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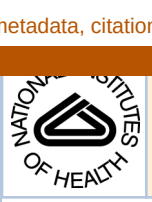

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J Affect Disord. Author manuscript; available in PMC 2014 March 05.

Published in final edited form as:
J Affect Disord. 2013 March 5; 145(3): 324–330. doi:10.1016/j.jad.2012.08.010.

Depression symptoms and stressful life events among college students in Puerto Rico

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Abstract

Background—The transition from adolescence to adulthood is associated with stressful adaptation experiences that may increase symptoms of depression. We explored the prevalence and sex differences of depressive symptoms and suicidal ideation in freshmen Latino college students in Puerto Rico, and identified stressful life events that could contribute to symptoms of depression.

Methods—Two thousand one hundred sixty-three freshmen college students from the University of Puerto Rico (UPR) public education system were assessed for depression symptoms using the Beck Depression Inventory (BDI) and stressful life events using open questions.

Results—Nine percent of the sample reported depression symptoms at a moderate or severe level (BDI ≥ 20). Chi square analyses revealed a significantly higher prevalence for three of the stressful life events in females than males: relocation (10.2% females vs. 7.3% males; X^2 (1) = 4.13, p=.042), break-up of a significant relationship (25.3% females vs. 17.8% males; X^2 (1) = 13.76, p<.001), and illness (11.2% females vs. 7.3% males; X^2 (1) = 7.23, p=.007). The model that best explained the variance of BDI scores among females was the presence of suicide risk, relationship break-up, illness, and relocation for college, whereas for males a similar model without the relationship break-up variable resulted in a better fit.

Conclusions—Freshmen college students present a broad range of depression symptoms and certain stressful life events are associated with an increased prevalence of depression symptoms. Early detection of depression and tailored prevention programs should be developed to improve both mental health and academic performance among the college population.

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Conflict of interest:
All authors declare that they have no conflicts of interest.

Contributors:
Drs. Reyes-Rodriguez, Rivera-Medina, Cámara-Fuentes, Suárez-Torres & Bernal designed the study and wrote the protocol. Dr. Reyes-Rodríguez managed the literature searches and wrote the first draft of the manuscript. Dr. Rivera-Medina undertook the statistical analysis. All authors contributed to and have approved the final manuscript.

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Keywords

depression; prevalence; college health; suicide risk; stressful events; sex differences

Depression is a major public health problem and the second leading cause of disability worldwide (World Health Organization, WHO, 2001) for all ages and both sexes (Moussavi et al., 2007). The transition from adolescence to adulthood is associated with stressful events and many adaptation experiences that may increase symptoms of depression (Dyson & Renk, 2006; Jarama Alvan et al., 1996). Mental health problems in the college population are not only prevalent but also persistent throughout the college years (Zivin et al., 2009). The National College Health Assessment from the American College Health Association (2009) found that 60.2% (50.2% males, 65.8% females) felt very sad at any time within the last year and 29.6% (25.6% males, 31.7 females) felt so depressed that it was difficult to function. Also, they found that 1.3% reported suicide attempts. Moreover, in a study conducted by Hass et al., (2008) 84.4% of college students participating on a web based screening study were classified as high to moderate suicide risk. These results are consistent with other studies conducted in college populations in the United States in which depression prevalence ranged from 5% to 81.2% (Armstrong & Oomen-Early, 2009; Arria et al., 2009; Garlow et al., 2008; Swanholm et al., 2009; Weitzman, 2004).

Stressful experiences have been associated with early adulthood, especially with the college entry process. Some of the challenges faced by freshmen students include the transition to adulthood, individuation (Dyson & Renk, 2006), academic overload, financial problems, less time with family, and pressure to succeed (Tosevski et al., 2010). While higher levels of stress were related to higher levels of depressive symptoms (Dyson & Renk, 2006), results from a hierarchical multiple regression demonstrated that negative life events were significant predictors of depressive symptoms (Dixon & Reid, 2000). According to the cognitive vulnerability model of depression (Beck, 1987), cognitive structures that generate negative content and consequently the processing of negative information constitute an enduring vulnerability for the development of depression. When confronted with negative life events, cognitive vulnerable persons may become depressed. This is also consistent with the diathesis stress model (Eberhart et al., 2011). Also, higher levels of stress were related to risky behaviors in college population such as alcohol abuse (Weitzman, 2004).

Santos and collaborators reported a positive correlation between perceived negative events and depression symptoms in a Puerto Rico college sample (Santos et al., 1998; Santos, & Bernal, 2001). Among depression risk factors identified in the Latino population were being female or a youth, being unemployed, unmarried status, a low level of education and low income (Bernal & Reyes-Rodriguez, M.L., 2008; Saez-Santiago & Bernal, 2003). However, no specific risk factors for depression in the general Latino population have been reported (Saez-Santiago & Bernal, 2003).

Depression affects quality of life. Especially for college students, issues such as social and family relationships (Jarama Alan, Belgrave, & Zea, 1996), academic productivity (Hysenbegasi et al., 2005), and retention in college can be affected by depression. For example, studies that explored the impact of depression on the academic productivity in college students found that depression is associated with a decrease in academic performance (Hysenbegasi et al., 2005; Keyes et al., 2012). Depressed students are more likely to miss classes, exams, and assignments in comparison to non-depressed students (Hysenbegasi et al., 2005). In a study that evaluated the association among college career stages, negative life events and psychological distress, negative experiences in peer relationships were most predictive of distress and that younger students were vulnerable to

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negative life events (Braboy & Finney, 2002). Therefore, the awareness and early detection of depression symptoms in college could reduce the mental health burden, enhance the longer-term prognosis related to future risk of depression, and improve students' quality of life and academic achievement.

Suicidal ideation is another major concern in college student populations. With depression as the mental disorder most often associated with suicide (DeLeo et al., 2002), the assessment of depression symptoms as well as suicidal ideation is imperative for prevention efforts. A recent study demonstrated that although the highest scores in suicidal ideation occurs in college students with high depressive symptoms, significant suicidal ideation is also evident in college students with mild and moderate depression symptoms (Cukrowicz et al., 2011). Sex differences are also of interest when assessing suicidal ideation with women being twice as likely to attempt suicide, and men being four times more likely to die from suicide attempts (Kytle et al., 2008; Oquendo et al., 2001). For the last 12 years in Puerto Rico (1990–2002), 85% of those who committed suicide were men (WHO, 2002).

Research on depression symptoms and suicide risk and attempts in Latino college samples is scant. Also, Latinos are underrepresented in the United States college populations (Jarama Alan et al., 1996; Pidcock et al., 2001). Nevertheless, national studies in the United States found that Latinos represent one of the minority groups with high levels of depressive symptoms in comparison to non-Latinos Whites, especially in early adulthood (Walsemann et al., 2009) and reported a greater history of self-harm behaviors than non-Latinos Whites (Gutierrez et al., 2001). Consistently, Fang et al,.(2010) found in a study with pre-medical and non-premedical students higher level of depression in Latinos in comparison with Whites. Furthermore, suicide is one of the major causes of death in Latino/a youth (Duarte-Velez & Bernal, 2007). Current depression among young adults (ages 18–24) has a prevalence estimate of 7.7% in Latinos in the United States and 10.2% in Puerto Rico, according to the most recent report from the Centers for Disease Control and Prevention (CDC, 2010). Consistently, Puerto Ricans in the United States report greater psychiatric symptomatology than other Latino subgroups (Alegria et al., 2007; Oquendo et al., 2004). These results raise issues about how comparable Puerto Ricans are, either in Puerto Rico or on the mainland, to other Latino groups and why depressive symptoms are so prevalent among Puerto Ricans.

The current study is a secondary analysis of a previous eating disorders and depression prevalence study conducted at the University of Puerto Rico System. Considering the effect of depression on students' life and the scant data about depression on Latino college students, the goals of this study were to: 1) explore the prevalence and sex differences of depressive symptoms and suicidal ideation in freshmen Latino college students in Puerto Rico, and 2) identify stressful life events in the sample that could contribute to symptoms of depression.

Method

Participants

A representative cluster sample was used. The freshmen population was identified from those enrolled during the 2004–2005 academic year in nine of the eleven campuses that comprise the University of Puerto Rico (UPR). Since access of a complete list of students was unavailable, a cluster sample method based on classrooms weighted by the number of freshmen students in each class was employed. The campuses were sampled either during the 2004–2005 or the 2005–2006 academic years. The representative sample comprised of 2,163 (1,429 females, 722 males) freshmen college students. The sex distribution in this sample matched with the student sex profile distribution in the UPR in which approximately

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67% of students are females. A total of 161 participants were excluded due to missing questionnaire data. The final sample included in the analysis was 2002. The mean age of students was 18.26 years (SD =1.28). Most of the participants (96.14%) were single at the time of the study. Participants did not receive compensation for participation.

Instruments

The Beck Depression Inventory (BDI) (Beck, 1967) is a 21-item self-report instrument that assesses the severity of depressive symptoms (Beck et al., 1983; Beck et al., 1988). In the current study, we used the 22-item Spanish version of the BDI (Bernal et al., 1995; Bonilla et al., 2004) that was adapted to meet the DSM-IV criteria for major depression. In the current study, the internal reliability index is 0.92 using Cronbach's alpha. We used a cut-off point of 18 to indicate depressive symptoms of clinical concern. Levels of depression were defined using the BDI score as mild (BDI=18–19); moderate (BDI=20–26); and severe (BDI ≥ 27).

A general information sheet was used to obtain demographic information such as age, marital status, major studies, and dietary behaviors. One item with stressful event categories was included to explore stressful life events during the past year. Five stressful categories were presented (i.e., death of family member or significant other, parent's divorce, moving for university entry or relocation, relationship break-up, illness) and an open "other" option was provided to add additional stressful event. Participants were also asked to identify which event was still affecting their life at the moment of the study was conducted.

Procedures

The study was conducted in coordination with the Quality of Life Offices at the UPR System. The detailed procedure was presented in a previous publication (Reyes-Rodriguez et al., 2010). Briefly, the sample was selected from a list of sections of required courses for first-year students on each campus. Trained interviewers were dispatched and the questionnaire was distributed to all the students in each section. All questionnaires were anonymous and all students received a handout that included referrals for professional services. In coordination with Quality of Life Offices, a series of talks for students were developed around different campuses to create awareness about the symptoms of depression and how to seek help. The study was approved by the University of Puerto Rico Human Subjects Research Committee. A waiver for parental authorization was granted by the Human Research Committee.

Data analytic strategy

Original source data were collected via self-report questionnaires and were entered into a SPSS data entry builder's database. SPSS for Windows version 17.0 was used for analyses. Descriptive analyses were conducted to describe the sample in terms to demographic information, depression symptoms and stressful life events. For all statistical tests, p values of 0.05 or lower were considered statistically significant. Nonparametric statistics like Chi square analyses were used to evaluate the relation among demographic variables, stressful life events, and suicide risk with level of depression symptoms. Levels of depression were established according to the cut-off points indicated by Padilla, Bernal and Bonilla (2003) with a sample of Puerto Rican students. The levels were as follows: 0–10 = no depression symptoms; 11–19= mild; 20–27 = moderate; 28–66 = severe.

Multiple regression analyses were used to evaluate the variance of depression symptoms explained by demographic characteristics or stressful life events. Four regression models were conducted using the enter method on SPSS with all requested variables entered at once. However, the sequence of the variables in the models was established according to their

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significance obtained from the Chi square analyses. Therefore, while controlling for sex for the first two models, the sequence of the variables was relationship break-up, illness and moving for college in model 1, and with a similar sequence but with suicide risk after sex for model 2. Separate models were performed to evaluate how the regression coefficients from model 2 differed by sex, therefore running a similar model for females and males. For the interpretation of the variables included in the regression model, sex was operationalized as 1 for females and 2 for males, and 1 for the presence of a stressful life event and 0 for the absence. The suicidal ideation is one of the items on the BDI scale. Although often related to depression, suicidal ideation can also be experienced independent of depression. As such, this item was considered as an independent variable for several analyses. For those analyses where the suicidal ideation item and the BDI total score were considered as separated variables, the suicidal ideation item was excluded from the total raw score of the BDI to avoid multicolinearity in the models.

Results

Depression symptoms

Using the raw score obtained in the BDI, the mean for depression symptoms in the total sample was 7.61 (SD = 8.75). A *t* test by sex indicated that females scored significantly higher on the BDI (M= 8.26; SD = 9.01) than male students (M= 6.22; SD= 8.07) [t (1394.15) = 5.08, p < .001, d = 2.04, 95% CI (1.25, 2.83); n = 1992]. Considering the cut-off points indicating level of depression symptoms suggested for Puerto Rican students (Padilla et al., 2003), 9% of the sample reported depression symptoms at a moderate or severe level (BDI ≥ 20).

Stressful life events

The prevalence of stressful life events in the sample was: 23% break-up of a significant relationship, 22% death of a family member or close friend, 10% illness, 9% relocation from their parents' home for college attendance, and 4% parental divorce. As presented in Table 1, Chi square analyses revealed a significantly higher prevalence for three of the stressful life events in females than males: relocation (10.2% females vs. 7.3% males; X^2 (1) = 4.13, p=.042), break-up of a significant relationship (25.3% females vs. 17.8% males; X^2 (1) = 13.76, p<.001), and illness (11.2% females vs. 7.3% males; X^2 (1) = 7.26, p=.007).

Levels of depression by demographic characteristics and stressful life events

Table 2 illustrates levels of depression symptoms according to demographic characteristics and stressful life events. Chi square analyses demonstrated that the percentage of females in moderate or severe depression categories was significantly higher (10.4%) than in males (7%) (X^2 (3) = 19.69, p <.001). Marital status was not significantly associated to level of depression symptoms. In terms of stressful life events, in general, those college students who reported stressful life events scored in significantly higher levels of depression symptoms. Specifically, the prevalence for those who reported relocation for college was 17.4% on moderate to severe depression symptoms in comparison of a prevalence of 8.5% for those who did not reported the relocation as a stressful event (X^2 (3)= 23.30, p<.001). A similar pattern was observed for break-up of a significant relationship (16.7% for those who reported break-up vs. 7.2% for those who did not reported the event; X^2 (3) = 93.40, p < .001), and illness (19.0% for those who reported illness vs. 8.2% for those who did not reported the event; X^2 (3) = 41.97, p < .001). Using a Pearson coefficient, a significant correlation was found between the number of stressful events experienced during the first college year and depression symptoms (r = .29 p < .0001).

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Depression and suicide risk

Figure 1 shows the proportion of individuals who reported suicidal thoughts according to item 9 of the BDI and the level of depression symptoms. Chi square analyses showed that, while the majority of non-depressed students reported no suicidal thoughts (82.1%; n = 1446); the 73% (n = 11) of the individuals who reported *they would like to attempt suicide* and 77% (n = 10) of those who reported *they would do it if they have the opportunity*, scored in the severe level of depression symptoms (X^2 (9) = 775.55; p <.001).

Table 3 presents two regression models. *Model 1* considers the total score of the BDI for depression symptoms including the suicide item as dependent on sex, break-up of relationship, illness, and relocation for college as predictors. With the exception of sex, the order of the variables was determined by their significance in the Chi square analyses. While *Model 2* excludes the suicide item from the BDI total score including the item as a predictor. For Model 1, the results obtained show that sex, relocation, relationship break-up, and illness accounted for 8% of the variance in depression symptoms (R^2= .08; F= 45.08 (4, 1984), p <.001). However, in Model 2, considering the suicide item as predictor, the variance explained in depression symptoms increases from 8% to 36%. Thus, thoughts of suicide accounts for an additional 28% of the variance in depression symptoms. For Model 2, given that sex was operationalized 1 for females and 2 for males, the unstandardized betas suggest that while keeping the rest of the variables in the model constant, if the student is female the BDI increases 1.72 units. Relocation for college explained 2.834 units of change in the BDI, while illness and relationship break-up explained 2.55 and 2.84 units of change respectively. Also, in Model 2, those students who reported suicidal ideation, the BDI increase in 11.04 units when the rest of the predictors are constant in the model. Both models, Models 1 and 2 meets the assumptions of homoscedasticity, independence of errors, normally distributed errors, independence of outcome variables, linearity, no perfect multicollinearity, and non-zero variance, therefore the results could be applied to the population of interest.

A regression analysis was also performed (data not shown) with sex, the suicide item, and number of life stressors included as predictors of the depression symptoms variance. This model produced results very similar to those obtained in Model 2 in Table 3. While controlling for the rest of the predictors in the models, the units of change for the BDI for sex was −1.61, 11 for suicide and 2.09 for life stressors, all with significance less than .001. This model also met with the assumptions for multiple regressions (R^2*= .37; F=386.60 (3, 1956), p < .001).* However, although this model is more parsimonious than Model 2, including life stressors as a single variable it did not show the specific stressors that contributed to the variance in depression symptoms.

Finally, variables considered in model 2 (Tables 4) where evaluated for females and males in separate models. Interestingly, although all the regression coefficients were significant for the females, for males, one variable (relationship break-up) was not significant. The model for males explained more of the depression symptom variance (48%) than the model for the females that accounted for 31% of the variance. This may respond to the significance of the variables by sex, while for females the BDI increase 10.6 units when the suicide risk is present, for the males the BDI increase 11.91. When illness stressor is present, the BDI increase 2.42 units for females while the increase was 3.10 units for males. A similar pattern was seen for relocation for college. Only the stressor of relationship break-up followed a different pattern being significant for females who increased in the BDI by 3.49 units, but not for males. In summary, the model that best explain the variance of the BDI in females was the presence of suicide risk, relationship break-up, illness, and relocation for college, whereas for males a similar model without the relationship break-up variable produce a better fit. Analyzing the models for both sexes, without the breakup relationship variable,

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produced a decrease for the females in the variance explained by the model (from 31% to 28%). While for the males, the variance explained remained almost the same from 48% to 47.6% indicating that for the males we could obtain a more parsimonious model.

Discussion

Nine percent of the sample reported moderate or severe depression. Our results are comparable to the most recent CDC report on current depression during 2008–2009 among young adults (18–24) in the United States, including Puerto Rico (7.7% Hispanic in U.S.; 10.2% in Puerto Rico) (CDC, 2010). Significantly higher mean score on the BDI was found among females than males. Although the causes of differences in depression symptoms between the sexes are still unclear, genetic factors, the interaction between genes and the environment, hormones and psychological factors have been considered as possible explanations (Essau et al., 2010; Uddinet al., 2010). However, another factor to be considered is the difference between sexes in the manifestation of depression symptoms and the potential bias of traditional depression inventories such as the BDI and the Center for Epidemiologic Studies Depression Scale (CESD) to capture this variance (Rivera-Medina et al., 2010; Stommel et al., 1993). Alternatively, the universalistic assumptions on which the nosology of depression symptoms have been challenged (Alegria & Mc Guire, 2003). Also, the lack of metric equivalence in the measures across sex could imply somewhat different models for depression for men and women (Rivera-Medina et al., 2010).

The results for stressful life events also show sex differences, especially in relocation, break-up of a significant relationship and illness, with females been more affected by these stressful life events. Specifically, break-up has been found to be relevant in the explanatory model for depression in females in this sample. This may be accounted for the interpersonal orientation in females who tend to place more value on relationships for sense of self-worth (Essau et al., 2010). As expected, those participants who reported stressful life events also present depression symptomatology and with an increment in severity. The cognitive vulnerability-stress model developed by Abramson and Alloy (2006) attempts to explain how certain negative cognitive styles in some individuals promote more vulnerability to developing depression when facing stressful events. Also, Hyde et al., (2008) used this model to explain sex differences in depression. According to Hyde et al., (2008), vulnerability factors combined with stressful events lead to depression. Furthermore, they propose an affective, biological, cognitive model to explain sex differences in depression in adolescence. Key components in their model are three bio-logical components (genetic influences, reproductive hormones involved in puberty and pubertal timing), the fact that females tend to experience more negative life events than males, and the interaction of these biological and environmental factors. However, multiple pathways should be considered to account for individual differences (Hyde et al., 2008).

Consistent with other studies, we found higher levels of suicidal ideation for participants with higher levels of depression (moderately severe to severe) (Farabaugh et al., 2012; Garlow et al., 2008; Keyes et al., 2012). However, other studies assert that the association between suicide risk and the severity of depression is moderate; and, furthermore, suicide risk and attempts could occur at all levels of depression severity (Keilp et al., 2012). According to Keilp and collaborators (2012), the primary link between depression severity and suicidal ideation is through a subscale that measures mood disturbance and self-blame rather than vegetative or somatic symptoms. Specifically, on the BDI, items of sadness, pessimism, loss of interest, appearance and guilt were found to characterize this subjective aspect of depression that is most strongly associated with suicide (Keilp et al., 2012).

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Suicide is one of the leading causes of death among youth between the ages of 15 and 24 in the United States (Gutierrez et al., 2001). In the Latino college population, suicide risk has been found to be higher than in Whites (Gutierrez et al., 2001). The high prevalence of suicidal ideation, especially in those who experience severe depression, underscores the necessity of establishing an early detection and referral program for the college population (Garlow et al., 2008). However, other studies found that suicidal ideation occurs often in the absence of clinically significant depressive symptoms, especially among freshmen, suggesting that campus health center staff should develop new strategies to identify students at risk for suicide (Arria et al., 2009). Exploring depressive and suicide risk in a college sample constitutes a challenge and raises questions about the best way to collect data (e.g., anonymous versus identified). In the current study, the data were collected anonymously because participants were part of an eating disorders prevalence study, and issues related to stigmatization of eating disorders could discourage participation. In the current study protocol, each participant received a list of resources, and efforts were conducted with Quality of Life Offices to reach out to students reporting any depression symptoms. However, it is imperative for college institutions to develop a systematic screening protocol to identify those students with depression symptoms and those who may be at risk for suicide. Although many colleges and universities in the United States (e g., Arizona State University, St. Peter's College in New Jersey), have developed screening programs for depression and suicide risk and there are some published studies exploring web based screening and referral intervention for suicide risk (Haas et al., 2008; Moutier et al., 2012), studies with control groups to document the efficacy and effectiveness of the systematic screening programs on the early detection and referral for mental health services on college populations are still needed.

This study has several limitations. First, the data were obtained by self-report measures, and no diagnostic interview was conducted to corroborate the depression symptoms. Although the BDI has been adapted and validated for Puerto Rican youth, a clinical interview is desirable for an accurate assessment of the severity of depression and suicide risk behaviors. Second, given the scope of the study, we recognize that all of the possible variables that could explain the variance for depression were not necessarily included in the study or in the regression model. Thus, other unmeasured variables that contribute to depression and suicide risk, most likely exist.

Conclusion and clinical implications for intervention

Despite the limitations, this is the first study with a large sample exploring depression symptoms across nine campuses of the University of Puerto Rico System. This sample represents youth from all Puerto Rican geographic areas and from diverse socio-economic backgrounds. This study has clinical implications. First, prevention programs should be developed to deal with stressful life events during first years of college, especially with those that were identified in this study as predictors for depression such as relocation, illness, and break-up of a significant relationship. The development of peer support groups and the incorporation of transitional life courses as part of the curriculum in the final year of high school or first year of college could provide students with the skills and support to deal with the life transitions. Second, it is important to focus on early detection of depression and treatment engagement as part of campus health services for college students. Web-based interventions (Haas et al., 2008; Moutier et al., 2012) and email-based screening (Garlow et al., 2008) have been used for early detection and referrals of depression and suicide risk representing possible avenues for early detection; such strategies should be incorporated as a systematic process. In addition, efforts should be in place to: increase the students' participation; educate the college population about mental health; decrease stigma about mental health treatment; increase help seeking behaviors and service utilization; support the

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faculty awareness of mental disorders in students; and increase the availability and access of resources for treatment.

Finally, interventions should be specifically tailored for women and men to enhance effectiveness. Indeed, evidence-based approaches may need to be adapted to consider not only culture (Bernal & Domenech Rodríguez, 2012), but perhaps gender differences within cultural groups. Such adaptions to both gender and culture may be a fruitful avenue of future work. Freshmen college students who present with a broad range of depression symptoms and multiple stressful life events are at increased risk for depression symptoms. Early detection and attention to these issues have the potential to improve both mental health and academic performance.

Acknowledgments

Role of funding funds:

This research was conducted under the first author NIMH post-doctoral fellowship (F32 MH66523) at the University of Puerto Rico and in collaboration with the Quality of Life Offices of the University of Puerto Rico System. Other support was provided from NIMH through grants (R24-MH49368; PI: Bernal) at the University of Puerto Rico, Rio Piedras Campus and (3R01MH082732; PI: Bulik) and (K23-MH087954, PI: Reyes-Rodríguez) at the University of North Carolina at Chapel Hill. The NIMH had no role in study design; in collection; analysis and interpretation of data; in the writing of the report; and in the decision to submit the paper for publication.

We are grateful to Dr. Cynthia M. Bulik for her thoughtful comments on the manuscript.

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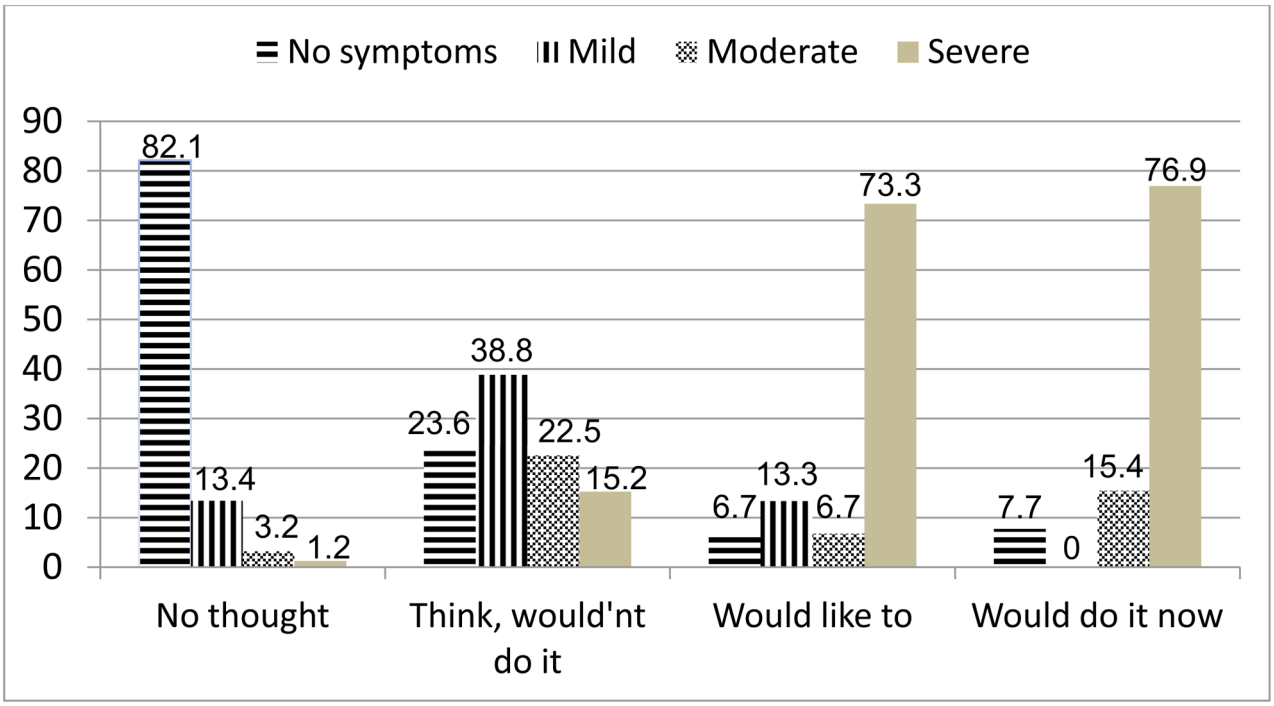

Figure 1.
Percent Distribution of the Suicide Risk BDI item by Levels of Depression Symptoms in the Latino Freshmen College Students

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Table I

Percentage Distribution of Stressful Life Events by Sex in Latino College Students

Stressful Life Events	**Females**	**Males**	X^2	***df***	***P***	***n***
Death of family member or close friend	n (%)	n (%)				
No	1044 (77.3)	505 (78.7)	.443	1	.506	1992
Yes	306 (22.7)	137 (21.3)				
Parents' Divorce						
No	1291 (95.6)	610 (95.2)	.219	1	.640	1991
Yes	59 (4.4)	31 (4.8)				
Movement due to college admission						
No	1212 (89.8)	594 (92.7)	4.13	1	.042	1990
Yes	137 (10.2)	47 (7.3)				
Break up of love relationship						
No	1006 (74.7)	527 (82.2)	13.76	1	.000	1987
Yes	340 (25.3)	114 (17.8)				
Sickness						
No	1199 (88.8)	595 (92.7)	7.26	1	.007	1992
Yes	151 (11.2)	47 (7.3)				

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Table II

Percentage Distribution of Demographics and Stressful Life Events by Levels of Depression Symptoms in Latino College Students

Demographics and Stressful Life Events	Levels of Depression Symptoms[a]						
	None	Mild	Moderate	Severe	X^2	*df*	*n*
Gender	n (%)	n (%)	n (%)	n (%)			
Female	975 (72.2)	234 (17.3)	77 (5.7)	64 (4.7)	19.69*	3	1992
Males	521 (81.2)	76 (11.8)	29 (4.5)	16 (2.5)			
Marital Status							
Married	47 (74.6)	8 (12.7)	3 (4.8)	5 (7.9)	3.61	6	1978
Single	1404 (74.9)	298 (15.9)	100 (5.3)	73 (3.9)			
Living together	32 (80.0)	5 (12.5)	2 (5.0)	1 (2.5)			
Death of family member or close friend							
No	1178 (75.7)	238 (15.3)	82 (5.3)	59 (3.8)	1.84	3	2002
Yes	324 (72.8)	76 (17.1)	24 (5.4)	21 (4.7)			
Parents' Divorce							
No	1436 (75.1)	302 (15.8)	98 (5.1)	75 (3.9)	3.30	3	2001
Yes	65 (72.2)	12 (13.3)	8 (8.9)	5 (5.6)			
Movement due to college admission							
No	1387 (76.4)	275 (15.1)	87 (4.8)	67 (3.7)	23.30*	3	2000
Yes	113 (61.4)	39 (21.2)	19 (10.3)	13 (7.1)			
Break up of romantic relationship							
No	1231 (79.9)	200 (13.0)	69 (4.5)	41 (2.7)	93.40*	3	1997
Yes	266 (58.3)	114 (25.0)	37 (8.1)	39 (8.6)			
Sickness							
No	1386 (76.9)	268 (14.9)	88 (4.9)	60 (3.3)	41.97*	3	2002
Yes	116 (58.0)	46 (23.0)	18 (9.0)	20 (10.0)			

Note:

[a]Levels of depression; mild (BDI=18–19), moderate (BDI=20–26), severe (BDI ≥ 27)

*P values less than .001

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Table III

Regression Coefficients for those variables that better explain part of the variance in Depression Symptoms in Latino College Students

	Model 1[a]					Model 2[b]				
Variables	**Beta**	**STD Error**	***β***	***t***	***P***	**Beta**	**STD Error**	***β***	***t***	***p***
Constant	8.07	.59		13.57	.000	7.19	.48		15.05	.000
Gender	−1.53	.40	−.08	−3.75	.000	−1.72	.33	−.10	−5.25	.000
Suicide						11.04	.38	.53	29.22	.000
Break up of a romantic relation	4.06	.45	.19	8.92	.000	2.84	.37	.14	7.65	.000
Sickness	3.61	.64	.12	5.65	.000	2.55	.52	.09	4.90	.000
Relocation for college	2.84	.65	.09	4.34	.000	2.22	.53	.07	4.19	.000

Note:

[a]Dependent variable BDI score, $R^2 = .08; F = 45.082 (4, 1984), p < .001, n = 1985;$

[b]Dependent variable BDI score without the suicide item, $R^2 = .36; F = 221.38.75 (5, 1949), p < .001, n = 1950$

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Table IV

Regression Coefficients for those variables that better explain part of the variance in Depression Symptoms in Latino College Students by Sex

	Women					Men				
Variables	**Beta**	**STD Error**	***β***	***t***	***P***	**Beta**	**STD Error**	***β***	***t***	***p***
Constant	5.31	.24		21.73	.000	3.86	.26		14.92	.000
Suicide	10.6	.50	.48	21.07	.000	11.91	.52	.66	22.69	.000
Break up of a romantic relation	3.49	.46	.17	7.49	.000	1.03	.58	.05	1.76	.078
Sickness	2.42	.65	.09	3.74	.000	3.10	.85	.11	3.66	.000
Relocation for college	2.05	.66	.07	3.09	.002	2.96	.86	.10	3.43	.001

Note:

Women, $R^2 = .31; F = 149.17 (4, 1316), p < .001, n = 1344;$ Men, $R^2 = .48; F = 145.36 (4, 632), p < .001, n = 633$