Correlates and Predictors of Depression in College Students: Results From the Spring 2000 National College Health Assessment

E. Victor Leino and Jeremy Kisch

ABSTRACT

The present analyses used depression-related items and co-factors from the National College Health Assessment (NCHA), Spring 2000. The results indicate 10.3 % of college students (6.2% male and 12.6% female) reported ever having been diagnosed with depression. Of those ever diagnosed with depression, 39% were diagnosed in the last year, 27% were currently in therapy, and 34% were currently taking medication for depression. Results from the logistic regression analyses demonstrated that female, white, gay/lesbian/bisexual/transgender, or those students in an emotionally abusive relationship were predictive for having ever been diagnosed with depression and current diagnosis for depression. Results also demonstrated that health educators and student health center medical staff are rated by college students as the most believable sources of health information. Health educators are on the first line of defense, along with medical professionals, for conveying believable health information. Health educators should be aware of the proportion of college students having ever been diagnosed with depression, inform students of the symptoms of depression, and encourage students to seek help from appropriate campus and community services.

There is sufficient evidence that depression and depressive-related disorders are a significant problem in the United States. According to the *U.S. Surgeon General's Report on Mental Health*, major depressive disorders account for about 20-35% of all deaths by suicide, and up to half of all patients seen every day by primary care providers suffer from a mental illness, most often depression.[1] The same report indicated that currently, clinical depression is one of America's most costly medical illnesses, resulting in economic losses due to absenteeism from work, lost productivity and direct treatment costs. The World Health Organization estimates that depression is the most burdensome disease worldwide.[2]

Approximately 19 million individuals are diagnosed with depression and anxiety disorders each year.[1] The *U.S. Surgeon General's Report on Mental Health,* using data from large national studies in the 1980s and 1990s, indicated that approximately 20% of U.S. adults experienced a mental disorder in the course of a year. Substance abuse co-occurred in 15 % of all adults who had a mental disorder, which in turn makes treatment more difficult.[1] A recent national study representing U.S. adults indicated a lifetime prevalence of 16.2% for major depressive disorder.[3]

Depression and depressive-related disorders, including suicide, affect all groups of people in the United States. College and university students are not immune to these maladies, and in fact limited research demonstrates significant problems within this group of individuals. The U.S. Department of Education reports that in the fall of 1999 there were 14.8 million enrolled students in Title IV eligible postsecondary institutions in the 50 states and the District of Columbia.[4] Females make up 56% of the student population. Although limited research has been conducted at various colleges and universities, there is a lack of systematic investigation on a broader national level. One national study, The National College Health Risk Behavior Survey 1995, reported that 10.3% of college students had seriously considered attempting suicide during the 12 months prior to the survey.[5] Another study using the same data investigated suicidal ideation and found that there was an increased risk in these students for tobacco, alcohol and illegal drug use.[6]

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Research points to a host of factors that may contribute to or are related to depression. A study that investigated correlates of depression in college women indicated that negative life events affected women's self esteem and were strongly associated with depressive symptoms.[7] Although this was a relatively small study and was conducted with women only, it provided a theoretical perspective and analytic approach in offering an explanatory mechanism for depression.

Studies have looked at correlates of depression, including life stressors, where major episodic events occurred that are believed to be precursors to depression. As well, research has demonstrated the co-occurrence of alcohol and drug use and depression symptoms and/or diagnosis. Past trauma and child sexual abuse;[8] stressful life events and sexual assault;[9,10,11] domestic violence and alcohol abuse;[12] and substance abuse [13] were shown to be related to mental disorders including depression. Another study demonstrated evidence of increased risk of smoking related to assault, family substance abuse and depression.[14] The etiology of depression is unclear, but the *U.S. Surgeon General's Report on Mental Health* indicated that stressful life events may play a role in depression. In general, students are often faced with stressors related to developmental issues, coping with family circumstances, life course decisions, academic hurdles, sexually related experimentation and/or exploitation, drug and alcohol use and abuse and violence.

Depression and depressive-related disorders may also negatively impact academic performance. Results from the National College Health Assessment Spring 2000 indicated that 22.5% of students that reported depression and/or anxiety disorder or seasonal affective disorder received a lower grade on an exam or important project, received a lower grade in a course or dropped a course.[15] Another study evaluated depression and academic impairment with a limited sample size.[16] The conclusions were that academic impairment was a common feature of moderate-to-severe depression as defined by the Beck Depression Inventory.

It was hypothesized that stress experiences such as mental and physical abuse and assault and drug-related behaviors would be predictive of depression. The theoretical model being tested in the present paper follows that of the classic stress paradigm similar to post-traumatic stress disorder. Thus, stress is thought to affect physiological changes that, in turn, lead to depression. Health educators and medical center staff should be aware of the proportion of students having ever been diagnosed with depression and the predictors of depression and should be able to both educate students about depression symptoms and recommend appropriate treatment services.

METHOD

Participants

The NCHA was announced to ACHA membership in fall 2000. Thirty-five postsecondary institutions self-selected to participate in the NCHA Spring 2000 and 20,164 surveys were completed by students on these campuses. For the purpose of this study and the formation of the reference group database, only those institutions that used a random sampling technique were included in the analysis, yielding a final data set consisting of 15,977 students on 28 campuses.

Procedure

Thirteen campuses administered the NCHA in randomly selected classrooms. On another 14 campuses, surveys were mailed to randomly selected students and returned by the students in prepaid envelopes. One campus employed both random mailed and random classroom-surveying techniques. The overall response proportion was 54%.

Among the demographic characteristics of the 28 campuses surveyed, 20 were public colleges/universities and 8 were private. Almost all campuses (N=27) were 4-year institutions. School size varied with 1 school having fewer than 2,500 students, 2 schools having 2,500-4,999, 7 schools having 5,000-9,999, 10 schools having 10,000-19,999, and 8 schools having 20,000 or more students. The geographical location around the country also varied, with 5 schools in the Northeast, 11 schools in the Midwest, 5 schools in the South, and 7 schools in the West. There was variation in campus setting, with 6 schools located in urban areas with population greater than 1,000,000, 10 schools located in urban settings with a population between 100,000 and 1,000,000, 6 schools located in suburban settings, and 4 located in rural settings.

The Carnegie classifications were as follows: 14 schools were *Doctoral Research University Extensive*, 5 were *Doctoral Research University Intensive*, 7 were *Masters College and University I*, 1 school each were *Baccalaureate College* and *Associates College*. Each school was required to obtain administrative and/or institutional review board approval and follow the guidelines of informed consent of the institution and/or the NCHA User's Manual.

Instrument

National College Health Assessment (NCHA)

Because no single existing survey instrument met the needs of the college health professional, in 1998, an ACHA interdisciplinary workgroup developed the National College Health Assessment Survey and pilot testing commenced that year. A more complete description of the pilot testing can be found in the NCHA User's Manual.[17] Data from the three NCHA pilots (26 schools, N=9,187) and data from NCHA Spring 2000 were then statistically compared to the results of three nationally representative surveys to determine reliability and validity.

The reliability and validity analyses were conducted using data from three external sources and NCHA data collected in the three pilots (conducted in 1998 and 1999) and from Spring 2000.[18] The three external data sets were: National College Health Risk Behavior Survey (NCHRBS), College Alcohol Study (CAS) and the National College Women's Sexual Victimization Study (NCWSV).

The National College Health Risk Behavior Survey,[5] in collaboration with representatives from academia, national health

organizations and federal agencies, was a nationally representative sample conducted in 1995 of undergraduate college students aged 18 or older. The College Alcohol Study was conducted in 1999.[19] This study surveyed students in 116 schools located in 39 states and was considered generalizable to college/university students nationally. The National College Women's Sexual Victimization Study was conducted between February and May 1997.[20] The study was a nationally representative sample of 4,446 women who were attending 2- or 4-year colleges or universities during fall 1996.

The reliability analyses produced 50 standardized alphas (range .13 to .89) and average inter-item correlation coefficients (range .05 to .56). The focus was to test the consistency of the standardized alphas from the NCHA pilots and NCHA Spring 2000 compared with the NCHRBS on overlapping items. There was consistency in the magnitude of the standardized alphas. The construct validity analyses produced 145 correlation coefficients (range .0 to .25) comparing the NCHA studies with the NCHRBS. There was consistency in correlation magnitude between the NCHA and NCHRBS. Measurement validity analyses tested 16 independent variables with 2 dependent variables from the NCHA and the CAS. The results showed similar odds ratios (range 1.33 to 26.01) derived from the multiple variable logistic regression analyses when comparing the NCHA to the CAS.

The NCHA covers seven content areas: (1) health, health education and safety, (2) alcohol, tobacco and drugs, (3) sexual behavior, perceptions and contraception, (4) weight, nutrition and exercise, (5) mental and physical health, (6) impediments to academic performance, and (7) demographics. The seven content areas comprise approximately 300 questions.

Data Analyses

The analyses used multiple depression-related variables from the NCHA: (1) depression symptoms within the last school year, (2) ever having been diagnosed with depression, (3) diagnosed with depression in the last school year, (4) current therapy or medication for depression, (5) self-report of depression in the last school year, and (6) depression/anxiety disorder/seasonal affective disorder impacts on academic performance. Univariate statistics, non-parametric statistics and multiple variable logistic regression analyses were used in the evaluation and prediction of depressive-related items. Hypothesis testing used multiple variable logistic regression to predict students who had ever been diagnosed with depression and those diagnosed with depression in the last school year. Demographic characteristics, number of sexual partners, sexual violence and abusive relationships, alcohol, tobacco and other drug use, gay/lesbian/bisexual/transgender (GLBT) identity and self-description of weight were used as predictor variables.

RESULTS

Table 1 presents percentages for sex, race and age for both the NCHA Spring 2000 and college students nationally.[4] The NCHA had slightly more representation for females, 62% versus 56% for the national statistics. The ethnicity breakdown was fairly similar although the NCHA sample had slightly more students of Asian background than the national statistics, 11% versus 4% nationally. The NCHA had fewer students aged 25 or older at 18%, compared with 37% nationally.

Table 2 presents a cross-tabulation table using each of 4 depression variables by sex (ever having been diagnosed with depression, diagnosed with depression in the last school year, currently in therapy for depression and currently taking medication for depression). There were significant relationships between sex and the 4 depression items. The results indicated that 10.3% of college students have been diagnosed with depression in the past, which was higher than the U.S. population estimates of 7%.[1] As expected from national data, the proportion of females was twice that of males with 12.8% and 6.2%, respectively. Of those ever having been diagnosed, 39% had been diagnosed with depression in the last school year, 27% were in current therapy and 34% were currently on medication for depression.

Table 3 presents symptoms of depression, including the percentage of students by sex that felt hopeless, felt overwhelmed, felt exhausted, felt very sad, felt so depressed it was difficult to function, seriously considered suicide or attempted suicide. Responses were grouped by: (1) never, (2) 1 to 2 times, and (3) 3 or more times in order to provide a profile of the self-reported depression symptoms. There were significant relationships between sex and the symptoms of depression, although the contingency coefficients indicated weak to moderate relationships. More college women than men reported feeling hopeless, overwhelmed, exhausted, very sad, and so depressed that it was difficult to function. Male and female percentages were more similar when examining the variables "seriously considered suicide" and "attempted suicide."

Table 4 presents self-reported anxiety disorder, chronic fatigue syndrome, depression and seasonal affective disorder as impediments to academic performance by sex and both sexes combined. There were significant relationships observed in the analysis, with females reporting a higher percentage of each. The phi coefficients were weak but statistically significant. As seen in Table 4, impediments to academic achievement indicated phi coefficients that were not significant, with the exception of a higher percentage of males reporting that sleep difficulties resulted in a lower grade, or an incomplete or dropped a course. Although there were not significant relationships between sex and the impediments to academic impact, nearly 23% reported academic impacts from depression/anxiety disorder/seasonal affective disorder.

Table 5 presents results of a multiple variable logistic regression analysis predicting "ever having been diagnosed with depression." Simultaneous entry of all predictor variables was used as the most conservative approach. The predictors used in the analysis included: demographics, sexual violence and abusive relationships,

Table 1: American College Health Association National College Health Assessment (NCHA) Spring 2000

Characteristic	US Students 2001 1999 Sample (N=14.8 million) %	NCHA 2000 2000 Sample (N=15,977) %
Sex		
Male	44.0	38.2
Female	56.0	61.8
Ethnicity		
White	75.0	68.5
Black	12.0	7.0
Hispanic	13.0	8.8
Asian	4.0	10.8
Native American	1.0	1.0
Other	6.0	3.2
Age		
< 22 years	45.2	62.0
>= 22 <= 24 years	17.5	20.7
>= 25 years	37.3	17.3
Year in School		
Freshman		21.6
Sophomore		19.7
Junior		22.2
Senior		18.2
5th- year or more		6.9
Graduate		10.4
Other		1.0
Residence		
Campus residence hall		36.6
Fraternity or sorority		2.1
Other campus housing		5.1
Off-campus housing		36.7
Parent/guardian home		14.0
Other		5.5
Fraternity or Sorority Member		
Yes		11.6
No		88.4
Relationship Status		
Single		54.7
Married/domestic partner		9.7
Engaged/committed		34.1
Separated		.4
Divorced		.9
Widowed		.2
Health Insurance		
Yes		83.3
No		11.0
Not sure		5.7
N=15,977		

alcohol, tobacco, other drugs, number of sexual partners and self-description of weight. The results indicated that the variables female, white, GLBT, in an emotionally abusive relationship, substance use of cigarette and marijuana, and self-described weight (heavier weight) were predictive of "ever having been diagnosed with depression."

Table 6 presents results of a second multiple variable logistic regression analysis predicting "diagnosed with depression in the last school year." Again, simultaneous entry of all variables was conducted as in the first logistic regression. Results indicated that female, older, white versus black or Asian, GLBT, in an emotionally abusive relationship, using cigarettes and cocaine, the number of drinks the last time they partied/socialized (negative relationship), and number of sexual partners in the last school year (positive relationship) were predictive of "diagnosed with depression in the last school year."

Although not tabled, the NCHA demonstrated that students reported the top two believable sources of health information as health educators (89%) and health center medical staff (88%). The percentages indicate that the vast majority of students believe health information from these two sources.

DISCUSSION

A brief discussion of the data source helps to put the results in perspective. The NCHA Spring 2000 collected self-reported survey data from randomly selected students sampled by mail and/or through classrooms. The data were primarily from four-year institutions in the U.S. The institutions self-selected to participate and bore the financial responsibility to conduct the surveys. Reliability and validity analyses indicated that the data across various content areas were robust.[18] The demographics of the sample were similar to the U.S. college student population nationally, although the NCHA had slightly more women and younger students then the U.S. college aged population for 1999.

Depression is slightly higher in the college population than in the general

Table 2: Sex and Depressive Related Symptoms*

	Male	Female	Total	Phi Sig.**
Ever Diagnosed with Depression	340 (6.2)	1146 (12.8)	1486 (10.3)	-.105
Diagnosed with Depression in the Last School Year	126 (38)	433 (39)	559 (39)	-.064
Currently in Therapy for Depression	95 (28)	293 (26)	388 (27)	-.05
Currently Taking Medication for Depression	103 (30)	391 (35)	494 (34)	-.07

* Number and (Percentage) Students with Depression Diagnosis and Treatment
** All phi coefficients significant at $p<.001$

Table 3: Within the Last School Year the Number (Percentage) of Students That:

	Never			1- 2 Times			3 or more			Contingency Coefficient*
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Sig.
Felt Hopeless	2542 (45.9)	3026 (33.7)	5568 (38.4)	1425 (25.7)	2672 (29.8)	4097 (28.2)	1567 (28.3)	3280 (36.5)	4847 (33.4)	-.123
Felt Overwhelmed	597 (10.8)	354 (3.9)	951 (6.5)	1226 (22.2)	1253 (13.9)	2479 (17.1)	3711 (67.1)	7379 (82.1)	11090 (76.4)	-.179
Felt Exhausted	735 (13.3)	574 (6.4)	1309 (9.0)	1155 (20.9)	1423 (15.8)	2578 (17.7)	3646 (65.9)	6994 (77.8)	10640 (73.2)	-.141
Felt Very Sad	1488 (26.9)	1278 (14.2)	2766 (19.1)	1728 (31.2)	2723 (30.3)	4451 (30.7)	2316 (41.9)	4982 (55.5)	7298 (50.3)	-.167
So Depressed Difficult to Function	3353 (60.6)	4704 (52.4)	8057 (55.5)	1125 (20.3)	2117 (23.6)	3242 (22.3)	1053 (19.0)	2159 (24.0)	3212 (22.1)	-.081
Seriously Considered Suicide	5047 (91.3)	8106 (90.1)	13153 (90.5)	300 (5.4)	613 (6.8)	913 (6.3)	181 (3.3)	280 (3.1)	461 (3.2)	-.028
Attempted Suicide	5440 (98.4)	8873 (98.6)	14313 (98.5)	43 (.8)	96 (1.1)	139 (1.0)	45 (.8)	30 (.3)	75 (.5)	-.035

* All Contingency coefficients significant at $p<.005$

population. Possible explanations could be better access to health care and programs to raise awareness of depression and depressive symptoms. There is also the possibility of unexplained error that may occur with self-report survey data.

The results show that of students ever having been diagnosed with depression, approximately 40% were diagnosed in the last school year. This has important implications for health educators and student health medical staff in that it is imperative that depression-related health information be presented to students and made available. Further, treatment services must be

Table 4: Number (Percentage) Students Reported Having the Following in the Last School Year

	Male	Female	Total	Phi **
Anxiety Disorder	242 (4.6)	698 (7.9)	940 (6.6)	-.065
Chronic Fatigue Syndrome	99 (1.9)	344 (3.9)	443 (3.1)	-.057
Depression	667 (12.6)	1656 (18.8)	2323 (16.4)	-.081
Seasonal Affective Disorder	172 (3.3)	455 (5.2)	627 (4.5)	-.045
*Depression/Anxiety/Seasonal Affective Disorder: Lower Grade, Incomplete, or Dropped Course	221 (22.1)	508 (22.7)	729 (22.5)	-.016 NS
*Sleep Difficulties: Lower Grade, Incomplete, or Dropped Course	259 (9.5)	398 (7.6)	657 (8.2)	.042 p<=.001
*Stress: Lower Grade, Incomplete, or Dropped Course	386 (11.1)	823 (11.6)	1209 (11.4)	-.009 NS

* Students indicating Not Applicable were excluded
** All phi coefficients significant at $p<.001$ unless indicated by not significant (NS)

made available to students, not just for medical treatment but also for mental health treatment.

The pattern of data indicated a relationship between the depression indicators and sex, with females showing a higher percentage than men with the exception of "seriously considered suicide" and "attempted suicide," where the percentages between male and female are closer. This pattern also is the case with females demonstrating a higher percentage with "ever having been diagnosed with depression" in the general population and the NCHA sample. It is unclear if depression is simply more common in females or if there is an under-diagnosis of depression in males. The data show that a relatively high percentage of the students had received a lower grade, an incomplete or dropped the class due to depression/anxiety disorder/season affect disorder, which highlights these health problems as important student retention issues. The message here is not to overlook the signs of depression. Early intervention could protect a student from a downward spiral, whether psychological, social, economic and/or academic.

Predictors of "ever having been diagnosed with depression" and "diagnosed with depression in the last school year" indicated a very similar pattern. The present study was a cross-sectional design so that statements of cause and effect were not possible. On the other hand, each independent variable's effect was unique when correlated variance between variables was controlled or removed with simultaneous entry in logistic regression. There was a pattern to the results of the logistic regression analyses. Being female, GLBT and/or in an emotionally abusive relationship were predictive of both depression indicators. The odds ratios show that these characteristics were significant and moderately strong predictors. This should be noted by health educators and health services medical staff. To a slightly lesser degree, and differentially related, substance use and perception of weight were predictive of depression indicators as well. Describing oneself as overweight was predictive of "ever having been diagnosed with depression" and cocaine use was predictive of "having been diagnosed with depression in the last school year." Again, the data are cross-sectional; thus, cause and effect cannot be addressed, but at the same time the data can help inform health educators and health service medical staff of predicators of depression.

Being in an emotionally abusive relationship was predictive of "ever having been diagnosed with depression" and "diagnosed with depression in the last school year" and could be considered a stressor. Stress theory[21] indicated that multiple stressors could cause physiological chemical imbalances in the brain that affect physiology, similar to post traumatic stress syndrome.

These results indicated that depression in college students is an identifiable disorder that needs diagnosis and treatment. The

Table 5: Having Ever Been Diagnosed With Depression: Multiple Variable Logistic Regression

Variable	Beta	Odds Ratio	Lower 95% CI*	Upper 95% CI**
Sex [1]	.717***	2.05	1.731	2.422
Age	.052***	1.05	1.040	1.067
Undergraduate/graduate	.166	1.18	.938	1.486
Black vs. White	-.584**	.558	.394	.790
Hispanic vs. White	-.301*	.740	.555	.997
Asian vs. White	-.799***	.450	.337	.601
American Indian vs. White	-.019	.981	.549	1.754
Married vs. Single	-.020	.980	.849	1.131
Separated, Divorced, Widowed vs. Single	.495	1.641	.975	2.759
Sexual Orientation[2]	.596***	1.816	1.37	2.407
Campus Residence vs. Non	.102	1.107	.954	1.284
Verbal Threats for Sex	.146	1.157	.818	1.636
Sexual Touching Against Will	.230*	1.259	1.003	1.581
Attempted Sexual Penetration	-.184	.832	.529	1.309
Sex Penetration Against Will	.258	1.294	.737	2.272
Emotionally Abusive Relationship	.776***	2.174	1.806	2.617
Physically Abusive Relationship	-.195	.823	.527	1.284
Sexually Abusive Relationship	.188	1.206	.741	1.966
Frequency Cigarettes last 30 days	.132***	1.141	1.100	1.183
Frequency Alcohol last 30 days	-.079*	.924	.869	.982
Frequency Marijuana last 30 days	.071*	1.073	1.010	1.140
Frequency Cocaine last 30 days	.219	1.245	.957	1.618
Frequency Amphetamines last 30 days	.036	1.037	.940	1.143
Frequency Rohypnol last 30 days	-.162	.851	.593	1.220
Drinks Last Time Partied	-.015	.985	.963	1.007
# Times Five or More Drinks 2 Weeks	-.052	.949	.899	1.003
Number of Sexual Partners	.027	1.027	.998	1.057
Self Describe Weight[3]	.117*	1.124	1.021	1.238

* $p <= .05$, ** $p <= .01$, *** $p <= .001$

[1] Male=1 Female=2

[2] Heterosexual=1 GLBTQ=2

[3] Very underweight=1 through very overweight=5

results of this study confirm other research, help to identify correlates of depression, provide estimates of those students ever having been diagnosed with depression and percentages of those students diagnosed in the last school year. An initial recommendation is an increased focus on depression, depressive-related symptoms, and continued identification, diagnosis and treatment. Additionally, it is recommended that further research be conducted into the correlates of depression in women and a better understanding of depression among GLBT.

The NCHA also indicated that students reported health educators and health center medical staff as the two most believable sources of health information. It is clear that health educators have an important role relating information regarding depression and depression symptoms to college students.

The limitations of the research findings were that they are not generalizable to all U.S. students. The schools self-selected to participate in the NCHA and the vast majority of these data were from four-year institutions. There was a slightly larger proportion of women represented in the sample than the average college and university students nationally. There may be unexplained error in the variation of data collection methods, although efforts were made to provide standardization of survey methods through recommendations and guidelines provided in the NCHA User's Manual.

CONCLUSIONS

Results from the cross-tabluation analysis show that nearly twice as many females have been diagnosed with depression than males. Cross-tabulations further show that more females endorse depressive symptoms than males. Both males and females demonstrate that they have experienced academic impediments from depressive

Table 6: Diagnosed With Depression During the Last School Year: Multiple Variable Logistic Regression

Variable	Beta	Odds Ratio	Lower 95% CI*	Upper 95% CI**
Sex [1]	.806***	2.240	1.697	2.955
Age	.039***	1.040	1.020	1.060
Undergraduate/graduate	-.063	.938	.640	1.376
Black vs. White	-.940**	.391	.204	.749
Hispanic vs. White	-.133	.975	.567	1.351
Asian vs. White	-.578**	.561	.361	.872
American Indian vs. White	-.022	.979	.403	2.374
Married vs. Single	-.174	.840	.669	1.054
Separated, Divorced, Widowed vs. Single	.653	1.921	.971	3.800
Sexual Orientation[2]	.575**	1.778	1.170	2.702
Campus Residence vs. Non	.125	1.133	.899	1.428
Verbal Threats for Sex	-.137	.872	.499	1.523
Sexual Touching Against Will	.056	1.057	.743	1.505
Attempted Sexual Penetration	.240	1.271	.667	2.353
Sexual Penetration Against Will	.023	.977	.432	2.211
Emotionally Abusive Relationship	.980***	2.665	2.047	3.472
Physically Abusive Relationship	-.476	.621	.305	1.265
Sexually Abusive Relationship	.040	.961	.459	2.013
Frequency Cigarettes last 30 days	.102***	1.107	1.047	1.171
Frequency Alcohol last 30 days	-.070	.932	.846	1.027
Frequency Marijuana last 30 days	.057	1.059	.965	1.162
Frequency Cocaine last 30 days	.421*	1.523	1.102	2.104
Frequency Amphetamines last 30 days	-.006	.994	.856	1.156
Frequency Rohypnol	-1.356	.258	.045	1.471
Drinks Last Time Partied/Socialized	-.040*	.961	.925	.999
# Times, Five or More Drinks 2 Weeks	.032	1.032	.953	1.118
Number of Sexual Partners	.048*	1.049	1.007	1.092
Self Described Weight[3]	.061	1.063	.915	1.234

* $p <= .05$, ** $p <= .01$, *** $p <= .001$

[1] Male=1 Female=2

[2] Heterosexual=1, GLBTQ=2

[3] Very underweight=1 through very overweight=5

symptoms. The logistic regression demonstrated that being female was more predictive of "ever having been diagnosed with depression" as well as "diagnosed within the last school year." Besides sex there are other co-factors predicted of "ever having been diagnosed with depression" and "diagnosed with depression in the last school year," including GLBT and in an abusive relationship. These were the strongest and most consistent predictors. Finally, health educators and health service medical staff are the most believable sources of health information reported by college students. The implications for health educators and health promotion programs is that information about depressive symptoms should be provided to college students and that these college students should be directed to the appropriate resources on campus or in the community.

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