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ABSTRACT

The causes and consequences of stress experienced by college faculty were investigated. Stress was defined as any characteristic of the job environment that posed a threat to the individual--either excessive demands or insufficient resources. In addition to identifying stressful job situations, attention was directed to ways that faculty members cope with stress, and the relationships between perceived stress and personal and professional factors (e.g., academic disciplines, rank, tenure, productivity, sex, age and experience). Questionnaires were mailed to 1,920 faculty members at 40 public and 40 private doctoral-granting institutions, yielding a response rate of 75.28 percent. Strong evidence was found that stress in university settings was common to all disciplines. Faculty in a diverse range of disciplines reported similar degrees of stress associated with the teaching, research, and service functions, but teaching was designated as the most stressful activity. Factor analysis also revealed that the stressors associated with reward structure accounted for 55 percent of the common variance. In general, faculty reported that 60 percent of the total stress in their lives came from their work. The majority of the most troublesome stressors were related to time and/or resource constraints. (SW)

SOURCES OF STRESS IN ACADEME:

A NATIONAL PERSPECTIVE

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ABSTRACT

A NATIONAL STUDY ON THE DETERMINANTS AND CONSEQUENCES OF FACULTY STRESS

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Background. Research conducted in recent years has produced a growing body of evidence that occupational stress adversely affects the productivity, performance, job satisfaction, and health of professionals (Burke, 1971; Buck, 1972; Gmelch, 1977, 1980, 1982; and Howard, et al., 1978). Those professionals involved in interaction with other people are more vulnerable to occupational stress than workers in product-oriented institutions (Cooper and Marshall, 1976). This fact is verified by studies of police (Kroes and Hurrell, 1975), administrators, (Gmelch, 1983, Swent and Gmelch, 1977), teachers (Schwalbe and Iwaniki, 1982), dentists (Howard, et al., 1978) and other professionals.

Objectives. The purpose of the national faculty stress research project was to examine stress experienced by faculty in institutions of higher education. Specifically, it sought to fulfill the following objectives: (1) identify the job situations perceived by faculty as most stressful; (2) group these stressful job situations into interpretable clusters; (3) correlate significant relationships between perceived stress and personal and professional factors such as academic discipline, rank, tenure, productivity, sex, age, and experience; and (4) identify ways faculty cope with stress.

Confusion abounds in the literature on the useage of the term stress. This study subscribed to French's definition: "...any characteristic of the job environment which poses a threat to the individual--either excessive demands or insufficient resources to meet his (her) needs" (1976, p. 3).

Method and Data Source. The instrument developed to identify sources of faculty stress evolved through a series of iterations, designed to insure that all relevant facets of job-related strain were explored. The sample was drawn from the population of all doctoral-granting institutions in the United States. From these 184 institutions, 80 were randomly selected (40 public and 40 private). Faculty within these institutions were stratified by academic rank and by Biglan's (1973) eight clusters of academic disciplines. From this stratification, 1,920 faculty members were selected. An initial response rate of 67.42 percent was adjusted for faculty members on leave, resulting in a net response rate of 75.28 percent.

Results and Conclusions. Research conducted by Biglan (1973a) and validated by several other studies (Creswell and Roskens, 1981) permits the division of academic disciplines into a tridimensional model of "eight mutually exclusive clusters based upon: (1) the degree to which a clearly delineated paradigm exists, hard versus soft areas, (2) the extent of concern with the practical application of the subject matter, pure versus applied areas, (3) the level of involvement with living or organic objects of study, life system versus nonlife system areas" (Smart, et al., 1981, p. 3).

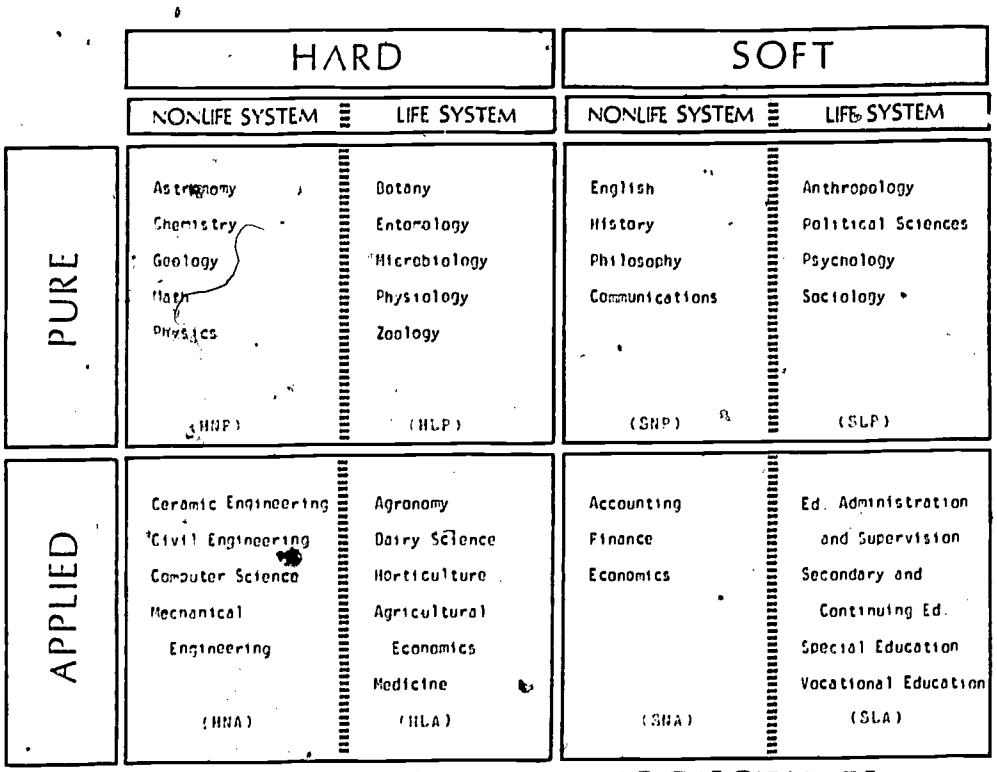
Researchers utilizing Biglan's model in studies of academia have discerned (1) the similarity of responses by members within each academic discipline and (2) consistent differences between disciplines with respect to a number of

attitudinal and behavioral dimensions. In contrast to those studies, when faculty stressors were compared across disciplinary groupings, it was clear that far more similarity than difference existed in the way faculty across academia viewed sources of work stress. Strong evidence was found that the problem of stress in university settings is a general one, common to all disciplines rather than specific to a few disciplines. Also, faculty in a diverse range of disciplines reported similar degrees of stress associated with the teaching, research, and service functions. Of these three major faculty functions, teaching was designated as the most stressful activity. Factor analysis of the data also revealed that the stressors associated with reward structure accounted for fifty-five percent of the common variance. A more thorough study of that and other factors is now being conducted.

In general, faculty reported that 60 percent of the total stress in their lives came from their work. More specifically, the researchers found that of the 45 stressors, the 10 most troublesome were: (1) imposing excessively high self-expectations, (2) securing financial support for research, (3) having insufficient time to keep abreast with current events in my field, (4) low pay for work done, (5) striving for publication of one's research, (6) feeling that one is continually overloaded with work, (7) job demands interfering with personal activities, (8) lack of progress in career, (9) interruptions from telephone and drop-in visitors, and (10) meetings.

The majority of these top stressors relate directly to time and/or resource constraints. By reviewing the list, it is evident that much of the stress faculty experience might be alleviated with a reappraisal of institutional and individual capabilities and limitations. In spite of the current adverse economic, political, and fiscal climates, academic institutions and their employees are striving to accomplish the same goals with fewer resources. These findings serve as a useful first step in the design of appropriate measures to deal with faculty stress and productivity in our university settings.

Figure A



MODEL OF ACADEMIC DISCIPLINES

SOURCES OF STRESS IN ACADEME:

A NATIONAL PERSPECTIVE

Background

Research conducted during recent years has produced a growing body of evidence that occupational stress adversely affects the productivity, performance, job satisfaction, and health of professionals (Burke, 1971; Buck, 1972; Swent and Gmelch, 1977; and Howard, Cunningham, & Rechnitzer, 1978). Those professionals involved in interaction with other people are more vulnerable to occupational stress than workers in product-oriented institutions (Cooper & Marshall, 1976). This fact is verified by studies of police (Kroes and Hurrell, 1975), administrators (Gmelch, 1977, 1980), teachers (Schwab and Iwanicki, 1982), dentists (Howard, Cunningham, & Rechnitzer, 1978) and other professionals. Very little research has been conducted, however, which examines stress experienced by faculty in institutions of higher education.

In one of the few studies on college faculty stress, Eckert and Williams (1972) cited routine duties, long hours, poor facilities, friction in intrafaculty relations, and administrative red tape as important sources of stress (pp. 26-27). The lack of time for professional reading was the top stressor discovered in Koester and Clark's study (1980) of college faculty, while bureaucratic red tape and finances were two other sources frequently mentioned by professors. While these general areas of stress-inducing concerns are of interest, they are not activities directly attributable to the primary functions of teaching, research, and service. Moreover, while Koester and Clark (1980) studied the relationship of stressors and demographics in 15 educational institutions,

they made no comparisons across academic disciplines. How stressors are ranked in relationship to the primary activities of teaching, research, and service, and how they are ranked by faculty in different disciplines constitute the foci of this study.

While stress permeates our lives in numerous environments (family, social, work), the main concern of this study was on the work environment. Buck (1972) observed in his research that the job environment is perhaps most often central in the experience of stress among adults, and Swent and Gmelch (1977) found educational administrators estimated that 75 percent of the stress experienced in their lives came from their jobs. Further review of the literature on stress reveals that employee satisfaction and stress are attributable to many different kinds of conditions within the work environment. The purpose of this study was to identify the specific factors in the work environment of higher educational organizations which contribute to faculty stress.

Based upon a review of the literature on the structure of academic disciplines, Light (1974) concluded that faculty in different disciplines have distinctive activity patterns. Cognizant of these differences, he suggested that researchers should study disciplines separately, noting that a generic "academic profession" in a practical sense did not exist. In an attempt to classify disciplines into reasonable groupings for similar consideration and comparison, Biglan (1973) developed a tridimensional model for use in studies of higher education. The Biglan model was designed to reveal the various groupings of academic disciplines and has been tested in several studies of academia, with positive results with respect to the demonstration of discipline-based distinctiveness (Creswell and Roskens, 1981).

Researchers utilizing Biglan's model have discerned both similarity of responses by members within each cell and consistent differences between groups with respect to a number of important attitudinal and behavioral dimensions. These studies raised the expectation that faculty identification of sources of stress would also vary by academic discipline. Consequently, this study employed Biglan's model to determine whether sources of faculty stress would be universal across the university campus, or whether they would more likely be unique to disciplinary groupings.

In the Biglan model, academic departments are clustered into eight cells based upon the characteristics of their subject matter: (1) the degree to which a clearly delineated paradigm exists or is lacking--i.e., hard versus soft areas; (2) the extent of concern for the practical application of the subject matter--i.e., pure versus applied areas; and (3) the level of involvement with living or organic versus nonliving objects of study--life system versus nonlife system areas of study (Smart et al., 1981: p. 3). Typical discipline groupings are shown in Figure 1. The cells are identified as hard-nonlife-pure, (HNP); hard-life-pure, (HLP); soft-nonlife-pure, (SNP); soft-life-pure, (SLP); hard-nonlife-applied, (HNA); hard-life-applied, (HLA); soft-nonlife-applied, (SNA); and soft-life-applied, (SLA).

Figure 1 about here

Based on the foregoing analysis the following is asserted: (1) stress affects all people and, to a greater extent, those in people-related professions; (2) general measures of social-psychological job stress underestimate and obscure specific sources of faculty stress;

(3) perceptions of job-related stress is the first critical step in identifying and reducing excessive stress; and (4) sources of faculty stress are likely to be unique within certain academic disciplines.

Given the robustness of the Biglan model and the fact that the few studies on faculty stress have not been definitive, this study was devoted to the following objectives:

(1) Identifying job situations perceived by faculty to be stressful;

(2) Grouping these stressful job situations into interpretable clusters; and

(3) Determining whether faculty in different disciplines identify different sources of stress.

Methodology

Theoretical Construct

Kahn and his associates (Kahn, Wolfe, Quinn, & Snoek, 1964) presented a broadly accepted sequence of events depicting the stress process. His characterization adapts itself to both individual and organizational stress. Four stages are identified in Kahn's model, beginning with a set of factors in the objective environment which causes a demand on the individual or the organization located in the environment. The next stage is the reception of the demand; the act of reception leads to an immediate reaction or response. The resulting response comes typically in the form of psychological, physiological and/or behavioral changes. The fourth stage, termed enduring consequences, differs from the immediate responses because it involves long-range effects (i.e., the changes beyond the immediate grief that might occur in one's life due to catastrophic events).

The research project reported here focuses mainly on the first and second stages, identifying faculty members' perceptions of the demands or stressors placed on them. Consistent with Kahn's construct, this study

subscribed to the definition of stress advocated by French, Cobb, Caplan, Van Harrison, & Penneau (1976, p. 3): "any characteristic of the job environment which poses a threat to the individual--either excessive demands or insufficient supplies to meet his (her) needs." Furthermore, the threat mentioned in the identification of the French, et al. definition was limited to that which is perceived by the subject. As Wolff (1953, p. 133) stated, "the stress accruing from a situation is based in large part on the way the affected subject perceives it." Kahn, et al. (1964) similarly maintained that there is considerable variation in individual response to stressful conditions, one person viewing an experience as stressful while another sees it as a neutral or even enjoyable occurrence.

Instrument Development

The questionnaire developed to measure sources of faculty stress evolved through a series of iterations designed to insure that all relevant facets of job-related strain were explored. The thirty-item Administrative Stress Index (Gmelch, 1982) comprised the initial questionnaire core. This index was supplemented by items suggested from a review of current publications for faculty members and by items suggested from stress logs which were kept by twenty faculty members for a period of one week. Those participating in this initial phase of item development were asked by researchers to keep a diary of work-related stress. On a daily basis they reported: (1) the most stressful single incident occurring that day; and, (2) the most stressful series of related incidents (e.g., recurring telephone interruptions, colleague conflicts, etc.). At the end of the week, they were asked to identify other common sources of stress that might not have occurred during the week in which stress logs were kept.

The pilot instrument was field-tested for content validity and clarity with a group of faculty members. After revision and a second pilot test, the final Faculty Stress Index (FSI) comprised 45 items, each linked with a five-point Likert-type response scale with the ends and midpoint labeled "slight pressure," "moderate pressure," and "excessive pressure."

Demographic questions were also included which asked faculty members for their age, rank, years of experience, salary, and so on.

Sample

The universe identified for this study was the faculty of all doctoral-granting institutions in the United States. From among the 184 Ph.D.-granting universities in the United States, a sample of 40 public and 40 private universities was randomly selected. Faculty within those institutions were stratified by the eight Biglan clusters of academic disciplines and by academic rank (assistant, associate, and full professor). From this stratification, a sample of 1,920 was subsequently selected. The sample was then composed of an equal number of faculty at public and private universities, equal proportions of assistant, associate and full professors, and equal proportions of faculty from each one of the eight Biglan categories of disciplinary types.

After a series of three mailings, it was determined that 109 faculty were unreachable (i.e., deceased, retired, abroad, etc.). Of the remaining 1,812 respondents, 1,221 (67 percent) returned usable questionnaires for analysis. With an appropriate adjustment for faculty members on sabbatical leave during the three-month period of the survey (spring of 1982), an effective response rate of 75 percent can be estimated. The respondents answering the survey across the several dimensions of stratification (rank, discipline, public/private institutions) responded

in very similar proportions, thereby inspiring confidence that the data gathered are very largely representative of the universe sampled. Although the employment of a stratified sampling design makes the generalization of descriptive statistics to the actual world of the professoriate impossible, the analytical power provided by the focused sampling design allowed the testing of the important hypotheses identified above.

Results

The findings of the national survey of university faculty are reported in three separate tables below. These tables set forth information on the character of job situations which university faculty find most stressful, and they display findings on the similarity and differences existing in the degree to which different disciplinary groupings respond to each major stress-producing situation. Also, an analysis of composite scales composed of job situations categorized into teaching, research, and service functions is presented in which disciplinary similarities and differences are investigated.

Table 1 about here

Table 1 sets forth evidence on all those job situations which at least one in three faculty identified as producing a serious stress problem. The assumption of serious stress status is made from responses on a five-point, Likert-type scale anchored at one end with "slight pressure" (1) and anchored on the other with "excessive pressure" (5). Those respondents who indicated a four or five option to job situations were considered to have considerable concern for stress resulting from that particular work circumstance. Table 1 results indicate that ten of

the forty-five stressors listed on the questionnaire meet the criterion of one-in-three respondents indicating considerable concern for the stress associated with the particular situation involved. The three items, "imposing excessively high self-expectations," "securing financial support for my research," and "having insufficient time to keep abreast with current developments in my field," ranked one, two, and three, respectively. Each of the top three stressors were designated as considerable sources of stress for approximately one-half of the faculty surveyed; four in ten faculty also cited the following factors as major sources of stress: low pay for the work done, striving for publication of one's research, and feeling that one is continually overloaded with work. The findings displayed in Table 1 identify the chief concerns of faculty vis-a-vis stress in their work, but they do not speak to the question of important differences which may be obtained between disciplines in this respect. Table 2 addresses this question directly.

Table 2 about here

Table 2 displays the comparison of proportions of respondents within each of the Biglan disciplinary groupings indicating considerable stress being attributable to each of the ten most stress-producing job situations. Using a simple test for the assessment of the difference of proportions for independent samples (Z distribution), it is possible to determine which of the percentages listed for each of the disciplinary groupings is statistically significant in difference from the proportion registered for the total sample. Using this guide for the identification of distinctive disciplinary subgroupings it is quite clear that there is far more similarity

than difference in the way faculty from across academia view the sources of stress in their work. Of the eighty possible comparisons allowed, only seventeen figures prove distinctive (at the .95 level of confidence). Moreover, on six of the ten stressors there is none or only one case of significant difference from the measure for the whole sample. Of the seventeen cases of difference, twelve are located on but three stressors--securing financial support for research, preparing manuscripts for publication, and being interrupted by telephone calls and drop-in visitors. The range of proportions expressing concern for securing financial backing for one's research goes from a high of 69 percent for hard, life, and pure science areas to a low of 32 percent in the soft, nonlife, and applied science areas. Similarly, the range of proportions on the question of stress produced by concern over publications varies greatly--going from a high of 50 percent among those in soft, life, pure sciences versus a low of 30 percent among those in the hard, nonlife, applied sciences. These few differences aside, however, it is quite clear that the predominant finding of Table 2 is that of similarity. On two of the three top stressors among faculty, those of setting excessively high self-expectations and finding the time necessary to keep abreast with current developments in one's field, there are no noteworthy differences of concern expressed across the eight Biglan categories. This is rather strong evidence for the existence of a general, diffuse problem of stress in university settings as opposed to the existence of more discipline-specific problems.

In taking a somewhat broader perspective on the problem of stress, it is possible to move away from the consideration of individual stressful situations and to look instead at a number of items which fall into

a single functional category of work situations. In the university setting, in particular, the common use of teaching, research, and service as the major dimensions along which rewards are made and resources allocated suggests strongly that there may be important differences between the Biglan disciplinary groupings with respect to these major dimensions of university governance. Table 3 sets forth findings relevant to these questions of general, functional areas of university working environments.

Table 3 about here

Table 3 identifies similarity and differences obtained between the Biglan groups with respect to three composite, additive scales composed of items listed in the 45-item stressor checklist given to all respondents. A nine-item scale for teaching (alpha reliability coefficient of .77), a six-item scale for research (alpha of .71), and a seven-item scale for service (alpha of .79) were calculated, each generating a score based upon strong reliability coefficients and strong prima facie evidence of unidimensionality of measurement. Using a simple difference of means test for independent samples (T distribution, two-tailed test at .05 level of significance) it is possible to designate those entries which represent a grouping of disciplines which possesses a mean score significantly different from that of all faculty taken together. All such entries are marked with an asterisk in Table 3. Using this rough guide to the selection of distinctive disciplinary groupings it is once more clear that faculty at the nation's Ph.D. granting institutions of higher learning perceive common elements of stress in their work lives. Only three of the possible twenty-four matches results in a finding of statistical

uniqueness; on all of the rest of the pairings the faculty in a diverse range of disciplines appear to have very similar findings about the degree of stress associated with the teaching, research, and service functions assigned to them.

Conclusions

Knowledge of the specific pedagogical and professional situations which are stress-producing for faculty can assist university administrators in creating a more desirable working climate, facilitative of both productivity and greater faculty satisfaction. Identification of the sources of faculty stress can be utilized in at least two important ways: first, through institutional action such as adjustments in structure, policies, administrative assignments, and managerial behaviors to provide a less stressful atmosphere; and second, individual faculty members can--by awareness of the situations which are stressful to them--develop coping techniques known to reduce job-based stress. Because previous research has discerned systematic differences among disciplines in faculty attitudes and behaviors, this study identified sources of stress and investigated the extent to which sources of stress were specific to particular types of disciplines.

In reviewing the list of the ten most stressful circumstances it is evident that much of the stress faculty experience might be alleviated with a reappraisal by university administration and faculty themselves of institutional and individual capabilities and limitations. Five of the ten most often identified stressors relate directly to time and/or resource constraints. In spite of the current adverse economic, political, and fiscal climate, academic institutions and their employees are striving to accomplish the same goals with fewer resources. The dissemination of

time management training would be one method of alleviating this type of stress.

It is particularly important to note that very demanding self-imposed standards are also among the most stress-producing items for faculty. It seems quite clear that efforts to promote the realistic appraisal of professional opportunities in the current climate, and the provision of university assistance in the pursuit of productive professional activities by the individual faculty could somewhat ameliorate a potentially costly high stress circumstance.

In looking at the three conventional areas of responsibility for university faculty--teaching, research, and service--faculty reported a higher mean stress score for the teaching scale than for either the research or service indexes. An area for fruitful further study would be to determine whether the low mean stress score for service is due to faculty perceptions of service as of little concern in the reward structure, or whether those perceptions reflect a high degree of confidence in ability to perform in this area. An interesting question would be to determine whether faculty in the SLA cell, who reported a high mean stress level for service, perceive their stress to come from concern over ability to perform or from lack of sufficient appreciation for achievements made. Ambiguity over the criteria which is used to evaluate faculty in the three areas of teaching, research, and service also seems to be a high contributor to faculty stress. This uncertainty is higher for the teaching and service areas than for research. It would appear that genuine faculty development programs, coupled with an institutional policy of periodic assessment and goal-setting meetings between individual faculty and the department chair,

would permit the channeling of a faculty member's time and attention into a manageable, mutually agreed-upon and understood task area.

Faculty in the eight separate clusters of academic disciplines responded similarly to the items composing the scales of teaching, research, and service stress. Moreover, a comparison of the separate stress-producing items indicates clearly that faculty in all areas of the university identify basically the same stressors. For university administrators this universality of stressors means that ameliorative policy changes associated with faculty stress could be implemented system-wide, with relatively little concern for the necessity of designing different policies for each type of discipline. This commonality in the identification of stressful circumstances also means that faculty development programs can be operated centrally by top administrators for all faculty, rather than assuming that such efforts must be delegated to first-line departmental levels. The ability of department chairs and program heads, and perhaps even deans in smaller divisions, to conduct effective faculty development seems more problematic than the possibility of making use of a central office of faculty development staffed by knowledgeable and experienced professionals.

The faculty responding to this survey reported, on the average, that sixty percent of the total stress in their lifes came from their work. While there remains considerable stress originating from their personal lives, the job environment of university faculty is clearly of primary significance to them. In this time of declining resources and opportunities for professional progress for faculty, and recognizing that faculty continue to maintain high self-expectations, university administators should be especially cognizant of their responsibility to provide as supportive a working environment as possible for their primary institutional resource--their faculty. The findings reported here might

serve as a useful first step in the design of institutional studies to formulate appropriate measures to deal with faculty stress.

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Figure 1

Representation of the Biglan Model for the Classification of Academic Disciplines

	Hard Sciences		Soft Sciences	
	NonLife System	Life System	NonLife System	Life System
	HNP	HLP	SNP	SLP
Pure Sciences	e.g., Astronomy, Chemistry, Geology, Mathematics, Physics, etc.	e.g., Botany, Microbiology, Physiology, Zoology, etc.	e.g., English, History, Philosophy and Religion, Art and Art History, etc.	e.g., Anthropology, Political Science, Psychology, Sociology, etc.
	HNA	HLA	SNA	SLA
Applied Sciences	e.g., All fields of Engineering and Computer Science, etc.	e.g., Agronomy, Horticulture, Agricultural Economics, Nursing, Pharmacy, Dentistry, etc.	e.g., Accounting, Business Administration, Economics, Journalism, Hotel Administration, etc.	e.g., All areas of Education, Home Economics, Counseling, Social Work, Family and Child Studies, Nutrition, etc.

Table 1

Situations Identified by One Third or More of All Surveyed Faculty as Serious Sources of Stress

Stress Inducing Situation Statements	% Indicating a "Serious" Source of Work Stress*	Rank
Imposing excessively high self-expectations.	53%	1
Securing financial support for my research.	50%	2
Having insufficient time to keep abreast with current developments in my field.	49%	3
Receiving inadequate salary to meet financial needs.	41%	4
Preparing a manuscript for publication.	40%	5.5
Feeling that I have too heavy a work load, one that I cannot possibly finish during the normal work day.	40%	5.5
Having job demands which interfere with other personal activities (recreation, family and other interests).	35%	7
Believing that the progress in my career is not what it should or could be.	34%	8
Being interrupted frequently by telephone calls and drop-in visitors.	33%	9.5
Attending meetings which take up too much time.	33%	9.5

* % "serious" determined to be a response in the 4 or 5 category response on a five-point, Likert-type scale anchored with "slight pressure" (1) and "excessive pressure" (5) on either extreme, and allowing a "not applicable" response to the item.

Table 2
Comparison of the Most Serious Stressful Situations
Across the Eight Biglan Disciplinary Categories

Stress Inducing Situation Statements	% Indicating a "Serious" Source of Work Stress*								
	All	HNP	HLP	HNA	HLA	SNP	SLP	SNA	SLA
	N=1221	N=138	N=150	N=143	N=149	N=136	N=147	N=117	N=157
Imposing excessively high self-expectations.	53%	49%	55%	55%	50%	58%	52%	60%	52%
Securing financial support for my research.	50%	57%	69%	66%	50%	37%	50%	32%	34%
Having insufficient time to keep abreast with current developments in my field.	49%	45%	51%	53%	52%	42%	56%	46%	49%
Receiving inadequate salary to meet financial needs.	41%	41%	40%	41%	32%	43%	45%	36%	41%
Preparing a manuscript for publication.	40%	33%	40%	30%	43%	47%	50%	40%	40%
Feeling that I have too heavy a work load, one that I cannot possibly finish during the normal work day.	40%	41%	46%	46%	43%	40%	37%	31%	35%
Having job demands which interfere with other personal activities (recreation, family and other interests).	35%	38%	35%	39%	37%	37%	34%	32%	30%
Believing that the progress in my career is not what it should or could be.	34%	33%	39%	38%	31%	40%	34%	33%	29%
Being interrupted frequently by telephone calls and drop-in visitors.	33%	32%	34%	50%	36%	22%	27%	35%	25%
Attending meetings which take up too much time.	33%	24%	26%	32%	34%	32%	37%	36%	34%

* % "serious" determined to be a response in the 4 and 5 categories on a five-point scale running from "slight pressure" (1) to "excessive pressure" (5).

NOTE: Underlined entries represent figures which are sufficiently different from the "all cases" proportions to be accorded statitical significance (95 percent confidence level). A difference of ± 7 percent is needed for N approximating 150, and ± 8 for N approximating 120.

Table 3

Comparison of the Degree of Stressfulness Associated with the Teaching, Research and Service Functions Across the Eight Biglan Disciplinary Categories

Primary Faculty Functions	All	HNP	HLP	HNA	HLA	SNP	SLP	SNA	SLA
Teaching Stressor Scale[a]	19.66 (o=5.95)	19.49 (o=5.51)	18.68 (o=5.30)	20.84 (o=6.48)	18.04* (o=5.64)	19.86 (o=5.45)	19.94 (o=6.07)	19.87 (o=6.61)	20.87* (o=6.1)
Research Stressor Scale[b]	17.27 (o=4.82)	17.63 (o=4.67)	18.17 (o=5.10)	18.06 (o=4.50)	16.58 (o=4.40)	16.66 (o=4.92)	17.46 (o=4.62)	16.41 (o=4.77)	17.17 (o=5.22)
Service Stressor Scale[c]	16.10 (o=5.65)	15.20 (o=5.01)	15.81 (o=5.71)	15.62 (o=5.29)	16.06 (o=5.50)	16.86 (o=6.09)	16.13 (o=6.0)	15.48 (o=5.59)	17.38* (o=6.05)
	N=826	N=99	N=78	N=86	N=97	N=84	N=112	N=81	N=101 **

[a] Nine-item scale including questions on grading, student evaluations of teaching, dealing with poorly prepared students, inadequate time for class preparation, repetitious teaching assignments, dealing with student complaints, recognition for teaching efforts, lecturing and preparing for new courses.

[b] Six-item scale including questions on reading papers at professional meetings, having time to keep up in one's area, securing money for one's research, preparing manuscripts for publication, receiving recognition for research performance and concern over criteria used to evaluate research and publication records.

[c] Seven-item scale including questions on service upon departmental/university committees, recognition for community service, frequency of requests for community service, rewards for departmental and/or university service, finding time for service provision, attending meetings and lack of clear criteria for evaluating service efforts.

* Entries which are statistically significant in difference from the mean of all cases (95% confidence level).

** The number of cases associated with each disciplinary grouping is lower in Table 3 than in Table 2 because of the removal of all cases containing missing data from the computation of means in Table 3.