

The Impact of Age, Ethnicity, and Gender on Depressive Symptom Severity, Psychosocial Functioning, and Quality of Life among Ethnically Diverse Undergraduate College Students

Naelys Luna, Ph.D.

Associate Professor
Florida Atlantic University
777 Glades Road, SO 284, Boca Raton, FL 33431, USA.

Thalia MacMillan, Ph.D.

Assistant Professor
SUNY Empire State College
325 Hudson Street, NY, NY 10013, USA.

Abstract

The prevalence of depressive symptomatology among college students has become an issue of concern on many college campuses. However, there is a dearth of research examining depressive symptoms in different ethnic groups. The purpose of this study was to examine depressive symptom severity, psychosocial functioning impairment, and quality of life due to depression among Latino, African American, Caucasian, and Caribbean/West Indian college students; and whether these factors vary by age, ethnicity, and gender. A large convenient sample of 1129 college students were recruited from three different sites and asked to complete a battery of questionnaires. Findings indicated mild levels of depressive symptoms, psychosocial functioning impairment, and quality of life. Age, gender and ethnicity were related to all the depressive symptom severity, psychosocial functioning impairment, and quality of life. Implications for mental health treatment and education are discussed.

Keywords: depression; ethnicity; psychosocial functioning; quality of life; college students

1. Introduction

Increased awareness of mental health problems among college students has resulted in the identification of this area as a priority concern that needs special attention and more empirical efforts (Walden, 1994). The rate of college students who are experiencing significant levels of depressive symptoms while attending college is alarmingly on the rise (Erdur-Baker, Aberson, Barrow, & Draper, 2006; Furr, Westerfeld, McConnell, & Jenkins, 2001; Lovell, Nash, Sharman, & Lane, 2015). It has been found that between one-third to one-half of college students experience depressive symptomatology (Eisenberg, Hunt, & Speer, 2013; Ghaedi & Mohd Kosnin, 2014; Gress-Smith et al., 2015; Lovell, Nash, Sharman, & Lane, 2015; Shamsuddih et al., 2013; Ting, 2011; Tupler, Hong, Gibori, Blichington & Krishnan, 2015). Researchers have reported that diversity in age, gender and ethnicity of college students may be factors contributing to the high prevalence of mental health problems, particularly depressive symptoms (Arnstein, 1985; Bertocci, Hirsch, Sommer, & William, 1992; Kelly, Kelly, & Brown, 1999; Khawaja, Santos, Habibi, & Smith, 2013); however, limited research exists in this area, particularly investigations examining the impact of these important factors simultaneously as they relate to depressive symptomatology. The next section discusses the existing research examining ethnicity, age, and gender as they relate to depressive symptoms among college students.

2. Literature Review

2.1. Ethnicity, Gender, Age and Depression

Research has indicated that differences exist among various ethnic groups in the types and severity of depressive symptomatology that is experienced by individuals (Eisenberg, Hunt, & Speer, 2013; Iwata & Buka, 2002; Kelly, Kelly, & Brown, 1999; Khawaja, Santos, Habibi, & Smith, 2013; Morris, Martin, Hopson, & Welch-Murphy, 2010; Okazaki, 1997; Shamblaw, Botha, & Dozois, 2015; Sumer, Poyrazli, & Grahame, 2008; Whisman, Judd, Whiteford, & Gelhorn, 2013).

A recent review of the current literature on depressive symptoms in college students indicated that only four studies have addressed ethnic differences (Rosenthal & Schreiner, 2000). Rosenthal and Schreiner (2000) conducted a study consisting of 595 college students from various ethnic backgrounds including Asian, African American, Latino, and Caucasian to assess psychological symptoms related to trauma using The Trauma Symptom Inventory (TSI; Briere, 1995). The authors concluded that although there were no differences among ethnic groups in terms of levels of psychological symptoms, approximately 15% of the entire sample reported significant levels of anger, anxiety, and depressive symptoms. Women reported higher psychological symptoms, including depressive symptoms, compared to men. Lastly, older students reported lower levels of depression compared to younger students. While these findings suggest gender and age differences, one may speculate whether the TSI was appropriate to assess for psychological symptoms in the absence of a traumatic event.

In contrast to Rosenthal and Schreiner's (2000) findings, ethnic differences have been found by other investigations that suggest higher prevalence of depressive symptoms among minority college students (Gore & Aseltine, 2003; Kelly, Kelly, Brown, & Kelly, 1999). Gore and Aseltine (2003) found that relative to Caucasian college students ($n = 648$), African Americans ($n = 279$), Latinos ($n = 145$), and youth from multi-ethnic backgrounds ($n = 71$) had significantly higher levels of depressive symptoms as measured by the Center for Epidemiological Studies' Depression Scale (CES-D; Radloff, 1977). Findings also indicated that compared to Caucasians and Asian Americans, African Americans and Latinos had significantly elevated depressive symptoms even after controlling for family and individual background variables (Gore & Aseltine, 2003). Ethnic and gender differences in levels of depressive symptoms have also been reported by Kelly et al. (1999). These authors examined 143 undergraduate college students enrolled in a psychology class, of whom 61% were Caucasians and 39% African Americans. Caucasian males had significantly lower scores on the CES-D compared to African American males and females of both ethnic groups, which indicates that Caucasian males were significantly less depressed than the other three groups. Gender differences were not found among African Americans. In addition, there were no significant differences in depressive scores between Caucasian and African American females. These studies highlight the complex picture of depressive symptoms in college students, particularly indicating that an interaction of gender and ethnicity may have important effects on depressive symptoms.

When examining the impact of gender on depression, research has consistently found that women report a higher level of depressive symptomatology than men (Eisenberg, Hunt, & Speer, 2013; Hudson, Towey, & Shinar, 2008; Kelly, Kelly, & Brown, 1999; Khawaja, Santos, Habibi, & Smith, 2013; Lovell, Nash, Sharman, & Lane, 2015; Schnetzer, Schulenberg, & Buckanan, 2013; Tupler, Hong, Gibori, & Krishnan, 2015; Christensson, Vaez, Dickman, & Runeson, 2011; Whisman, Judd, Whiteford, & Gelhorn, 2013). One limitation of this research, however, is that some investigations have examined the overall presentation of depression symptoms, while others have examined the number of symptoms. Additional research is needed, then, on the severity of depressive symptoms and the effect they may have on psychosocial functional impairment and quality of life due to depression.

Research examining age as it relates to depressive symptomatology indicates mixed findings. For example, Rosenthal and Schreiner (2000) found that older students indicated lower levels of depressive symptoms; these findings were similar to those of Christensson, Vaez, Dickman, and Runeson (2011) in a sample of 1,700 nursing students in Sweden who reported that younger age was associated with a higher prevalence of depression. In contrast, other research has noted that older students report higher levels of depression than younger students (Morris, Martin, Hopson, Welch-Murphy, 2010; Shamsuddin et al., 2013; Sumer, Poyrazli, & Grahame, 2008). Arnstein (1985) pointed out that older students are more likely to be married and to have family and financial commitments compared to younger students. These responsibilities are conducive to higher levels of stress, and thus older students are more likely to exhibit a higher prevalence of mental health problems than their younger counterparts. However, another study of nontraditional age students indicated that there were no statistically significant differences between age and "emotional wellness" (Hybertson, Hulme, Smith, & Holton, 1992).

2.2. Gaps in the Literature and Study Hypotheses

The current literature described above have multiple limitations. First, research has primarily utilized samples of one or two ethnicities or including only a small percentage of ethnicities within their sample. Second, studies are very limited and indicate inconsistent findings when examining the impact of age and ethnic differences on depressive symptoms. Additional research utilizing a large multi-cultural sample is needed in order to examine the impact of ethnicity on depressive symptomatology.

In addition, current investigations have utilized samples of traditional aged college students; thus, what defines an older adult is typically those aged 20-21 years of age and may not accurately represent the broad range of ages now seen on the majority of college campuses.

Another major limitation of previous research is that only depressive symptom severity has been examined whereby omitting psychosocial functioning and quality of life impairments related to depression, even though these factors are integral parts of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V; American Psychiatric Association, 2013) diagnostic criteria. Previous research has indicated that depressive symptoms, even sub-threshold symptoms, have a profound effect on both psychosocial functioning (Judd, et al., 2000; Lewinsohn, Solomon, Seeley, & Zeiss, 2000; Parikh & Lam, 2001) and quality of life (Lewinsohn, Rohde, Seeley, Klein, & Gotlib, 2003). One could speculate that this lack of empirical attention on psychosocial functioning and quality of life related to depression could be representative of measurement issues. Several instruments widely used in the literature to measure depressive symptoms do not include psychosocial functioning or quality of life (e.g. CESD, Beck Depression Inventory, or TSI). Generally, psychosocial functioning and quality of life impairments are subsumed under an overall discussion of the symptoms, rather than being examined as important and distinct constructs. However, a discussion of depressive symptoms does not necessarily reflect how psychosocial functioning may be directly impaired as a result of depressive symptomatology.

This study addresses all of the above limitations. The aims of this study were to examine: 1) depressive symptom severity, psychosocial functioning impairment and perceived quality of life due to depression among Latino, African American, Caucasian, and Caribbean/West Indian college students; and 2) if these factors vary by age, ethnicity, and gender. We test the hypotheses that higher levels of depressive symptom severity, psychosocial functioning impairment due to depression, and lower quality of life are found among minority students compared to Caucasian students. We also hypothesized that these levels are related to age and gender. In addition, this study involves a large multicultural sample compared to previous studies. Lastly, this study uses the Diagnostic Inventory for Depression (DID; Zimmerman, Sheeran & Young, 2004), which is an instrument that examines depressive symptom severity, as well as perceived quality of life and psychosocial functioning related to depressive symptoms.

3. Method

3.1. Participants

This is a cross-sectional study of 579 Latino, 228 African American, 126 Caucasian, and 196 Caribbean/West Indian undergraduate psychology and social work students attending one of the following recruitment sites (RS): 1) two public Northeastern colleges (RS 1 and 2); or 2) one public Southeastern university (RS 3). A total of 1,129 students participated in this study.

Students at RS 1 and RS 2 were psychology students who were recruited using the student subject pool (N = 1003; 88.8%); these students received research credits for their psychology courses. Social work students taking different social work courses were recruited from one southeastern university (N = 126; 11.2%). Instructors of these courses informed students about this study during class time and administered self-report questionnaires to all students present in their classes on that date.

3.2. Measures

Outcome Variables - Diagnostic Inventory for Depression (DID): To assess depressive symptom severity, psychosocial functioning impairment, and perceived quality of life during the past week, the 38-item DID (Zimmerman, Sheeran & Young, 2004) was utilized. The DID contains 3 subscales that assess for different dimensions of depression: 1) symptom severity according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994) criteria for major depressive disorder (MDD) and symptom frequency of the necessary symptoms to diagnose MDD (depressed mood, loss of interest in usual activities, or loss of pleasure in usual activities); 2) psychosocial functioning due to depression assessing for difficulties in performing daily responsibilities, relationship with significant others, participation in leisure activities, and overall level of functioning; and 3) perceived quality of life measuring satisfaction with those areas included in the psychosocial functioning as well as additional items to assess for global satisfaction with mental health and physical health.

Each symptom question has a rating scale of 0 to 4, with 4 representing the most severe the symptom was experienced.

Scores for the symptom severity range from 0 to 88 with higher scores indicating higher levels of symptoms severity. For the psychosocial functioning and quality of life, higher scores indicate higher levels of impairment in both respective areas. The DID has excellent internal consistency with Cronbach alphas of .91 for the symptoms severity subscale, .89 for the psychosocial functioning, and .90 for the quality of life (Zimmerman, Sheeran & Young, 2004). The test-retest reliability coefficients range from .78 to .91 for the 3 subscales (Zimmerman, Sheeran & Young, 2004). In addition, the DID is highly correlated with other widely used self-report and clinician rated scales of depression (Sheeran & Zimmerman, 2002; Zimmerman, Sheeran & Young, 2004). In this study, the alpha coefficients for the DID subscales were .87 for the symptom severity subscale, .87 for the psychosocial functioning, and .83 for the quality of life.

Independent Variables: Ethnicity was measured by asking participants to identify which ethnic group they identify with. Response categories were recoded into African American, Latino, Caucasian, and Caribbean/West Indian. Age and gender were also assessed through self-report. Age was recoded into three groups: 19 or younger, 20 to 24 years old, and 25 or older.

Other variables: Marital status was assessed by asking participants to select either single, married, separated, cohabiting with partner (but not married), divorced, or widowed. Employment status was assessed by asking participants to select either unemployed, employed full-time, employed part-time, or other.

3.3. Data Analysis

Independent sample t tests and one way analysis of variance were used for continuous variables. Chi-square analyses were utilized to examine significant associations between the 4 ethnic groups, age groupings, and gender. For the t tests and ANOVAs, separate, rather than pooled, estimates of variance were used when the variances differed significantly between groups. Factorial analysis of variance was conducted to examine age by race and gender on depressive symptoms severity, psychosocial functioning impairment, and quality of life due to depression. These analyses were conducted to compare subgroups of the sample based on the three main independent variables in terms of the outcome variables. Additionally, factorial analysis prevented over inflation of type I error by only utilizing individual bivariate tests. The number of students in some analyses varied due to missing data.

4. Results

4.1. Descriptive Analyses

The samples gathered at the three recruitment sites were examined to determine if differences existed with respect to age, gender, and ethnicity. With respect to participants' age, the 3 recruitment sites were significantly different from each other, $F(2, 1126) = 55.93, p < .001$. Pairwise comparisons indicated that the participants from RS 1 were significantly younger ($X = 21.59$) than RS 2 ($X = 25.16$) and 3 ($X = 30.19$); participants from RS 3 were significantly older than RS 2 participants. The 3 campuses were also significantly different with respect to gender, ($X^2 [2, N = 1,126] = 20.87, p < .001$), and ethnicity, ($X^2 [6, N = 1,129] = 316.73, p < .001$). While RS 1 and 2 had the same 1 to 3 ratio for men to women, the RS 3 sample had a significantly higher percentage of women (92.9%). RS 1 and 2 samples were relatively equivalent in terms of their ethnic breakdown, with over half of the sample being Latino and 20% being African American. The RS 3 sample, however, was over 50% Caucasian and almost 20% Caribbean/West Islander. Nevertheless, the participants from the 3 sites were compared with regard to depressive symptoms and no significant differences were evident. Because no differences existed on the outcomes of interest, the three samples were combined.

Out of the total sample of 1,129 students, a vast number were females ($n = 870; 77.3%$) and had a mean age of 24.81 years. The majority of the sample was single ($n = 821; 72.8%$), and 14% of participants were married ($n = 163$). Fifty-one percent were Latino ($n = 579$), 20.2% were African American ($n = 228$), 11.2% were Caucasian ($n = 126$), and 17.4% were Caribbean/West Indian ($n = 196$). Approximately 34% of the students were unemployed ($n = 379$), while 64% reported working either part-time ($n = 405$) or full time ($n = 310$).

Depressive symptom severity scores ranged from 0 to 49 with a mean of 11.08 ($sd = 8.56$), suggesting that a mild level of depressive symptoms was experienced in the sample. Students in the sample also had mild levels of psychosocial functioning impairment with scores ranging from 0 to 28 with a mean of 8.82 ($sd = 6.39$). Additionally, quality of life related to depression ranged from 0 to 20 with a mean of 4.41 ($sd = 4.23$) suggesting only slight impairments with quality of life.

4.2. Bivariate and Multivariate Analyses

Bivariate analyses were conducted among gender, ethnicity, and age. There was a significant association between age and ethnicity ($X^2 [6, 1129] = 75.83, p \leq .001$). Latino students were more likely to be between the ages of 18 to 24 (76.0%), while African American, Caucasian, and Caribbean-West Indian students were more likely to be 20 years old or older (75.9%, 87.3%, and 79%, respectively). Additionally, there were statistically significant differences between gender and ethnicity ($X^2 [3, 1126] = 9.53, p=.023$). A slightly higher percentage of Latino and African American students were male, while a slightly higher percentage of Caucasian and Caribbean-West Indian students were female. However, there were no differences between men and women with respect to age ($X^2 [2, 1126] = 3.16, p=.206$).

Table 1 presents the analyses between the 3 DID subscales by gender, ethnicity, and age. The women did not differ significantly from the men with respect to depressive symptom severity or quality of life due to depression. However, there were significant differences between women and men with regard to impairment in psychosocial functioning resulting from depressive symptomatology, $F (1, 893) = 13.01, p = .001$. Women were more likely to report higher impairment in psychosocial functioning due to depression than men.

The various ethnic groups did not differ significantly in depressive symptom severity or impairment in psychosocial functioning. However, there were significant differences among the different ethnic groups on the quality of life due to depression subscale, $F (3, 919) = 5.34, p = .001$. Pairwise comparisons revealed that the only significant difference between the 4 ethnic groups was between Latinos and Caribbean/West Indians, in that the Latinos reported a significantly higher mean level of impairment on the quality of life subscale ($X = 4.88, sd = 4.48$) than the Caribbean/ West Indians ($X = 3.31, sd = 3.85$).

Significant differences existed between the age groups on all of the DID subscales. In terms of depressive symptom severity, younger students (< 19 years old) were more likely to report higher levels of symptom severity [$F (2, 1120) = 6.94, p = .001$], psychosocial functioning impairment [$F (2, 894) = 9.53, p = .001$], and lower levels of quality of life due to depression [$F (2, 924) = 9.03, p = .001$] as compared to older students (20 and older). There were no significant differences between the 20 to 24 year old group and 25 and older group in either depression symptom severity or impairment in psychosocial functioning due to depression. Significant differences existed between the age groups on levels of quality of life due to depression; pairwise comparisons revealed that students who were 25 and older reported lower quality of life due to depression ($X = 3.63, sd = 4.49$) than the other two younger groups. However, there were no significant differences in levels of quality of life due to depression between the 19 and younger group and the 20 to 24 year old group.

Table 1. Mean differences on depressive symptom severity, psychosocial functioning impairment and quality of life by gender, ethnicity, and age

Variables	Symptom Severity		Psychosocial Impairment		Quality of Life	
	M (sd)	F	M (sd)	F	M (sd)	F
Gender						
Male	11.06 (8.70)	0.00	7.41 (5.60)	13.01***	4.17 (3.99)	.071
Female	11.09 (8.54)		9.21 (6.44)		4.46 (4.54)	
Ethnicity						
Latinos						5.34***
African Americans	11.45 (8.66)	1.04	8.97 (6.22)	1.29	4.88 (4.48)	
Caucasians						
Caribbean/West Indies	10.51 (8.61)		8.78 (6.41)		4.26 (4.62)	
			11.36 (8.04)		4.17 (4.37)	
			10.49 (8.55)		3.31 (3.87)	
Age						
< 19	12.44 (9.05)	6.94***	10.09 (6.66)	9.53***	5.18 (4.44)	9.03***
20 – 24	10.89 (8.20)		8.68 (6.03)		4.48 (4.25)	
25 +	10.09 (8.37)		7.81 (6.06)		3.63 (4.49)	

* $p < .05$; ** $p < .01$; *** $p < .001$

4.3. Factorial Analyses

Factorial analysis of variance was conducted for each of the DID subscales utilizing the 3 independent variables of age, gender, and ethnicity. Statistically significant differences were obtained for all the variables (See Table 2). Results revealed that the factorial model was statistically significant for depressive symptom severity, $F(23, 1120) = 1.678, p = .024$. There were no independent effects of age, ethnicity, or gender. However, the interaction between age, ethnicity, and gender was significant ($F(6, 1120) = 2.124, p = .048$) revealing a complex picture when the impact of all these factors on depressive symptom severity was taken into account. Among students in all ethnic groups, Latino males aged 19 or younger and Caucasian females aged 19 or younger reported the highest symptom severity. Caribbean/West Indian males aged 19 or younger and African American females aged 25 or older reported the lowest depressive symptom severity. Examining symptom severity within ethnicity, Latino males and females aged 19 or younger reported the highest symptom severity compared to the older age groups. Among African Americans and Caucasians, male students aged 19 or younger and 25 or older reported the highest symptom severity when compared to female students. A similar trend was observed among Caribbean/West Indian females; however, the opposite was evident among Caribbean/ West Indian males aged 19 or younger who reported the lowest depressive symptom severity.

Analyses also revealed that the factorial model was statistically significant for psychosocial functioning impairment, $F(23, 895) = 2.490, p = .000$. Gender was the only factor that revealed statistically significant differences. Women reported higher levels of psychosocial impairment as related to depression than men. There were no significant interactions amongst the variables.

Finally, the results from the factorial model was statistically significant for impairment in quality of life due to depression, $F(23, 921) = 2.202, p = .000$. However, none of the independent variables or their interaction was statistically significant.

Table 2. Results of Factorial ANOVA for depressive symptom severity, psychosocial functioning impairment, and quality of life

	Symptom Severity	Psychosocial Impairment	Quality of Life
	Mean (sd)	Mean (sd)	Mean (sd)
Male			
Latino			
19 or younger	12.61 (10.08)	8.79 (5.52)	4.90 (3.69)
20 to 24	11.04 (8.89)	6.78 (5.21)	4.10 (4.03)
25 or older	7.57 (6.27)	3.86 (3.37)	2.72 (3.03)
African American			
19 or younger	9.58 (5.76)	9.89 (6.70)	5.75 (5.34)
20 to 24	8.71 (6.16)	7.29 (5.76)	4.64 (3.61)
25 or older	11.22 (7.99)	8.04 (5.83)	4.43 (4.27)
Caucasian			
19 or younger	14.67 (7.94)	9.25 (5.74)	5.00 (3.16)
20 to 24	13.60 (6.91)	11.33 (5.51)	2.67 (2.52)
25 or older	14.63 (8.70)	10.38 (7.69)	5.50 (6.34)
Caribbean/West Indian			
19 or younger	7.43 (4.20)	6.71 (5.41)	2.57 (2.88)
20 to 24	11.00 (10.33)	5.58 (3.85)	2.29 (2.81)
25 or older	14.00 (11.50)	7.29 (7.93)	5.44 (5.77)
Female			
Latino			
19 or younger	12.97 (9.37)	10.54 (6.88)	5.77 (4.73)
20 to 24	10.41 (7.33)	9.23 (5.80)	4.74 (4.30)
25 or older	11.32 (8.61)	8.66 (6.22)	4.65 (5.04)
African American			
19 or younger	10.86 (7.87)	9.31 (6.16)	4.11 (4.57)
20 to 24	11.26 (9.63)	9.79 (6.95)	4.91 (4.74)
25 or older	10.00 (9.42)	8.00 (6.52)	3.39 (4.85)
Caucasian			
19 or younger	16.30 (11.30)	9.86 (6.82)	6.14 (4.71)
20 to 24	11.18 (7.48)	9.28 (6.49)	4.63 (4.63)
25 or older	9.61 (7.46)	9.24 (5.81)	3.38 (3.92)
Caribbean/West Indian			
19 or younger	12.18 (7.90)	12.29 (8.26)	4.17 (3.57)
20 to 24	11.79 (8.89)	8.64 (6.25)	4.28 (4.13)
25 or older	8.27 (7.50)	6.30 (5.29)	1.96 (3.19)
F	1.68*	2.49***	2.202***
df, n	23, 1120	23, 895	23, 921

* $p < .05$; ** $p < .01$; *** $p < .001$

5. Discussion

Previous research has indicated that college students experience serious mental health problems, particularly depressive symptoms (Erdur-Baker, Aberson, Barrow, & Draper, 2006; Furr, Westerfeld, McConnell, & Jenkins, 2001; Weitzman, 2004). However, the current empirical literature focusing on examining the effect of age, gender, and ethnicity simultaneously on depressive symptoms, psychosocial functioning impairment due to depression and quality of life impairment is nonexistent.

The findings of this study suggest that mild to moderate levels of depressive symptoms, psychosocial impairment in functioning due to depression, and perceived quality of life related to depression were found in this ethnically diverse sample of undergraduate college students. These findings are similar to those noting that between 17% to 50% of college students report some type of depressive symptomatology (Eisenberg, Hunt, & Speer, 2013; Ghaedi & Mohd Kosnin, 2014; Gress-Smith et al., 2015; Lovell, Nash, Sharman, & Lane, 2015; Shamsuddih et al., 2013; Ting, 2011; Tupler, Hong, Gibori, & Krishnan, 2015). However, our results are different from a study conducted by Rosenthal and Schreiner (2000) who reported that 15% of 595 college students from diverse multicultural background reported experiencing high level of depressive symptoms. These inconsistencies could reflect differences in the sample from these studies, as Rosenthal and Schreiner (2000)'s sample only involved 1st year students recruited from one university. In contrast, the sample in this study consisted of students in different academic years (e.g. freshman, sophomore) that were recruited from one of three colleges located in two different eastern regions in the United States. Rosenthal and Schreiner's (2000) sample also contained proportionately higher numbers of younger students compared to this study, which may contribute to the differences in regard to levels of depressive symptoms. In addition, our study is the first investigation examining perceived quality of life due to depression and psychosocial impairment in functioning due to depression. Thus, additional research is needed to examine these two concepts as they may represent important dimensions of depression that have not been previously explored.

Findings from this study in terms of gender indicated that there were no significant differences between men and women in symptom severity and perceived quality of life. Although this is not consistent with the literature indicating that women report higher levels of depressive symptoms compared to men, previous research has pointed out that gender only accounted for 2% of the variation in psychological symptoms and that different types of symptoms may be reported by men and women (Lovell, Nash, Sharman, & Lane, 2015; Hudson, Towey, & Shinar, 2008; Rosenthal & Schreiner, 2000). This suggests that gender may have little connection to levels of depressive symptoms reported by nontraditional college students or that it needs to be measured in a different way.

Interestingly, our results highlight that women were more likely to report higher psychosocial functioning impairment due to depression than men. Several factors may explain this finding. First, it is possible that women's social and gender roles may be conducive to the internalization of depressive symptoms, leading to difficulties in psychosocial functioning including problems with interpersonal relationships and occupational functioning (Schnetzer, Schulenberg, & Buchanan, 2013; Vazquez, Otero, & Diaz, 2012). Previous research has noted that social roles for women direct them toward self-silencing themselves as a mean of creating and maintaining relationships that centered on the primacy and legitimacy of others (Jack, 1991). Moreover, as noted by previous findings from Gore and Aseltine (2003) and Kelly et al. (1999), a complex picture emerges with regard to depressive symptoms, which suggests that gender alone may not fully explain the impact of depressive symptoms on individuals. In addition, the findings from this study represent an area that needs to be further examined as this is the first study that measures impairment in psychosocial functioning as a distinct factor related to depression.

In terms of ethnic groups, there were no statistically significant differences for depressive symptom severity and psychosocial functioning impairment due to depression. These findings do not support the empirical evidence regarding ethnic differences regarding the prevalence of depressive symptoms comparing minority and Caucasian students found by other investigations (Gore et al., 2003; Kelly et al., 1999). However, our findings support the complexity of multiple factors having an impact on depressive symptoms. Latino males aged 19 or younger experienced the highest prevalence of depressive symptoms compared to Caucasian students. This corresponds with previous research which suggests that men silence their depressive symptoms as a result of their difficulties expressing or acknowledging emotional feelings related to depression (Iwata & Buka, 2002; Okazaki, 1997; Rabinowitz & Cochran, 1994). Thus, one may speculate that young Latino males experience difficulties expressing these feelings due to socialization issues related to cultural values regarding rigid gender roles of being aggressive, dominant, authoritarian, and inhibiting nurturing behaviors (Deyoung & Zigler, 1994; Sumer, Poyrazli, & Grahame, 2008). Caucasian females aged 19 or younger reported the second highest levels of depressive symptoms compared to the other ethnic groups. This could possibly be representative of the type of environment, such as living in an urban setting and attending a predominantly ethnic minority college, as in the case of 2 of the recruitment sites involved in this study.

Researchers have noted that the relative level of stressors in a person's environment may lead to the development of depressive symptoms (Christensson, Vaez, Dickman, & Runeson, 2011; Billings, Cronkite, & Moos, 1983; Sumer, Poyrazli, & Grahame, 2008). Thus, it is possible that Caucasian students may experience heightened levels of depressive symptoms or impairment in psychosocial functioning and quality of life due to acute and chronic stress related to attending a predominantly ethnic minority college. Functioning in this environment may create personal and social stressors for Caucasian students as they are no longer the majority in terms of ethnicity.

Lastly, statistically significant differences were found on levels of perceived quality of life due to depression on a bivariate level, whereby Caribbean/West Indians reported the lowest impairment in perceived quality of life subscales, followed by Caucasians and African Americans. Latinos reported the highest impairment in the quality of life subscale. This suggests that depression is a complex dimension among different ethnic groups; as found by Brittan et al. (2013; 2015), the impact of ethnicity on depression is moderated by ethnic identity. Thus it is possible that while several ethnic groups emerged as experiencing a higher level of depression than others, additional factors related to ethnicity, such as level of acculturation and ethnic identity need to be taken into account.

Age differences were also found in all of the depression subscales on the bivariate level. Students aged 19 or younger reported higher levels of depressive symptom severity and psychosocial functioning impairment than students aged 20 to 24 and 25 or older. These findings are consistent with previous research demonstrating that older students experienced lower levels of psychological problems (Rosenthal & Schreir, 2000; Christensson, Vaez, Dickman, & Runeson, 2011). However, in this study, older students aged 25 or older reported lower levels of quality of life due to depression compared to students aged 19 or younger, or 20 to 24 years old. These findings highlight the complex nature of depression in older students (Morris, Martin, Hopson, & Welch-Murphy, 2010; Shamsuddin et al., 2013; Sumer, Poyrazli, & Grahame, 2008). It has been suggested that older students are more likely to have multiple commitments that may be conducive to less perceived quality of life, such as balancing a work-home life or a higher number of commitments (Arnstein, 1985; Sumer, Poyrazli, & Grahame, 2008). However, as suggested by the factorial analysis, a complex interplay of age, gender, and ethnicity needs to be taken into account when examining the impact of these factors on depressive symptomatology and the related factors included in this study.

5.1. Study Limitations

The findings of this study must be interpreted with caution considering several research design and measurement limitations. This is a cross-sectional study and no causal inferences or interpretations should be made. However, this study allowed us to examine the associations of multiple variables in a large multicultural sample. In addition, the cultural sensitivity and appropriateness of the DID is an issue of concern. Although the DID has been widely used in outpatient settings, it has not been validated in a multicultural community sample, even though it has been used among multi-ethnic samples (Zimmerman, Sheeran & Young, 2004). Despite these limitations, this study has several conceptual and methodological strengths. First, the sample came from two schools in the northeast and one from the southeast of the United States, and thus, increasing the representativeness of college students from minority racial and ethnic backgrounds. In addition, this study involved a larger sample of diverse college students in terms of age, gender, and ethnicity compared to previous research (Gore et al., 2003; Kelly et al., 1999; Rosenthal & Schreiner, 2000). In addition, this study examined not only the severity of depressive symptoms but also two important dimensions that relate to depression including psychosocial functioning impairment and quality of life. Lastly, this study raises important questions regarding the complex dynamic among the factors explored as well as which tools should be used by mental health practitioners to assess these variables in the field.

5.2. Implications for Mental Health Professionals and Future Research

The findings of this study expand the current empirical literature regarding the prevalence of depressive symptoms, psychosocial functioning impairment, and quality of life due to depression among college students from various ethnic backgrounds. Students often arrive at the university with their own mental health issues that can affect their college performance and education. An interesting finding of particular clinical interest is that our results indicated that depressive symptoms have their own unique impact on both quality of life and psychosocial functioning. These latter issues need to be examined for minority students, as these issues might affect not only their college performance, but also their professional development after they have graduated. For instance, results suggest that women have higher psychosocial functioning impairment than men; this finding may have important clinical implications for practitioners who interact with college students, particularly women.

It is essential that practitioners take into account that impairment in women's psychosocial functioning may represent how these women show depressive symptomatology; psychosocial impairment may persist even after a partial or complete recovery from the depressive symptoms.

Understanding what kinds of mental health problems minority college students have during college and the effect of age, ethnicity, and gender on these problems may help mental health practitioners: 1) initiate outreach efforts that could prevent students' distress, discomfort and drop out; and 2) take into account the important role of individual differences in mental health outcomes. This study represents an important effort to address the gap and emerging inconsistencies in the current empirical literature concerning the mental health status of multicultural college students. The existing understanding and knowledge about these factors require a sustained body of future empirical work. More research is also needed in validating the cultural sensitivity and appropriateness of existing instruments to assess psychological symptoms and interventions implemented to address the mental health needs of ethnically diverse college students. However, the DID may be an important and useful clinical tool for mental health practitioners, particularly those in an educational and academic setting, who provide direct services to young adults with depressive symptoms and continued impairment in psychosocial functioning.

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