

Mental Health and Academic Performance of First-Year College Students

Tammy Jordan Wyatt¹, Sara B. Oswalt¹ & Yesenia Ochoa²

¹ Department of Kinesiology, Health, and Nutrition, The University of Texas at San Antonio, San Antonio, Texas, United States

² Department of Public Administration, The University of Texas at San Antonio, San Antonio, Texas, United States

Correspondence: Tammy Wyatt, Department of Kinesiology, Health, and Nutrition, The University of Texas at San Antonio, San Antonio, Texas, United States

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Abstract

The prevalence and severity of mental health issues are increasing among college students, and such issues pose a threat to health and academic performance.

Purpose: The primary purpose of the study is to examine differences in mental health diagnoses and their related academic impact with a special focus on classification year in college.

Subjects and Methods: This study is a secondary data analysis. Responses from 66,159 U.S. undergraduate students about mental health and academics from the American College Health Association-National College Health Assessment II were examined using regression analyses.

Results: Differences in mental health diagnoses were found by classification with first-year students reporting higher rates of self-injury and seriously considering suicide. Upperclassmen reported higher rates of academic impact from mental health factors.

Conclusions and Recommendations: Findings indicate one's first-year of college as the prime time to promote awareness of and strategies to prevent mental health issues or negative academic effects; implications for first-year experience programs are discussed.

Keywords: Mental health, College students, First-year students, Academic performance, Student success

1. Introduction

Mental health issues in college students have consistently increased over time (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Gallagher 2014) and these challenges and stressors pose a major problem for many college students with both their health (Allison et al., 2009; Cranford, Eisenberg & Serras, 2009; Schry & White, 2013; VanKim & Nelson, 2013) and academic experience affected negatively (Eisenberg et al., 2007; Hysenbegasi, Hass, & Rowland, 2005) including discontinuous college enrollment (Arria et al., 2013). Tinto's theory of student departure (1975) posits that college student retention is a complex interaction between social and academic integration. As such, U.S. colleges and universities have begun to focus on student's mental health issues as they impact academic success, student involvement, and retention.

In this study, we examine the prevalence of mental health challenges across genders and ethnicities as well as analyze the impact of mental health on academic performance throughout one's years in college. Specifically, this study places a special emphasis on classification and first-year students in an attempt to provide a better understanding about the emotional and academic needs of students as they experience the transition between high school and college.

About half of mental health conditions first show symptoms in individuals by age 14 and three-fourths begin by age 24 (Kessler, Berglund et al., 2005), as a result, many students are coming to college with previously diagnosed conditions, and others may first experience onset of symptoms while at college. Likewise, college students experience a widespread of unique emotions as they enter their first year of college. In order for universities to increase their retention rate, it is vital for universities to assess and identify students at risk of dropping out during

their first-year of school. First-year college students are faced with a rollercoaster of emotional changes that are directly correlated to the stress caused by transitioning into college life. First-year students must create a new social circle while managing their academic responsibilities and these changes can be unsettling and lead to mental health issues. As these stress levels increase, the first-year students' academic performance may be negatively affected. Thus, the prime time to promote awareness about mental health challenges is during one's first-year in college, so that students can be prepared and adapt as issues occur.

Common mental health issues faced by American college students include depression and anxiety as well as feeling lonely and overwhelmed (Brandy, Penckofer, Solari-Twadell, & Velsor-Friedrich, 2015). In fact, college students experience depression at rates higher than the general population (Ibrahim, Kelly, Adams, & Glazebrook, 2013) and a majority do not receive treatment (Rosenthal & Wilson, 2008; Garlow et al., 2008). First-year college students facing the emotional transition to university life are at a higher risk of suffering from depression as their emotional state is impacted by new social networks, academic stress and living arrangements (Brandy et al., 2015). Both male and female students typically experience increased depression over the first-year of college (Sax, Bryant, & Gilmartin, 2004) and that depression can be directly linked to suicide attempts (Garlow et al., 2008; Nemeroff, Compton & Berger, 2001). With such a high number of individuals suffering from depression, understanding the factors predictive of depression in first-year college students can increase mental health diagnoses and decrease the episodes of suicide attempts.

Approximately 18% of US adults suffer from anxiety (Kessler, Chiu, Demler, & Walters, 2005) and 75% of them experience their first episode by age 21 (Kessler, Berglund et al., 2005). Individuals who suffer from anxiety often experience other mental health issues such as depression, substance abuse, and body dysmorphic disorder. Coupled with the stressors associated with college life, anxiety disorders can negatively impact academic achievements for college students, particularly among those that work while attending college (Mounsey, Vandehey & Diekhoff, 2013).

While high rates of college students experience mental health issues, there are differences among demographic groups. It is well known that females typically report more mental health issues (Rosenfield & Mouzon, 2013), as do non-heterosexuals (Oswalt & Wyatt, 2011). Regarding ethnicity, some research reports no differences between ethnic groups (e.g. Herman et al., 2011; Mokruue & Aciri, 2015; Rosenthal & Schreiner, 2000; Rosenthal & Wilson, 2008). Yet, others have found higher rates of depression and anxiety for white college women compared to African American women (Rosenfield & Mouzon, 2013) and lower rates for Asian and Pacific Islander college students overall (Eisenberg et al., 2007). There is, however, limited research examining first-year college students compared with students in other years of post-secondary school.

While this study examines the prevalence of mental health issues across genders and ethnicities, the primary purpose of the current study is to fill a gap in the literature by examining differences in classification with a special focus on first-year students regarding mental health diagnoses and related academic impact. Specifically, the research questions are:

- How do first-year college students differ in prevalence of depression and anxiety with students in other years of post-secondary school?
- How do first-year college students differ compared to students in other years of post-secondary school in incidence of self-injury, serious contemplation of suicide or suicide attempt in the last 12 months?
- How do first-year college students differ in negative academic impact from depression, anxiety and stress compared to students in other years of post-secondary school?

2. Subjects and Methods

The current study involved a secondary data analysis of the American College Health Association-National College Health Assessment (ACHA-NCHA) II Spring 2011 dataset (American College Health Association (ACHA), 2013). The ACHA-NCHA II is administered on individual university and college campuses across the United States in accordance with their institutional policies in either the spring or fall semester on a biannual basis. For the Spring 2011 survey administration, the overall response rate was 29% with an 81% response rate for surveys administered in the classroom and 21% for surveys administered online (ACHA, 2011). Only colleges and universities that randomly select students or that survey students from randomly selected classrooms are included in the ACHA-NCHA II national database. Previous studies have demonstrated that the ACHA-NCHA provides similar results to nationally representative surveys and thus appears to be both reliable, valid, and empirically represents U.S. college students (ACHA, 2004). The authors received de-identified data that included neither participant nor university information;

consequently the Institutional Review Board stated the study did not require Human Subjects review and could proceed as planned (IRB #15-280N).

2.1 Study Subjects

A total of 105,781 students completed the Spring 2011 ACHA-NCHA II on a U.S. college or university campus. Inclusion/exclusion criteria were applied to ensure that the sample related to the research focus of first-year college students. As a result only students who indicated their classification as an undergraduate and their age between 18-24 years (traditional college age) were included in the analyses. It is well established that graduate students have different mental health concerns than undergraduates (Brownson, Drum, Smith, & Denmark, 2011; Bulmer, Irfan, Barton, Vancour, & Breny, 2010; Wyatt & Oswalt, 2013). Research has indicated significant differences in mental health based on sexual orientation (Oswalt & Wyatt, 2011) with non-heterosexual individuals experiencing significantly higher rates of mental health issues and higher rates of negative campus experiences of students who identify as transgender (Beemyn, 2005; Bilodeau, 2009); thus, only students who identified as heterosexual and male or female were included. By removing these individuals we can eliminate any confounding variables related to sexual orientation and mental health on academic performance. After these criteria were implemented, the sample was reduced to 68,544. An additional 2,385 participants were removed from the analyses because they did not answer the eight items identified as dependent variables. As a result, the final number of participants was 66,159 undergraduate students from 129 institutions and all regions of the United States.

Most participants were female (66.7%, n=44,148) and white (72.4%, n=47,712) with less than ten percent identifying as Asian/Pacific Islander (8.6%, n=5,637), Biracial/Multiracial (7.0%, n = 4,598), Hispanic (5.7%, n=3,790), Black (4.5%, n=2,965), American Indian/Alaskan Native (0.6%, n = 404), or other (1.2%, n=767). There were almost equal distributions between years in school with 27.3% (n=18,075) of participants being first-year students, 25.3% (n=16,770) second-year, 23.6% (n=5,586) third-year, 19.6% (n=12,966) fourth-year, and 4.2% (n=2,762) fifth-year or more as an undergraduate. Most students were full-time (96.7%, n=63,695) and almost one-fifth had transferred to that school within the last 12 months (17.1%, n=11,255).

2.2 Tools of Data Collections

The ACHA-NCHA II consists of 66 items. To answer the research questions of this study, eight items related to mental health and academic impact were examined in addition to five demographic items. Two items asked about diagnosis and treatment related to depression and anxiety in the last 12 months. Possible responses for these items were no; yes, diagnosed but not treated; yes, treated with medication; yes, treated with psychotherapy; yes, treated with medication and psychotherapy; or yes, other treatment. Responses for these two items were recoded into no and yes, diagnosed and/or treated within the last 12 months. One item asked about self-injury and two items asked about suicide contemplation and suicide attempt. All three items had possible responses of no, never; no, not in last 12 months; yes, in the last 2 weeks; yes, in the last 30 days; and yes, in the last 12 months. These responses were dichotomized into never/not in the last 12 months versus yes, in the last 12 months.

Three items related to academic impact of stress, anxiety, and depression. Possible responses included did not happen to me; experienced but academics not negatively affected; lower grade on exam/project; lower grade in course; incomplete or dropped course; and significant disruption of thesis, dissertation, research, or practicum. Students could only select one response. Responses for these three items were collapsed into (1) did not happen to me; (2) experienced with no negative academic impact; and (3) experienced with a negative impact. The demographic items were gender, year in school, race/ethnicity, enrollment status, and if students had transferred to that institution within the last 12 months.

2.3 Data Analysis

Descriptive results were analyzed for demographic and dependent variables of interest. Binary logistic regressions were conducted, controlling for ethnicity, year in school, and gender. All analyses were conducted using IBM SPSS Version 22. Due to the large sample size, Bonferroni correction was applied, setting the significant p value at $<.005$. As a result, 99.5% confidence intervals were used in the analyses.

3. Results

Descriptive results indicate that most students reported no mental health diagnosis/treatment of anxiety (90.6%, n=59,919) or depression (91.4%, n=60,495) in the last 12 months. The logistic regression indicated that males were significantly less likely to be diagnosed/treated for both anxiety (AOR = .424) and depression (AOR = .521) compared to females. When examining year in school, upper-level students were significantly more likely than first-year students to be diagnosed with anxiety and depression with fifth-year students the most likely (AOR = 2.034;

AOR = 1.881, respectively). Table 1 below shows the logistical regression analyses with all adjusted odds ratios (AOR) and confidence intervals.

Table 1. Regression Analyses for Mental Health Diagnoses and Related Behaviors

	Anxiety		Depression		Self-Injury		Suicide Contemplation		Suicide Attempt	
	AOR	99.5% CI	AOR	99.5% CI	AOR	99.5% CI	AOR	99.5% CI	AOR	99.5% CI
Male	0.42	0.39-0.47*	0.52	0.48-0.57*	0.72	0.64-0.81*	0.98	0.89-1.08	1.24	0.98-1.57
Second-Year	1.16	1.03-1.29*	1.12	1.00-1.25	0.81	0.71-0.93*	0.88	0.78-1.00	0.96	0.71-1.29
Third-Year	1.40	1.26-1.56*	1.22	1.09-1.37*	0.74	0.65-0.85*	0.88	0.77-1.00*	0.77	0.56-1.06
Fourth-Year	1.41	1.26-1.58*	1.25	1.11-1.41*	0.66	0.56-0.77*	0.83	0.73-0.96*	0.67	0.47-.97*
Fifth-Year	2.03	1.70-2.43*	1.88	1.57-2.26*	0.66	0.50-0.88*	0.85	0.67-1.10	0.58	0.28-1.18
Black	0.32	0.24-0.42*	0.39	0.30-0.51*	0.78	0.59-1.02	1.05	0.84-1.32	2.00	1.28-3.15*
Hispanic	0.53	0.44-0.65*	0.62	0.51-0.76*	0.84	0.67-1.07	1.00	0.81-1.23	1.42	0.89-2.28
Asian/Pacific Islander	0.35	.274-.410*	0.48	0.37-0.54*	1.09	0.91-1.297	1.27	1.08-1.49*	1.86	1.31-2.65*
American Indian/Alaska Native	0.65	.368-1.137	0.44	0.22-0.89*	1.08	0.579-2.30	1.00	0.55-1.84	1.89	0.59-6.05
Biracial/Multi-racial	0.94	.811-1.083	0.99	0.85-1.15	1.45	1.21-1.72*	1.57	1.34-1.84*	1.64	1.09-2.46*
Other Race/Ethnicity	0.66	.446-.988*	0.83	0.57-1.22	1.51	1.01-2.26	1.44	0.98-2.11	2.82	1.36-5.82*

Note. Reference groups for each independent variable were gender (female); class year (first-year); race/ethnicity (white, non-Hispanic). AOR = adjusted odds ratio; CI = confidence interval.

* $p < .005$

Regarding self-injury, most students report never intentionally injuring themselves (84.1%, $n=55,670$) or not in the last 12 months (10.9%, $n=7,224$). Biracial/Multiracial students (AOR = 1.445) and students indicating Other as their ethnicity were significantly more likely to self-injure in the last 12 months than White students (AOR = 1.507). Second- through fifth-year students were significantly less likely to self-injure in the last 12 months than first-year students with the likelihood decreasing as years in college increased.

Most students have never seriously contemplated suicide (82.8%, $n=54,797$) and an additional tenth have not done so in the last 12 months (11.3%, $n=7,479$). Less than 1% of students report attempting suicide in the last 12 months ($n=598$), while slightly more than 5% report attempting suicide previously but not in the last 12 months ($n=3,487$). Most students report never attempting suicide (93.8%, $n=62,074$). There were some differences with first-year students more likely to report suicide contemplation than third- and fourth-year students; and more likely to report

suicide attempts than fourth-year students. Black students (AOR = 2.00) and students indicating Other as their ethnicity (AOR = 2.815) were significantly more likely to attempt suicide than White students.

Stress, depression, and anxiety all had a perceived impact on students' academic success. Slightly over half (56.1%, n=37,095) did not experience anxiety in the last 12 months. Of those that did experience anxiety, 57% (n=16,553) did not experience a related negative impact on academics. Of the students who did experience a negative academic impact, the most common response was a lower grade on an exam or project (67.0%, n=8,386). About one-fourth of students reported experiencing depression (23.3%, n=15,398) and of those that did about half (52.4%, n=8,062) did not experience any negative academic impact. For those that did perceive an impact, the most common issue was a lower grade on project or exam (51.1%, n=3,748). Only 25% (n=16,893) of students reported that stress did not impact them in the previous 12 months. Unlike anxiety and depression, of those that experienced stress, about 38.5% reported a negative academic impact with a lower grade on exam or project again being the most common result (70.6%, n=13,379). When examining the regression analyses, first-year students were less likely to have their academics affected negatively in most cases than students at higher classifications for all three stressors. Table 2 below shows the AOR and confidence intervals.

Table 2. Multivariate Logistic Regression Results for Anxiety, Depression, and Stress on Academics

	Impact of Anxiety		Impact of Depression		Impact of Stress	
	AOR	99.5% CI	AOR	99.5% CI	AOR	99.5% CI
Male	0.85	0.78-0.91*	0.94	0.85-1.04	0.89	0.84-0.95*
Second-year	1.15	1.04-1.26*	1.22	1.07-1.39*	1.13	1.05-1.21*
Third-Year	1.19	1.08-1.30*	1.21	1.06-1.38*	1.19	1.11-1.28*
Fourth-Year	1.00	0.90-1.10	1.20	1.04-1.37*	0.99	0.92-1.07
Fifth-Year	1.34	1.13-1.58*	1.39	1.12-1.73*	1.38	1.21-1.58*
Black	1.31	1.08-1.59*	1.11	0.88-1.40	1.24	1.08-1.42*
Hispanic	1.30	1.11-1.52*	1.36	1.11-1.67*	1.36	1.21-1.52*
Asian/ Pacific Islander	1.28	1.12-1.45*	1.25	1.05-1.47*	1.50	1.37-1.65*
American Indian/ Alaska Native	0.90	0.51-1.57	0.89	0.41-1.97	1.40	0.92-2.12
Biracial/ Multiracial	1.19	1.05-1.35*	1.21	1.03-1.43*	1.31	1.19-1.45*
Other Race/ Ethnicity	1.27	0.92-1.77	1.83	1.19-2.82*	1.39	1.08-1.78*

Note. Reference groups for each independent variable were gender (female); class year (first-year); race/ethnicity (white, non-Hispanic). AOR = adjusted odds ratio; CI = confidence interval.

* $p < .005$

4. Discussion and Recommendations

Understanding stress and mental health issues germane to college students is imperative to their overall well-being and academic success. Interestingly, first-year students within this study had lower reported rates of diagnosed anxiety, depression, and self-injury than students in other years of school. However, previous research reports first-year students are at higher risk of suffering from mental health challenges (Brandy, et al., 2015) suggesting that first-year students within this study may be experiencing these conditions but not seeking treatment/diagnosis. First-year students did report slightly higher rates of suicide contemplation (compared to third- and fourth-year students) and suicide attempts (compared to fourth-year students). This result is consistent with previous studies indicating a direct link between depression and suicide attempts (Garlow, et al., 2008; Nemeroff, Compton, & Berger, 2001).

Regarding academic impact, first-year students experienced less negative impact for anxiety and stress (compared to second, third, and fifth-year students) and less impact from depression compared to all years. This result suggests that first-year students may be able to overcome the negative effects of such conditions during their first-year of college while the academic curriculum is considered less rigorous as compared to second and subsequent years. While first-year students did not experience greater diagnosis of and negative impact for most mental health issues, the results of this study do suggest that one's first-year in college is the prime time to promote awareness of mental health issues, their potential impact on academic success in future years, and prevention strategies.

When addressing the needs of first-year college students, universities, specifically first-year experience programs, should focus on the nonacademic as well as academic needs of college freshmen (Tinto, 1975; Pascarella & Terenzini, 2005). For example, Schutte and Malouff (2002) found that students who completed a first-year experience course that included information on applied emotional concepts and skills were retained at the university at higher rates and reported greater increases in their ability to regulate and harness emotions than their counterparts that did not receive this information in their first-year experience course. Likewise, improving social networks and sense of control over one's personal life and academics are skill sets that could be incorporated into first-year experience programs in an attempt to positively affect a first-year student's ability to tolerate stress. Decreased social support has been positively correlated with both depression and reported stress levels (Brandy et al., 2015). Likewise, increasing students' desire to help others may actually decrease their stress. Crocker, Canevello, Breines, and Flynn (2010) found that students who had compassionate goals (desire to be supportive, and not harm others) versus self-image goals (promoting self-image so others will help meet their needs and desires) were less likely to experience anxiety, depression, or a combination of the two. Creating a campus environment that encourages support and compassion could change the cultural status quo to improve overall mental health. Similarly, increasing students' support on campus and connection to the college could also affect these conditions. Salzer (2012) found that college students with mental health issues reported less engagement on campus and poorer relationships, and that these factors were associated with lower graduation rates. While not signaling out students with mental health issues, first-year programs need to be mindful of how these students may need extra support to become engaged and develop connections with faculty, other students, and the university as a whole.

Similarly, Mahmoud and colleagues (2012) found that the use of maladaptive coping strategies was the primary predictor of depression, anxiety, and stress in their study of undergraduate students. Maladaptive coping strategies can include efforts to withdraw from the stressful situation or avoid seeking solutions. First-year programs that can increase students' ability to implement adaptive coping strategies (defining the stressful situation, actively seeking support, reflecting on possible solutions, and taking actions to resolve the situation) would be beneficial to the student throughout their college experience, perhaps even their life.

In addition to these strategies, first-year experience programs can familiarize and de-stigmatize accessing mental health services. With high rates of college students suffering from severe depression but not receiving treatment (Rosenthal & Wilson, 2008; Garlow et al., 2008), efforts to debunk the stigma of mental health and increase the usage of mental health and counseling services through traditional and non-traditional methods, such as texting or social media, will benefit all students. One study that examined usage of mental health services found that first-year students' use of mental health services increased when examining a peer-effect at the residence hall level (Golberstein, Eisenberg, & Downs, 2016). As colleges and universities consider education and awareness information about mental health resources and stigma, social norms approaches through the use of social media may be an appropriate strategy for first-year college students (Vaccaro, Adams, Kisler & Newman, 2015).

Consistent with previous research, females experienced higher rates of anxiety and depression (Rosenfield & Mouzon, 2013) compared to males. In the current study, there were no differences between females and males regarding suicide contemplation and suicide attempt; however, Brownson and colleagues (2011) found no differences in undergraduate students regarding suicidal attempts but did find females were more likely to contemplate suicide. Earlier research had shown that college males were more likely to die from suicide but females reported more suicide contemplation and attempts (Schwartz, 2006); however this research focused on all students (not just undergraduates) and it is known that graduate students have higher rates of suicide attempts than undergraduate students (Brownson et al., 2011).

Additionally programming designed to address the unique stressors and challenges of first-year ethnic minority students, specifically those identifying as biracial, multiracial, or other, is warranted. While other research has shown no differences among ethnic groups (e.g. Herman et al., 2011; Mokruue & Acri, 2015; Rosenthal & Wilson, 2008) the current study's findings indicate higher rates for several of the ethnic minority groups. Cokley, Hall-Clark and Hicks

(2011) found higher rates of mental health issues among all ethnic minority groups with increased perceived discrimination correlated with increased mental health issues. Byrd and McKinney (2012) found that a perceived racially tense campus climate contributed to the psychological distress of college students for ethnic minority students. Miranda and colleagues (2015) found that racial/ethnic minority students identified more barriers to mental health treatment and stigma-related concerns compared to white students. These barriers were associated with not following through with counseling center recommendations and with more severe depressive symptoms. Campus strategies focusing on improving access to affordable options, providing flexible scheduling or time-limited options, and decreasing stigma could improve ethnic minority access to mental health services (Miranda et al., 2015). Understanding the current climate of one's institution can help identify strategies to reduce stress among these students. Similarly, interventions designed for a specific cultural group have been found four times more effective than those provided to a group of individuals from culturally diverse backgrounds. Likewise, interventions conducted in the first-language of non-native English speakers were twice as effective as those conducted in English (Griner & Smith, 2006). Addressing these cultural issues and barriers to access are critical for successfully meeting the needs of the diverse populations found in today's universities.

5. Limitations and Future Research

There were limitations to the current study. Universities and colleges self-select to implement the ACHA-NCHA II, and there is a cost associated with survey administration. This may limit generalizability of the results. Additionally, the survey is based on students' responses. Mental health issues and acknowledging mental health conditions is associated with a stigma (Eisenberg, Downs, Golberstein, & Zivin, 2009); therefore, students may not respond honestly to such questions. The survey asks students directly about diagnosis, treatment and behavior, but it is also possible that students may have depression and not have been diagnosed or treated. Both of these limitations may decrease reported rates compared to actual rates.

Additional research on stress and mental health and college students should be qualitative to provide a background and context to participant responses. These narratives could provide insight into changes in students' experiences with depression and anxiety, especially if they were conducted in a longitudinal study. Ideally, this could help inform first-year experience programs to adequately address mental health and stress in an effort to decrease the experience and negative academic impact in subsequent years in school. Additionally, while this study examined suicidal ideation, self-injury, depression, and anxiety specifically, other less common mental health issues (e.g. panic attacks, bipolar disorder) should also be examined for academic impact.

Furthermore, universities cannot ignore the connection of mental health to academic performance and retention. It would be ideal to have health integrated into the university's vision and mission or infuse effective health promotion strategies into appropriate core curriculum but that reality is unlikely for many colleges and universities. Other strategies – such as increasing awareness of mental health issues and access to resources, decreasing stigma, promoting compassionate goal setting, enhancing connections to the university community, and developing positive coping strategies -- during first-year programs may be more realistic and have a greater impact on the overall health and academic success of college students.

In summary, this study's findings support the notion that one's first-year of college is the prime time to promote awareness of and strategies to prevent mental health issues and their potential negative academic effects. Likewise, this study highlights the importance of gender specific and ethnically/culturally appropriate mental health programming to better address the unique challenges facing subpopulations of college students.

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