specific population (primarily African American males receiving special education services), indicating a clear need for replication with other populations, as well as a need to identify other potentially effective intervention practices.

Because dropping out of school typically results from a gradual process of disengagement and based on our knowledge of likely correlates of indicators of school disengagement, it may be possible to not only establish risk profiles to better identify students most at risk for dropout [14], but it may also be possible to design dropout prevention interventions to target these areas of need. Additional protective factors for minority youth such as religiosity should also be evaluated [29–31]. Conducting rigorous experimental studies of dropout prevention to identify practices most associated with effective dropout prevention is essential to confirm practices that will keep more students engaged and in school.

Limitations

Study results require interpretation within the context of several limitations. First, considering the study data are cross-sectional, temporal ordering or variables does not permit firm conclusions regarding causal determinants. As such, reported findings cannot clarify the etiologic relationship between school engagement indicators and its correlates. For example, the use and abuse of drugs and alcohol may be associated with school disengagment due to its disinhibitng and harmful effects on neuroregulatory processes, thus facilitating an increase in academic problems. Conversely, the propensity to disengage from school, authority figures, and other institutions may also involve particular phenotypic characteristics that also include the propensity toward antisocial behavior in general, including alcohol and drug abuse. However, findings do suggest that school disengagement and psychopathology are intertwined. Longitudinal study designs beginning earlier in the life course that examine environmental stress in conjunction with genotypic information dynamically over time provide one way to elucidate the causal structure of school disengagement. An additional limitation is that the NESARC excludes persons under age 18 and therefore relies on retrospective respondent recall of school disengagement over potentially long periods of time. This could lead to underreporting or to biased reporting with younger respondents recalling better than older respondents. However, affirmative responses to school disengagement were also associated with lower levels of educational attainment thus demonstrating a degree of concurrent validity for these items. Although the NESARC is a nationally representative sample, it is uncertain how the association between school disengagement and psychiatric and substance use disorders would be similar or different if enriched correctional or clinical samples were used. In addition, the data on school disengagement did not include important academic and situational, data which is important to understanding the nature of school disengagement behaviors. School disengagement and dropout, although not without stigma, may be a more accepted behavior in certain contexts, particularly in areas where dropout rates are high [32]. Despite these limitations, study findings offer new and important epidemiologic insights into the problem of school disengagement in the U.S.

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