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Academic Stress in Accounting Students: An Empirical Study

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ABSTRACT

The purpose of the current study is to develop and validate an instrument for measuring academic stress in accounting students. Extant research indicates that academic stress has an adverse impact on the quality of student life and academic success. Academic stressors are categorized and examined to explore the relationship between the stressors and academic stress. Data collected from 59 accounting students in a Midwestern university in the United States are analyzed using various statistical methods, including factor analysis and scree plots, to examine the dimensionality of the concept of academic stress. A scale for measuring academic stress is developed and psychometrically tested. The validity and reliability of the instrument are also tested. The factor analysis of the instrument yields five underlying factors relating to academic stress. Statistical testing indicates that the instrument is a reliable and valid measurement of academic stress in accounting students. The validated instrument is subsequently administered to 98 accounting undergraduate students. The results of the present study indicate that differences in stress scores are based upon gender and educational level.

Keywords: Stress, empirical, context validity, stressors, factor analysis, scree plot, Accounting Student Academic Stress Scale (ASASS), common method variance, Barlett's test of Sphericity, PCA (Varimax).

INTRODUCTION

Stress is a condition or feeling experienced when a person perceives that demands exceed the personal and social resources the individual is able to mobilize (Lazarus & Folkman 1984).The perceived stress can arise from a situation from the past, the present or the future (Lazarus & Folkman 1984). Extant research indicates that stress is often associated with physical illness (Selye 1976). Bruess and Tevis (1985) link stress with cardiovascular diseases; muscle-related disorders; and allergic disease. Blumberg and Flaherty (1985) also find an inverse relationship between academic performance and perceived stress levels. Excessive stress can obviously affect both physical and psychological health (Roberts & White 1989; Dusselier et al. 2006; Ellard et al. 2005), and an individual's productivity (Bruess & Tevis 1985).

Academic research indicates a growing interest in studying stress in college student populations (Robotham & Julian 2006). At the same time, studies on student stress indicate that stress levels in college students are rising (Robotham & Julian 2006). College student populations are studied more than some other populations due to the implications of stress on student life; and the convenience of the sampling. Extant studies on student stress have focused on law students, medical students, and psychology students (Robotham & Julian 2006). Very little is known about the academic stress experienced by students of other fields, including accounting students. Therefore, a need exists to expand the current study of stress in higher education to include a broader coverage of subjects (Robotham & Julian 2006).

Many factors contribute to student stress. College students, as a group, may be vulnerable to stress because the transition to college can be challenging and many tasks associated with college life require students to possess the necessary skills, which can be stressful and challenging for individuals Misra et al. (2000) find that factors contributing to student stress include academic commitments; financial pressures; and lack of time management skills. Cahir and Morris (1991) identify three areas of stress sources among the graduate students in psychology sampled in the study: academic, emotional and financial stressors. Robotham (2008) categorize stressors into 5 factor groups: examinations; studying; the transition to university; being in a different country; and financial issues. All of the aforementioned studies suggest that academic challenge is one of the major factors that affect student life.

Academic stress is often a part of college life for many students due to the constant pressure to meet course and program requirements. In the present study, academic stress is defined as a condition or feeling experienced when a student perceives that demands caused by academic factors, such as coursework, career implications, and assessment, exceed the personal and social resources available to the individual student. A student experiences academic stress because the academic related demands are greater than the adaptive resources available; or because of the discrepancy between student's perception of the extensive knowledge base required and the students' perception of the adequacy of the time allowed to develop it (Carveth et al. 1996).

Academic stress can have multiple consequences for students and affect their life in various ways. Such

consequences include affecting their performance in school (Blumberg & Flaherty 1985; McKenzie & Schweitzer 2001); physical and mental health conditions (Macgeorge et al. 2005; Dusselier et al. 2006; Roberts & White 1989; Ellard et al. 2005). Several studies on the effects of academic stress on the mental health of individual students conclude that academic stress is a risk factor and, if not managed effectively, can build to such an extent as to impact the academic performance of students and adversely affect the quality of their life (Cahir & Morris 1991; Dusselier et al. 2006) survey 462 students while attempting to identify the significant predictors of students' stress and the results suggest that academic issues are a leading cause of student stress. In the past studies have attempted to identify and assess sources of student stress Hodgson & Simoni 1995); identify reactions or responses to stresses (Misra & Castillo 2004); and identify coping strategies (Gadzella et al. 2008).

The sources of academic stress vary greatly and may include pressures to earn good grades (Archer & Lamnin 1985) complete excessive homework and tests (Archer & Lamnin 1985; Abouserie 1994; Ross et al. 1999); cope with unclear assignments (Ross et al. 1999); maintain good relationships with faculty members (Archer & Lamnin 1985; Ross et al. 1999); cope with time constrains (Archer & Lamnin 1985; Ross et al. 1999); and stressful classroom environments (Archer & Lamnin 1985). Abouserie (1994) indicate that the waiting period for results is one of the most significant sources of stress for some students after an examination. Other stressors associated with academic stress include students' academic workload (Dusselier et al. 2006); inadequate available resources to adjust to new learning environments; and the pressure to develop adequate skills necessary for academic success (Macan et al. 1990). Study or course related factors are frequently identified as assignments (Abouseries 1994); meeting deadlines (Misra et al. 2000); perceived workload and/or difficulty of a course (Schafer 1996).

The stressors identified in extant studies are classified into various categories. For example, Gadzella and Masten (2005) categorize academic stressors into five categories: (i.e., frustration; conflicts; pressures; changes; and self-imposed), but consider self-imposed stress to be one of the most significant stressors for academic stress. Robotham (2008), on the other hand, classifies stressors into five factor groups according to their relationship with the causes, including examinations; studying; and the transition to university. The present study uses the latter classification because it is more straightforward; requires less conceptual interpretation; and is less prone to subjectivity in data collection as a result of the aforementioned reasons.

Extant studies also indicate that gender may affect the levels of stress an individual experiences. Some studies show that women rate their stress much higher than men (Cahir & Morris 1991; Brougham et al. 2009) and experience more stress compared to their male peers (Gadzella 1991). However, one particular study on graduate social worker students finds no major difference in stress levels between genders (Munson 1984). In addition, class standing may be associated with stress levels among college students, with freshman and sophomore students experiencing higher reactions to stress than junior and seniors (Misra & McKean 2000).

The reactions of students to the various stressors vary, and, according to Misra et al. (2000), can be categorized into four types: physiological, emotional, behavioral and cognitive appraisal. Among the four categories of reactions, the first two appear to be the most common reactions to stress (Misra et al. 2000). The examination of student-life stress performed by Gadzella and Masten (2005) finds that while physiological, emotional, cognitive and behavioral responses to stressors are observed, physiological responses appear to be the most common response.

As noted earlier, stress levels in business students, including accounting students, remain largely unexplored, despite the fact that the accounting profession is a popular career choice among college students(Nelson et al. 2008). Accounting student enrollments in the United States increased by 6% in 2010, from 212,834 in 2008 to 226,108 in 2010 (DeFelice 2011). In addition, an increasing number of accounting students are entering graduate programs in accounting, possibly due to the 150-hour requirement for CPA examination (Frecka & Nichols 2004). Accounting students face situations that are unique to the field of study due to the requirements of the accounting program and accounting courses, which include higher GPA requirements and quantitative course content. In addition, a successful accounting career often requires accounting students to prepare for professional examinations, such as CPA, CIA, CFE and CMA.

The distinctions in the nature of academic requirements among accounting students may result in accounting students experiencing higher academic stress levels and having a unique set of stressors. Therefore, the present study attempts to fill the gap in existing research by focusing upon the academic stress of undergraduate accounting students to identify factors that have an effect on academic stress for accounting students; and measure the stress levels caused by the identified academic stressors. Specifically, the objectives of the present study are to develop and validate an instrument to measure academic stress in accounting students; investigate the relationship between the academic stress factors and accounting student stress; and explore whether stress levels are associated with the gender and class level of individual students.

The results of the present study may have implications on the college life of accounting students; provide useful information for teaching and counseling services; and ultimately assist in optimizing the academic potential of this particular student group.

METHODOLOGY

For the development and validation of the Accounting Student Academic Stress Scale (ASASS), the methodology suggested by Benson & Clark (1982) and Spector (1979) is

used. The content validation and qualitative evaluation of the questionnaire items were performed using three panels of experts: Expert Panel I (academicians), Expert Panel II (graduate students) and Expert Panel III (undergraduate students). The initial drafts of the questionnaire were based on existing literature and inputs from Expert Panel I (academicians). A final pool of 15 items was subsequently used to construct a questionnaire for the Accounting Student Academic Stress Survey for the pilot study. A pilot test was then conducted to evaluate the reliability and validity of the scale. The validated instrument was administered to a total of 98 accounting undergraduate students to assess academic stress levels in accounting students.

Content validity is empirical to the exploratory research and is concerned with how well the scale items represent the domain of the concept under study (Davis 2004). Context validity is primarily affected by content coverage and content relevance (Messick 1980). In the present research, content validity is obtained by generating the initial pool of items from existing literature on student stress. The initial pool of items consisted of a total of 51 items, which were grouped into categories based on relatedness. The total number of items was reduced to 22 after each item was evaluated for its relevance to the concept of academic stress based upon the opinions of the Expert Panel I. Expert Panel II, consisting of 16 graduate accounting students, were asked to rate each of the 22 remaining items in terms of their effects on academic stress on a seven point Likert scale and to add additional items relevant to academic stress that they have experienced. Items with a mean score less than 4 were excluded, while items with a mean score of 4 or above were retained and items scoring between 4 and 5 were rephrased for clarity. A questionnaire of 13 items was administered to Expert Panel III, consisting of a group of 38 undergraduate business students. Expert Panel III was asked to rate each of the 13 items in terms of its effect on academic stress on a seven point Likert scale. After evaluating the results from Expert Panel III and subsequent consultation with Expert Panel I, the item with the lowest mean score value (2.81) was dropped and three previously excluded items were added because they were once again considered relevant. Thus, a total of 15 items were included in the final pool of academic stress instrument.

Common method variance, which is attributable to the measurement method, is regarded as a potential problem in behavioral research (Podsakoff et al. 2003). Therefore, appropriate measures must be taken to control for potential biases associated with certain sources in the survey. First, similar word positioning is used in the survey questions to reduce item priming effects, a phenomenon where the positioning of a predictor (or criterion) variable on the questionnaire can make that variable more salient to the respondent and imply a causal relationship with other variables (Podsakoff et al. 2003). The item priming effect is regarded by many researchers as one of the main sources for common method bias.

For the pilot study, the instrument was distributed to accounting students (N=59, 100% response rate) recruited from a business school of a Midwest university in the spring semester of an academic year. The sample consists of 58% both male students (58%) and female students (42%).In regards to the age of the respondents,88% of the students were between 20-25 years old; 3% were 26 -30; 7% were 31-35; and one subject does not indicate an age. The majority of the students are seniors (71%), while the remainder consists of sophomores (22%) and graduate students (3%). However, two respondents do not indicate their academic year.

For the final testing of academic stress levels of the accounting student, the validated ASASS was administered to accounting students (N=98, 100% response rate) recruited from the same school as in the pilot study. The sample consists of both male students (56%) and female students (44%). In regards to the age of the respondents, 91% were 20-25 years old; 2% were 26-30; and 7% were 31-54. The majority of the subjects were seniors (66%) and 34% were juniors. The data was collected in the same semester as the pilot study. For all testing, respondents were instructed to rate their academic stress level in terms of a seven point Likert type scale.

The appropriate descriptive statistics are calculated to characterize both the pilot study and the final testing samples. Factor analysis is used to remove items not relevant to the construct of the instrument (Davis 2004); to examine the dimensionality of the construct; and to test internal consistency (Pallant 2001). A principal component analysis (PCA) with Varimax orthogonal rotation is performed to validate the instrument in the pilot study. A scree test is also used to further validate the factors extracted using the PCA. An independent-sample t-test is conducted during the final testing to compare the stress levels between different groups of subjects.

RESULTS

The PCA with Varimax orthogonal rotation for the 15 item instrument results in a Cronbach's Coefficient Alpha of .861, which suggests the reliability ofthe instrument (Pallant 2001). Removing Test Take (Table 1) only slightly increases the Cronbach's Alpha (0.001).

This indicates that Test Take is a relevant variable of academic stress. Guttmann Split-Half method is used to further check the reliability of the instrument. The resulting Cronbach's Alpha is 0.769 for Part 1 (8 items) and 0.806 for Part 2(7 items) (Table 2), confirming that the instrument is reliable for the sample. The initial iteration produces a good score (> 0.7), so further iteration is not necessary. All 15 items are retained for factor analysis.

Before factor analysis, the suitability of the data is confirmed by evaluating the correlation matrix, which indicates many coefficients of .3 and above. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was .701, which exceeds the recommended value of .6 (Kaiser 1970, 1974). Furthermore, the Barlett's test of

TABLE 1. Cronbach's Alpha

Selected Items	Scale Mean if Item Deleted	Scale VAR if Item Deleted	Item-Total Correlation	Multiple Correlation	Cronbach's Alpha if Item Deleted
Assign	70.7797	139.451	.447	.435	.855
Group	69.6271	139.790	.483	.553	.853
Workload	70.2712	137.787	.530	.757	.851
Difficulty	70.0169	136.051	.555	.735	.850
Unclear	69.3898	135.828	.494	.494	.853
TestPrep	69.5424	142.804	.363	.432	.859
TestTake	69.6780	144.981	.276	.515	.862
Weight	69.7458	133.986	.582	.525	.848
GPA	69.4915	143.116	.365	.379	.858
Present	70.0169	131.189	.552	.572	.850
Career	69.9831	138.914	.365	.493	.860
ProfExam	69.5424	140.494	.446	.457	.855
Help	71.0847	126.769	.728	.748	.839
Access	71.5424	123.459	.723	.880	.839
Understand	71.4237	128.938	.555	.819	.850

TABLE 2. Reliability (Split Half) Statistics

Cronbach's Alpha	Part 1 Value	.769
	Part 2 Value	.806
	Total N of Items	15
Correlation Between Forms		.617
Spearman-Brown Coefficient	Equal Length	.763
	Unequal Length	.764
Guttmann Split-Half Coefficient		.759

Sphericity was significant (Bartlett 1954) (p=.000). The results of the PCA reveal that assistance; assessment; assignment; course difficult; and career & presentation are the five items of the 15 item instrument that have an eigen value exceeding 1; and explaining 34.8%; 12.6%; 9.6%; 8.9%; and 6.9% of the total variance, respectively. The total variance explained by the five components is 72.8% (Table 3A & B). The Scree test (Cattell 1966) suggests the five factors (Figure 1) are associated with the constructs of the ASAS and account for 72.8% of the variance, confirming that the 15 items will constitute the final scale. The five factors (Figure 2) and the sample items are summarized in Table 4.

The stress levels indicated in relation to each of the 15 items in the final survey questions are provided in Table 5A. Meanwhile, the stress levels caused by each of the five factors are provided in Table 5B and demonstrate that the assessment factor causes the highest stress level (mean score of 5.26). The independent-sample t-tests show that females have significantly higher stress scores than males in relation to the factors of assistance and assessment (P< .05) (Table 6).

When class levels are compared, the Assignment factor results in significantly higher stress scores among juniors than seniors. The mean score for the factor at the junior class level was 5.04 and at the senior level was 4.49. These differences were significant (P< .05) (Table 7).

DISCUSSION AND CONCLUSIONS

The present study develops and validates an instrument to measure academic stress in accounting students. The

TABLE 3A. Varimax Rotation Eigenvalues for Five –Factor Solution

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.224	34.828	34.828	2.875	19.170	19.170
2	1.893	12.621	47.449	2.275	15.169	34.338
3	1.435	9.569	57.018	2.241	14.937	49.276
4	1.333	8.888	65.906	1.867	12.445	61.721
5	1.038	6.919	72.825	1.666	11.105	72.825

TABLE 3B. Factor Analysis Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
Access	.897	.116	.215	.152	.123
Understand	.875	-.095	.200	.154	.035
Help	.800	.256	.045	.243	.265
Test Take	-.061	.830	.024	-.007	.122
Test Prep	.034	.752	.057	.273	-.067
Prof Exam	.211	.606	-.001	-.020	.460
Weight	.428	.506	.391	.089	-.033
GPA	.283	.381	.186	-.097	.236
Group	-.035	.108	.835	.226	.199
Unclear	.296	-.037	.798	.063	.086
Assign	.322	.251	.620	.097	-.265
Difficulty	.262	.139	.121	.876	.094
Workload	.154	.038	.215	.864	.221
Career	.074	.246	-.081	.194	.786
Present	.251	-.078	.418	.228	.707

Extraction Method: PCA, Rotation Method: Varimax with Kaiser Normalization.

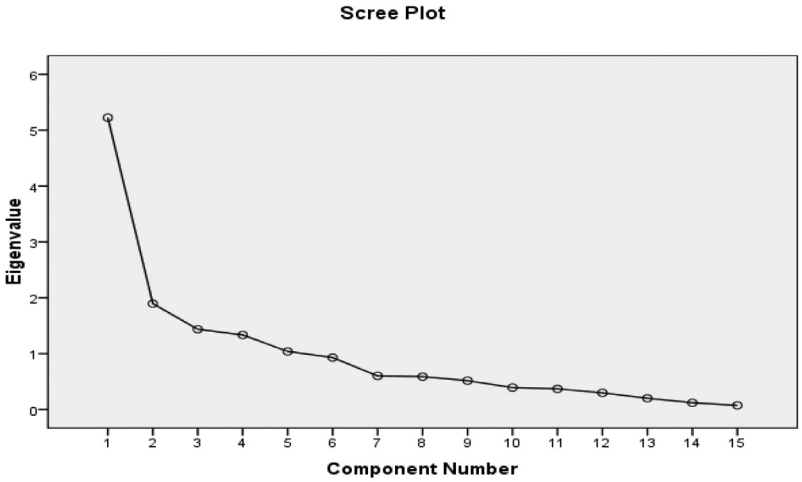

FIGURE 1.

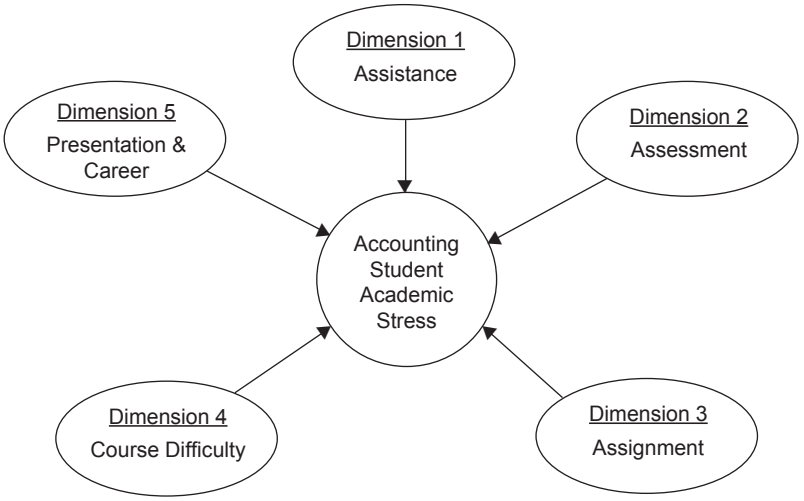

FIGURE 2.

TABLE 4. Factors (stressors) and Associated Sample Items

Stressors (Factors)	Sample Items (Variables)
Assistance (eigenvalue = 5.22)	Limited access to faculty Lack of faculty understanding Inability to obtain help with course work
Assessment (eigenvalue = 1.89)	Test taking, Test preparation Professional exam The weight of the test towards final grade Perceived GPA on future
Assignment (eigenvalue =1.44)	The Group projects in class Unclear assignment The assignment given by professors.
Course Difficulty (eigenvalue = 1.33)	Perceived workload of a course Perceived difficulty of a course
Career & Presentation(eigenvalue =1.03)	Career planning Class presentation

TABLE 5A. Descriptive Statistics of Stress Levels by Items

	Mean	Std. Deviation	N
Assign	4.33	1.199	98
Group	4.90	1.647	98
WorkLoad	4.88	1.186	98
Difficulty	5.04	1.074	98
Unclear	4.80	1.612	98
Test Prep	5.45	1.113	98
Test Take	5.23	1.353	98
Weight	5.35	1.293	98
GPA	5.47	1.423	98
Present	4.47	1.772	98
Career	4.76	1.534	98
Prof Exam	4.79	1.725	98
Help	3.41	1.704	98
Access	3.12	1.620	98
Understand	3.32	1.768	98

TABLE 5B. Descriptive Statistics of Stress Levels by Factors

	N	Minimum	Maximum	Mean	Std. Deviation
Assistance	98	1	7	3.28	1.562
Assessment	98	3	7	5.26	0.924
Assignment	98	1	7	4.67	1.137
CourseDifficulty	98	1	7	4.96	1.049
PresentCareer	98	1	7	4.61	1.346
Valid N (listwise)	98				

underlying dimensionality of the construct of accounting student academic stress is identified and tested. The present study suggests that the ASASS is a valid and reliable instrument to measure academic stress in accounting students. Differences in stress levels between genders and class levels among accounting students are also examined. The results of the present study suggest that accounting students experience academic stress due to five factors, with the assistance factor being the largest factor related to student academic stress. Four of the five dimensions of academic stress are consistent with previous studies. However, the finding that the assistance factor is the most significant factor (accounting for about 35% of the variance) associated with student academic stress is rather noteworthy. The assistance factor consists of the following items: limited access to faculty; lack of faculty understanding; and inability to obtain help with course work. The finding may warrant further investigation to determine whether this phenomenon is unique among accounting students. As stated above, the higher

TABLE 6. Independent Samples Test of Stress Levels by Gender

Independent Samples Test (EIU)

		Levene's Test for Equality of Variances		Hest for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Assistance	Equal variances assumed	8.119	.005	-2.197	96	.030	-.685	.312	-1.304	-.066
	Equal variances not assumed			-2.105	72.084	**.039**	-.685	.325	-1.333	-.036
Assessment	Equal variances assumed	.566	.454	-2.764	96	**.007**	-.503	.182	-.865	-.142
	Equal variances not assumed			-2.722	84.381	.008	-.503	.185	-.871	-.136
Assignment	Equal variances assumed	.532	.467	-.662	96	.510	-.154	.232	-.614	.307
	Equal variances not assumed			-.645	79.458	.521	-.154	.238	-.628	.321
Course Difficulty	Equal variances assumed	.552	.459	-1.918	96	.058	-.404	.211	-.823	.014
	Equal variances not assumed			-1.957	95.293	.053	-.404	.207	-.814	.006
Present Career	Equal variances assumed	4.785	0.31	-1.394	96	.167	-.380	.273	-.921	.161
	Equal variances not assumed			-1.356	78.863	.179	-.380	.280	-.938	.178

TABLE 7. Independent Samples Test of Stress Levels by Class Level

Independent Samples Test

		Levene's Test for Equality of Variances		Hest for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Assistance	Equal variances assumed	1.822	.180	.685	96	.495	.229	.335	-.435	.894
	Equal variances not assumed			.658	56.717	.517	.229	.351	-.474	.933
Assessment	Equal variances assumed	.891	.347	1.044	96	.299	.206	.197	-.186	.598
	Equal variances not assumed			1.088	71.957	.280	.206	.190	-.172	.584
Assignment	Equal variances assumed	.016	.898	2.328	96	**.022**	.533	.238	.082	1.025
	Equal variances not assumed			2.220	56.844	**.030**	.533	.249	.054	1.052
Course Difficulty	Equal variances assumed	.576	.450	1.090	96	.278	.244	.224	-.201	.689
	Equal variances not assumed			1.015	53.574	.314	.244	.241	-.238	.727
Present Career	Equal variances assumed	.002	.965	-.825	96	.411	-.238	.288	-.810	.334
	Equal variances not assumed			-.805	60.285	.424	-.238	.295	-.829	.353

requirements in accounting programs and accounting courses may be directly related to the increased need for assistance.

The finding of higher stress levels among females compared to males is consistent with the finding of several extant studies (Cahir & Morris 1991; Broughamet al. 2009).The finding of higher stress levels in junior students than seniors (Table 7) is also consistent with an existing study (Misra & McKean 2000).

In the present study, junior accounting students are found to experience higher academic stress than senior students in regards to assignments. The finding may be explained by examining the characteristics of this group of students and the courses normally taken by junior year accounting majors. Many of the courses are accounting courses, often quantitative in nature, which can be challenging for the students. In addition, junior students also need time to develop important skills for their courses that senior students may have already gained, thus resulting in seniors experiencing less stress.

The results are of value to university teaching staff and administrators involved with accounting programs and accounting courses. The results may also provide useful information for teaching and counseling services. The present study may help academic institutions better address academic stress, thereby leading to improvements in the academic experience and quality of life for accounting students.

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