Article

Variation in ADHD Treatment by Mental Health Care Setting Among US College Students from 2019 to 2022

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James Aluri[1], David Goodman[1,2], Kevin Antshel[3], and Ramin Mojtabai[1,4]

Abstract

Objective: To assess whether prevalence of treatment for ADHD varies by location of mental healthcare among US college students aged 18 to 25 with professionally diagnosed ADHD. **Method:** Our analysis uses cross-sectional data from the National College Health Assessment (NCHA) and evaluated the relationship between types of care received and location of mental health services received in the past year (dichotomized into "use of any on-campus services" and "use of off-campus services only"). We generated unadjusted and adjusted logistic regression models of each type of treatment. **Results:** Students who reported receiving mental healthcare on campus were less likely to receive any medication (aOR 0.66, 95% CI [0.60, 0.72]), any therapy (aOR 0.82, 95% CI [0.75, 0.89]), and any medication or therapy for ADHD (aOR 0.63, 95% CI [0.57, 0.70]). **Conclusion:** Future research should evaluate the causes of lower prevalence of ADHD treatment among students receiving mental healthcare from campus-based clinics. *(J. of Att. Dis. XXXX; XX(X) XX-XX)*

Keywords

epidemiology, service use, college students, adult ADHD treatment

Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD) affects 5% to 6% of college students (Eisenberg et al., 2021; Oswalt et al., 2020) and has been associated with lower academic performance, decreased graduation rates, poor social adjustment, and increased substance use, suicidal ideation, and suicide attempts (Blase et al., 2009; Eddy et al., 2020; Fleming & McMahon, 2012; Sedgwick, 2018).

Treatments for ADHD improve outcomes across multiple domains. In the general population, ADHD treatment has been associated with improved academic function, as well as decreased injuries, accidents, and suicide attempts (Chang et al., 2019, 2020; Hinshaw & Arnold, 2015). The only stimulant trial among college students that we could identify demonstrated improvements in ADHD symptoms and Executive Function (EF) with lisdexamfetamine (Dupaul et al., 2012). Psychotherapeutic interventions, such as the Accessing Campus Connections and Empowering Student Success (ACCESS) Cognitive-Behavioral Therapy program, have improved ADHD symptoms, EF, academic functioning, and overall well-being (Anastopoulos et al., 2021; Eddy et al., 2021).

Though treatment benefits are recognized, service utilization and treatment for college students with ADHD is understudied. According to the Fall 2022 report from the American College Health Association (ACHA), National College Health Assessment (NCHA) data show that 71.7% of individuals with ADHD had contact about ADHD with a healthcare or mental health professional within the last 12 months. This was lower than the proportion of students with anxiety (76.2%) and depression (75.8%) who had contact with a professional for those conditions (American College Health Association, 2023).

Among students who have contact with mental health professionals, little is known about how ADHD treatment varies across colleges and between on- and off-campus

[1]Johns Hopkins University School of Medicine, Baltimore, MD, USA
[2]State University of New York, USA
[3]Syracuse University, NY, USA
[4]Johns Hopkins University School of Public Health, Baltimore, MD, USA

Corresponding Author:
James Aluri, Johns Hopkins University School of Medicine, 600 N. Wolfe Street, Baltimore, MD 21205-2105, USA.
Email: jaluri1@jhmi.edu

clinical locations. Campus-based clinics commonly employ policies designed to minimize stimulant misuse (such as neuropsychological testing requirements, medication contracts, and urine toxicology screens) that have been hypothesized to hinder treatment access (Wilens et al., 2018; Winkler et al., 2021). One study found that students receiving mental health care off-campus—the most common location for college students to receive mental health care (American College Health Association, 2023)—are over three times more likely to report the use of a prescription stimulant as students receiving mental health care on-campus (Morris et al., 2021). However, the study was at a single university and differences in severity of ADHD symptoms and proportion with an ADHD diagnosis were not reported for the students receiving care at different locations. Demonstrating this relationship in a multi-institutional dataset that controls for factors such as ADHD symptom burden might motivate critical re-examination of ADHD assessment and treatment policies that govern clinical practice in campus clinics.

Our research aim is to assess how prevalence of treatment for ADHD varies by location of mental healthcare among US college students aged 18 to 25 with professionally diagnosed ADHD. We hypothesize that on-campus treatment will be associated with decreased prevalence of treatment.

Methods

Study Design

The current version of the National College Health Assessment (NCHA III), developed by the American College Health Association (ACHA), was rolled out in Fall 2019 and is a cross-sectional survey that uses a convenience sample of students among institutions that choose to administer the survey to their student body. The ACHA requests institutions to obtain IRB approval prior to administering the survey on their campuses. Our analysis of de-identified, secondary data was deemed as not human subjects research by the Johns Hopkins School of Public Health IRB.

Sample

Our sample started with all students participating in the NCHA between Fall 2019 and Spring 2022 ($n = 301,183$). Consistent with the population defined in our research aim, we first limited our sample to 20,455 students aged 18 to 25, who were enrolled in college full-time and reported having a diagnosis of ADHD made by a professional. To answer our research question about how type of treatment differs among locations of mental healthcare, we removed individuals who did not receive any mental healthcare in the past year ($n = 8,828$) and individuals who did not provide information about their ADHD treatment ($n = 223$). The final sample comprised 11,404 students with professionally diagnosed ADHD.

Measures

Type of treatment. Based on questions about any contact with mental health care providers and type of treatment in the past 12 months, we created a composite measure whose mutually exclusive responses included "no appointment or discussion," "appointment or discussion but no treatment," "medication only," "therapy only," and "medication and therapy."

Medication for ADHD. This variable was coded as "medication" if participants reported receiving medicine or medicine and therapy in the type of treatment variable, otherwise it was coded as "no medication."

Therapy for ADHD. This variable was coded as "therapy" if participants reported receiving therapy or medicine and therapy in the type of treatment variable, otherwise it was coded as "no therapy."

Any medication or therapy. This variable was coded as "any medication or therapy" if participants reported receiving medicine, therapy, or both, and "no medication or therapy" otherwise.

Our independent variable was the location of receipt of mental healthcare in the past 12 months. Participants were asked a series of questions starting with, "Within in the last 12 months, have you received psychological or mental health services (in-person or via telehealth)?" If they answered yes, they were asked to indicate the location of this care out of a series of locations, including "My current campus health and/or counseling center," "A mental health provider in the local community near my campus," "A mental health provider in my home town," and a catch-all "A mental health provider not described above" if none of the prior categories applied. Students who reported receiving care from any combination of locations that included "My current campus health and/or counseling center" were coded as "on campus." Students who reported receiving mental health care from any combination of locations that did not include "My current campus health and/or counseling center" were coded as "off campus only."

Age, program, year in school, race, sex, gender identity, sexual orientation, visa requirement, athlete status, housing location, GPA, health insurance, and comorbidities were derived directly from the NCHA survey and included in analyses to adjust for potential confounding. Age, program, gender identity, sexual orientation, housing, GPA, and health insurance subgroups with low prevalence were combined for the analyses.

Additional analyses adjusted for the impact of ADHD on academic performance. This rating was part of a series of questions about the impact of various health conditions. The responses included "I did not experience this issue," "I have experienced this issue, but my academics have not been affected," "I have experienced this issue and it negatively impacted my performance in a class," "I have experienced this issue and it delayed progress toward my degree." The first two categories were combined given both indicate no academic impairment from ADHD, resulting in three total categories. For the analyses, the responses for ADHD were coded respectively as 0, 1, and 2.

Statistical Analysis

Analyses were conducted in two stages. First, characteristics of students with ADHD by treatment location were compared using contingency tables and chi-squared tests.

For the logistic regression models, we checked all covariates that varied between the two populations and that we hypothesized might influence treatment receipt. Covariates that were not significant in the univariate models were removed. If categorical covariates had at least one group that was significant, we checked to see if the nominal variable could be dichotomized by including a binary version of the group that was significant. We used a combination of Likelihood Ratio Tests (LRT) and Akaike Information Criterion (AIC) scores to identify which variables performed better than others. Both LRT and AIC evaluate a model's goodness of fit to the data, with higher Likelihood and lower AIC indicating better fit (Hosmer et al., 2013). We conducted two additional sensitivity analyses excluding the covariate of GPA (which could be a consequence or predictor of treatment) and including school ID (to account for institutional variability).

Results

The on-campus and off-campus treatment subpopulations had statistically significant differences on several characteristics (Table 1). Notably, there were differences in age category and level of program that did not follow specific patterns ($p < .001$ for both). Compared to students receiving mental healthcare off-campus, a lower percentage of students receiving mental healthcare on-campus were White (79.0% of on-campus group vs. 84.3% of off-campus group) and a higher percentage were Asian (8.8% vs. 5.9%) and Black (5.3% vs. 3.6%, all p values $<.001$). The population receiving mental healthcare on campus had a higher percentage of LGBTQ+ students (53.6% vs. 49.8%), international students (5.6% vs. 3.9%), and student-athletes (5.7% vs. 3.6%) and a lower percentage of students with anxiety (77.1% vs. 82.3%), mood disorders (68.3% vs. 71.4%), and migraines (19.8% vs. 22.4%, all p values $<.001$). Differences were also noted for housing and health insurance. A higher percentage of students receiving care on campus lived in university housing (52.3% vs. 39.4%, $p < .001$). A higher percentage of students receiving care on campus were on the student health insurance plan (13.2% vs. 7.1%), while more students receiving care off campus were on their parent's plan (81.9% vs. 76.2%, $p < .001$).

The distribution of type of care received was different by location of mental healthcare treatment (Table 2). Generally, on-campus mental healthcare utilization was associated with lower adjusted odds of ADHD treatment, such as for medication only (aOR 0.84, 95% CI [0.77, 0.92]) and for medication and therapy (aOR 0.77, 95% CI [0.70, 0.84]). Similarly, the on-campus group had higher odds of not having any appointment or discussion related to ADHD (aOR 1.59, 95% CI [1.42, 1.78]) or of having an appointment or discussion but not receiving treatment (aOR 1.33, 95% CI [1.15, 1.54]). Discrepancies persisted by service location for the combined outcomes. The on-campus group was less likely to receive any medication (aOR 0.66, 95% CI [0.60, 0.72]), any therapy (aOR 0.82, 95% CI [0.75, 0.89]), and any medication or therapy (aOR 0.63, 95% CI [0.57, 0.70]). The aOR for any medication or therapy comparing the on-campus group to the off-campus group did not meaningfully change in our sensitivity analyses that excluded GPA (aOR 0.64) or included institutional ID (aOR 0.61).

Other characteristics that were significantly associated with higher odds ratios of any medication or therapy treatment for ADHD (Table 3) included increasing perceived negative impact of ADHD on academic function (the most severely impacted group compared had aOR 5.50, 95% CI [4.63, 6.56]), being in a doctorate program (aOR 2.01, 95% CI [1.40, 2.93]), and white race (aOR 1.20, 95% CI [1.07, 1.36]). Characteristics that were significantly associated with decreased odds ratios of treatment were male sex (aOR 0.89, 95% CI [0.79, 0.99]), international student status (aOR 0.71, 95% CI [0.58, 0.88]), having a non-A GPA (e.g., C or D GPA had aOR of 0.76, 95% CI [0.65, 0.88]), lacking insurance (aOR 0.43, 95% CI [0.30, 0.62]), and having a mood disorder (aOR 0.87, 95% CI [0.77, 0.97]).

Discussion

Consistent with our hypothesis, our investigation of ADHD treatment and mental healthcare location showed that full-time enrolled college students aged 18 to 25 with a professional diagnosis of ADHD receiving mental healthcare on campus in the past year had consistently lower odds of ADHD treatment in the past year compared to students receiving care at off-campus locations only (i.e., any combination of care from the local community, their hometown, or other location). White race was associated with higher odds of treatment. Male sex, international student status,

Table 1. Distribution of Characteristics of the Study Sample and Stratified by Location of Mental Healthcare Receipt in the Past Year.

	All students receiving mental healthcare (*n* = 11,404)		Receiving mental healthcare on campus (*n* = 4,182)		Receiving mental healthcare at off-campus locations only (*n* = 7,222)		Comparison by mental healthcare location
Characteristic	*n*	%	*n*	%	*n*	%	*p*
Age							<.001
18-19	3,834	34.6	1,365	32.6	2,469	34.2	
20-21	4,362	38.2	1,715	41.0	2,647	36.7	
22-23	2,109	18.5	745	17.8	1,364	18.9	
24-25	1,099	9.6	357	8.5	742	10.3	
Program and year in school							<.001
Undergraduate: first year	2575	22.6	805	19.3	1770	24.5	
Undergraduate: second year	2,381	20.9	960	23.0	1,421	19.7	
Undergraduate: third year	2,580	22.6	969	23.2	1,611	22.3	
Undergraduate: fourth year	2,064	18.1	821	19.6	1,243	17.2	
Undergraduate: fifth year or more	629	5.5	206	4.9	423	5.9	
Master's degree (any year)	640	5.6	199	4.8	441	6.1	
Doctorate degree (any year)	471	4.1	207	5.0	264	3.7	
Other (e.g., non-degree-seeking)	60	0.5	13	0.3	47	0.6	
Race							
American Indian or Native Alaskan	296	2.6	104	2.5	192	2.7	.62
Asian or Asian American	798	7.0	369	8.8	429	5.9	<.001
Black or African American	484	4.2	221	5.3	263	3.6	<.001
Hispanic or Latinx	1,237	10.8	447	10.7	790	10.9	.70
Middle Eastern, North African, or Arab	228	2.0	94	2.2	134	1.9	.17
Native Hawaiian or other Pacific Islander	68	0.6	23	0.5	45	0.6	.72
White	9,389	82.3	3,304	79.0	6,085	84.3	<.001
Multiracial	729	6.4	293	7.0	436	6.0	.05
Other	130	1.1	51	1.2	79	1.1	.60
Sex							.11
Female	8,795	77.1	3,198	76.5	5,597	77.5	
Male	2,595	22.8	982	23.5	1,613	22.3	
Intersex	9	0.1	1	< 0.1	8	<0.1	
Gender identity							.02
Woman or female	7,359	64.5	2,633	63.0	4,726	65.5	
Man or male	2,404	21.1	910	21.8	1,494	20.7	
Other (transgender woman or man, genderqueer, agender, genderfluid, intersex, non-binary)	1,633	14.3	636	15.2	997	13.8	
Sexual orientation							<.001
Straight/heterosexual	5,580	48.9	1,947	46.6	3,633	50.4	
Bisexual	2,746	24.1	1,023	24.5	1,723	23.9	
Homosexual (gay or lesbian)	866	7.6	330	7.9	536	7.4	
Other (e.g., pansexual, queer, questioning)	2,189	19.2	876	21.0	1,313	18.2	
LGBTQ+	5,824	51.1	2,238	53.6	3,586	49.8	<.001
International student	507	4.4	229	5.6	278	3.9	<.001
Varsity athlete	481	4.2	228	5.7	253	3.6	<.001
Housing							<.001
Campus or university housing	4,938	43.3	2,140	52.3	2,798	39.4	
Parent/guardian/other family member's home	1,744	15.3	368	9.0	1,376	19.4	

(continued)

Table 1. (continued)

Characteristic	All students receiving mental healthcare (*n* = 11,404)		Receiving mental healthcare on campus (*n* = 4,182)		Receiving mental healthcare at off-campus locations only (*n* = 7,222)		Comparison by mental healthcare location
	n	%	*n*	%	*n*	%	*p*
Off campus or other non-university housing	4,380	38.4	1,541	37.6	2,839	40.0	
Other (e.g., unstable housing, homeless)	131	1.1	45	1.1	86	1.2	
GPA							.04
A	5,216	45.7	1,842	45.2	3,374	48.0	
B	4,508	39.5	1,699	41.7	2,809	40.0	
C-D	1,351	11.8	521	12.8	830	11.8	
F	25	0.2	9	0.2	16	0.2	
Health insurance							<.001
Student health insurance plan	1,051	9.2	547	13.2	504	7.1	
Parent's plan	8,995	78.9	3,152	76.2	5,843	81.9	
Employer-based plan (respondent's or spouse's)	133	1.2	28	0.7	105	1.5	
Medicaid, Medicare, SCHIP, or VA/Tricare	669	5.9	240	5.8	429	6.0	
Uninsured	169	1.5	84	2.0	85	1.2	
Other (e.g., purchased my own plan, don't know, unanswered)	254	2.2	87	2.1	167	2.3	
Mental health comorbidities							
Substance use disorder	418	3.7	144	3.4	274	3.8	.35
Anxiety disorder	9,152	80.3	3,221	77.1	5,931	82.3	<.001
Mood disorder (MDD or BPAD)	7,986	70.0	2,850	68.3	5,136	71.4	<.001
Past year suicidal ideation	6,344	55.6	2,394	57.4	3,950	54.8	<.01
Physical health comorbidities							
Migraines	2,450	21.5	829	19.8	1,621	22.4	<.01
HTN	341	3.0	114	2.7	227	3.1	.45
Cardiac disorder	519	4.6	189	4.5	330	4.6	.98
Asthma	3,043	26.7	1,078	25.8	1,965	27.2	.19

Note. Shown are the counts and percents of students' characteristics for the entire sample (left-most population), students who reported receiving mental healthcare on campus in the past year (middle population), and students who reported receiving mental healthcare at non-campus locations in the past year (right-most population). Not all categories equal to the totals in each column given that some answers were blank in each category. Percentages were calculated with the denominator as the total number of respondents for each category. Percentages are rounded to the nearest tenth of a percent. Respondents could select more than one answer to race, so the sum of those percents are greater than 100.
p-Values were derived from chi-squared tests comparing the on-campus population to the off-campus population. For non-binary categorical variables, the *p*-value is presented in the row of the header category.

lower GPA, lacking insurance, and having a mood disorder were associated with lower odds of treatment.

Our results confirm the prior finding that prescription for stimulant medications is more common off campus (Morris et al., 2021). Our analysis adjusts for several characteristics that were not analyzed in the prior study including ADHD diagnosis, severity of academic impairment from ADHD, and demographic and socioeconomic variables. These extensive adjustments indicate that none of these measured covariates confound the relationship.

The association between receiving mental healthcare on campus and lower odds of ADHD treatment deserves further exploration. Clinical policies that conceivably reduce access to prescription stimulants, such as neuropsychological testing requirements, might be one of many contributory factors. Students with ADHD were also less likely to receive any therapy from campus clinics, suggesting that stimulant policies are not the only cause. Another factor might be lack of expertise—less than half of campus-based clinicians feel comfortable recognizing, much less diagnosing, ADHD in students (Thomas et al., 2015). A third reason could be variability in diagnostic practices for ADHD which are not standardized for college students. If there are differences in diagnostic practices, it would be important to

Table 2. Type of Treatment Received by Mental Healthcare Location.

	All students receiving mental healthcare ($n = 11,404$)		Students receiving mental healthcare on campus ($n = 4,182$)		Students receiving mental healthcare at off-campus locations only ($n = 7,222$)		aOR for treatment category	
Type of ADHD care	*n*	%	*n*	%	*n*	%	95% CI	*p*-Values
No appointment or discussion	1,883	16.5	849	20.3	1,034	14.3	1.59 [1.42, 1.78]	<.001
Appointment or discussion, but no treatment	967	8.5	406	9.7	561	7.8	1.33 [1.15, 1.54]	<.001
Medication only	3,495	30.6	1,198	28.6	2,297	31.8	0.84 [0.77, 0.92]	<.001
Therapy only	1,131	9.9	425	10.2	706	9.8	1.11 [0.97, 1.27]	.14
Medication and therapy	3,893	34.1	1,294	30.9	2,599	36.0	0.77 [0.70, 0.84]	<.001
Other	35	0.3	10	0.2	25	0.3	0.76 [0.34, 1.57]	.47
Combined categories	*n*	%	*n*	%	*n*	%	95% CI	*p*-Values
Any medication	7,388	64.8	2,492	59.6	4,896	67.8	0.66 [0.60, 0.72]	<.0001
Any therapy	5,024	44.1	1,719	41.1	3,305	45.8	0.82 [0.75, 0.89]	<.0001
Any medication or therapy	8,519	74.7	2,917	69.8	5,602	77.6	0.63 [0.57, 0.70]	<.0001

Note. Shown is the prevalence (both count and percent) of type of care received for the entire sample and stratified by location of mental healthcare in the past 12 months. The Odds Ratios are derived from logistic regression models for each category of treatment, dichotomized against all other categories as the reference group for the independent variable. The Odds Ratios for each treatment category represent the odds for that outcome among students receiving mental healthcare on campus versus among students receiving mental healthcare at other locations. The adjusted model includes age category, level of educational program, white race, sex, identifying as LGBTQ+, international student status, housing status, GPA category, health insurance status, mental health comorbidities, and report of academic impairment from ADHD symptoms. Covariates were selected based on conceptually important characteristics (sex, LGBTQ+, age) and significant covariates from Table 1 that improved the model. Significant categorical covariates from Table 1 were tested in univariate models or Likelihood Ratio Tests to determine whether the model was improved with their addition.

compare validity between on- and off-campus diagnostic practices. Off-campus practices might be too loose and on-campus practices could be too strict. Finally, students might simply prefer to receive stimulants off campus for stigma-related reasons.

Our findings on characteristics associated with service-utilization and treatment are similar to those found among the college population for non-ADHD mental illnesses, including lower rates of mental health service utilization among males (Eisenberg et al., 2011) and non-white students (Downs & Eisenberg, 2012; Eisenberg & Chung, 2012; Eisenberg et al., 2007, 2011). Our findings that non-white and international students are more likely to use on-campus services also align with existing research (Morris et al., 2021).

We acknowledge several limitations to our study. First, diagnostic rigor among the professionally made diagnoses in our study population might vary. Second, the mental healthcare variable does not specify where the participant is receiving their primary ADHD treatment, simply if they have received any mental healthcare from that location in the past year. Third, the study is cross sectional, not longitudinal, so we are unable to investigate causality (i.e., Does receiving care on-campus decrease treatment?). Fourth, it is not clear that NCHA is representative of the entire full-time college population in the US. Our study's generalizability was also limited by excluding a small number of students (223) who did not provide information about ADHD treatment. Fifth, academic impairment is not as robust a measure of ADHD severity as a symptom rating scale might be, though it has the advantage of assessing functional impact downstream of multiple symptom domains. Sixth, the NCHA does not include socioeconomic status (SES) (e.g., parents' income). Health insurance coverage is partially related to SES, and being uninsured had a significantly lower odds ratio of receiving treatment in our analysis. In sensitivity analyses, we found that available variables that could proxy SES such as financial stress or parent's education were not related to receiving treatment for ADHD.

To our knowledge, this is the largest study of ADHD treatment among college students in the US. Other strengths of our study include using a multi-institution sample from across the United States and the significant amount of information about participants' characteristics which allowed us to adjust for multiple confounding factors. The association between treatment location and odds of treatment for ADHD remained robust after adjustment for these covariates. Because the survey assesses ADHD treatment separately from contact with health professionals, we are confident the survey robustly captures treatment data,

Table 3. Unadjusted and Adjusted Odds Ratios Derived from Univariate and Multivariate Logistic Regression Models of Any Therapy or Medication for ADHD.

	Any therapy or medication for ADHD			
Receipt of mental health services in the past 12 months	OR [95% CI]	*p*	aOR [95% CI]	*p*
At another location only	REF		REF	
At campus-based clinic	0.67 [0.61, 0.73]	<.001	0.63 [0.57, 0.70]	<.001
Perceived impact of ADHD on academic function				
I did not experience this issue or I have experienced this issue, but my academics have not been affected	REF		REF	
I have experienced this issue and it negatively impacted my performance in a class	2.88 [2.62, 3.17]	<.001	3.00 [2.70, 3.33]	<.001
I have experienced this issue and it delayed progress toward my degree	4.32 [3.71, 5.08]	<.001	5.50 [4.63, 6.56]	<.001
Age category				
18-19	REF		REF	
20-21	1.11 [1.01, 1.23]	.03	1.09 [0.92, 1.28]	.31
22-23	1.11 [0.98, 1.26]	.09	0.99 [0.80, 1.23]	.95
24-25	1.34 [1.14, 1.57]	<.001	1.04 [0.80, 1.35]	.79
Program and year in school				
Undergraduate: first year	REF		REF	
Undergraduate: second year	0.96 [0.85, 1.09]	.55	0.90 [0.77, 1.04]	.16
Undergraduate: third year	1.13 [1.00, 1.28]	.05	1.02 [0.84, 1.25]	.84
Undergraduate: fourth year	1.04 [0.91, 1.18]	.59	0.96 [0.77, 1.19]	.71
Undergraduate: fifth year or more	1.15 [0.94, 1.42]	.17	1.11 [0.83, 1.50]	.48
Master's degree (any year)	1.28 [1.04, 1.58]	.02	1.28 [0.94, 1.74]	.12
Doctorate degree (any year)	2.05 [1.58, 2.70]	<.001	2.01 [1.40, 2.93]	<.001
Other (e.g., non-degree-seeking)	1.46 [0.80, 2.89]	.25	1.57 [0.80, 3.38]	.22
White race	1.29 [1.16, 1.43]	<.001	1.20 [1.07, 1.36]	<.01
Sex				
Female	REF		REF	
Male	0.78 [0.70, 0.86]	<.001	0.89 [0.79, 0.99]	.04
Intersex	0.64 [0.17, 3.02]	.52	0.49 [0.11, 2.47]	.34
LGBTQ+	1.09 [1.01, 1.19]	.04	1.00 [0.91, 1.10]	.97
International Student	0.59 [0.49, 0.71]	<.001	0.71 [0.58, 0.88]	<.01
Housing				
Campus or university housing	REF		REF	
Parent/guardian/other family member's home	0.97 [0.86, 1.10]	.61	0.87 [0.76, 1.00]	.05
Off campus or other non-university housing	1.26 [1.15, 1.39]	.001	1.03 [0.92, 1.16]	.57
Other (e.g., unstable housing, homeless)	0.73 [0.50, 1.06]	.09	0.71 [0.47, 1.09]	.11
GPA				
A	REF		REF	
B	0.91 [0.85, 0.97]	.002	0.85 [0.77, 0.94]	<.01
C-D	0.95 [0.86, 1.04]	.26	0.76 [0.65, 0.88]	<.001
F	0.77 [0.41, 1.45]	.40	0.50 [0.21, 1.23]	.11
Health insurance				
Student health insurance plan	REF		REF	
Parent's plan	1.12 [0.97, 1.30]	.11	1.12 [0.95, 1.32]	.17
Employer-based plan (respondent's or spouse's)	1.14 [0.75, 1.75]	.55	0.90 [0.58, 1.43]	.64
Medicaid, Medicare, SCHIP, or VA/Tricare	0.88 [0.71, 1.09]	.25	0.88 [0.69, 1.12]	.30
Uninsured	0.43 [0.31, 0.60]	<.001	0.43 [0.30, 0.62]	<.001
Other (e.g., purchased my own plan, don't know, unanswered)	0.61 [0.46, 0.82]	<.001	0.64 [0.47, 0.89]	<.01
Mental health comorbidities diagnosed by professional				
Anxiety disorder	1.24 [1.11, 1.37]	<.001	1.12 [0.99, 1.27]	.08
Mood disorder (MDD or BPAD)	1.06 [0.97, 1.17]	.18	0.87 [0.77, 0.97]	.01

Note. Show are the Odds Ratios derived from a logistic regression analyses of receipt of any medication or therapy for ADHD in the past 12 months on select covariates. Odds Ratios from the univariate regression models are shown in the first column, along with the p values for the coefficients. The right-hand columns show the Odds Ratios from the multivariate regression model and associated *p*-values. Covariates were selected based on conceptually important characteristics (sex, LGBTQ+, age) and significant covariates from Table 1 that improved the model. Significant categorical covariates from Table 1 were tested in univariate models or Likelihood Ratio Tests to determine whether the multivariate model was improved by their addition.[1]

[1]This model was run on a subset of 10,609 participants for whom data on all covariates of interest were available.

regardless of the prescription's source—including childhood pediatricians who students might not consider as mental health professionals. The richness of this dataset and its findings might lead to more effective policy development for the treatment of ADHD in college students.

Future research needs to evaluate the cause of decreased access to ADHD treatment at campus-based clinics. Such an evaluation should start with characterizing the variability in ADHD assessment and treatment policies among campus clinics and then look for association with treatment access. Increasing treatment access to stimulants is not without downside—higher prevalence of stimulant prescription has been associated with more non-medical stimulant use in high schools (McCabe et al., 2023). Future research investigating the effects of these policies would help campus administrators optimize ADHD clinical policies to improve treatment access while minimizing non-medical stimulant use.

Conclusion

Among 18 to 25 year-old US college students with ADHD who are receiving mental healthcare, receiving care on campus is associated with lower odds of treatment for ADHD. The reasons for this association are likely multifactorial and might vary from institution to institution. Because of the variability of treatment by location, institutions should review their ADHD assessment policies, treatment resources, and treatment accessibility. The effects of ADHD policies, such as neuropsychological testing diagnostic requirements, on treatment access should be investigated across institutional settings. Our study helps elucidates the variables that influence the provision of ADHD care to college students.

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ORCID iD

James Aluri https://orcid.org/0000-0002-0635-5393

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Author Biographies

James Aluri is a Postdoctoral Fellow at Johns Hopkins University School of Medicine.

David Goodman is an Assistant Professor in the Department of Psychiatry and Behavioral Sciences at Johns Hopkins School of Medicine and a Clinical Associate Professor in the Department of Psychiatry and Behavioral Sciences at State University of New York.

Kevin Antshel is a Professor of Psychology at Syracuse University.

Ramin Mojtabai is a Professor at the Johns Hopkins University School of Public Health.