



## Research report

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

Depression is a major public health problem and the second leading cause of disability worldwide (World Health Organization, 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 and 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 Haas 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 and 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 and 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 and Renk,

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2006), results from a hierarchical multiple regression demonstrated that negative life events were significant predictors of depressive symptoms (Dixon and 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 and 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 and Reyes-Rodríguez, 2008; Saez-Santiago and Bernal, 2003). However, no specific risk factors for depression in the general Latino population have been reported (Saez-Santiago and Bernal, 2003).

Depression affects quality of life. Especially for college students, issues such as social and family relationships (Jarama Alvan et al., 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 negative life events (Braboy and 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 (Kytte 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 (World Health Organization, 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 Alvan 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 and 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 (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.

## 2. Method

### 2.1. 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 2163 (1429 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 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.

### 2.2. 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, 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 ( $BDI \geq 27$ ).

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.

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