Influences on Personal and Professional Stress on Higher Education Faculty

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Abstract: *Stress, which emerges from both personal (e.g., child care) and professional (e.g., committee work) sources, is an important predictor of the productivity and satisfaction of faculty members in higher education. Our purpose is to understand how professional and personal characteristics can influence stress in postsecondary faculty. Using data from the 2010- 2011 Higher Education Research Institute's Faculty Survey, a number of factors (including gender, race, tenure status, department, and home life) influence the four measured areas of stress: personal stress, professional stress around research and job security, professional stress around teaching and students, and professional stress around service.*

Introduction

Stress is an important predictor of the productivity and satisfaction of faculty members in higher education (e.g., Eagan & Garvey, 2015; Gmelch, Wilke, & Lovrich, 1986; Hendel & Horn, 2008; Jacobs & Windslow, 2004), and it can emerge from both personal sources (e.g., child care, personal finances) and professional sources (e.g., research or publishing demands, committee work). As previous research asserts, stress can lead to dissatisfaction and decreased productivity, which, in

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turn, leads to turnover from the academy (Barnes, Agago, & Coombs, 1998; Padilla-Gonzalez & Galaz-Fontes, 2015). As the nature of faculty work continues to evolve to meet the demands of the changing higher education landscape, scholars and administrators alike need to be armed with understanding of how best to support their faculty. With faculty essential to the function of higher education institutions, a lack of adequate support of faculty can be detrimental to the success of an institution. If higher education institutions seek to preserve the strength of the their faculty, a proper understanding of the influences on faculty stress levels remains necessary (Barnes et al., 1998). To that end, researchers need to explore what influences levels of faculty stress. The purpose of this study is to understand how institutional and personal characteristics can influence both personal and professional stress in faculty members across a wide variety of higher education institutions.

Literature Review

Stress can emerge in many areas from many sources and can influence well-being and organizational performance (Beehr & Newman, 1978), and studies have shown that faculty members identify a number of innate conditions related to the academe as stressful even though faculty work has been perceived as not stressful (Doyle & Hind, 1998; Thorsen, 1996; Winefield, 2000). These conditions take both an indirect and a direct shape (Buckholdt & Miller, 2013). Multiple indirect factors may produce significant stress and include technology changes, growing demands for accountability, expectations for increased productivity, sweeping changes in student demographics, and a shift in faculty appointment practices (Schuster & Finkelstein, 2006). Further, direct conditions are inclusive of lack of time to optimally perform all job requirements, limited clarity in job expectations and feedback, and the challenges presented by the balancing of work and life obligations (Dey, 1994; Gmelch & Wilke, 1991; Olsen & Near, 1994).

With a focus on understanding sources of faculty stress, Gmelch et al. (1986) piloted a factor analysis of data from 1,221 faculty members, which shed light on five categories of faculty related stress: student interaction, reward and recognition, professional identity, time constraints, and departmental influence. However, they did not investigate possible non-work stressors that could influence faculty job satisfaction and overall stress. Dey (1994) expanded the understanding of faculty stress with a study analyzing data from over 35,000 faculty

members that yielded four constructs inclusive of non-work related stressors: time constraints, home responsibilities, governance activities, and promotion concerns. Time constraints stemming from a heavy workload and varied responsibilities appear as a primary source of faculty stress (Dey, 1994; Gmelch & Wilke, 1991; Hendel & Horn, 2008). Additionally, time constraints emerge as a key motivation in a faculty member's decision to leave higher education (Barnes et al., 1998). Stressors are not experienced the same for all faculty members. Demographic differences play a role in how identified stressors impact a faculty member. For example, governance and promotion elicit significant stress for certain subsets of faculty (Hendel & Horn, 2008). Minority faculty members report greater stress related to governance or service obligations, such at committee and departmental meetings, due to their potential for being over extended to fill such roles (Thompson & Dey, 1998). Promotion concerns and processes are a central source of stress for non-tenure faculty, a stress felt even more readily by women and faculty of color (Dey, 1994; Hendel & Horn, 2008; Thompson & Dey, 1998).

Efforts have been made to better understand the aforementioned roles both gender and race play regarding faculty experiences with stress both inside and outside the work place. Thompson and Dey (1998) provided valuable insight into how stress is perceived from the margin within the academy with their investigation into intersection of stress, race, and gender. Their findings further support that stress is experienced differently based on individual faculty characteristics. Doyle and Hind (1998) provide additional insight into the experience of women in the academy. They found that time pressures and constraints to complete role responsibilities attributed to higher levels of stress for female faculty than their male peers. Furthermore, they found the research related tasks, including preparation of manuscripts and conference presentations created more stress for female faculty members. Supporting the findings of prior research, Hart and Cress (2008) found that females were more like to indicate that teaching loads, students, and publishing/research demands, promotion process, and committee work as a source of stress than their male counterparts.

Research also investigates the influence stress has on faculty satisfaction and behavior. Employing the stressors identified by Gmelch and colleagues (1986), Barnes et al. (1998) investigated the effects of

these stressors had on faculty intent to leave an institution with a primary focus on the stressors of reward and recognition and student interaction. They found that higher levels of stress were associated with a greater intent to leave the academy. Blackburn and Bently (1993) discovered that job related stress, specifically the demands of research activities and the perception of institutional expectation surrounding research, created a decrease in research productivity. Blackburn and Bently found that environmental variables had no moderating effect on the relationship between stress and productivity, but rather personal variables (family life, etc.) were likely to mitigate stress as well as serve as strong indicators of research productivity. Furthermore, many studies (e.g., Hagedorn, 1994, 1996; Olsen & Near, 1994) have uncovered a relationship between a faculty member's perceived level of stress and job satisfaction. Given the impact that stress has on both productivity and satisfaction of faculty, additional research should uncover the underpinnings of sources of faculty stress in order to effectively support faculty members today.

One under-researched area for faculty stress in higher education is how that stress manifests across the various expectations, roles, and responsibilities put forth on faculty. Stress is not a siloed experience, but one that permeates across otherwise assumed compartmentalized aspects such as personal and professional functions (Carlson & Perrewe, 1999; Williams & Alliger, 1994). Work related stress and work-family tensions are found to affect the attitudes of employees across fields toward their occupation (Babin & Boles, 1998; Sager, 1994). Further, Williams and Alliger (1994) found that a work stress may converge with family responsibilities and family stress the same to work responsibilities. Stress related to family obligations can impact both personal and professional outcomes for faculty (Dey, 1994; Mason, Goulden, & Wolfinger, 2006; Monroe, Ozyurt, Wrigley, & Alexander, 2008). For example, an academic career can be affected by familial changes due to the changes in responsibilities that may emerge in the home (Ward & Wolf-Wendel, 2004).

Eagan and Garvey (2015) added to this discourse with an investigation into whether stress from family obligations or subtle discrimination impacted professional performance across gender and race. Using data from the 2010-2011 HERI Faculty survey, the authors found that stress related to subtle discrimination had a significant

negative impact on faculty productivity, especially for faculty members of color. On the other hand, their results indicate that personal life stress, specifically stress due to family obligations, did not correlate with the research productivity of faculty members. While this piece, and much of the literature base, indicate that stress can have a significant effect on the work of faculty members, there is still much we do not know about how specific stressors impact faculty members' stress levels.

Research Questions

Much of the literature on faculty stress focuses on micro and individual level characteristics to understand the different ways and degrees stress manifests for faculty members. Further research is necessary to explore the different dimensions of stress (i.e., stress around personal areas versus stress around professional areas) and how personal, professional, and institutional characteristics can influence those dimensions. Therefore, our study used data from the 2010- 2011 Higher Education Research Institute's (HERI) Faculty Survey to explore the following research question: What personal and professional characteristics influence the levels of personal stress, professional stress around research and job security, professional stress around teaching and students, and professional stress around service?

Methods

Data

The HERI Faculty Survey provides participating institutions with a broad, research-based picture of the overall faculty experience. Since 1989, over 1,100 two-and four- year institutions have used the survey results to connect faculty practices, values, and priorities to institutional success and advance improvement efforts (HERI, 2017). The 2010-2011 administration of the faculty survey did not vary greatly from previous seven applications of the instrument. Participation in the survey is voluntary at both the institutional and faculty level, and in order to account for this sampling methodology, HERI provides nationally normed sample weights to ensure representativeness. A full description of the process for data collection and calculation of the nationally normed weights can be found in Hurtado, Eagan, Pryor, Whang, and Tran (2012). Given the inherent differences in expectations between

faculty members at four-year and two-year institutions, we chose to restrict our sample to only four-year institutions. Thus our sample, the 2010-2011 administration of the survey, includes responses from 28,546 full-time faculty members at 549 four-year institutions in the United States.

Variables

To address our research question, we analyzed the 25 stress related items on the HERI Faculty Survey. The survey asked, "Please indicate the extent to which each of the following has been a source of stress for you during the last two years: Extensive, Somewhat, Not at All, Not Applicable[1]. We employed exploratory factor analysis to uncover the underlying structure of the items.

First, all items were recoded such that any selection of Not Applicable was treated as missing. Second, we separated the items into two groups: personal and professional. For each of the two groups, we next performed principal axis factoring with varimax rotation to explore the potential latent factor structure. To determine the optimal structure, we examined loadings and reliability information in concert with theoretical implications and prior research. After determining the optimal structure, we created factors by averaging the individual items in each grouping. Finally, each factor was standardized to have a mean of 0 and a standard deviation of 1.

To assess how different aspects of faculty members influence their levels of stress, we examined independent variables from four different categories: demographics, personal life, professional life, and institutional characteristics.

Demographics. Given the recent literature connecting race and gender to stress and faculty productivity (Eagan & Garvey, 2015), we felt that it was important to consider the demographic characteristics of each faculty member. Specifically, we took into account a person's race, gender, and native language. In identifying race, respondents could select as many different racial/ethnic categories as was applicable to their identity. For this study, we wanted to compare the majority of faculty

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[1] Responses are scored with Extensive receiving a 3 descending to Not at all receiving a 1. Not applicable responses were coded as missing.

members who identify as white, to those faculty members of color.
Therefore, we collapsed the variables into a single dichotomous measure,
Person of Color, which groups any faculty member that identified as
some race other than white into one group. For demographics, we also
examined whether or not a faculty member was female and whether or
not English was their native language.

Personal life. To assess the relationship of stress to a faculty
member's personal life, we included 3 measures: whether or not the
faculty member had a child under 18 years of age, whether or not the
faculty member had a child 18 years of age or older, and whether or not
the faculty member had a partner. For the child questions, survey
respondents were asked to indicate how many children they had in each
age range. We collapsed the numbers to reflect whether or not they had
a child in each range. The variables are not mutually exclusive as a
person could have children below and above 18 years. For the partnered
variable, respondents were asked their marital status with multiple
options (single, married, unmarried living with partner, divorced,
widowed, and separated). We combined married and unmarried living
with partner to indicate whether or not the faculty member was
partnered.

Professional life. We included a number of measures of a faculty
member's professional life in our model. First, we looked at how long
somebody had been at their current institution. To do so, we took
respondents answer to the year of appointment at present institution and
subtracted it from 2010. Second, we considered the tenure status of each
faculty member. The original options from the survey included tenured,
on tenure track but not tenured, not on tenure track but institution has
tenure system, and institution has no tenure system. We collapsed the
last two categories into not on tenure track, and created two dichotomous
variables for the analyses: tenure track and not on tenure track. Tenured
faculty members were thus left out as the comparison group. Third,
respondents indicated how many courses they were teaching in the term
of response, and we included this as a measure of teaching load. While
teaching load can vary largely from semester to semester (e.g., from
research buyout, sabbatical, etc.), this was the best measure available to
us for teaching load. Finally, we wanted to model the influence of
department on stress levels. With such a wide variety of departments in
the data, we grouped respondents into the following categories: STEM,

Business, Humanities, Social Science & Education, and Other. STEM served as the comparison group. While some faculty members may have appointments in multiple departments, respondents were asked to select the most appropriate department of current faculty appointment, and thus they could only select one option.

Institution. We included two institutional indicators in our model. First, we put in controls for the institutional type, which was derived from the Carnegie classification of each institution. Specifically, we created two variables: Masters college or university and Baccalaureate College. Doctoral universities were used as the comparison group. Second, we included a measure of student to faculty ratio, which was obtained from matching data from the Integrated Postsecondary Education Data System (IPEDS). While not a perfect proxy, this variable can provide some limited information relating to class size, institution size, and the like.

Analysis

As described above, principal axis factoring is employed to investigate the factor structure of the stress items. Factor analysis is a common method employed in working with survey items to create constructs for analysis, and it has been employed in numerous instances when examining faculty stress (Gmelch et al., 1986; Lindholm & Szelenyi, 2008). Four factors are calculated to represent personal stress, professional stress around research and job security, professional stress around teaching and students, and professional stress around service. For each measure of stress, we conducted a linear regression with stress as the dependent variables and independent variables from the four categories described above: demographics, personal life, professional life, and institution. Regression offered us the most straightforward, interpretable option to explore how measures from these four categories can differentially affect different dimensions of faculty stress. For all analyses, we employed the provided FACWGT variable from the dataset to better estimate our models to represent the nation. This adjustment allows us to estimate a nationally normed assessment of American college full-time undergraduate faculty. For details on the calculation of the weights, see Hurtado et al. (2012).

Results

To explore the different influences on faculty stress, we examined the interrelations among the 25 stress items found on the HERI Faculty Survey. We separated the items into two groupings: personal and professional. The personal grouping included the following potential sources of stress: Managing household responsibilities, Child care, Care of elderly parent, My physical health, Health of spouse/partner, Personal Finances, Children's problems, Friction with spouse/partner, Being part of a dual career couple, and Lack of personal time. The professional grouping included: Review/promotion process, Committee work, Faculty meetings, Colleagues, Students, Research of publishing demands, Institutional procedures and "red tape", Teaching load, Job security, Working with underprepared students, Self-imposed high expectations, Change in work responsibilities, Institutional budget cuts[2].

For the ten personal items, a principal axis factor analysis with varimax rotation resulted in two factors with an eigenvalue of at least 1.0. After careful analysis, we decided to remove the health-related items (My physical health, health of a spouse/partner, and Care of elderly parent) as they factored separately. We felt that these items were very dependent on specific health issues that could be very time sensitive, and thus we decided to remove them from analysis. The remaining seven items loaded cleanly on a single factor with an eigenvalue of 2.289. The loadings for the items can be found in Table 1, and all together, the items had a Cronbach's alpha reliability of 0.765.

We then took the thirteen professional items and conducted a principal axis factor analysis with varimax rotation, which resulted in three factors with eigenvalues of at least 1.0. Our examination of the patterns of loadings led us to conclude that Institutional budget cuts did not load anywhere. In addition, change in work responsibilities and Self-imposed high expectations loaded equally everywhere and thus did not seem to discriminate. Therefore, we dropped those three items. After another round of factor analysis, three factors still emerged, and the

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[2] We omitted two stress items from the start: Keeping up with information technology and Subtle discrimination (e.g., prejudice, racism, sexism). While both items are important, we felt as if they were significantly different from the theoretical foundations of the rest.

loadings of the items can be seen in Table 1. Focusing on the strongest loaders in each, the three factors seemed to separate along the theoretical lines of stress around research and job security, stress around teaching and students, and stress around service. Eigenvalues and Cronbach's alpha coefficients can also be found in Table 1. To make the four measures for our analyses, we took cross-item means for each factor.

Exploratory Factor Analysis of Stress Survey Items

	Service	Research	Teaching	Personal
Managing household responsibilities				.769
Child care				.755
Review/promotion process		.784		
Personal finances				.422
Committee work	.522			
Faculty meetings	.795			
Colleagues	.634			
Students			.557	
Research or publishing demands		.480		
Institutional procedures or red tape	.424			
Teaching load			.457	
Children's problems				.507
Friction with spouse/partner				.415
Lack of personal time				.486
Job security		.530		
Being part of a dual career couple				.531
Working with underprepared students			.623	
Eigen Value	1.486	1.126	0.908	2.289
Variance Explained	37.16%	37.53%	30.27%	32.70%
Cronbach's Alpha	.673	.622	.551	.765

Each factor was then standardized to have a mean of 0 and a standard deviation of 1.

Table 1

Descriptive Statistics

Univariate descriptive statistics can be found in Table 2. These numbers are unweighted to provide a clear picture of our sample. Demographically, 15.7% of faculty members identified as a person of color (i.e., selected at least one race/ethnicity category other than White). In addition, 46.6% identified as female, and nearly 90% indicated that their native language was English. In regards to personal life, 38.3% responded that they have a child under 18 years of age, while 41.6% said they have at least one child over 18 years old. Also, over 80% of respondents indicated that they were married or lived with a partner.

Table 2
Descriptive Statistics

Variable	N	Valid Percent	Mean	SD
Demographics:				
Person of Color	26049	15.7%		
Female	26312	46.6%		
Native English Speaker	26413	89.7%		
Personal Life:				
Child under 18	26106	38.3%		
Child over 18	26198	41.6%		
Partnered	27466	80.6%		
Professional Life:				
Time at Institution	25434		12.61	10.44
Tenured	27466	58.8%		
Tenure Track	27466	22.4%		
Not Tenure Track	27466	18.8%		
Teaching Load	28509		2.86	1.42
STEM	23191	22.6%		
Business	23191	7.6%		
Humanities	23191	28.8%		
Social Science & Education	23191	30.2%		
Other Department	23191	10.8%		
Institution:				
Doctoral University	28546	27.9%		
Masters College or University	28546	43.0%		
Baccalaureate College	28546	29.1%		
Student-to-Faculty Ratio	28546		15.07	4.583

In examining the variables about professional life, we found that the mean years at the current institution was 12.61 years. However, the

standard deviation of 10.44 on this measure does indicate that there is quite a wide spread in responses on time at current institution.   In regards to tenure status, 58.8% of respondents were tenured, 22.4% were on the tenure track, and 18.8% were either not on the tenure track or at an institution without tenure. The mean teaching load for the term in which faculty completed the survey was 2.86 classes with a standard deviation of 1.42. Departmentally, faculty members were distributed across the disciplines with 22.6% resided in a STEM department, 7.6% in a Business school, 28.8% in the Humanities, and 30.2% in the Social Sciences/Education. Additionally, 10.8% of respondents did not fit into these departmental categories and were thus grouped into the Other Department category. Of the 28546 faculty members, 27.9% worked at a Doctoral University, 43.0% worked at a Masters College or University, and 29.1% worked at a Baccalaureate College. Student-to faculty ratio varied across institutions with the average faculty member teaching at an institution with 15.07 students for each faculty member. The standard deviation of 4.58 does indicate some variation in student-to-faculty ration, but it is not an incredibly large variance.

Regression

We conducted multiple regressions exploring how different factors (e.g., demographics, personal life, professional life, institution) associated with each of the four measures of stress (e.g., service, research, teaching, personal). Results of the regressions can be found in Table 3. In the professional stress around research and job security model, all of the independent variables significantly associated with this measure of stress at the $p<.001$ level. This model had our highest R^2 with 21.6% of the variance in the outcome explained by the model. All of the independent variables were also significant at the $p<.001$ level for the professional stress around teaching model. This model accounted for 8.9% of the variance in the outcome. The model dealing with professional stress around service had a similar R^2 with 9% of the variance accounted for, but not all independent variables were significant in this model as residing in a Business department did not differ significantly from STEM departments and being married/having a partner did not have a significant relationship with stress around service. Finally, all of the independent variables, save student-to-faculty ratio, had a significant association with personal stress at the $p<.001$ level. In addition, the

model accounted for 19.5% of the variance in the personal stress measure.

Focusing first on the demographic variables, faculty of color felt significantly more stress than white faculty members in all areas. Differences ranged from .036 standard deviations (SDs) to .079 SDs between the groups with the largest difference coming in the personal dimension. A similar pattern emerged when comparing female faculty to male faculty as women tended to experience higher levels of stress in all areas with the biggest difference occurring with personal stress. The coefficients also tended to be at least twice as big when looking at gender as compared to race. Interestingly, native English speakers reported higher levels of stress in all areas as compared to non-native English speakers. While we expected non-native speakers to experience more stress due to language barriers, this did not seem to be the case.

The personal life independent variables also provided relevant findings. Having at least one child under 18 years old was associated with significantly lower levels of stress in all three professional areas, but, not surprisingly, faculty members with a child below 18 reported significantly more stress in their personal life. On the other hand, having a child over the age of 18 had a significantly negative relationship with all four dimensions meaning that these faculty members felt less stress than their peers without a child over the age of 18. Faculty members who were married or lived with a partner had significantly more stress in the research and teaching areas, although the coefficients were on the small side. Conversely, the relationship was negative with personal stress, which indicates that being partnered reduced stress at home while tending to raise it professionally. As mentioned above, this independent variable had no relationship to professional stress around service.

The independent variables dealing with professional life revealed a number of relationships. How long a faculty member has been at the current institution had a significantly negative relationship across all four dimensions. In addition, tenured faculty members felt the least stress overall followed by faculty not on the tenure track, while faculty members on the tenure track felt the highest level of stress. The same pattern emerged with personal stress with tenured faculty members reporting the lowest levels. The pattern reversed though when looking at stress around service as tenured faculty tended to have the highest levels

followed by tenure track and finally not on the tenure track faculty. In regards to stress around teaching, the highest levels of stress appeared in tenure track professors, and those not on the tenure track had significantly less stress around teaching than tenured faculty members. A professor's teaching load also significantly related to stress levels. For each additional class taught in the term, stress level increased .032 SDs for research stress, .111 SDs for teaching stress, .015 SDs for service stress, and .019 SDs for personal stress.

Comparing the four stress factors across departments revealed a number of differences. In comparison to faculty members in STEM, Business faculty members had significantly lower stress around research and job security, teaching and students, and personal life. There was no difference in service stress. While Humanities professors also felt significantly less stress than their STEM colleagues in the teaching items, they reported significantly higher levels of stress in all other categories. Faculty housed primarily in a Social Science/Education department tended to exhibit significantly less stress than STEM faculty in the areas of research and teaching, but in the areas of service and personal life, they reported significantly higher levels of stress. Finally, in comparison to STEM, faculty in the other department category had lower levels of stress in all areas except service. We can also gain understanding of how department affiliation was associated with stress by looking at the relative rankings of the different department groups within each stress type. Business faculty members were consistently some of the least stressed in our sample. On the other hand, Humanities professors reported relatively high levels of stress in all areas except teaching. Faculty members from Social Science/Education departments and STEM departments tended to mostly vary in the middle rankings.

Finally, we included two different characteristics of the institutions: type and student-faculty ratio. In comparison to doctoral universities, faculty members from Masters colleges and universities reported significantly lower levels of stress in research and personal life but significantly higher levels of stress in teaching and service. Professors from Baccalaureate colleges also reported significantly lower stress around research and significantly higher stress around teaching. They differed though in that they exhibited significantly less stress around service and more stress around personal life. Overall, the most research and job security stress, not surprisingly, was found in faculty

members from Doctoral universities, while the most teaching stress was found in Baccalaureate colleges. In regards to student-faculty ratio, more students per faculty (i.e., a higher ratio) was significantly associated to higher stress in all three professional domains. There was no significant difference in the personal stress domain.

Table 3
Regression Results

Variable	Research	Teaching	Service	Personal
Constant	-.130***	-.696***	-.240***	-.263***
	(.010)	(.011)	(.011)	(.010)
Demographics:				
Person of Color	.058***	.036***	.043***	.079***
	(.005)	(.005)	(.005)	(.005)
Female	.118***	.148***	.181***	.265***
	(.003)	(.004)	(.004)	(.003)
Native English	.124***	.218***	.231***	.179***
Speaker	(.005)	(.006)	(.006)	(.005)
Personal Life:				
Child under 18	-.048***	-.069***	-.089***	.539***
	(.004)	(.004)	(.004)	(.004)
Child over 18	-.218***	-.184***	-.094***	-.157***
	(.004)	(.004)	(.004)	(.004)
Partnered	.016***	.032***	-.001	-.232***
	(.004)	(.005)	(.005)	(.004)
Professional Life:				
Time at Institution	-.019***	-.007***	-.005***	-.012***
	(.000)	(.000)	(.000)	(.000)
Tenure Track[a]	.586***	.155***	-.478***	.142***
	(.005)	(.005)	(.005)	(.005)
Not Tenure Track[a]	.303***	-.028***	-.676***	.031***
	(.005)	(.005)	(.005)	(.005)
Teaching Load	.032***	.111***	.015***	.019***
	(.001)	(.001)	(.001)	(.001)
Business[b]	-.102***	-.319***	-.003	-.172***
	(.007)	(.007)	(.007)	(.007)
Humanities[b]	.019***	-.187***	.146***	.242***
	(.004)	(.005)	(.005)	(.004)
Social Science &	-.033***	-.168***	.068***	.070***
Education[b]	(.005)	(.005)	(.005)	(.004)
Other Department[b]	-.132***	-.169***	.185***	-.049***
	(.006)	(.007)	(.007)	(.006)
Institution:				
Masters College or	-.182***	.090***	.055***	-.020***
University[c]	(.004)	(.004)	(.004)	(.004)

Baccalaureate	-.179***	.188***	-.019***	.021***
College[c]	(.005)	(.005)	(.005)	(.005)
Student-to-Faculty	.009***	.022***	.008***	.000
Ratio	(.000)	(.000)	(.000)	(.000)
R-squared	.216	.089	.090	.195

*** $p < .001$

a. Comparison group is Tenured. b. Comparison group is STEM. c. Comparison group is Doctoral university.

Discussion

In this study, we sought to address the following research question: What personal and professional characteristics influence the levels of personal stress, professional stress around research and job security, professional stress around teaching and students, and professional stress around service? In order to do so, we analyzed data from the 2010-2011 HERI Faculty Survey, which included 28,546 faculty responses across 549 four-year institutions. In this section, we discuss these findings.

Personal Characteristics

Regarding demographic differences among faculty members, our findings align with results from the current literature. As noted, faculty members of color felt significantly more stress than White faculty members across all of our defined stressed factors. Eagan and Garvey (2015) provide context to this finding with evidence of subtle discrimination increasing faculty stress and negatively impacting faculty productivity. Our findings along gender lines indicate that female faculty members experienced higher levels of stress than their male counterparts with the highest stress difference in personal stress, which corroborates the previous research (Hart & Cress, 2008). These increased stress levels may be attributable to female faculty members carrying heavier teaching and student advising loads, which can ultimately take time away from research and publishing demands (Hart & Cress, 2008). Additionally, both faculty of color and female faculty encounter a greater pull towards participation in service activities (i.e. committee participation, etc.) (Eagan & Garvey, 2015). Such activities may create a greater time strain on the other required components of the faculty position, thus it is no surprise that underrepresented faculty experience higher stress across all areas of stress.

One unexpected result was that faculty members who were native English speakers reported higher levels of stress across all four stress dimensions when compared to non-native English speakers. We expected to find that a potential language barrier for non-native English speakers would increase stress levels in some areas, but this did not seem to be the case. Further research is necessary to unpack the role native language plays into faculty stress.

The two main personal variables we considered in our evaluation of stress were whether a faculty member is partnered and whether a faculty member has children. Faculty members who were married or lived with a partner experienced small but significantly more stress in research and teaching factors than their single peers. This finding aligns with the notion that tension exist between personal/home obligations and professional obligations (Williams & Alliger, 1994). Thus, faculty members with partners may feel a greater strain towards personal obligations amid this tension. Along the same lines, partnered faculty experienced less stress with personal obligations. Having a partner may alleviate stress from other home life obligations such as household management activities and childcare.

The presence of children in a faculty member's life presents a particular impact on stress. Given the proven tension present across the balancing of personal and professional obligations, it is expected that children would have an increased impact on stress levels (O'Laughlin & Bischoff, 2005); however, we found that having at least one child under 18 years old was associated with significantly lower levels of stress in all three professional areas and higher levels in the personal dimension. Further, having a child over the age of 18 had a significantly negative relationship across all four stress factors. Our findings related to children may be explained by where faculty members exist in their career. For example, a professor with a child over the age of 18 is likely further along in their career; they may have achieved tenure or have worked at the same institution for an extended period of time.

Professional Characteristics

A faculty member's stress level is strongly tied to multiple professional characteristics including rank, time at institution, and teaching load. Tenure-track faculty members' higher levels of stress most likely

correspond to the high expectations of the tenure process, during which professors are expected to balance and deliver on all complex aspects of role (Olsen, 1993). Length of a time at an institution had a significant negative association with all four dimensions of stress. While this result may be tied in part to the possible rank of tenure achieved during this time, other explanations are possible. Lower stress may be due to increased job security associated with the length of time a person holds a current position or the more comfortable a person becomes with time management and job expectations of a current position (Olsen, 1993).

Furthermore, a professor's teaching load significantly impacted reported stress levels. In short, each additional class an instructor taught increased stressed across each dimension. Important attention should be paid to how much the stress of teaching permeates across all dimensions. Teaching is an important component of the professorship; however, emphasis on faculty support services tends to lean on the provision of research services over teaching (Colbeck, 1998).

The department from which a faculty member resides holds a significant impact on the stress experienced across personal and professional stress dimensions. Surprisingly, our findings present that faculty in the Humanities experienced higher levels of stress than those in STEM. A possible explanation for this difference resides in support, financial and personnel, for research efforts between the fields. Historically, STEM fields emphasize research over teaching and provided support accordingly with the opposite for Humanities (Benneworth & Jobbloed, 2010). Further, Business faculty members experienced less stress than STEM faculty across the personal, teaching, and research dimensions. This significant difference may be in part due to the industry or professionalized nature of business faculty work or compensation.

The differences we unveiled in stress dimensions across institutional type appear to hold a possible link to general institutional mission. Research suggests that in order to remain competitive and successful, institutions must define a mission and use it as a beacon for decision making (Zemsky, Wegner, & Massy, 2005). Doctoral universities typically focus on a mission centered on research productivity; thus, this provides one possible explanation as to why faculty members from these institutions experience higher stress than

their Master's and Baccalaureate peers in the dimension of stress around research and job security. In addition, faculty at Baccalaureate institutions reported higher levels of stress around teaching as compared to faculty at doctorial universities, which most likely results from differences in mission as well.

Limitations

As in all studies, there are areas in which this work could be improved. While the HERI data is one of the best datasets available, it does have certain limitations. As participation at both institutional and individual levels is voluntary, there could be a bias to the data based on those that choose to participate. The provided weights do account for a great deal of this potential bias; however, there are always unaccounted for variables. Further, our models are limited in certain ways. The different stress indicators provide an excellent opportunity to explore the dimensions of stress, but the eigenvalues and Cronbach's alphas of each dimension indicate that the measures could be improved. In addition, the relatively low R^2 for each of the four models signals that much of the variance in the stress dimensions have yet to be explained.

Conclusions

As higher education administrators and policymakers work to provide adequate support for their faculty to ensure the success of higher education institutions, they need to be concerned about the levels of stress experienced by their faculty members. Our findings indicate that there are different dimensions of stress, and that personal and professional characteristics hold different influences within these dimensions. Further research is necessary to expand upon this exploratory work to examine what other factors influence stress levels as well as how the different dimensions of stress impact important faculty outcomes such as productivity, satisfaction, and retention.

References

Babin, B., & Boles, J. (1998). Employee behavior in a service environment: A model and test of potential differences between men and women. *Journal of Marketing, 62*, 77-91.

Barnes, L., Agago, M., & Coombs, W. (1998). Effects of job related stress on faculty intention to leave academia. *Research in Higher Education, 39*(1), 457-469.

Beehr, T., & Newman, J. E. (1978). Job stress, employee health, and organizational effectiveness: A facet analysis, model, and literature review. *Personnel Psychology, 31*(4), 665-699.

Benneworth, P., & Jobbloed, B. W. (2010). Who matters to universities? A Stakeholder perspective on humanities, arts and social science valorisation. *Higher Education, 59*(5), 567-588.

Blackburn, R. T., & Bently, R. J. (1993). Faculty research productivity: Some moderators of associated stressors. *Research in Higher Education,* (34), 725-745.

Buckholdt, D. R., & Miller, G. E. (2013). *Faculty Stress*. New York, NY: Routledge.

Carlson, D. S., & Perrewe, P. L. (1999). The role of social support in the stressor-strain relationship: An examination of work-family conflict. *Journal of Management, 25*(4), 513-540.

Colbeck, C. L. (1998). Merging in a seamless blend: How faculty integrate teaching and research. *The Journal of Higher Education, 69*(6), 647-671.

Dey, E. L. (1994). Dimensions of faculty stress: A recent survey. *The Review of Higher Education, 17*(3), 305-322.

Doyle, C., & Hind, P. (1998). Occupational Stress, burnout, and job status in female academics. *Gender, Work, and Organizations, 5*(2), 67-68.

Eagan, K. J., & Garvey, J. C. (2015). Stressing Out: Connecting race, gender, and stress with faculty productivity. *The Journal of Higher Education, 86*(6), 923-954.

Gmelch, W. H., & Wilke, P. K. (1991). The Stresses of faculty and administrators in higher education. *Journal of Higher Education Management, 6*(2), 23-33.

Gmelch, W. H., Wilke, P. K., & Lovrich, N. P. (1986). Dimensions of stress among university faculty: Factor analytics results from a national study. *Research in Higher Education, 24*(3), 266-286.

Hagedorn, L. S. (1994). Retirement proximity's role in the prediction of satisfaction in academe. *Research in Higher Education, 35*(6), 711-728.

Hagedorn, L. S. (1996). Wage equity and female faculty job satisfaction: The role of wage differentials in a job satisfaction causal model. *Research in Higher Education, 37*(5), 569-598.

Hart, J. L., & Cress, C. M. (2008). Are Women Faculty Just "Worrywarts?" Accounting for Gender differences in self-reported stress. *Journal of Human Behavior in the Social Environment, 17*(1-2), 175-193.

Hendel, D. D., & Horn, A. S. (2008). The relationship between academic life conditions and perceived sources of faculty stress over time. *Journal of Human Behavior in the Social Environment, 17*(1-2), 61-68.

HERI. (2017). HERI Faculty Survey.   Retrieved from https://heri.ucla.edu/heri-faculty-survey/

Hurtado, S., Eagan, K., Pryor, J. H., Whang, H., & Tran, S. (2012). *Undergraduate teaching faculty: The 2010–2011 HERI faculty survey.* Retrieved from University of California, Los Angeles at https://www.heri.ucla.edu/monographs/HERI-FAC2011-Monograph.pdf

Jacobs, J. A., & Windslow, S. E. (2004). Overworked faculty: Job stresses and family demands. *Annals of the American Academy of Political and Social science, 596*(1), 104-129.

Lindholm, J. A., & Szelenyi, K. (2008). Faculty time stress: Correlates within and across academic disciplines. *Journal of Human Behavior in the Social Environment, 17*(1-2), 19-40.

Mason, M. A., Goulden, M., & Wolfinger, N. H. (2006). Babies Matter. In S. J. Bracken, J. K. Allen, & D. R. Dean (Eds.), *The balancing act: Gender perspectives in faculty roles and work lives* (pp. 9-29). Sterling, VA: Stylus.

Monroe, K., Ozyurt, S., Wrigley, T., & Alexander, A. (2008). Gender equality in academia: Bad news from the trenches and some possible solutions. *Perspectives in Politics, 6*(2), 215-233.

O'Laughlin, E., & Bischoff, L. (2005). Balancing parenthood and academia: Work/family stress as influenced by gender and tenure status. *Journal of Family Issues, 26*(1), 79-106.

Olsen, D. (1993). Work Satisfaction and Stress in the first and third year of academic appointment. *Journal of Higher Education*, *64*, 453-471.

Olsen, D., & Near, J. P. (1994). Role conflict and faculty life satisfaction. *Review of Higher Education, 17*(2), 179-195.

Padilla-Gonzalez, L., & Galaz-Fontes, J. F. (2015). Intention to leave academia and job satisfaction among faculty members: An exploration based on the international CAP survey. In U. Teichler & W. Cummings (Eds.), *Forming, recruiting and managing the academic profession, 14,* (pp. 225-239): Springer International.

Sager, J. (1994). A structural model depicting salespeople's job stress. *Journal of the Academy of Marketing Science, 22*, 74-85.

Schuster, J. H., & Finkelstein, M. J. (2006). *The American faculty: The restructuring of academic work and careers*. Baltimore, MD: The Johns Hopkins University Press.

Thompson, C. J., & Dey, E. L. (1998). Pushed to margins: Sources of stress for African American college and university faculty. *The Journal of Higher Education, 69*(3), 324-345.

Thorsen, E. J. (1996). Stress in academe: What bothers professors? *Higher Education, 31*, 471-489.

Ward, K., & Wolf-Wendel, L. (2004). Academic motherhood: Managing complex roles in research universities. *The Review of Higher Education, 27*(2), 233-257.

Williams, K., & Alliger, G. (1994). Role stressors, mood spillover, and perceptions of work-family conflict in employed parents. *Academy of Management Journal, 37*, 837-867.

Winefield, A. H. (2000). Stress in academe: Some recent research findings. In D. R. Kenny, J. G. Carson, F. J. McGuigan, & J. K. Sheppard (Eds.), *Stress and health: Research and clinical application* (pp. 437-446). Amsterdam, Netherlands: Harwood Academic Publishers.

Zemsky, R., Wegner, G. R., & Massy, W. F. (2005). Today's colleges must be market smart and mission centered. *Chronicle of Higher Education,* p. B6.