

# Predictors of Self-Harming Behavior Among College Students with Disabilities Seeking Counseling Services

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## Abstract

A growing number of college students report mental health concerns including self-harming behaviors, and studies have shown that students with disabilities report an increased number of mental health concerns compared to students without disabilities. While there are many studies informing the risk factors of self-harming behaviors of the general college student population, there are limited studies focused solely on students with disabilities. This study examines the self-harming behaviors of college students with disabilities receiving counseling in the United States, using data provided by the Center for Collegiate Mental Health (CCMH). Participants were 12,132 college students from 140 colleges and universities who were registered with their campus' office of disability services and who completed the Counseling Center Assessment of Psychological Symptoms-62 (CCAPS-62). Three logistic regressions were conducted, predicting self-harming behaviors without suicidal intention, suicidal ideation, and suicide attempts, respectively. The findings suggested that those with psychological disorder/conditions reported more self-harming behaviors than those without psychological disorder/conditions. All psychological symptoms measured in the CCAPS-62 predicted higher rate(s) of self-harming behaviors, while lower academic distress, higher depression, and higher family concerns predicted higher rate(s) of suicidal ideation and attempt for students with disabilities. The discussion describes the importance of early identification and intervention to detect warning signs and/or symptoms and can inform practitioners working with students with disabilities in postsecondary settings in identifying potential students at risk.

*Keywords: disability, self-harm, suicide, college*

## Introduction

Students with disabilities continue to enter postsecondary institutions at higher rates than ever before (Belch, 2004; Hong, 2015; Raue & Lewis, 2011) and according to the National Center for Education Statistics (NCES), 19% of undergraduate students reported having one or more disabilities including learning disabilities, sensory disabilities, physical health issues, or psychological/psychiatric disabilities (Snyder et al., 2019). Even though the number of college students with disabilities continues to increase, students with disabilities are still underrepresented in the overall college student enrollment with 45.6% representing high school graduates with disabilities entering postsecondary settings compared to 62.6% for students without disabilities (Brand et al., 2013). Retention and graduation rates for students with disabilities are also lower than for students without disabilities in postsecondary settings (Brand et al., 2013; Getzel & Thoma, 2008; Stodden et al., 2001). College graduation rates for students without disabilities is 51.2%, while only 34% of students with disabilities complete their postsecondary programs and graduate (Newman et al., 2011). Decreased graduation rates experienced by students with disabilities can lead to higher unemployment (Erickson et al., 2015), lower overall earnings and higher rates of poverty (Ali et al., 2011; Ball et al., 2006; Kruse, 1998).

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### **College Student Mental Health**

Irrespective of disability status, more college students are reporting mental health concerns (Lipson et al., 2019; Mowbray et al., 2006). In a national sample, 26.9% of students were screened and identified as having depression while 35.5% reported having diagnosed mental health conditions (Lipson et al., 2019). In the same study, 8.2% reported suicidal ideation, which had doubled from 2007 to 2017. Higher rates of reported mental health issues are not the only concern as the reported severity of issues that college students are presenting with are more severe than ever, including suicidal ideation (Mowbray et al., 2006). According to Wilcox et al. (2012), 7% of college students engaged in non-suicidal self-injury and the number is increasing every year (see also Dellinger-Ness & Handler, 2007). In fact, according to the Center for Collegiate Mental Health (2020), which summarizes data from more than 160 college and university counseling centers, the self-reported prevalence rate of self-injurious behaviors (e.g., non-suicidal self-injury, serious suicidal ideation, suicide attempts) increased for the 9th year in a row, with "39.6% of students seeking treatment report(ing) some suicidal ideation within the last two weeks" (p. 5). It is known that the suicidal ideation rate is higher among self-injurers than non-self-injurers, and that self-injuries, even though they are non-suicidal, may build suicide capability (Stewart et al., 2017). But while suicidal ideation may predict suicide behavior, the accuracy of this as a predictor is imperfect (Klonsky et al., 2016). Understanding self-injurious behavior and risk factors for college students with disabilities is imperative especially since previous research has already indicated a higher rate of suicidal ideation in students with disabilities (Coduti et al., 2016).

Studies have also shown that college students with disabilities report more mental health concerns compared to students without disabilities including increased anxiety, depression, academic related distress, and higher rates of self-harm and suicidality (Coduti et al., 2016; Fleming et al., 2018; Miller et al., 2019). Coduti et al. (2016) found that students reporting a psychological disability had rates of suicide attempts that were two times greater than for students with physical and learning disabilities.

### **Self-Injury in People with Disabilities**

Research has documented higher self-injurious or suicidal behavior in people with disabilities compared to people without disabilities. Hassiotis et al. (2011) and Ludi et al. (2012) reported that people with intellectual disabilities were more likely to have attempted suicide. Bender et al. (1999) showed that

adolescents with learning disabilities suffered depression due to their disability and deficits in social skills, and suggested they may be at a higher risk for suicidality. Attention-deficit/hyperactivity disorder (ADHD) is a very common disability among college students that causes challenges in their school performance. Studies have shown that ADHD symptoms were found to be a direct predictor of depressed mood and suicidality and a moderator for suicidal ideation and attempts. However, ADHD symptoms did not explain self-harm behaviors (Patros et al., 2013). Turner et al. (2007) reported that college and school students with hearing impairments also reported higher rates of attempted suicide in some studies while Lund et al. (2015) suggested that students with disabilities have higher rates of suicide, irrespective of disability types. Regardless of type of disability, research has indicated that self-injurious behavior in people with disabilities warrants additional study, including in college students with disabilities.

Mental health concerns of students with disabilities needs to be addressed especially when many students with disabilities, who exhibit these self-injurious or suicidal behaviors, may be forced to leave college and seek medical help elsewhere (Martin, 2017), further negatively impacting the retention and graduation rates of students with disabilities. Seidman (2007) suggested that limited psychological and environmental supports contribute to lower graduation rates among students with disabilities while insufficient programs on campus, tailored to the psychological needs of students with disabilities, contribute to poorer academic achievement of students with disabilities (Herbert et al., 2014). Additional literature suggests that professional supports can mitigate the mental health concerns and academic difficulties of students with disabilities (Emerson et al., 2009), making research that seeks to understand the predictors of self-harm in students with disabilities imperative.

### **Predictors of Self-Harming Behaviors**

Predictors for self-injurious and suicidal behaviors have been documented in the general college student populations, but limited information exists related to predictors for college students with disabilities. Among the general student population, non-heterosexuals (Figueiredo & Abreu, 2015), non-Hispanic Whites (Nock et al., 2008), and identifying as a female predicted recent non-suicidal self-injurious behavior in college students (Wilcox et al., 2012). However, Gratz et al. (2002) suggested that the findings for the effect of gender is still mixed for self-harm, yet other studies have reported that while men die by suicide more often than women, women engage in more sui-

cidal behaviors (Beautrais, 2003; Nock et al., 2008). For young adults with disabilities, identifying as a man predicted poorer mental health compared with their peers without a disability (Honey et al., 2011), which may affect future self-injurious and suicidal behaviors in students with disabilities. Race was found to not be related to self-harm (Mulay et al., 2017), yet the intersectionality of race, disability and self-harm should be studied in more detail. The effects of demographic factors on self-injurious and suicidal behavior among students with disabilities need to be explored through additional research studies.

Psychological disabilities including depression, anxiety, and affective dysregulation have been suggested as predicting non-suicidal self-injuries and suicidal ideation (Lamis & Jahn, 2013; Saraff & Pepper, 2014; Serras et al., 2010; Wilcox et al., 2012; Zisook et al., 2012). Relationship with parents, including conflicts with parents or the quality of the parent-child relationship also predicts non-suicidal self-injuries and suicidal ideation (Heath et al., 2008; Hoff & Muehlenkamp, 2009; Lamis & Jahn, 2013). Eating disorders, or having a negative body image, is also mentioned in the literature as being a precursor to self-injurious behavior (Mulay et al., 2016; Zisook et al., 2012). Substance abuse, especially that which includes binge drinking, was linked to self-harm or suicide among college students (Gonzalez, 2012; Serras et al., 2010). More recently a study by Hayes et al. (2020) found that college students with a history of nonsuicidal self-injury were twice as likely to attempt suicide while in treatment than students without such a history. Their study also "revealed that suicide behavior was positively associated with 3 pretreatment variables; depression, prior suicide behavior, and prior nonsuicidal self-injury" (Hayes et al., 2020, p. 104). While this finding is consistent with previous research, the authors highlight the recent measures to move away from differentiating non-suicidal self-injury as being unconnected from suicide in that some of these behaviors (e.g., cutting) may actually lead to suicide (see also Burke et al., 2018).

While research has been conducted identifying predictors of self-harming behavior of college students overall, research specific to students with disabilities is warranted. Giannini et al. (2010) stated, "urgent research priorities include (1) valid estimates of suicide rates among persons with disabilities by age cohort; (2) assessment of the predictive importance of suicide risk factors; and (3) determination of best practices in preventing suicide" (p.74). This proposed exploratory descriptive study will examine predictors of self-harming behavior of college students who identify as having a disability and seek counsel-

ing services from their respective college/university counseling centers. The specific self-harm variables we are interested in include suicidal ideation, non-suicidal self-injury, and suicide attempts.

### Rationale

The purpose of this exploratory study is to identify the predictors of self-harm, suicidal ideation, and suicide attempt of college students with disabilities seeking counseling. Very little is known how demographic and psychological factors may predict self-harm, suicidal ideation, or suicide attempts in this population. Research on predictors of self-harm, suicidal ideation, or suicide attempts can help professionals understand the needs of college students with disabilities and provide a basis for early intervention strategies and supports. The research questions in this study examine the relation of demographic and psychological variables and (1) self-harm behaviors without suicidal intent, (2) suicidal ideation, or (3) suicide attempts, respectively, among college students with disabilities receiving counseling services.

### Methods

#### Participants

This study used the data collected by Center for Collegiate Mental Health (CCMH; CCMH, 2020). These two datasets were collected at 140 public and private college counseling centers across the United States from year 2012-2015. CCMH is a practice-research network of counseling centers at universities in the United States (CCMH, 2020). Among those who completed both questionnaires ( $n = 13,263$ ), 12,132 reported that they are registered at the office of disability services and were included in this study. Of these students, 6,650 (54.8%) were women, 4,628 (38.1%) were men, and 854 students did not report their gender. The average age of the participating students was 22.83 years ( $SD = 5.7$ ). Around two-thirds (67.4%,  $n = 8,172$ ) of the participants identified as White, 799 (6.6%) as African American or Black, 706 (5.8%) as Hispanic or Latino/a, 537 ( $n = 4.4\%$ ) as multi-racial, and 385 (3.2%) as Asian. There was less than 1% of native Americans, Alaskan Americans, and Native Hawaiian or Pacific Islanders among the participants. Approximately 23% were in their first year of college, 20% in their second year, 23% in their third year and 23% in their fourth year. Graduate students represented 9%.

Approximately 62% ( $n = 7,514$ ) of the participants had received psychological counseling services previously and more than half (54.2%,  $n = 6,577$ ) had been prescribed medication for mental health

concerns. Among the participants, 24.1% ( $n = 2,926$ ) reported that they had “purposely injured yourself without suicidal intent (e.g., cutting, hitting, burning, etc.),” 33.8% ( $n = 4,101$ ) had “seriously considered attempting suicide,” and 12.1% ( $n = 1,468$ ) had “made a suicide attempt” while 8% of the participants did not answer each of three questions. In the survey, their disability status was asked with nine options that they could choose multiple from. They reported Attention Deficit/Hyperactivity Disorders (ADHD) the most ( $n = 5,482$ , 45.2%), followed by learning disorder ( $n = 3,268$ , 26.9%), psychological disorder/condition ( $n = 2,535$ , 20.9%), others ( $n = 1,620$ , 13.4%), physical/health related disorders ( $n = 1,407$ , 11.6%) and neurological disorders ( $n = 782$ , 6.4%). Those who reported deaf/hard of hearing ( $n = 362$ ), mobility impairments ( $n = 422$ ), and visual impairments ( $n = 360$ ) as their disabilities were less than 5% each.

## Measures

**Standardized Data Set (SDS).** The Standardized Data Set (SDS) is a set of standardized data materials used by CCMH counseling centers during intake sessions. Demographic and mental health history questions were asked using the SDS questions (CCMH, 2015). Demographic information of the participants included age, gender, sexual orientation, race, and mental health history. In addition, the SDS survey asked questions related self-harm behaviors without suicidal intent, suicidal ideation, and suicide attempt history. These questions were formatted in a way that the participants reported “how many times” they had engaged in the self-harm behaviors without suicidal intent / suicidal / and suicide attempt behavior (never, one time, 2-3 times, 4-5 times, or more than 5 times). Due to the scarcity of answers more than one time, the responses were dichotomized to indicate whether a student had ever engaged in the behavior or not. Disability type was asked via the SDS as described above.

**Counseling Center Assessment of Psychological Symptoms-62 (CCAPS-62).** The CCAPS-62 (Locke et al., 2011) is a 62-item measure assessing psychological symptoms that are known to be common among students in postsecondary education settings and includes eight subscales: family concerns, academic distress, generalized anxiety, depression, eating concerns, hostility, social anxiety, and substance use. Thirteen items were used to measure depression including “I feel isolated and alone”, 9 items for eating concerns (e.g., “I think about food more than I would like to”), 6 items for substance use (e.g., “I drink more than I should”), 9 items for generalized anxiety (e.g., “I have spells of terror or panic”), 7 items for hostility (e.g., “I have difficulty controlling

my temper”), 7 items for social anxiety (e.g., “I am shy around others”), 6 items for family distress (e.g., “My family is basically a happy one”) and 5 items for academic distress (e.g., “I am unable to keep up with my schoolwork”) (Locke et al., 2011). The average scores of each subscale were provided for the current study, not individual responses to 62 items. The subscales have demonstrated good internal consistency (Depression  $\alpha = .913$ ; Eating Concerns  $\alpha = .883$ ; Substance Use  $\alpha = .853$ ; Generalized Anxiety  $\alpha = .846$ ; Hostility  $\alpha = .863$ ; Social Anxiety  $\alpha = .823$ ; Family Distress  $\alpha = .811$ ; and Academic Distress  $\alpha = .781$ ; Locke et al., 2011) and retest reliability in previous studies (Coduti et al., 2016; McAleavey et al., 2012). In Coduti et al., the internal consistency of each subscale ranged from .80 (Academic Distress) to .91 (Depression).

## Procedure

All schools participating in CCMH received Institutional Review Board (IRB) approval. Counseling centers administered the CCAPS-62 and SDS during students’ intake. The participants provided an informed consent before answering the survey and all data were de-identified prior to being uploaded to CCMH. Only deidentified, aggregated data were available to the authors. SPSS Version 25 was used to conduct the correlation and logistic regressions.

## Results

### Bivariate Correlation Analysis

Before the three research questions were examined, correlation analysis was conducted to explore bivariate relations among studied variables (Table 1). Self-harm behavior without suicidal intent was negatively correlated with sexual orientation (non-heterosexual as the reference category) and age, and positively correlated with all the other predictors ( $p < 0.01$ ). Suicidal ideation was negatively correlated with sexual orientation and race (non-white as the reference category), and positively correlated with all the other predictors ( $p < 0.01$ ). Suicide attempt was negatively correlated with sexual orientation and race, and positively correlated with all the other predictors ( $p < 0.01$ ). Three outcome variables were positively correlated with one another ( $p < .01$ ). Pearson’s  $r$  was used for the correlation coefficients between continuous variables, Point-Biserial’s  $r$  was used between continuous variables, and  $\phi$  correlation coefficient was used between dichotomy variables.

**Table 1***Correlation Coefficients of Studied Variables*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Self-harm behaviors	-															
2 Suicidal ideation	.43**	-														
3 Suicide attempt	.38**	.49**	-													
4 Gender	.15**	.05**	.08**	-												
5 Sexual orientation	-.18**	-.18**	-.16**	-.02	-											
6 Race	.01	-.05**	-.07**	-.03*	.07**	-										
7 Age	-.04**	.03*	.07**	-.02	-.02	-.10**	-									
8 Counseling experience	.21**	.26**	.18**	.06**	-.10**	.02	.13**	-								
9 Prescription for MH concerns	.18**	.23**	.18**	.00	-.09**	.06**	.11**	.52**	-							
10 Academic distress	.12**	.17**	.10**	.00	-.04**	-.04**	.03*	.13**	.15**	-						
11 Generalized anxiety	.27**	.29**	.21**	.19**	-.10**	-.02	.06**	.25**	.23**	.41**	-					
12 Depression	.30**	.39**	.24**	.08**	-.12**	-.06**	.02	.21**	.18**	.55**	.66**	-				
13 Eating concerns	.19**	.18**	.14**	.21**	-.05**	-.03*	.06**	.13**	.11**	.22**	.36**	.39**	-			
14 Family concerns	.21**	.27**	.22**	.11**	-.15**	-.13**	.16**	.19**	.12**	.24**	.38**	.43**	.26**	-		
15 Social anxiety	.20**	.23**	.15**	.05**	-.11**	-.01	.00	.16**	.15**	.31**	.47**	.55**	.31**	.28**	-	
16 Hostility	.21**	.25**	.15**	-.04**	-.07**	-.10**	.03*	.13**	.10**	.33**	.50**	.56**	.27**	.39**	.32**	-
17 Substance use	.10**	.06**	.05**	-.09**	.02	.07**	-.08**	.04**	.05**	.18**	.16**	.19**	.19**	.09**	.04**	.25**

*Note.* Self-harm behaviors = Self-harm behaviors without suicidal intent, Prescription for MH concerns = Prescription for mental health concerns; \*\* $p < .01$ , \* $p < .05$ .

**Table 2***Self-Harm Related Behaviors of Students With/Without Psychological Disorder/Condition (%)*

	Self-Harm Behaviors		Suicidal Ideation		Suicide Attempt	
	Yes	No	Yes	No	Yes	No
With psychological disorder/condition	1,043 (41.1)	1,320 (52.1)	1,422 (56.1)	943 (37.2)	663 (26.2)	1,705 (67.3)
Without psychological disorder/condition	1,883 (19.6)	6,928 (72.2)	2,679 (27.9)	6,135 (63.9)	805 (8.4)	7,991 (83.3)

*Note.* There were participants who refused to answer their self-harm, suicidal ideation, and suicide attempt history, resulting in less than 100% for the sum.

### Analyses of Research Questions

The participants reported psychological disorder/conditions had greater frequencies for the three outcome variables, self-harm behaviors without suicidal intent, suicidal ideation, and suicide attempt (see Table 2). All three chi-square tests were significant ( $ps < .001$ ), indicating that there are significant group differences between students with and without psychological disorder/conditions for their reported self-harming behaviors. However, psychological symptoms were observed among college students with disabilities regardless of whether their main disability type is psychological disorder/conditions or not. Therefore, the research model of the study includes all participants with disabilities and uses reported psychological symptoms to explain their self-harming behaviors.

Three logistic regressions were conducted for each outcome variable (self-harm behaviors without suicidal intent, suicidal ideation, and suicide attempt) to examine the relationship between demographic and psychological variables and each outcome variable (have done the indicated behavior or not). Demographic variables were entered as predictors including gender, sexual orientation, race, age, prior counseling experience and taken prescription medication for mental health concerns. Psychological variables were also entered, including academic distress, generalized anxiety, depression, eating concerns, family concerns, social anxiety, hostility, and substance use from the CCAPS-62. Since many participants ( $n = 2,459$ , 20.3%) reported more than one disability, it was not possible to compare the results of people with different disabilities, even though the implication of the types of disabilities of the participants may affect the result. The same three regression

models were conducted for participants who reported psychological disorder/conditions ( $n = 2,535$ , 20.9%) and those who did not, and the predictors explained each outcome variable in a similar way for the two groups of participants; therefore, the three models with all participants were examined. This psychological disorder/conditions variable was not used as a control variable due to the multicollinearity with other key independent variables used in the studied models.

### Research Question 1

The first research question sought to identify demographic and psychological predictors for the outcome variable, self-harm behaviors without suicidal intent. All demographic variables significantly explained self-harm behaviors without suicidal intent. Students who identified as a woman, nonheterosexual, or having had prior counseling experience(s) had twice the chance of having an experience of self-harm behaviors without suicidal intent. White individuals had a 20% more chance and individuals having had prescription medications for mental health concerns had a 51% more chance to have an experience of self-harm behaviors without suicidal intent. Younger students had a lower chance of 4% per one year of age. All psychological variables (CCAPS-62) also significantly explained self-harm behaviors without suicidal intent. Students with more symptoms were more likely to have had an experience of self-harm behaviors without suicidal intent from 7% (eating concerns) to 72% (depression) of increased chance. However, individuals who reported higher academic distress had a 21% reduction in having an experience of self-harm behaviors without suicidal intent ( $OR = .79$ , 95% CI .74-.84). See Table 3 for details. This logistic regression model was statistically significant,

**Table 3**

*Logistic Regression – Predictors of Self-Injurious and Suicidal Behaviors (Have done once or more = 1 and Never have done = 0)*

Self-Harm	Self-Harm Behaviors without Suicidal Intent				Suicidal Ideation				Suicide Attempt			
	OR	<i>p</i>	95% CI		OR	<i>p</i>	95% CI		OR	<i>p</i>	95% CI	
Gender	1.93	< .001	1.71	2.17	1.05	.35	.95	1.17	1.36	< .001	1.17	1.57
Sexual Orientation	.48	< .001	.42	.55	.49	< .001	.43	.56	.50	< .001	.43	.58
Race	1.21	< .01	1.07	1.38	.86	.01	.77	.97	.71	< .001	.61	.82
Age	.96	< .001	.95	.97	.99	.05	.98	1.00	1.01	.01	1.00	1.02
Counseling experience	2.11	< .001	1.83	2.44	2.25	< .001	1.98	2.57	2.28	< .001	1.84	2.82
Prescription for mental health concerns	1.51	< .001	1.33	1.71	1.63	< .001	1.45	1.83	2.06	< .001	1.72	2.46
Academic distress	.79	< .001	.74	.84	.83	< .001	.78	.88	.79	< .001	.73	.86
Generalized anxiety	1.12	< .01	1.03	1.21	.98	.52	.91	1.05	1.09	.09	.99	1.20
Depression	1.72	< .001	1.57	1.88	2.45	< .001	2.24	2.67	1.80	< .001	1.60	2.01
Eating concerns	1.07	.03	1.01	1.14	1.04	.23	.98	1.11	1.04	.33	.96	1.12
Family concerns	1.16	< .001	1.10	1.23	1.27	< .001	1.20	1.35	1.31	< .001	1.22	1.41
Social anxiety	1.10	< .01	1.03	1.17	.96	.22	.90	1.02	1.01	.89	.93	1.09
Hostility	1.10	.01	1.02	1.18	1.04	.31	.97	1.11	.98	.64	.90	1.07
Substance use	1.15	< .001	1.08	1.22	.96	.16	.90	1.02	1.05	.26	.97	1.13
<b>Model Statistics</b>												
$\chi^2(df)$	1621.61 (14)***				2110.20 (14)***				1037.89 (14)***			
$R^2$	.246				.291				.205			

*Note.* OR: Odds Ratio, 95% CI: 95% Confidence intervals, \*\*\* $p < .001$

Demographic variables: gender (with male as the reference category), sexual orientation (with non-heterosexual as the reference category), race (with non-White as the reference category), psychological counseling experience (have experienced = 0, no experience = 0), and prescription for mental health concerns (have experienced = 0, no experience = 0).

which indicates that the combined predictor variables consisting of selected demographic and psychological variables have a significant effect on the outcome variables, self-harm behaviors without suicidal intent ( $\chi^2(14, n = 8782) = 1621.61$ ). The Nagelkerke  $R^2$  was .25, indicating relatively large effect sizes as a Pseudo- $R^2$ .

### Research Question 2

The second research question measured suicidal ideation as an outcome variable (Table 3). Certain demographic variables resulted in a reduction of reported suicidal ideation including being heterosexual (by 51%) or White (by 14%) and it increased the chance of suicidal ideation if an individual had prior counseling (by 125%) or prescription medication for mental health concerns (63%). For the psychological variables, depression increased the chance almost 2.5 times ( $OR = 2.45$ , 95% CI 2.24-2.67) and family concerns also increased the chance of suicidal ideation by 27% ( $OR = 1.27$ , 95% CI 1.20-1.35). Academic distress, again, reduced the chance of suicidal ideation by 17% ( $OR = .83$ , 95% CI .78-.88). This logistic regression model was also statistically significant ( $\chi^2(14, n = 8787) = 2110.20$ ) and the Nagelkerke  $R^2$  was .29.

### Research Question 3

The third research question examined the predictors of suicidal attempt with the same set of predictors (Table 3). All demographic variables significantly explained suicidal attempt. Being a woman (by 36%), older (by 1%), having prior counseling experience(s) (by 228%), and having been prescribed medications for mental health concerns (by 206%) increased the chance of having attempted suicide. Being heterosexual (by 50%) and White (by 29%) reduced the chance of suicide attempts in this study. For the psychological variables, depression increased the chance of suicide attempt by almost 80% ( $OR = 1.80$ , 95% CI 1.60-2.01) and family concerns also increased the chance by 31% ( $OR = 1.31$ , 95% CI 1.22-1.31). Academic distress, again, reduced the chance by 21% ( $OR = .79$ , 95% CI .73-.86). This logistic regression model was statistically significant ( $\chi^2(14, n = 8777) = 1037.89$ ). The Nagelkerke  $R^2$  was .21, also indicating relatively large effect sizes.

## Discussion

Overall, demographic variables and psychological variables may be useful in predicting self-harming related behaviors in college students with disabilities who are seeking counseling from college centers, yet more research is warranted in this area. In this study, when looking at demographic variables alone,

being a woman predicted an increase in suicidal intent, suicidal ideation and suicide attempts. This is consistent with previous research by Wilcox et al., (2012), which showed being a woman predicted recent non-suicidal self-injurious behavior in college students and research showing women engage in more suicidal behaviors than men (Beautrais, 2003; Nock et al., 2008). Relative to the three self-harming categories used in this study, prior counseling and prescription of medication for mental health concerns were predictive of rates increasing along with self-harm severity. For example, when looking at prior counseling, there was a 200% increase in the chance of self-harm without suicidal intent, 125% increase in suicidal ideation and 228% in suicide attempts. Being prescribed medications for mental health concerns resulted in a 51% more chance of self-harm without suicidal intent, 63% more chance of suicidal ideation and a staggering 206% increase in the chance of having attempted suicide. This finding is consistent with Hayes et al.'s, (2020) findings of classes of clients with suicidal ideation, with one class being "prior treatment" or students who had been in counseling and had taken psychotropic medications previously.

Race as a variable was predictive but also was a protective factor. Students identifying as White had a 20% more chance of self-harm without suicidal intent yet being white reduced the chances of suicide attempts. Identifying as non-heterosexual increased chances of self-harm behaviors without suicidal intent while identifying as heterosexual reduced a student's chance of suicide attempts. These findings are in line with other research, which has found demographic variables including race and sexual orientation associated with a higher suicide risk in the general population (Figueredo & Abreu, 2015; Nock et al., 2008). Also, some demographic variables (e.g., gender) lost their effect on the outcome variable(s) when psychological symptoms were included in the model, indicating that with the similar level of psychological symptoms, gender becomes non-significant in predicting each outcome variable.

Psychological concerns, as measured by the CCAPS-62, were also significant in predicting self-harming tendencies among college students with disabilities in our study. An increase in the number of psychological concerns reported by students predicted more probability of having experienced self-harm behavior without suicidal intent. When looking at the psychological variable of depression, suicidal ideation increased by 2.5 times while family concerns increased suicidal ideation by 27%. These two psychological concerns were also significant with suicide attempt(s), with depression increasing the chance of



suicide attempt by 80% and increased by 21% when family concerns were reported. Previous studies (e.g., Westefeld et al., 2005) found family problems were related to suicidality in college students, as was depression. Depression has been found to be a predictor in multiple research studies conducted in this area (e.g., Hayes et al., 2020; Lamis et al., 2013; Saraff et al., 2014; Serras et al., 2010; Wilcox et al., 2012; Zisook et al., 2012).

One psychological concern reported by the CCAPS-62 actually showed a reduction in all three categories of self-harm measured in this study. Individuals reporting higher academic distress had a reduction in having experienced self-harm behavior without suicidal intent (21%), suicidal ideation (17%) and suicide attempt (21%). This finding suggests a different interpretation from the findings of the bivariate correlation analysis, which shows positive correlation of academic distress and the three outcome variables, and may be caused by the suppression effect. Among the participants with the same level of psychological symptoms, the variance left for the academic distress may be negatively related with the three outcome behaviors: self-harm behaviors without suicidal intent, suicidal ideation, and suicide attempt. Further study is warranted to examine the implication of this result.

### **Implications for Practice**

Findings from this study can assist disability services within universities as well as other university support services (e.g., advisors). Understanding the needs of students with disabilities and developing training and additional supports in areas needed is warranted based on findings of this study and others looking at self-harm in college students. While the findings in this current study reflected that students with disabilities seeking counseling and had a previous history with self-harming behaviors were very similar to students without disabilities (e.g. gender, previous counseling received, previous medication prescribed for mental health concerns, etc.), additional training of staff in disability services offices and advising offices, within postsecondary settings regarding predictors and/or demographic characteristics could provide opportunities for earlier intervention through referrals or connections with university counseling services. Additionally, research has highlighted the increasing mental health needs among college students, which also includes students with disabilities. Mowbray et al. (2006) showed that early identification and intervention is necessary to detect any early warning signs or symptoms. This early detection and intervention for young adults can improve the long-term improvement in their mental health conditions (Downs et al.,

2016). Mollison et al. (2014) claimed that advanced training for service providers on how to detect mental health concerns among individuals with intellectual disabilities is necessary and should be applied to any student with a disability. This training should be provided to all staff within a university setting who have direct contact with or provide services/supports to at-risk student populations, including students with disabilities.

College students with disabilities, who receive disability-related services from university disability services offices, should be provided resources and supports to help in coordinating mental health counseling, if a student is receiving those supports prior to entering college. Having prior counseling was a significant predictor, so ensuring that there is a seamless transition of counseling supports and services upon entering postsecondary settings is paramount. Targeted programs for suicide prevention are needed and should include coordination between offices for disability services and campus resources for counseling support, especially considering that more than half of these students have been suicidal at some point in their lives (Coduti et al., 2016).

### **Limitations**

Approximately half of all college students do not register with their campus disability service office. Since the SDS identifies students with a disability as those that "registered with their campus office for disability services as having a documented and diagnosed disability," students with a disability may be incorrectly classified as not having a disability. This lack of designation may have decreased the actual number of students analyzed in this study. In addition, the categories students have to select from related to disability type may be limiting or could have been inaccurately reported by students if they were unclear as to the categorical options; or students may have reported only one when multiple disabilities are present. Many students in K-12 were diagnosed with emotional or behavioral disorders and the terms used at CAPS were different, which may have added confusion on their responses on their disabilities. This study's conclusions pertain to college students with disabilities who were seeking counseling and should not be generalized to all students with disabilities. Lastly, the CCAPS-62, while a psychometrically sound instrument, does not capture all psychological constructs, specifically as it relates to this population. Thus, further research exploring additional variables and factors impacting SWD seeking counseling is needed.

## Conclusion and Future Research

Results found that compared to non-ideators, suicidal self-injurers had more severe depression. Additionally, attempters were found to use more non-suicidal self-injury methods and engage in more risky behavior compared to non-attempters. In order to better understand how college students with disabilities in counseling compare to college students with disabilities not in counseling, additional research needs to be conducted concerning self-harm within this population, specifically for those diagnosed with a psychological disability who had a greater frequency of self-harming behavior(s) in this study. Intervention strategies and outcomes need to be studied in order to identify ways to decrease self-harming behavior in college students with disabilities. Further analysis and comparison of data across multiple years of CCMH data should be conducted to determine the significance of demographic and psychological variables in college students with disabilities receiving counseling.

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