

MENTAL HEALTH IN COLLEGE STUDENTS: SUICIDAL BEHAVIORS AND WELL-BEING AND ITS RELATIONSHIP WITH A MEASURE OF ACADEMIC ACHIEVEMENT

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ABSTRACT

Recently, innovative research has explored the relationship between academic achievement and mental health related variables. The present study was conducted in order to assess the relationship between high school grade point average in a sample of Mexican college students from health-related schools. The sample consisted of 381 participants who answered the Suicidal Risks Inventory (IRIS) and the Well-being Scale of Ryff. Results show that 12% of students have had at least one attempt of taking their lives. High school grade point average is positively correlated with well-being and negatively correlated with suicidal attempts and ideation. It was not medical students who showed more at risks behaviors, but optometry students, as well as non-heterosexual students. Authors conclude that further research should be made in order to address this serious issue in youth.

Key words: Academic Achievement, psychological variables, suicide, college

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INTRODUCTION

College graduation, retention and drop-out rates are issues of great concern to both government and educational authorities. For example, the drop-out rate has been found related to several factors: socioeconomic factors, a problem with the enrollment process, the policy and institutional practices, and opportunities for access, among others (Narro, Martuscelli and Barzani, 2012).

Although at UNAM (Universidad Nacional Autónoma de México) much research has been done to understand if attrition in graduation and academic achievement are the best predictors of school performance (Camarena, Chavez and Gomez, 1985), data from the National Association of Universities and High Education Institutes (ANUIES) in Mexico, reported an average graduation rate of 67.8% for the 2003-2004 period (ANUIES, 2006).

204,940 college students were enrolled at UNAM in year 2015, FES Iztacala is one of six UNAM campuses. Its Departments and Research Centers are related to Health Sciences. In 2012, FES Iztacala had an enrollment of 13,912 students, of which 8,064 were women and 4,115 men. Also, FES Iztacala has six Schools (Optometry, Nursing, Medicine, Psychology, Dentistry and Biology). It has been found that students drop-out the most during the first two semesters, and data by Dávila (2013), reports an average drop-out rate of 43%. Among the factors related to drop-out rates on this campus, the economic and health related reasons were among the most commonly reported. Early pregnancies and a low availability for their chosen major are other reasons why students leave school.

Until the last 20 years, there has been few research in Mexico investigating how psychosocial variables are associated with drop-out rates and low academic achievement. These investigations are regarded as innovative. They include variables such as mental health, social support, optimism and resilience which in other countries have shown to be associated with academic performance (Troekel, Barnes and Egget, 2000; Eisenberg, Golberstein & Hunt, 2009).

With respect to mental health, research reports that college students face stress related to college entrance. But depressive symptoms are one of the most reported mental health problems among this population. Zivin, Eisenberg, Gollust and Golberstein (2009), conducted a study with 763 students at a public university in the United States who were asked to respond to psychological instruments regarding mental health related symptoms (anxiety, depression, eating disorders and suicidal ideation). Using a longitudinal design, students were also evaluated two years later. The authors found that more than half of the students suffered at least one mental health problem at baseline or follow-up. The second most common disorder at the time of the study were depressive symptoms, followed by anxiety symptoms. Suicidal ideation ranked fifth among the most frequent problems of mental health in these students.

Feldman, Goncalves, Chacon, Zaragoza, Bagés, and Paul (2008), recognized that "college students face challenges that demand a lot of physical and psychological resources" (p. 740), and after assessing 321 Venezuelan college students, found that favorable mental health conditions are associated with increased social support and lower academic stress.

Pritchard, Wilson, & Yamnitz (2007), who, concerned about the stress that has been reported experienced by Law and Medicine freshmen, conducted a longitudinal study with college students at Evansville, in the United States, and found that the physical and psychological health of students was changing as a result of their college experience, and students with negative coping strategies and perfectionism had poorer physical health, and increased alcohol consumption.

Gender has been identified as a risk factor for mental health problems in the general population and students are not an exception. Dyrbye, Thomas, and Shanafelt (2006) conducted a systematic review of 40 articles on stress in medical students, defined as the presence of depressive, anxious or burnout syndrome symptoms. The author's review suggests a high prevalence of depression and anxiety in medical students consistently even higher than the general population. Stress was found to be higher for women who showed overall significantly higher levels of general stress.

Balanza, Morales and Guerrero (2009), conducted a study to analyze the prevalence of anxiety disorders and depression in a sample of 700 college students at the Catholic University San Antonio of Murcia, Spain. The study found that 47.1% of the students suffered anxiety disorders, while 55.6% suffered from depression. Through a multivariate analysis, they found that females presented an increased risk of anxiety and depression.

Age could also be a risk factor that comes together with being a college student. Based on an epidemiological survey conducted in Mexico in the year 2000 by Medina-Mora et al (2003) it is on the college years (between 19 and 25 years old), when more than ten mental disorders have its age of onset. This means that a reasonable number of students will be having their debut of a mental disorder at this stage, many times triggered by highly stressful situations.

In recent years, work has been developed from the Positive Psychology approach which does not seek to study the pathology but the features that help make people happier, help them cope in stressful situations and even live longer. In this order of ideas, it has been found that traits, such optimism, and resilience, have positive effects on college students (Clauss Ehlers and Wibrowski, 2007; Singh and Jha, 2013). Well-being is a dynamic concept that includes subjective, social, and psychological dimensions as well as health related behaviors, and who has also been studied from this point of view. Ryff (1989) has been working with this concept and focuses on measuring multiple facets of psychological well-being. These dimensions include the following: self-acceptance, establishment of positive relations, a sense of autonomy in thought and action, ability to manage complex environments to suit personal needs and values, pursuit of meaningful goals and a sense of purpose in life and continued growth and development as a person. These key aspects of positive functioning have been associated with low levels of mental health issues.

On the past, our campus has conducted annual research to understand risk factors for depressive symptoms and suicidal ideation in our campus students (Eguiluz, 1995; Eguiluz, 2011; Eguiluz, Cordova, Eguiluz, Rosales, 2011). This research has found that some of our students have high suicidal risk, high risk of having depressive symptoms and feel their families are chaotic.

So far, we have seen that college students have high levels of stress and certain mental health related problems (depression, anxiety and suicidal ideation), and that being female could be a risk factor for academic achievement and drop-out. We have shown that being young is also a risk factor for presenting a mental health disorder, especially in stressful situations. On the other hand, it seems that the presence of optimism, resilience or well-being in students could work as protective factors.

This research leads us to be concerned about the impact that mental health may be having in academic performance. We agree with Rosenberg, Moore, Haas, Koestner, Hendin and Nemeroff (2008), who claimed this vulnerable population needed extension services and effective treatment of mental health. College is remembered by many as a stage of life full of pleasant experiences, where lasting friendships are developed, or where students find a stable romantic partner. However, data presented here shows that a large number of students are having mental issues that could force them to reduce their performance or even drop-out school, which directly impacts future employment, income and social mobility expectations.

The current state of affairs leads us to ask the following research questions: are depressive symptoms and suicidal behaviors associated with low academic performance of students? What is the prevalence suicidal behaviors in a sample of students at UNAM FES Iztacala? Are there gender differences in issues related to mental health? Is well-being related with academic achievement or suicide behaviors in college students?

The purpose of our work was to describe variables related to risk of depressive symptoms, suicide ideation in a sample of freshmen students UNAM, FES Iztacala, and its association with academic achievement.

Objectives

1. To determine the prevalence of depressive symptoms and suicidal behavior in a sample of students at schools of FES Iztacala.
2. Find out whether there is an association between depressive symptoms and suicidal behavior and academic achievement from high school.

3. Determine whether there are differences by gender and school on depressive symptoms and the high school grade point average and suicidal behaviors.
4. Describe the relationship between well-being and high school grade point average.

Hypothesis

H1. Depressive symptoms and suicidal behavior are common mental health problems among students in the six schools of UNAM, FES Iztacala.

H2. The prevalence of depressive and anxiety symptoms in Iztacala FES students is greater than the general population, with women at increased risk.

H3. There is an association between depressive symptoms, suicidal behavior, well-being and academic achievement from high school.

METHOD

Procedure

With the consent of the administration, fifteen freshmen classes were invited to participate. Participants were selected by convenience criteria. The purpose of the investigation was explained to students and they were invited to volunteer during school hours.

Data collection procedure

Students collectively completed the assessment in about 30 minutes via google forms at the computer center of the university in groups of about 20 to 25 students. One of the authors coordinated the application of questionnaires and three research assistants were present to answer any questions. The collected data then formed the database that used the Statistics Software SPSS version 22.

Instruments

Inventory for Suicide Risk in Adolescents (IRIS)

This 24 items inventory was used for assessment and includes 14 items from Section A (assesses suicidal ideation, life satisfaction and interpersonal difficulties), and nine from section B (evaluating planning and suicide attempts, psychological personal discomfort was used, and hopelessness). Participants responded on a Likert scale of 0-4 (“All this time – Never”). Dimensions of this instrument are suicidal ideation, planning and suicide attempts, life satisfaction, interpersonal difficulties, psychological personal distress and despair. This inventory has been used as a screening device and validated in Mexican population (Hernandez-Cervantes, Gómez-Maqueo and Lucio, 2006) with good indices of reliability and validity.

Sociodemographic data (age, sex, school, among others) and the high school grade point average obtained after graduating from high school was obtained from participants (Academic grading in Mexico employs a decimal system, from 0 to 10, to measure the students' scores. The grades are: 10: Excellent; 9: Very Good; 8: Good; 7: Satisfactory; 6: Passing; 0–5.9: Unsatisfactory / Failure). Also, an item about choice of major course of study was included: “Is this major your first choice?”

Ryff Scale of Psychological Well-being (1996)

This scale consists of 54 questions, with six subscales of nine questions per subscale. Questions, when summed, address overall PWB. It includes six dimensions: autonomy, self-acceptance, positive relations with others, purpose in life, personal growth, and environmental mastery. This inventory has been validated in Mexican populations (Medina-Calvillo, Gutiérrez-Hernández, Padrós-Blázquez, 2013).

RESULTS

The sample consisted of 381 freshmen participants, 248 women, 133 men. Classified by school, we assessed 89 medical students, 98 of psychology students, 76 from the biology school, 55 and 63 from nursing and optometry Schools respectively. Most of the participants were in the age range of 18 to 21 years ($n = 352$). Most of the students reported having a

heterosexual orientation (90%), while 12 students reported having homosexual preference (3%) and 25 bisexuals (6%). 97% of students reported being single (See Table 1).

Table 1

Sociodemographic characteristics of the participants

	Variable	N	%
Sex	Women	248	65.1
	Men	133	34.9
Sexual orientation	Heterosexual	344	90.3
	Homosexual	12	3.1
	Bisexual	25	6.6
School	Medicine	89	23.4
	Psychology	98	25.7
	Biology	76	19.9
	Nursing	55	14.4
	Optometry	63	16.5
Age groups	18 - 21 years old	352	93.6
	22 or older	24	6.4
Marital status	Single	371	97.4
	Other	10	2.6
High school grade point average	≥ 7.6 (Satisfactory)	68	17.8
	7.7 – 8.2 (Medium)	122	32
	8.3 – 8.9 (Good)	124	32.5
	9.0 + (Very Good)	67	17.6

Note: $N = 381$

When asked “Was this your major course of study?” Biology, Optometry and Nursing School students showed high percentages of not getting the career they chose (15%, 54% and 68% respectively).

The 24 IRIS inventory items used in this research showed to have internal consistency through Cronbach Alpha test $\alpha = .938$. One hundred nineteen participants endorsed at least one of the critical items of the IRIS Inventory (ideation, planning and attempts), of which 61% were women and 38% men. Twenty six percent were enrolled at the school of psychology, 23% were biology students, 19% were medical students, 17 were optometry students, and 13% were nursing students. Regarding the frequency of the item on suicide attempt, "I have tried to take my life" thirty two students, of which 25 students were women and seven men, report having tried to take their lives once, 13 twice (eleven women and two men) and four students have tried more than four times (two women and two men) resulting in a total of 49 students who have attempted suicide (hurting, cutting themselves, taking pills, choking, poisoning, with the purpose of dying) at least once (12%) (See Table 2).

Analyzed as a whole, optometry school students had the highest average of suicidal ideation, interpersonal difficulties, hopelessness, and psychological distress, while the students in biology school presented the highest levels of satisfaction in life, and planning and suicide attempts. The ANOVA test reveals that the differences are significant both for the dimensions of interpersonal difficulties, and satisfaction in life (Table 2).

Table 2

Media in each school on the IRIS Scale and its dimensions.

	Medicine	Psychology	Biology	Nursing	Optometry	<i>gl</i>	<i>SS</i>	<i>MS</i>	<i>F</i>
IRIS Total Score	17.98	19.11	21.62	17.05	22.03	4			2,361
Among groups							1,294.41	323.6	
Intra groups							51526.42	137.03	
Total Score from the life dissatisfaction dimension	26.06	24.45	22.72	26.04	25.08	4			2,576*
Among groups							129.35	32.39	
Intra groups							4,720.94	12.555	
Total score from the suicidal dimension	1.35	1.8	2.04	1.82	2.57	4			1,556
Among groups							58.08	14.52	
Intra groups							3508.13	9.33	
Total Score from the Persona Difficulties dimension	5.96	5.92	5.91	5.2	6.17	4			2,515*
Among groups							31.501	7,875	
Intra groups							1177.4	3,131	
Total Score from the Planning and suicidal attempts dimension	0.96	1.44	1.89	1.65	1.51	4			2,048
Among groups							39.32	9,832	
Intra groups							1,805.29	4,801	
Total Score from the hopelessness dimension	5.56	6.06	6.03	5.49	6.49	4			3,603*
Among groups							44.96	11.24	
Intra groups							1,172.98	3.12	

Note: n= 381

Women showed higher high school grade point average ($M = 8.37$) compared with male students ($M = 8.02$). Student's t-test shows that these differences are statistically significant ($F = 8.759, p = .000$), likewise, heterosexual participants have a higher high school grade point average ($M = 8.27$) than participants with a different sexual orientation (homosexual, bisexual) $M = 7.99$, the same statistical test indicates that the differences are also statistically significant ($F = 1.379, p = .015$).

For the high school grade point average from high school, the sample was grouped into four options: 1) Students with an high school grade point average of 6.9 to 7.8 ($N = 102$), 2) Students with an average of 7.9 to 8.3 ($n = 103$), 3) Students with an high school grade point average of 8.4 to 8.9 ($N = 109$), and 4) Students with an high school grade point average of 9.0 to 9.8 ($N = 67$). Employing this grouping as a criterion of analysis, and using a Spearman correlation test between this variable and three dimensions of the IRIS Inventory that high school grade point average was negatively correlated with planning and suicide attempts and psychological personal discomfort. These associations were statistically significant ($r = -.130, p = .001, r = -.118, p = .001$ and $r = .138, p = .001$, respectively).

Well-being, measured by the Ryff Scale was negatively associated with suicidal behaviors measured by the IRIS Scale. The Ryff items showed adequate levels of reliability (Cronbach Alpha $\alpha = .937$). Using Pearson correlation test, we found that the critical item "I tried to take my life" was negatively associated with global well-being ($r = -.306, p = .000$). High school grade point average was also associated with global well-being (Total Ryff Score), using Spearman's correlation test ($r = .117^*, p = .010$). Total results of the IRIS Scale and all of its dimensions are negatively associated with global levels of well-being. ($r = .771, p = .000$) (See Table 3).

Table 3

Spearman correlations between high school grade point average, and Total Scores from the IRIS and Ryff instruments.

	High school grade point average	Total Ryff Score	Total IRIS Score	Planning and attempt dimension of the IRIS Inventory	Dissatisfaction of the IRIS Inventory
Global Well- being Total Ryff Score	.117*	-			
Total IRIS Score	-.068	-.771**	-		
Planning and suicide attempt dimension of the IRIS Inventory	-.130*	-.398**	.600**	-	
Dissatisfaction of the IRIS Inventory	-.107*	-.763**	.833**	.404**	-
Personal Discomfort of the IRIS Inventory	-.118*	-.467**	.570*	.277**	.422**

Note: $N=381$.

* $p < .05$.

** $p < .001$.

DISCUSSION

The purpose of this work was to describe variables related with risk of depressive symptoms and suicide ideation in a sample of freshmen students at UNAM, FES Iztacala, and its association with academic achievement. We tried to determine the prevalence of suicidal behaviors in a sample of students at the six Schools of the FES Iztacala and explore its relationship with high school grade point average. We did find that there are prevalent

rates of suicidal behaviors, especially on the critic item “I have tried to take my life” where more than 10% of students have had at least one attempt and four have had four or more attempts. It was not Medicine School students who had the highest scores on the IRIS scale, or in suicidal behaviors, it were Optometry students, who frequently are those students who, when finishing high school want to go to Medicine School, but do not get the School they chose in the first place. Also, these students showed lower levels of well-being, and the higher levels of hopelessness, personal difficulties and psychological discomfort.

High school grade point average, in this study, showed to be higher on women, being this difference statistically significant. An interesting fact was that heterosexual participants showed higher academic achievement scores, compared with participants having a different sexual orientation. We found that a low high school grade point average was associated with the suicidal behaviors, having low correlations, but significant. Academic achievement scores were positively associated with well-being. We present interesting results towards well-being and suicidal behaviors relationships. Where the highest the well-being of students the lowest risk for suicidal behaviors. The critical item “I have tried to take my life” was strongly and negatively associated with lower levels of global well-being.

Our findings increase our concern as the prevalence of suicidal intent in our sample is quite high (12%). Goebert, Thompson, Takeshita, Beach, Bryson, Ephgrave, Kent, Kunkel, Schechter & Tate (2009) did a multisite, anonymous study that assessed depressive symptoms and suicidal ideation in medical trainees (medical students and residents) and found that nearly 6% of the participants reported suicidal ideation, with differences by trainee level, with a higher rate among medical students. Furr, Westefeld, McConnell, & Jenkins (2001), in their research, found that 9% of a sample of 1,455 college students reported having considered committing suicide since beginning college. Recent bibliography report increasing rates of suicide in young people. The World Health Organization states that suicide was the second leading cause of death among 15-29-year olds globally in 2012 accounting for 1.4% of all deaths worldwide. The data we present provides evidence of the need for monitoring and taking actions so that lives may be saved among college students, especially those in health-related schools.

Our findings agree with research that has found that women report higher levels of stress (Rayle and Chung, 2007; Hudd, Dumlao, Erdmann-Sager, Murray, Phan, Soukas, & Yokozuka, 2000). Also, we know that women access health services more frequently (Gómez, 2002). There may be an opportunity to design programs designed to support students in their adjustment to college (eg. Freshman Year Experience programs) to focus on women's particular mental health needs. We could give information to female students to disseminate among their classmates also mental health problems and of professional help seeking would be identified.

"College matriculation represents", as Read, Colder, Merrill, Ouimette, White, and Swartout (2012) say, "a period of transition to adulthood, one that is marked by new freedoms and responsibilities". This developmental period in which the authors found that heavy drinking and drug use may be increased, reconfirms the need to create resources inside the college in order to address mental health related problems. We join the approach that a group of authors like Richards (2009), when he says: "Universities have a responsibility to develop appropriate interventions to respond to the mental health needs of their students" (p.231).

In 2001, Russell and Joyner discussed the debate around sexual orientation and an elevated risk of suicide. Their research, and others (Remafedi, French, Story, Resnick, & Blum, 1998; Cochran, 2001) provide evidence that sexual minority youths are more likely than their peers to think about and attempt suicide. As Silenzio, Pena, Duberstein, Cerel, & Knox (2007) report that, more research should be done in order to find if LGB adolescents and young adults may need a different treatment focus and alternative points of entry to health services.

As reported, optometry had the highest scores on the IRIS scale. Research is needed to investigate how students are feeling towards their first choice of major vs the major in which they were enrolled. Our data reveal that 68% of optometry students did not choose that major and this could impact their well-being. Thompson, Eggert, Randell, & Pike (2001) summarize other research reporting that suicidal behaviors are linked to school performance factors: suicidal ideation is associated with weak academic orientation, suicide attempts are related to deficits in school performance, and suicides often follow long absences from school.

Finally, we want to mention that variables from the Positive Psychology approach such as well-being could be useful to assess and to incorporate in evidence based interventions. As our study, other work has confirmed the relationship between high school point average and variables like well-being or optimism (Chemers, Hu, & Garcia, 2001). Here we offer support of the relationship between well-being suicide and academic achievement.

Several lines of research can be followed based on these results, although the present study has several limitations. First of all, it needs to be looked at the relationship between suicidal behaviors and gender differences including a more balanced sample. Also, it may seem, based on further work, not included in this paper, relationships between sexual orientation and suicidal behaviors, and well-being. Because on the data presented here students with a different sexual orientation have significantly lower academic achievement scores. Westefeld, Maples, Buford, Taylor (2001) conducted a study where they compared 70 gay male/lesbian/bisexual (lesbigay) college students with a control group of 154 college students on measures of loneliness, depression, and suicidal risk and found that the gay/lesbian/bisexual sample was more depressed, lonelier, and had fewer reasons for living than the heterosexual sample and more than half of the lesbigay students described a risk for depression/suicide. Participants some particular challenges that could explain that being lesbigay sometimes includes additional college challenges that interact with higher prevalence of depression or suicidal behaviors, like concerns about harassment and discrimination from professors and peers, the possibility of receiving physical harm and living with prevalence of stereotypes and prejudicial attitudes towards the LGBT community.

For the future studies, larger samples and randomized selections of groups could be really helpful in order to have more generalizable data. To have more support on the “School’s risk hypothesis” students from other schools (Law, Design, Architecture, Mathematics, etc) could be included, because all Schools in this sample are Health related Schools and burnout has shown to be bigger in these populations (Gorter, Freeman, Hammen, Murtomaa, Blinkhor and Humphris, 2008), control groups are needed to confirm the influence of specific schools in mental health related variables.

We would only like to mention that we have been doing follow up, via email with participants and rates of students asking for Psychological Emergency therapy have been raising and being addressed.

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