Financial Stress, Coping Strategy, and Academic Achievement of College Students

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The impact of financial stress on college students can range from psychological distress to adverse academic outcomes. The purpose of this study was to identify how resources and perceptions alter the amount of financial stress felt by college students and how this relates to academic achievement. Results from 2,236 Midwestern college students indicate that financial and life stressors, higher subjective financial knowledge, fewer financial resources, negative perceptions, and lower mastery are associated with higher financial stress. Financial stress was not associated with academic achievement, but financial stressors, objective financial knowledge, and financial resources were highly related to financial stress. Increasing available financial resources to students, in addition to providing opportunities to increase financial knowledge for students, would likely be associated with decreased stress and better academic achievement.

Keywords: academic outcomes, financial behaviors, financial knowledge, financial stress, perceived mastery

College is occasionally portrayed as a time of optimistic and stress-free young adulthood, filled with late night existential discussions, and characterized by carefree attitudes that nearly all things are possible with sufficient resiliency and resolve. The reality for today's college students is often much bleaker. Because college students emerge from adolescence, they are met with a great deal of changes and new responsibilities as they become independent adults, much of which is stressful (Pierceall & Keim, 2007). In addition to new environments and responsibilities, for many students, it is their first encounter with budgeting, paying bills, and responsibly using credit (Gutter & Copur, 2011; Tinto, 2012). To add to this, students must skillfully navigate a complex financial environment which may include unstable personal finances, rapidly increasing tuition, and eroding financial support from parents and family (Worthy, Jonkman, & Blinn-Pike, 2010).

A potential source of financial stress for college students is the cost of tuition and fees, which has grown at 3 times the rate of inflation. In today's economy, students would have to work year-round at 55 hours per week to pay for the average public college tuition, whereas a student in the 1960s could have worked 40 hours per week in the summer and 15 hours per week during the school year to pay the same (Bousquet, 2008). The cost of working more hours is high in terms of academic and social integration on college campuses—the National Survey of Student Engagement (NSSE, 2008) is concerned that students will cease to be academically and socially engaged on campuses because they are driven to work more hours to meet basic financial needs.

Financial stress impacts students in many ways. Financially stressed students frequently consider leaving college (Roberts et al., 2000), have higher levels of psychological problems (Smyth, Hockemeyer, Heron, Wonderlich, & Pennebaker, 2008)—including lower levels of self-reported health (Roberts et al., 2000) and higher self-reported mental health needs (Hyun, Quinn, Madon, & Lustig, 2006)—poorer living conditions (Hayhoe, Leach, Allen, & Edwards, 2005), increased college adjustment difficulties (Meehan & Negy, 2003), unhealthy behaviors and interpersonal

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relationships, and adverse academic outcomes (Northern, O'Brien, & Goetz, 2010).

Given the documented negative effects of financial stress on college students' well-being, the purpose of this study was to examine how the combination of financial resources and financial perceptions influences financial stress. A secondary purpose was to determine how financial stress—controlling for financial resources and perceptions—influences academic achievement. This study adds to the scant literature on the specific impact of financial resources on college students' financial stress and subsequent academic achievement.

Theoretical Framework and Related Literature

To answer the two research questions, a stress framework was needed. According to the double ABC-X stress model, an individual's perception of a stressor and the resources available to react to the stressor determines how much stress the individual will ultimately feel (McCubbin & Patterson, 1981). The model allows us to explore the dual influence of resources and perceptions on college students' financial stress levels and how stress, in turn, influences academic achievement. The double ABC-X model focuses on the idea that individuals rarely encounter a single demand (McCubbin, Needle, & Wilson, 1985). Rather, individuals are dealing with a "pile-up" of demands which are the cumulative effect of multiple stressors and strains over time (Lavee, McCubbin, & Patterson, 1985; McCubbin et al., 1985). The model is appropriate for use in this study in which financial stress and its influence on academic achievement is being tested while controlling for other stressors encountered by college students (Figure 1).

Stressors

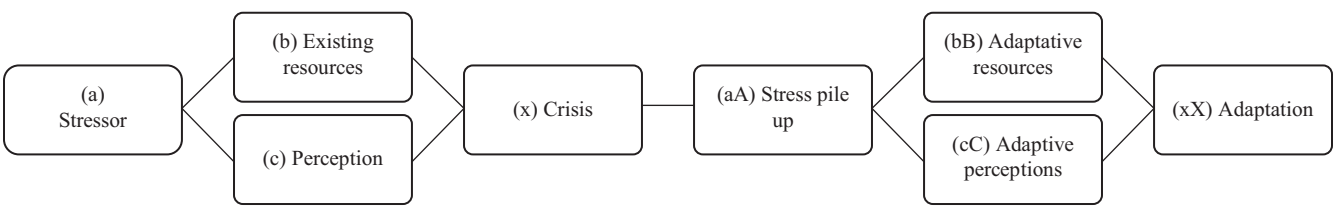
College students face multiple demands ranging from academic and social pressure to financial stress (Lyrakos, 2012). Stressors are highly subjective, influenced by individual perception and shaped by environmental, physical, psychological, or social forces (Pederson, 2012). Stressors for college students can range from missing a test or incurring a fine, to potentially more positive stressors such as meeting a new friend and joining a club.

According to Joo, Durband, and Grable (2008), financial concerns are a primary stressor for college students, particularly freshmen. Stressors include (a) concerns about the ability to finance their education; (b) stress caused by the need, or perceived need, to work full-time to pay for their education; (c) the costs of commuting to school; (d) the stress associated with finding employment while taking classes; and (e) the stress caused by negative financial behaviors and poor debt management. The students from Joo et al.'s study reportedly coped with their financial concerns by working additional hours, which could ultimately interfere with time dedicated to school work. Given the rapid increases in tuition since the Joo et al. study, it is likely that financial concerns of college students have also continued to increase. Results of a recent study confirm this may be the case—students experiencing high levels of financial stress are more likely to seek financial counseling (Lim, Heckman, Letkiewicz, & Montalto, 2014). Lim et al. (2014) concluded that rising student loan debt gives reason to believe that financial stress levels will continue to rise among college students.

Resources and Perceptions

A key aspect contributing to how much stress is ultimately perceived as a result of stressors is an individual's resources, which is not limited to financial resources such as income and net worth. Other resources may include the educational level of respondents, particularly their financial knowledge in the case of financial stressors (Nelson Goff & Smith, 2005). According to the double ABC-X framework, individuals will search for additional resources before determining

Figure 1. Double ABC-X conceptual model.



what effect the initial stressors (as measured by financial stressors in this study) and the pile-up of additional stressors (as measured by general stressors in this study) will have on the individual's stress level. The search for additional resources is shown as adaptive resources in Figure 1.

Another key determinant of financial stress is an individual's perception of the situation. In studies of financial behaviors, perceptions have been analyzed from the locus of control/mastery perspective, particularly within the context of the ABC-X model (Hayhoe & Wilhelm, 1998). According to Rosenfield and Mouzon (2013), mastery—described as perceived control over resources (Perry & Morris, 2005)—is an especially important resource in coping with stress. People with high perceived mastery tend to demonstrate better financial behaviors (Perry & Morris, 2005) and are therefore likely to exhibit lower financial stress. College students with low levels of mastery have demonstrated negative financial behaviors, such as difficulty paying monthly obligations (Britt, Cumbie, & Bell, 2013). Other indicators of perceptions could include the perceived adequacy of resources such as time, money, and social support services and how one's situation compares to peers. The ability to cope with the pile-up of stressors is conceptualized in the double ABC-X framework as adaptive perceptions as shown in Figure 1.

Summary

The ability of college students to effectively respond to stressful events is determined by how events are experienced (Shipton, 2002). A high level of resources and positive perceptions of the situation allow stressors to be perceived as more manageable and reduce the ultimate stress felt by individuals (Lavee et al., 1985). Increased access to resources will have a positive influence on lowering financial stress in college students, but coping skills also contribute to financial stress. Coping involves the use of current resources to meet demands and also the development of new resources to meet demands.

By accounting for resources and perceptions on top of the initial financial stressors, the explained variance in financial stress should increase. The addition of nonfinancial stressors (or the pile-up of stressors) is hypothesized to increase the financial stress felt by students. Any increases in resources and positive coping mechanisms should be associated with reduced financial stress according to the framework. The specific hypotheses as they relate to the two outcomes of financial stress and academic achievement are presented here.

H1: An increase in stressors will be associated with increased stress/lower academic achievement.

H2: An increase in resources will be associated with decreased stress/higher academic achievement.

H3: An increase in perceived resources/abilities will be associated with decreased stress/higher academic achievement.

H4: An increase in coping skills will be associated with decreased stress/higher academic achievement.

Method

Data

All undergraduates enrolled in at least six credit hours during the spring of 2014 on the main campus of a large public university located in the Midwest were e-mailed a link to an online survey (via Qualtrics) related to (a) peer comparison of financial well-being, (b) identification of expenses college students are solely responsible for paying, (c) inability to pay expenses, (d) willingness to engage in activities to earn extra money, (e) current financial status, (f) life stressors, (g) financial behaviors, and (h) perceived control. The survey (containing 24 items) was developed by the authors in collaboration with the Office of Student Life and the free peer-based financial counseling center on campus. The research team consisted of eight individuals who reviewed the survey for content validity. Tests of criterion and construct validity were not conducted. Future studies with longitudinal data should consider additional validity tests.

Registrar data (e.g., age, gender, grade level, marital status, first generation college student status, academic major, and grade point average [GPA]) were obtained with permission of the university's institutional review board (IRB) and linked with the Qualtrics survey. Identifying student information (i.e., e-mail address) was removed before any data were analyzed. There were 16,675 e-mails successfully sent. There were 3,342 surveys opened; 3,029 students started the survey; and 2,585 respondents finished the survey for a total response rate of 18% for partial data and 15.5% for mostly complete data. This is within the true population value of ±3% recommended by Dillman, Smyth, and Christian (2009).

Upon opening the recruitment e-mail, all respondents were notified of their eligibility to receive a small incentive (i.e., a cookie and coupons redeemable at the Student Union) for completing the survey as well as the chance to win larger prizes. Incentives were again disclosed in the introduction to the survey with all IRB-required language. To claim the incentive, respondents had to bring a screenshot or print out of the survey completion page to the Student Union on designated dates. Respondents were provided more information about the Office of Student Life, the peer-based financial counseling center, and the academic unit that distributed the survey at the prize table. Respondents were also entered for a drawing for a $250 Student Union bookstore gift card and 18 smaller prizes, which were selected the day after the survey closed.

There were 2,111 surveys completed within the first 24 hours of distribution. A reminder e-mail was sent via the university daily announcement e-mail system 6 days after the initial e-mail invitation was sent. An additional 658 surveys were completed within a day of sending the reminder announcement. The survey was closed 2 weeks after it opened. All surveys were conducted using the proper protocol and approval from the primary investigator's university IRB. The sample demographic characteristics are shown in Table 1 as they compare to the university population.

TABLE 1. Descriptive Statistics

	Sample			University		
Variables	***M***	***SD***	**Range**	***M***	***SD***	**Range**
Male	.38	.48	0–1	.52	.50	0–1
Age	20.98	3.09	17–57	21.23	3.27	16–59
First generation	.34	.47	0–1	.33	.47	0–1
	%			%		
Race						
American Indian	.39			.37		
Asian	2.54			5.99		
Black	3.68			3.95		
Hawaiian Pacific	.00			.12		
Hispanic	6.58			6.87		
Multiracial	2.99			2.77		
Not specified	1.92			1.88		
White	81.89			78.06		
Grade						
Freshman	16.08			17.90		
Sophomore	24.73			23.29		
Junior	23.08			23.00		
Senior	35.69			34.42		
Academic college						
Agriculture	14.91			13.59		
Architecture	2.57			2.28		
Arts and sciences	31.43			33.24		
Business administration	13.32			13.76		
Education	8.14			6.55		
Engineering	14.22			17.63		
Human ecology	15.23			12.80		

Financial Stress

A single item was used to measure subjective financial stress. Respondents were asked, "How stressed do you feel about your current financial situation" on a scale of 1–10, where 1 = *not at all* and 10 = *extremely stressed*. Single-item financial stress scales have been successfully used in prior research with large samples (e.g., O'Neill, Sorhaindo, Xiao, & Garman, 2005).

Stressors

On the precrisis side of the model, stressors were identified as financial events that the respondent was unable to pay for in the past 3 months. Items were selected in consultation with university administration staff who work with students' financial concerns on a daily basis. The list included textbooks, groceries, transportation, and medical expenses with response options ranging from 1 = *never*, 2 = *once*, 3 = *twice*, 4 = *three to five times*, to 5 = *more than five times* with an option for not applicable. The not applicable responses were recategorized as a score of 0 for the summated score. The range was 0–65 with a mean of 16.65 (*SD* = 8.37). The reliability of the 13 items as a summated score was $\alpha = .84$.

For the postcrisis side of the model, general stressors were added. Respondents were asked to identify whether a series of 17 events happened to them or a family member in the last 12 months. Items were based on the Adolescent-Family Inventory of Life Events and Changes (A-FILE inventory; McCubbin & Thompson, 1991) but were condensed and separated between individual and family events for this study. Events included items such as moved, became seriously ill or injured, and began having sexual intercourse. Respondents indicated, separately, if each event had occurred to them or a family member. The range was 0–23 with a mean of 4.57 (*SD* = 4.11). The reliability of the items as a summated score was $\alpha = .82$.

Resources

Existing and adaptive resources were measured through items designed to capture respondents' current resources as well as the adaptive resources they have access to in the event of a stressor. Objective and subjective financial knowledge were used to assess for existing resources. Objective financial knowledge was measured by six true/false questions. Scores could range from 0 to 6. The mean for this sample was 3.20 (*SD* = 2.10) with an alpha of .80. Subjective financial knowledge was measured on a 10-point scale, where 1 = *respondents felt they had the lowest level of financial knowledge* and 10 = *respondents felt they had the highest level of financial knowledge*. The knowledge questions are identical to those used in ongoing clinical research at the institution in which the data were collected.

Income, savings, credit card debt, and student loan debt were measured continuously and logged for ease of interpretation. Zero values were converted to 1 prior to the log transformation. Respondents were asked to indicate how much money would be left over if they sold all of the assets and paid back all their debt. A score of 1 = *broke*, 3 = *breakeven*, and 5 = *have money left over*. The mean perceived net worth score was 3.25 (*SD* = 1.21).

One item was used to represent adaptive resources. Respondents were asked to indicate if they would be willing to engage in a list of 16 negative activities for extra cash (e.g., borrow from friends, pawn items, skip meals, or steal). As with the financial stressor items, the adaptive resource items were selected in consultation with university administration staff who work with students' financial concerns on a daily basis. Response options included 0 = *I have not done this*, 1 = *I have done this once before*, and 2 = *I have done this multiple times*. The values could range from 0 to 32. The mean for this sample was 4.28 (*SD* = 4.56). The items had good reliability for use as a scale ($\alpha = .80$).

Perceptions

Three items were used to assess for precrisis perceptions. A single-item question, developed by the authors, was used to assess peer financial comparison. Respondents were asked, "Compared to my friends, I am worse, the same, or better off financially." Respondents were also asked to indicate to what extent their current income is enough to live on where 1 = *can't meet necessities*, 2 = *can meet necessities only*, 3 = *can afford some but not all of the things I want*, 4 = *can afford nearly everything I want*, and 5 = *can afford everything I want and still have money left over*. This item was also developed by the authors. Less than 3% of the sample indicated that they could afford everything and still have money left over, so Categories 4 and 5 were combined.

Mastery was measured with the seven item Pearlin mastery scale (Pearlin, Menaghan, Lieberman, & Mullan, 1981). Respondents were asked to indicate how frequently they

agreed with the following statements where 1 = *almost never*, 2 = *seldom*, 3 = *sometimes*, 4 = *often*, and 5 = *almost always*: (a) there is really no way I can solve some of my problems (reverse coded), (b) I am being pushed around in my life (reverse coded), (c) there is little that I can do to change the important things in my life (reverse coded), (d) I can do anything I set my mind to, (e) I am helpless in dealing with the problems of life (reverse coded), (f) what happens to me in the future depends on me, and (g) I have little control over the things that happen to me (reverse coded). Higher scores represent a greater sense of self mastery. The alpha for the scale was .81.

On the postcrisis side of the framework, coping was based on the Adolescent Coping Orientation for Problem Experiences (A-COPE) scale. The scale asks respondents to indicate how often they engage in a list of 54 items when they face difficulties or feel tense. Some items are positive such as compromise, talk to a religious leader, and organize what you have to do in life. Negative coping strategies included items such as smoke, drink alcohol, and get angry at people. The original alpha was .82 as reported by McCubbin and Thompson (1991). Response options included 1= *never*, 2 = *rarely*, 3 = *sometimes*, 4 = *often*, and 5 = *most of the time*. The scale items were reduced to 25 items because of space constraints on the survey. The alpha for the reduced scale used for this sample was $\alpha = .77$.

Data Analysis

A hierarchical regression was used to analyze the relationship of (a) stressors, (b) existing resources and perceptions, (c) stress pile-up, and (d) adaptive resources and perceptions on self-assessed financial stress. In a separate ordinary least squares regression analysis, we explored the influence of financial stress, existing resources, and perceptions on academic achievement as measured by GPA. No variables were correlated above the $r = .40$ level as shown in Table 2.

Results

Financial Stress

The first block in the hierarchical regression included the precrisis stressors only. A summated score of the frequency in which students were unable to purchase items was used to proxy the amount of financial stressors experienced by students. This variable alone accounted for 19% of the variance in financial stress ($B = .12, p < .001$).

Block 2 incorporated existing resources and perceptions. Financial stressors retained their statistical significance but lost some explanatory value in the beta ($B = .04, p < .001$). Other significant proxies for resources included subjective financial knowledge ($B = .11, p < .001$), amount of money in savings (log; $B = -.08$, $p < .001$), student loan debt (log; $B = .06$, $p < .001$), and perceived net worth ($B = -.13$, $p < .001$). Respondents who felt worse off financially, compared to their peers, were associated with higher financial stress ($B = .73$, $p < .001$), whereas those who reported feeling better off than their peers were associated with lower financial stress ($B = -1.00, p < .001$). Respondents who felt they could afford less than what they wanted or needed reported greater financial stress ($B = 1.47$, $p < .001$; $B = 1.56, p < .001$; $B = 1.09, p < .001$). Mastery was the final perception variable associated with financial stress where a greater sense of mastery was associated with lower financial stress ($B = -.07, p < .001$). Block 2 (the precrisis side of the framework) accounted for 49% of the variance in financial stress.

Block 3 incorporated the pile-up of life stressors. All variables from Block 2 retained their statistical significance and approximate beta coefficients. The new variable of pile-up of stressors was statistically significant ($B = .04, p < .001$) but did not improve the overall model ($R^2 = .49$).

The final block accounted for 50% of the variance in financial stress by including financial stressors, resources and perceptions, general life pile-up stressors, and adaptive resources and perceptions. The general stressors lost their statistical significance in the final block, possibly indicating that adaptive resources and perceptions are more important in explaining financial stress. If respondents were willing to engage in more negative activities for extra resources/cash, they were associated with higher levels of financial stress ($B = .00, p < .001$). The full regression table is shown in Table 3.

Academic Achievement

A secondary purpose of this study was to determine how financial stress viewed from a double ABC-X stress framework impacts academic achievement, as measured by GPA. Table 4 shows the results of the regression. Financial stress was not a significant predictor, but financial stressors were ($B = -.01$, $p < .01$), as were general stressors ($B = -.02$, $p < .001$). Students with greater financial knowledge ($B = .04, p < .01$) and more financial resources

TABLE 2. Correlation Matrix

	Financial Stress	General Stressors	Objective FK	Subjec-tive FK	Log Income	Log Savings	Log Credit Card Debt	Log Student Loan Debt	Net Worth	Extra Cash Activities	Peer Compare	Sufficient Income	Mastery	Coping Activities
Financial stress	.43***	.25***	.01	.08***	.08***	−.39***	.20***	.43***	−.41***	.41***	−.55***	−.42***	−.32***	−.07***
Financial stressors		.31***	−.07***	.08***	.13***	−.36***	.21***	.22***	−.27***	.40***	.33***			
General stressors			−.04	.014	.04	−.18***	.11***	.10***	−.10***	−.10***	−.18***	−.16***	−.24***	.00
Objective FK				.11***	.08***	.04	.08***	.04	−.04	.07**	.05*	.02	.10***	.06**
Subjective FK					.17***	.02	.12***	.04*	−.03	.09***	.01	.04*	.10***	−.01
Log income						−.02	.16***	.11***	−.07**	.21***	.02	.02	.04	−.03
Log savings							−.24***	−.30***	.33***	−.30***	.40***	.28***	.16***	.07**
Log credit card debt								.23***	−.16***	.24***	−.15***	−.11***	−.05*	−.08***
Log student loan debt									−.54***	.33***	−.40***	−.24***	−.13***	−.07***
Net worth										−.36***	.40***	.28***	.19***	.10***
Extra cash activities											−.29***	−.23***	−.17***	−.03
Peer compare												.37***	.26***	.10***
Sufficient income													.21***	.09***
Mastery														.20***

Note. FK = financial knowledge.

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

TABLE 3. Summary of Hierarchical Regression Analysis for Financial Stress (N = 2,236)

	Model 1 Stressors			Model 2 Resources and Perceptions			Model 3 Pile-Up Stressors			Model 4 Adaptive Resource/ Perceptions		
Variable	***B***	***SE B***	**β**	***B***	***SE B***	**β**	***B***	***SE B***	**β**	***B***	***SE (B)***	**β**
Financial stressors	.12***	.01	.44	.04***	.00	.16	.04***	.00	.14	.03***	.00	.12
General stressors							.04***	.01	.07	.03**	.01	.05
Objective FK				−.03	.03	−.02	−.03	.03	−.02	−.05	.03	−.03
Subjective FK				.11***	.02	.09	.11***	.02	.09	.11***	.02	.08
Log income				.01	.01	.02	.01	.01	.02	.00	.01	.00
Log savings				−.08***	.01	−.10	−.08***	.01	−.10	−.07***	.01	−.09
Log credit card debt				.03	.02	.03	.03	.02	.03	.02	.02	.02
Log student loan debt				.06***	.01	.12	.06***	.01	.12	.05***	.01	.11
Perceived net worth				−.13***	.04	−.07	−.13***	.04	−.07	−.10**	.04	−.05
Extra cash activities										.00***	.01	.11
Peer comparison (same)												
Worse				.73***	.10	.13	.72***	.10	.13	.70***	.10	.13
Better				−1.00***	.09	−.19	−1.01****	.09	−.19	−1.01***	.09	−.19
Sufficient income (afford everything)												
Cannot meet necessities				1.47***	.15	.22	1.44***	.15	.22	1.41***	.14	.22
Meet necessities				1.56***	.13	.31	1.54***	.13	.31	1.48***	.13	.29
Afford some necessities				1.09***	.12	.24	1.06***	.12	.23	1.03***	.12	.22
Mastery				−.07***	.01	−.15	−.07***	.01	−.13	−.07***	.01	−.13
Coping activities										.01	.00	.03
R^2	.19			.49			.49			.50		
F for change in R^2	523.81***			152.14***			144.11			132.08 ***		

Note. FK = financial knowledge.
**$p < .01$. ***$p < .001$.

TABLE 4. Summary of Regression Analysis for Grade Point Average ($N = 2,236$)

	Model 1 Stressors		
Variable	***B***	***SE B***	**β**
Financial stress	−.00	.01	−.00
Financial stressors	−.01**	.00	−.07
General stressors	−.02***	.00	−.12
Objective FK	.04**	.01	.06
Subjective FK	−.00	.01	−.00
Log income	−.02***	.01	−.08
Log savings	.05***	.01	.18
Log credit card debt	−.02*	.01	−.05
Log student loan debt	.00	.00	.00
Perceived net worth	.01	.02	.02
Extra cash activities	.00	.00	.03
Peer comparison (same)			
Worse	.00	.04	.00
Better	.05	.04	.03
Sufficient income (afford everything)			
Cannot meet necessities	−.03	.07	−.01
Meet necessities	−.12*	.06	−.07
Afford some necessities	−.05	.05	−.03
Mastery	.01	.00	.03
Coping activities	.00	.00	.01
R^2	.12		
F	16.78***		

Note. FK = financial knowledge.
*$p < .05$. **$p < .01$. ***$p < .001$.

(log income: $B = -.02$, $p < .001$; log savings: $B = .05$, $p < .001$; log credit card debt: $B = -.02$, $p < .05$) reported higher GPAs. Students who reported the ability to only pay for their necessities were associated with lower GPAs, as compared to students who can afford all of their needs and most of their wants ($B = -.12$, $p < .05$). The overall model explained 12% of the variance in GPA.

Discussion

The findings from this study suggest that respondents' resources and perceptions influence their level of stress. Not surprisingly, students with more financial and life stressors report greater financial stress. Financial stressors alone accounted for almost half of the variance in financial stress. According to prior research, students with higher financial stress are at risk for a number of negative outcomes, such as reduced grades (Northern et al., 2010), leaving college (Roberts et al., 2000), and reduced physical (Roberts et al., 2000) and mental health (Hyun et al., 2006), making financial stressors very important in the well-being of college students. Interestingly, students who believe they are more financially knowledgeable than their peers (but are not necessarily more knowledgeable) report higher financial stress. It is possible that these students have a tendency to overreport in multiple facets of their life. Actual financial knowledge had no effect on financial stress.

For the most part, financial resources had effects on financial stress as expected. Those with little to no money in savings, higher student loan debt, and lower net worth were more likely to report higher financial stress. Income, however, was not statistically significant in predicting financial stress among college students. This could be representative of students' low income from work and greater reliance on student loans as "income." Future studies should consider the impact of nonwork income as an independent category in predicting financial stress among college students.

Consistent with prior literature, greater mastery was associated with reduced financial stress (Britt et al., 2013; Rosenfield & Mouzon, 2013). Peer comparisons also matter—students who reported being worse off financially than their peers reported higher financial stress, and those who reported being better off reported lower financial stress. Future studies should analyze the accuracy of students' perceptions of well-being compared to their actual level of well-being in predicting financial stress. Perceptions also matter regarding how much students can afford to buy. Students who felt they could not afford all of their needs and wants reported higher financial stress. Actual budgetary constraints were not analyzed, although this result provides additional support that perceptions do matter as hypothesized from the double ABC-X framework (McCubbin & Patterson, 1981). Respondents who reported having more control over their life were more likely to report less financial stress. This effect was consistent throughout the hierarchical regression.

The findings of the second analysis predicting GPA indicate that financial education interventions designed to increase the financial knowledge and improve the financial

behaviors of college students may be effective in improving students' GPAs. Previous studies have confirmed that desirable financial behaviors, such as paying bills on time and saving, are associated with higher GPAs (Xiao, Tang, & Shim, 2009). However, findings of the current study indicate that financial measures are much more important in predicting GPA as suggested by Wharton (2007). Findings suggest that colleges and universities would be more effective in their efforts to increase the academic achievement of students if they aided students in tangible ways to increase their financial resources, especially for basic needs. The data suggests this would be the most impactful way to mitigate the negative impact of financial stressors on GPA. Thus, it appears that increasing available resources in addition to providing opportunities to increase financial knowledge for students is the most promising practice that should be undertaken by colleges and universities to increase overall academic achievement as measured by GPA.

Conclusion

This study combined with the literature sets forth that resources and perceptions do alter the amount of stress felt by college students. Students respond by coping in various ways, including engaging in risky behavior to save or earn extra money, which may put completing one's education at risk. Certain limitations encourage further research as noted in the following text.

Limitations

The sample for this study was self-selected students from one Midwestern university. Descriptive statistics were used to conclude that the sample was representative of the population from which it was drawn (see Table 1). A better sampling frame may include a cross section of college students from higher learning institutions drawing from urban, rural, public, private, and varying demographic profiles (e.g., historically black colleges, urban community colleges). An understanding of commonalities regarding the double ABC-X model's components across a cross section of colleges would improve educational institutions' and policymakers' ability to design programs to improve retention and graduation rates.

Additional researches focusing on model development—that is, more precise proxies to measure the concepts within the double ABC-X model—are necessary to more fully understand the relationship between stressors and stress. Further refinement of the scales included in the study is warranted as well because the scales drew from other areas of the behavioral sciences in addition to existing scales from financial planning literature. Lastly, a longitudinal study would increase our understanding of whether receipt of financial counseling or financial resources (i.e., grants and scholarships) results in better stress management regarding money and whether or not greater resources lead to better academic outcomes.

Implications

Consistent with Wharton's (2007) findings, financial and nonfinancial factors contribute to academic achievement among college students. Most pertinent to financial counselors and educators is that financial stress is important in determining academic achievement. Students who graduate college face brighter futures in terms of increased financial, personal, and social well-being (Baum, Ma, & Payea, 2013). Financial stress is largely determined by feelings of needs not being met, feeling inferior based on peer comparisons of adequacy, having low mastery, managing a large number of financial stressors, and having high student loan debt and little savings. The first several factors require individual counseling to help alter thought patterns among college students. The integration of financial counseling and psychological counseling may be necessary to fully address perceptions that influence high financial stress among college students.

In terms of quantitative factors, existing research confirms that students suffer psychologically, earn poorer grades, and drop out of school as a result of excessive debt (Roberts et al., 2000). The presence of high debt and the lack of a financial cushion (i.e., savings) contribute to financial stress. Universities are able to quantify the dollars given away in the form of scholarships and grants. If students receiving these are still unable to make ends meet and experience a pile-up of stressors, it may lead to destructive behavior and dropout. Requiring in-person financial counseling for students with student loan balances over a certain amount may help reduce financial stress levels and ultimately improve academic outcomes. Although Lim et al. (2014) suggested that financially stressed students are more likely to seek help, it could be the case that students only seek advice in reaction to perceived or actual problems (Roberts et al., 2000). Institutions of higher learning may wish to be more proactive about encouraging open communication about

stress—financial or otherwise. This is particularly true in that findings indicate that students with higher levels of objective financial knowledge are associated with higher GPAs. The intervention of financial counseling and education could help to improve financial knowledge while at the same time have a positive influence on academic success.

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