2006

Sources of Stress, Levels of Stress, and Coping Strategies of Faculty and Staff at Northern Caribbean University

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SOURCES OF STRESS, LEVELS OF STRESS, AND COPING STRATEGIES OF FACULTY AND STAFF AT NORTHERN CARIBBEAN UNIVERSITY

A Dissertation

Presented in Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

by

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ABSTRACT

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by

Gloria Davis-Roberts

Chair: James Jeffery, Ph.D.

ABSTRACT OF GRADUATE STUDENT RESEARCH

Dissertation

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TITLE: SOURCES OF STRESS, LEVELS OF STRESS, AND COPING STRATEGIES OF FACULTY AND STAFF AT NORTHERN CARIBBEAN UNIVERSITY

Name of researcher: Gloria Davis-Roberts

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Date: April 2006

Statement of the Problem

Northern Caribbean University, formerly West Indies College, attained university status in June 1999. The purpose of this study was to describe the levels and sources of stress and coping strategies of faculty and staff at Northern Caribbean University (NCU) and to determine if these (levels, sources, and coping strategies) are related to selected demographic characteristics (such as gender, age, marital status, years of employment, and employment status – faculty or staff).

Method

A descriptive survey research design was used to conduct this study in which the Occupational Stress Inventory (OSI) was administered to the faculty and staff of NCU. A demographic questionnaire consisting of three sections was also used. The instruments were distributed to the faculty and staff with letters of explanation and self-addressed envelopes to return responses. One hundred and seventeen faculty and staff participated in the study. The data were analyzed using descriptive statistics, *t* tests for independent samples, One-way Analysis of Variance, and Canonical Correlation Analyses.

Results

The subjects were mostly female (66%), staff (62%), and married (47%). Over half (57%) of the participants were recent employees (0-4 years). More than three-fourths of the participants were below the age of 50 years.

In general, faculty and staff at NCU experience normal levels of stress, although 2%-6% may have experienced strong probability of maladaptive stress, debilitating strain, or both. They also have average coping resources. Although within normal range, levels of stress due to certain sources and types were related to gender, marital status, age, and length of employment. Canonical correlation analyses suggest that lower levels of stress are associated with better coping strategies.

Conclusion

Given the tremendous changes that Northern Caribbean University has gone through during the last few years (e.g., increased enrollment with few significant

increases in human resources and facilities), the result of this study was somewhat surprising. I expected higher levels of stress among the faculty and staff. This was not the case. Possible reasons could be due to commitment to the mission of the University.

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ACKNOWLEDGMENTS

This research has been for me both a learning and challenging experience. It was challenging because of the time and other constraints with which I had to grapple during the process. I was able to achieve this milestone, however, because of the encouragement and support from my dissertation committee, family, and friends.

To Dr. Jim Jeffery, chairman of my dissertation committee – I extend profound appreciation for his support, guidance, and affirmation.

To Dr. Jimmy Kijai for his invaluable guidance in walking me through, especially in the statistical aspect of the paper, I express a profound "thank you."

To Dr. H. Bernard, whose support could not go unnoticed. He helped me in following protocol, affirmed me, and prayed with and for me. Thank you.

To my sisters, Myrtle Dehaney, Islyn Davis, Iceline Campbell, and to my brother-in-law, Walden Dehaney, I express gratitude for their prayers and support.

To Dr. Ken Morgan I extend sincerest thanks for his kind assistance and also for supervising the inputting of the data.

Geneva Weir-Harriott – my mentor and dear friend. Thanks to her for timely support, encouragement, and prayer.

To my loyal and devoted secretary, Sandra Lawe, who had to tolerate me during this critical time. Thanks so much to her for her patience and hard work in typing and formatting of the document.

To Donna Brown and Beverley Henry who prayed for and supported me during this very challenging process, I offer grateful thanks.

CHAPTER 1

INTRODUCTION

Background

Although it has been argued for some time that workers in academia have found their jobs to be highly satisfying (Scales & House, 1971), and in comparison with other occupations, relatively stress free (French, Caplan, & Van Harrison, 1982), numerous studies in the UK (Court, 1996; Kinman, 1996; 1998; Earley, 1994; Cross & Carroll, 1990), the USA (Blix, Cruise, Mitchell, & Blix, 1994; Gmelch, Lovrich, & Wilke, 1984; Goldenberg & Waddell, 1990; Lease, 1999), and Australia (McInnis, 1999) have found high levels of stress in teachers. Attempts have also been made to isolate the job characteristics and working conditions that are considered the most stressful or have the strongest relationships with negative outcomes such as job dissatisfaction and/or ill health (Burke & Greenglass, 1995; Finlay-Jones, 1986; Kinman, 1998).

Numerous researchers, many of whom drew their samples from large city suburban institutions of higher learning and from school districts, have identified the major factors that cause stress. The main causes of stress include job dissatisfaction, inadequate salary, working conditions, frequent interruptions at work, lack of human and technical support, poor faculty communication, long working hours--both on and off campus (Blix et al., 1994; Brown et al., 1986a; Gmelch et al., 1984; Goldenberg &

Waddell, 1990; Kinman, 1998; Lease, 1999; Narayanan, Menon, & Spector, 1999; Sorcinelli & Gregory, 1987; Thorsen, 1996).

Concerns about levels of stress have been expressed in the corridors of academic institutions for many years. In a survey conducted by Blix et al. (1994), 60% of respondents perceived 'severe' stress levels at work at least half of the time, with heavy workload and 'research-related' activities being cited as the most significant stressors. The writers argued that the degree of stress and professional disillusionment revealed in their study had potentially serious consequences for higher education in the USA. Self-reported stress was linked with perceptions of reduced productivity, and 15% of the lecturers surveyed indicated that they have seriously considered changing jobs during the previous year. This was due to stressful working conditions such as long working hours, frequent interruptions at work, insufficient time to keep abreast of development in areas of expertise, too much paper work, and poor faculty communication.

Other studies investigating the impact or consequences of stressors on academics have found strong inverse relationships between perceived work stress and a range of cognitive functions such as creativity, problem-solving activity, decision-making, and concentration (Jones & Hodgson, 1998; Kinman, 1996, 1998). It was found that self-reported stress was related to individual perceptions of impaired performance at work in both teaching and research activity (Blix et al., 1994; Kinman, 1998). It has also been noted that academics who have experienced more stress are likely to be less accessible to students and less involved in departmental decision-making (Klenke-Hamel & Mathieu, 1990; Sarafino, 1998).

Statement of the Problem

Northern Caribbean University, formerly West Indies College, attained university status in June 1999. The change has created a number of potentially stressful conditions. New roles and performance expectations for faculty and staff have changed drastically. Faculty are expected to not only teach larger classes in the spaces where smaller classes were previously housed, but they must also contend with students who have not met matriculation requirements. Further, they are also required to become competent in the use of technology in the classroom, a requirement that has proven to be daunting for many of them. In addition to that, teachers are expected to be actively involved in research and publication. Where is the time to be found to meet all these targets?

Then there are those faculty and staff who are lamenting the fact that some of the features that made the institution unique are being eroded since the transition from college to university. A high percentage of non-Adventist persons have had to be employed to manage some of the technology and science areas. They do not have an appreciation for some of the specific values and attitudes that Seventh-day Adventist Christian education fosters and so this creates a feeling of unease among Seventh-day Adventist teachers. The situation is sometimes quite unsettling. Another challenging situation is finding finances to provide for capital development and supplying some of the needed essentials, such as technology and other instructional material to enhance learning. A study such as this would create an awareness of stress situations on the campus.

Purpose of the Study

The purpose of the study was to describe the levels and sources of stress and coping strategies of faculty and staff at Northern Caribbean University (NCU) and to determine if these (levels, sources and coping strategies) are related to some selected demographic characteristics (such as gender, age, marital status, years of employment, and employment status – faculty or staff).

Significance of the Study

This study should provide information that would help in fostering the well-being of workers so that they would not be too adversely affected by stress before concerns are addressed. Additionally, because retention and recruitment of good faculty and staff members are critical to the stability and maintenance of a viable university program, awareness of stress factors and possible levels of stress is essential so that pre-emptive measures can be put in place to stave off possible ill effects.

A study such as this could also provide information that would serve as a basis for intervention techniques and work site policies and regulations that will serve to lessen the sources of stress. It will also add to the body of information that already exists.

Conceptual Framework

The institution that is now Northern Caribbean University has experienced many changes since its inception. In 1906 it began as West Indian Training School. At that time it facilitated a high-school curriculum. In 1923 it achieved junior college status and was then named West Indian Training College. Associate degrees were offered at that time. It achieved senior college status in 1958, when it became a 4-year degree

institution, West Indies College. Over the years, these changes have varied from incremental and evolutionary to more radical. The most recent change took place in June 1999 when the transition from college to university took place. These many changes, according to Bennett (2001), may be attributable to the fact that the institution has always been responsive to the needs of the constituents and sensitive to changes in the environment. Throughout all the changes, however, according to Bennett, the essential philosophical undergirding of the institution remained unchanged. Its mission has been to provide a Christian education for the members of the SDA church in the region while at the same training workers for the Caribbean and Central America.

The change to Northern Caribbean University, however, has been, in some ways, more radical than any previous change. The new institutional name represents the first time that the designation "West Indies" or "West Indian" has not been a part of the institutional name. Another major change has been that of its clientele. There are more non-Adventist students in attendance. Although this present effort represents large-scale change, it in no way represents a culminating event in the history of the institution. No doubt, the University will remain responsive to the demands of its local and global environment if it is to maintain its relevance and viability. Furthermore, having changed the designation of the institution from college to university, the pressures to maintain institutional viability and credibility will become much greater.

According to Bennett (2001), administrators at the University will have to maintain excellence through a distinguished faculty and through a rigorous research and publication agenda. The institution will also have to be equipped with the latest technology. Both of these demands will result in the need for additional resources and

stress. Institutional leaders and administrators will therefore be challenged to find ways of raising funds and ensuring the solvency of the University. Throughout all the challenges and demands, institutional leaders and faculty will have to constantly review their mode of operation and the relevance of the programs offered by the institution in a changing higher education environment.

Additionally, with the intake of students, and in particular, the large number of non-Adventist students who have difficulty conforming to the ethos and principles of the University, there is added pressure in maintaining institutional disciplinary standards. Because this influx was not anticipated, there were not enough orientation activities or ethos guidelines in place to deal with this aberration. This has become quite a concern as many of the workers are lamenting the fact that some the features that made the institution unique are being eroded with the transition from college to university. Further, a higher percentage of non-Adventist teachers have had to be employed to manage some of the technology and science areas. The number of students has grown at a quicker pace than has additional space. Personnel have grown but not necessarily in numbers and ratio of students to teacher. The result is that classes are larger and there is the worrying concern about the resources. Given the foregoing it is little wonder that it is suggested that educational change can create potentially stressful situations (Fullan, 1991).

Studies indicate that change can lead teachers to question their own capacities and competencies (Elmore & McLaughlin, 1988; Guskey, 1984). With the advent of a university status, there is a demand for more use of technology and greater scholarly productivity-research. Teachers are expected to demonstrate their skills in these areas. Many of these persons had not been exposed to or experienced the use of technology in

the classroom. Many of the students, on the other hand, are quite versed in computer technology, to the extent that teachers could feel insecure in their attempts to utilize technology as an instructional aid. This fear tends to translate into a reluctance to benefit from in-service training, as they are afraid to fail. The result is more stress.

As well, some persons were becoming ill who had previously enjoyed apparent good health. One worker died and it was strongly believed that this was stress related. These incidents created a kind of scare in the university environment. Selye (1956a) suggested that stress is the non-specific response to the demands made upon it. This suggestion by Selye (1956a) seems to have relevance to theoretical models of stress that under girded this study.

Theoretical Models of Stress

The Managerial-oriented Model of Stress (Matteson & Ivancevich, 1982) and the Physiological Model (Kyriacou & Sutcliffe, 1978; Moracco & McFadden, 1980; Simpson, 1980) – models used by Adeyemo (1989), relate to different aspects of stress. Authors reflect diversity and significant similarity in their models of stress. In discussing the Managerial-oriented Model, it is noted that it emphasized external or environmental influence on human beings (Cox, 1975; Hinkle, 1974; Lewinsohn, 1974; Lewinsohn & Libet, 1972; Wild & Hanes, 1976). The second model, the Physiological Model, relates to the physiological reactions of individuals to situations of life (Selye, 1956a).

Managerial-oriented Model of Stress

Matteson and Ivancevich's (1982) framework, as presented in Figure 1, deals with the dynamics that lead to stress in the organization. The "organization stress framework"

is a Managerial-oriented model of stress. It is based on the premise that the degree of stress an in individual experiences is associated with that person's perception of life's events. They point out that the framework emphasizes how stressors, stress, individual differences, outcomes, and consequences are linked.

Matteson and Ivancevich (1982) further indicated that individual differences play an important role in the way people perceive change and the way they cope with the change. The coping strategies used by individuals to deal with the change could be determined by the individual's personality type and the support system available to that individual.

Physiological Model of Stress

The Physiological model of stress (Figure 2) refers to the physiological reactions of individuals to situations of life (Selye, 1956a). According to the framers of the model (Kyriacou & Sutcliffe, 1978; Moracco & McFadden, 1980; Simpson, 1980), the model begins with potential stressors and mentions three main parts: "societal," "occupational," and "home," which constitute the major areas that may lead to teacher stress (D'Arienzo, Krajewsky, & Moracco, 1982). D'Arienzo and his colleagues indicate that actual stressors portray those potential occupational stressors that constitute a threat to the teacher's self-esteem or well-being.

In light of the issues and concerns highlighted in the foregoing discussions, it is possible that faculty and staff of Northern Caribbean University may have or could have experienced potentially stressful situations since the transition from college to university status. This study will describe sources and levels of stress among the staff and faculty of Northern Caribbean University, and the ways the faculty and staff cope with stress.

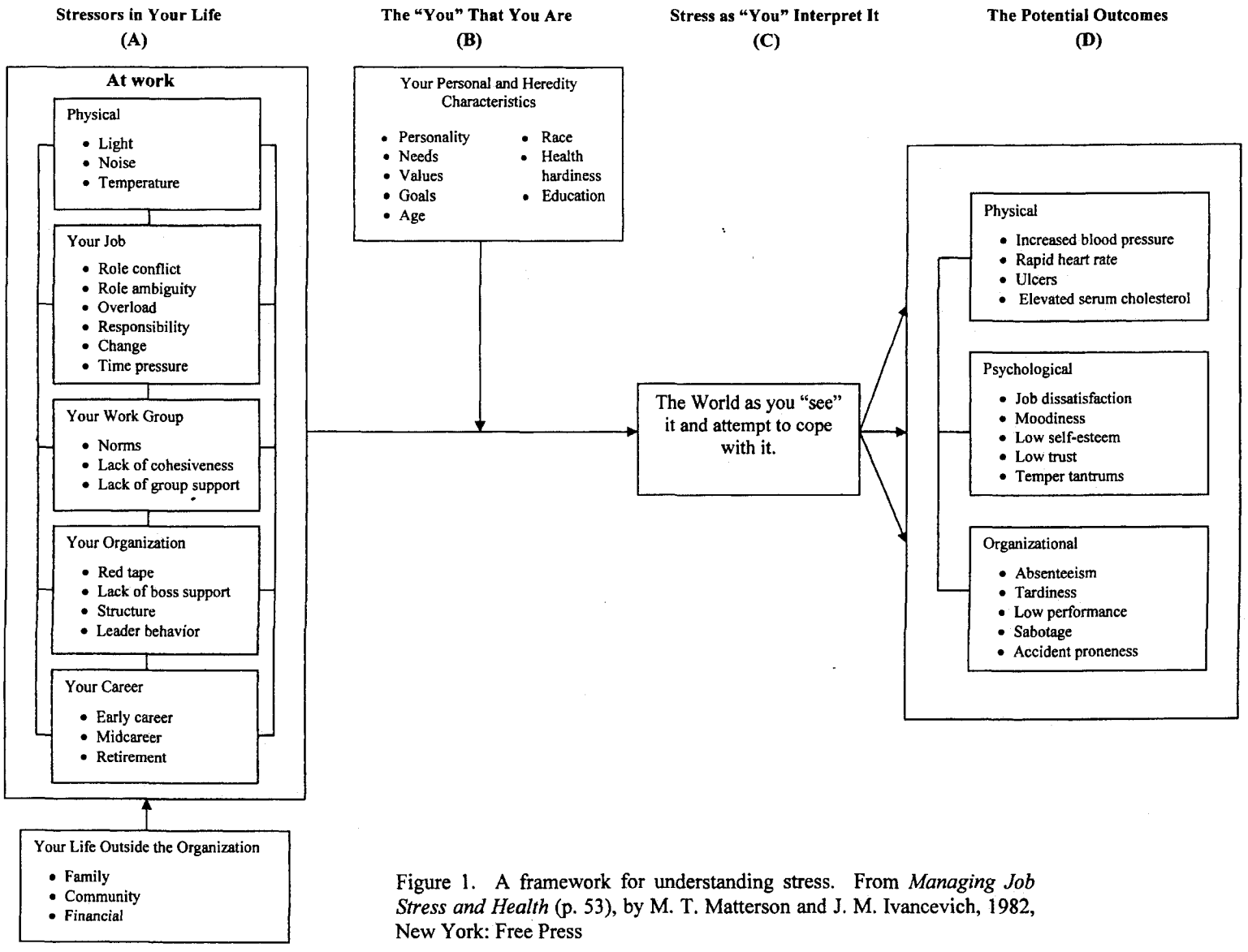

Figure 1. A framework for understanding stress. From *Managing Job Stress and Health* (p. 53), by M. T. Matterson and J. M. Ivancevich, 1982, New York: Free Press

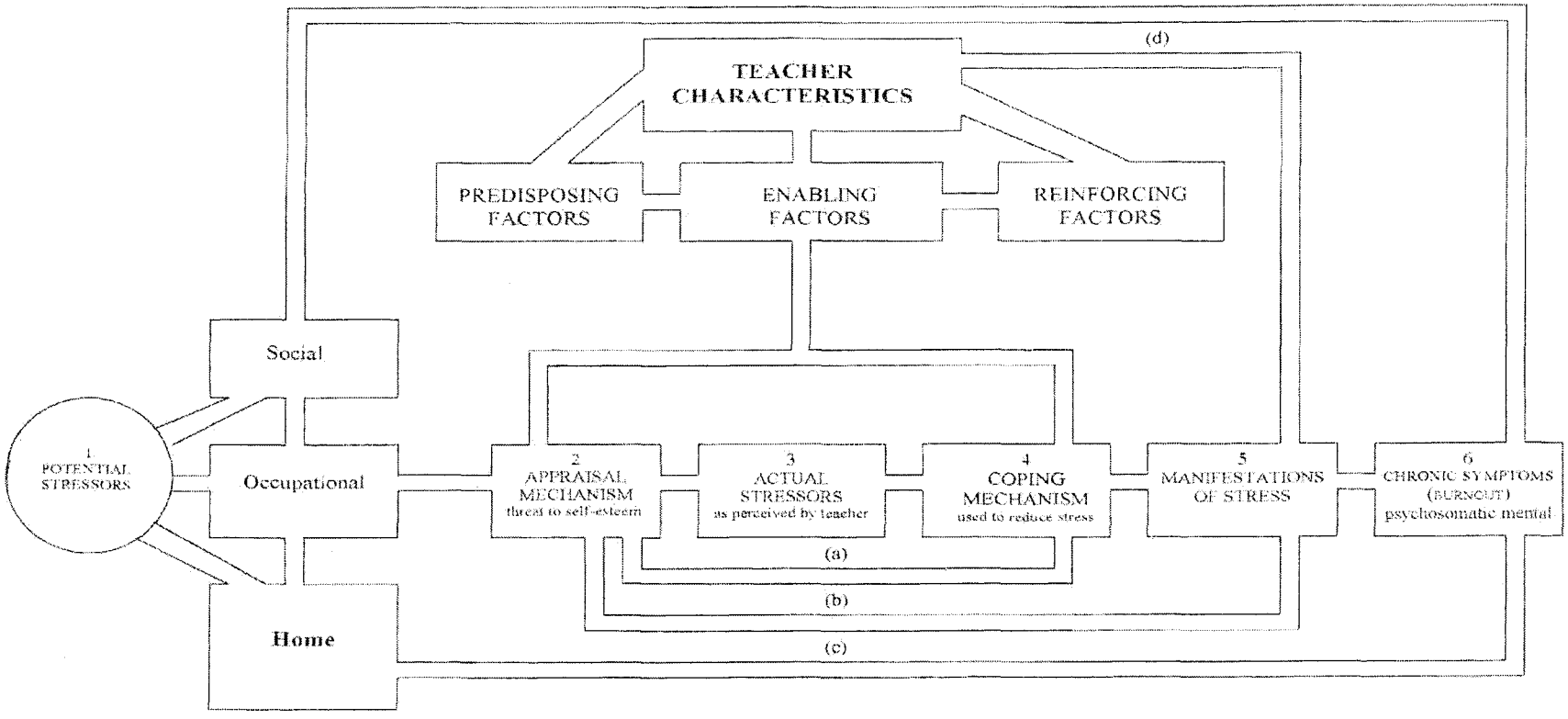

Figure 2. A model of teacher stress. From *Stress in Teaching*, (p. 15), by R.V. D'Arienzo, R.J. Krajewski, and J.C. Moracco, 1982, New York: University Press of America.

Research Questions

The following questions guided the research:

1. What are the sources of stress among staff and faculty of Northern Caribbean University?

2. Are the sources of stress related to gender, age, marital status, years of employment, and employment status (faculty versus staff)?

3. What are the types of stress among faculty and staff at NCU?

4. Are the types of stress related to gender, age, marital status, years of employment, and employment status (faculty versus staff)?

5. What coping strategies for stress do faculty and staff use at NCU?

6. Are coping strategies related to gender, age, marital status, years of employment, and employment status (faculty versus staff)?

7. What is the relationship between sources of stress and coping strategies?

8. What is the relationship between types of stress and coping strategies?

Research Hypotheses

Based on the research questions the following hypotheses were formulated:

Hypothesis 1: There is a significant difference between the sources of stress among male and female faculty and staff at NCU.

Hypothesis 2: There is a significant relationship between sources of stress and age among faculty and staff NCU.

Hypothesis 3: There is a significant relationship between the sources of stress and marital status at NCU.

Hypothesis 4: There is a significant relationship between the sources of stress and years of employment.

Hypothesis 5: There is a significant difference between the sources of stress among faculty and staff at NCU.

Hypothesis 6: There is a significant difference between the types of stress for male and female faculty and staff at NCU.

Hypothesis 7: There is a significant relationship between the types of stress and age among faculty and staff at NCU.

Hypothesis 8: There is significant relationship between types of stress and marital status at NCU.

Hypothesis 9: There is a significant relationship between the types of stress and years of employment NCU.

Hypothesis 10: There is a significant difference between types of stress among faculty and staff at NCU.

Hypothesis 11: There is a significant difference between coping strategies of male and female faculty and staff at NCU.

Hypothesis 12: There is a significant relationship between coping strategies and age among faculty and staff at NCU.

Hypothesis 13: There is a significant relationship between coping strategies and marital status at NCU.

Hypothesis 14: There is a significant relationship between coping strategies and years of employment at NCU.

Hypothesis 15: There is a significant difference between the coping strategies of faculty and staff at NCU.

Hypothesis 16: There is a significant relationship between sources of stress and coping strategies at NCU.

Hypothesis 17: There is a significant relationship between types of stress and coping strategies at NCU.

Definition of Terms

The following terms are defined as they are used in this study:

Academic Workload: A three-dimensional construct involving teaching, research, and service, which characterizes how faculty is allocated their work.

Burnout: A syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals engaged in the human service sector (Maslach & Jackson, 1986).

Caseness: Relates to levels of psychological health for which some degree of intervention is recommended.

Consequences and Effects of Stress: Terms used interchangeably to mean results of stress.

Coping: The ability to manage a situation.

Coping Strategies: Strategies an individual uses to reduce his/her level of stress.

Depersonalization: One of the components of the burnout dimension in the).

Emotional Exhaustion: One of the components of the burnout dimension in the Maslach Burnout Inventory. It is characterized by feelings of emotional overextension, loss of energy, and general fatigue.

Intervention: An action taken to improve a condition, be it medical or otherwise.

Levels of Stress: The extent to which an individual is stressed.

Maslach Burnout Inventory (MBI): Instrument developed by Maslach and Jackson in 1986 to assess levels of burnout. The MBI-ES, Educators' Survey, is especially used in education.

Models of Stress: This has to do with perspectives on a conceptual framework.

Role Ambiguity: A major cause of role stress which is often the result of inadequate job description. The worker needs to receive clarification concerning his/her job and the incumbent responsibility.

Role Insufficiency: A source of stress that is generated when the worker's need for recognition and success is not met. Such stress may also be caused if a worker feels that his or her career does not have a good future.

Strain: The response of an individual to stressors. This response may be physical and psychological ill-health, job dissatisfaction, and impaired job performance.

Stressors: These are the sources of stress.

Stress: There are two definitions of stress: stress as a stimulus (source) or situation; or stress as a state or response. Selye (1956b) defines stress as essentially the wear and tear on the body and suggests that anyone who feels that whatever he is doing and whatever is being done to him is strenuous and wearing, knows vaguely what stress is.

The Occupational Stress Inventory (OSI): An instrument developed by Osipow and Spokane (1987) to measure the three dimensions of occupational adjustments, stress, psychological strain, and coping resources in working adults employed in technical,

professional, or managerial fields. It consists of three questionnaires: The Occupational Role Questionnaire (ORQ), the Personal Strain Questionnaire (PSQ), and the Personal Resources Questionnaire (PRQ).

Years of Experience: Relates to number of years one has worked in a particular vocational or professional setting.

Limitations and Delimitations

The scope of the population was the main delimitation of the study. It involved only faculty and staff of one university.

The data for this study were gathered using a questionnaire, the Occupational Stress Inventory (OSI). This consisted of three questionnaires, which measured the three dimensions of occupation adjustment: Occupations stressors, psychological strain, and coping resources. The questionnaire appeared to be too long. The response rate was 34%, although sufficient time was allowed for its completion.

The final limitation is that the questionnaire was administered at the end of the semester when workers were dealing with closing off activities. This could have impacted the response rate of the participants. I had no control over these circumstances as this was also due to the time that I received a response from the IRB.

Assumptions

The following assumptions were made for the present study:

1. The Occupational Stress Inventory (OSI) was useful and effective for measuring stress.

2. The participants answered the questions honestly and consistently.

Organization of the Study

The study consists of five chapters. Chapter 1 includes the introduction, the statement of the problem, the purpose of the study, significance of the study, the conceptual framework, the theoretical models of stress, managerial-oriented model of stress, physiological model of stress, the research questions, research hypotheses, the definition of terms, and the delimitations and limitations of the study.

Chapter 2 presents the review of literature. The main areas covered are organizational change, levels of stress, and sources of stress, coping strategies and consequences of stress. Chapter 3 describes the design, the population, the instrument, the hypotheses, the variables, the procedure for data collection, and the statistical analyses that were used.

Chapter 4 presents the data, analysis of data, major findings, and the summary.

Chapter 5 consists of summary, discussion, conclusions, and recommendations.

An appendix of supporting documents and letters follows.

Finally, the reference list, which contains the bibliographic information for the study, is provided.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

Organizational change represents a traumatic and disruptive event in the lives of individuals and in the organizational structures affected (Connor & Lake, 1964; Farmer, 1990; Lawler, 1986). Change in any area of the organization can have ripple effects and unintended consequences across the entire organization. According to Lawler (1986):

> Change involves hard work, is disruptive, and can have a negative effect on a number of persons. In the case of participative-management change, old behaviors have to be abandoned, people often have to be replaced because they cannot adapt, and large financial investment is required. (p. 217)

Because of the disruptive nature of any change effort, the decision to carry out organizational change should be based on compelling reasons. These reasons are necessary to safeguard company stability and investment in time and capital and in order to ensure that the members of the organization support and participate in the effort. Within any organization contemplating change, there will exist many individuals who will require compelling reasons in order for them to accept and participate in the change effort (Lawler, 1986). It must not be overlooked that educational change can create potentially stressful situations for teachers (Fullan, 1991).

Stress has become one of the most significant health and safety issues in the workplace. An epidemiological study done in the U.K. (Jones & Hodgson, 1998)

revealed that stress was the second most frequently reported condition of individuals who disclosed work-related stress. More-over occupational stress has become one of the most common reasons for medical retirement (Cooper & Cartwright, 1994). Employees are now required by Health and Safety Executive Commission to implement firm structures and procedures to manage stress at work (HSE, 1995).

It is evident, however, that in order for any organization or institution to develop policy and practice related to stress-related issues, and to be able to implement effective intervention, it is necessary that there be an understanding and an awareness of the elements of stress. This chapter will therefore review literature on the sources of stress, levels of stress, consequences of stress, and methods of coping with stress. However before launching into the areas highlighted, there is need to explore definitions of stress.

Definition of Stress

There is no consensus on the precise meaning of the term "stress" (Jex, Beehr, & Roberts, 1992). To occupational and organizational psychologists, work-related stress is generally considered to be the product of an imbalance between environmental demands and individual capabilities (Lazarus & Folkman, 1984).

The Education Service Advisory Committee (ESAC, 1990) defines stress "as a process that can occur when there is an unresolved mismatch between the perceived pressures of the work situation and an individual's ability to cope."

Reese (1989) suggests that stress is not simply a mechanical reaction to the application of pressure, but rather it involves a complex interplay of individual characteristics, which may include 'self-generated' pressure, of external demands or constraints, and of support and coping patterns that are either inadequate or inappropriate.

Selye (1956b) defines stress as essentially the rate of "wear and tear" on the body. He maintains that stress is a necessary condition of life, since without stimulus an organism will die. He suggests that a distinction has therefore to be drawn between 'eustress' and 'distress.' At one extreme he claims that 'eustress' is the situation that can be described as stimulating, challenging, and exhilarating; at the other, 'distress' is a situation that is threatening, disturbing, and distressing. This definition draws attention to the fact that, in common usage, the term 'stress' applies to the negative end of a spectrum of experiences.

However, other definitions and models of stress abound. Some researchers have used the term 'stress' to refer to the level of pressure and demands made on an individual and have used the term 'strain' to refer to the reaction to such stress. Other researchers have defined stress in terms of the degree of mismatch between the demands made upon an individual and the individual's ability to cope with those demands. In addition, a number of researchers have focused on teacher burnout, which is seen as a state of emotional, physical, and attitudinal exhaustion, which may develop in teachers who were unable to cope effectively with stress over a long period (Guglielmi & Tatrow, 1998; Vandenbergh & Huberman, 1999).

According to Hallman (2003), there are some recent definitions of stress. For example, according to the United States National Institute of Occupational Safety and Health (1999), "job stress can be defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker." Job stress, it is claimed, "can lead to poor health and even injury."

The European Commission Directorate-General for Employment and Social Affairs (2003) defines stress as "the emotional, cognitive, behavioural, and physiological reaction to aversive and noxious aspects of work, work environments, and work organizations." It is also described as a "state characterised by high levels of arousal and distress and often feelings of not coping."

Then, there is the brand of stress known as 'teacher stress.' Probably the definition of 'teacher stress' that best captured the teacher's experience, has been that of Kyriacou and Sutcliffe (1978), which itself was a development of their earlier attempt at a definition. They described it as a response of the negative effect such as anger or depression resulting from aspects of the teacher's job and mediated by the perception that the demands made upon the teacher constitute a threat to his or her self-esteem or well-being and by coping mechanisms activated to reduce the perceived threat.

Schwab and Iwanicki (1982a) articulate that literature which relates to teacher "stress" seems to confuse it with teacher "burnout." They claim that the tendency is to use the concepts interchangeably or to explain burnout simply be enumerating all of the types of stress teachers may encounter. The authors also suggest that the error is probably motivated by data. Since there is very little hard data on teacher burnout available in literature, data on teacher stress is substituted. Jenkins (1979) suggests that the second error lies in the implicit and erroneous assumption that a stressed teacher inevitably becomes a burned-out teacher.

Farber (1984a), in describing burnout, articulates that it can be regarded as the final step in a progression of unsuccessful attempts to cope with negative stress conditions. Burnout then, he claims, is the result not of stress, but of unmediated stress.

That is, being stressed and having no 'out', no buffers and no support system. He concludes that the assumption that stress necessarily leads to burnout is simplistic and misleading.

In summarizing, there are two main definitions of stress: stress as situation or stimulus (source) and stress as a state or response. As a situation or stimulus, stress is defined as a process that occurs when there is an unresolved mismatch between the perceived pressures of the work situation and the individual's ability to cope (The Education Service Advisory Committee, 1990; Guglielmi & Tatrow, 1998; Vandenbergh & Huberman, 1999). As a state or response, Reese (1989) suggests that it is a complex interplay between individual characteristics and external demands.

Demographic Variables and Levels of Stress

With the advent of the 21st century, society is becoming more and more complex with greater demands made on teachers in higher education as well as in high school, which may exacerbate their levels of stress (Soyibo, 1994). Soyibo continued by pointing out that it is expedient to recognize those factors that can physically and mentally undermine the effectiveness of science teachers as concomitant of their teaching activities. This comment not only has relevance for teachers of science but also to almost all areas of work.

For example, a study conducted of teachers by Blix et al. (1994) found that 66% of the respondents perceived 'severe' levels of stress at work at least half of the time, with 'heavy work load' and 'research-related activities' being cited as the most significant stressors. They argue that the degree of stress and professional disillusionment revealed in their study has potentially serious consequences for higher education in the

USA. Self-reported stress was linked with perceptions of reduced productivity, and 15% of the lecturers surveyed indicated that they had seriously considered changing jobs during the previous year due to stressful working conditions. It appears that certain factors contribute to the level of stress an individual experiences as well as the sources of stress. Among those suggested are gender, years of experience/employment, age, and marital status.

Gender

In considering gender as it relates to level of stress, Pines and Aronson (1989) observed that women are disproportionately represented in the teaching, counseling, and the nursing professions. Society sees female professionals as being feminine, less aggressive, active, more sensitive, warm, and kind. These very attributes that draw women to helping professions and include the qualities of affection, caring, empathy, and sensitivity to others may leave them more vulnerable to high levels of stress (Farwell, 1999).

When comparing professional women and men at similar career life positions, Pines and Aronson (1989) found differences in the degree of burnout. The women in this study had slightly higher levels of burnout and four times more burnout at the extreme level than did men. The women also felt that they had "less freedom, autonomy, and influence in their work as well as less variety, less challenge, and a less positive work environment" (p. 121). Another difference was found with regard to relationships.

For women, good personal relationships correlated positively with burnout, but this was less true for men. It is suggested that the relationship between gender and work is complex. Several factors appear to magnify the impact of stress in women, chief

among them being the preponderant role that women still play in the provision of family care. It is well established that the total workload of women who are employed full-time is higher than that of full-time male workers, particularly where they have family responsibilities. Research carried out in Sweden seems to confirm this fact, since the findings revealed that the total workload of women employed part-time is as much as that of men employed full time (Frankensteiner, 1991).

In addition to family responsibilities, other factors also tend to make women vulnerable to work-related stress. These include:

1. Lower levels of control in their jobs, since the great majority of women still tend to occupy less senior jobs than men

2. The proportion of women who work do so in 'precarious' forms of employment

3. The proliferation of women in high stress occupations, such as nursing, teaching, and working with visual units

4. The prejudice and discrimination suffered by many women who are in more senior positions, such as managerial jobs, both as a result of organization and corporate policy and from their colleagues at work (Hallman, 2003).

A survey carried out by Romeo (1992) that involved 1,300 full-time employees in a random sample of private companies in the United States found that gender, among other factors, accounted for job stress in the workplace. The survey found that stress affected women more than men, and that women were significantly more likely to report burnout, stress-related illnesses, or a desire to resign from their jobs. The researcher suggests that there are several reasons for this. Among them, women are often paid less

than men for their work even if they have college degrees. Many organizations also lack policies that respond to family issues (Romeo, 1992).

In another study that investigated stress and coping among dental educators and its relationship to gender, it was noted that 50.5% of the female faculty and 39.2% of the male faculty agreed that their job "took too much out of them." It was also noted that 54.8% of the female faculty versus 44.7% of the male faculty agreed that stress had decreased their desire to stay in academia. Additionally, female faculty articulated that their health was more affected by stress and that balancing professional and personal life was a greater challenge for them than it was for the male faculty. Men and women differed in the sources of stress, with women being more strongly affected than were men by time pressure, heavy teaching loads, conflicting family responsibilities, and having too much to do (Nesbitt, Inglehart, & Sinkford, 2003).

The school environment is also a factor that influences the level of stress females experience. This fact was supported by a study carried out by Calabrese and Anderson (1986). The levels of stress were assessed in the secondary school context and determined what factors were responsible for higher levels of stress. The findings suggested that female teachers at all levels experienced higher levels of stress than did males. Four factors related to school emerged as being responsible for the higher levels of female stress. These were: preparation time, the number of subject matter preparations, the lack of breaks from the classroom during the day, and lack of classroom materials.

According to the researchers these environmental conditions exacerbate role conflict and role overload, and play a dominant role in determining levels of female stress. They add that the study did not measure such factors as salary and hiring

discrimination. They pointed out that were those to be included, the difference in levels of stress could even be higher than reported in the study.

Stress is also generated by technology, and it appears that female professors are more adversely affected than are male professors. In a study conducted by Sax, Astin, Korn, and Mahoney (1999) at the Higher Education Research Institute at the University of California, Los Angeles, it was found that technology is the fourth cited source of stress among female professors and the fifth among male professors, surpassing traditional producers such as research and publishing demands, teaching loads, and the review and promotion process. It cannot go unnoticed that females are more affected in the use of technology, an invention that was expected to enhance their work.

It appears that a higher level of stress is experienced in other areas of work besides teaching. Many argue that women still do not receive equal treatment as they pursue careers in law (Coplin & Williams, 1978; Robert & Winter, 1978). It is also posited that because of the social and psychological consequences of being in the traditionally male environment of law school, female law students may experience increased levels of stress (Beck & Burns, 1979; Shanefield & Benjamin, 1985; Stone, 1971; Taylor, 1975). Banks (1998) found that female students speak less in law classes for fear of being ridiculed or devalued by their professor.

Researchers also have examined whether girls and women are more likely than boys and men to devalue their own ability through negative evaluations and self-disparaging attributions for past performance and pessimistic predictions for future performance (Daubman, Heatherington, & Ahn, 1992; Frieze, Whitley, Hanusa, & McHugh, 1982; McHugh, Frieze, & Hanusa, 1982). They found that women tend to

devalue their own ability, although this effect has been qualified by such moderator variables as 'masculinity of the task' and sometimes gender difference.

According to Gutek (1993), an additional difficulty faced by many female students is related to non-school activities. He claimed that women have expanded their duties by adding work responsibilities to their extant family roles.

Responses indicating the level of stress in the experience of teacher-coaches also emerged. Case studies citing two female teacher-coaches were highlighted. The two experienced, female high-school teacher-coaches were purposively selected as participants in the study. Bain (1983) described conflicts and stressors similar to those reported in previous studies highlighted by intra-role conflicts associated with coaching multiple sports with overlapping seasons and inter-role conflicts related to demands. The participants also described a cyclic pattern of stress over each academic year as well as over a career and personal life and strategies they used to manage and avoid burnout. According to Bain (1983), while stress and burnout are well documented as significant issues for the teacher-coach, their levels of burnout are relatively low when compared to other occupations.

Several studies (Locke & Massengale, 1978; Sage, 1989; Templin, 1989) have found that teacher-coaches perceive both role conflict and role strain as a result of their dual role. Sage (1989) suggests that as a result of the level of stress experienced, teacher-coaches are forced to favor one occupational role over the other in terms of commitment, or to resolve the stress by leaving the profession.

In their study of college coaches (Caccese & Mayerberg, 1984), the findings revealed that female coaches had higher scores on the emotional exhaustion dimension of

burnout than did male coaches. Similar findings have been reported in male-female comparisons of coaches at both high-school and college levels (Vealey, Urdy, Zimmerman, & Soliday, 1992). In their study of role conflict and burnout in high-school coaches, Felder and Wishnietsky (1990) also reported gender differences, particularly in terms of teacher-coach inter-role conflict, where female teacher-coaches reported greater conflict. In an effort to explain these gender differences, Kelly and Gill (1993) explored factors related to burnout in male and female college coaches and reported that, compared to male coaches, female coaches appraised their levels of job-related stress higher.

Transition and change also contribute to the levels of stress experienced by teachers. In the United Kingdom, trainee teachers have not been featured prominently in stress-related studies (Abouserie, 1994b). It is true that many trainee teachers adapt to the transition and life at university without any real concerns, but others experience stress and anxiety that can interfere with their academic progress (Gerdes & Mallinckrodt, 1994; Jones & Hodgson, 1998).

Research suggests that transition and change are stressful activities (Hobfoll, 1986) and that life-change stress may differ significantly for men and women. For example, women generally report more stressful life changes than do men (Chiraboga & Cutler, 1980). Mallinckrodt, Leong, and Kraji (1989) studied male and female graduate trainee teachers with regard to the psychological stress symptoms and physical health complaints associated with different types of life-change events, including events related to personal relationships, academic programs, or career concerns. Preliminary analyses indicated that, compared to men, women reported significantly more negative life events

and a higher incidence of stress symptoms. Concerns that were frequently reported by women were job-related.

Studying attitudes toward seeking help for depression among college trainee teachers, Padesky and Hammen (1981) found gender differences. Compared with women, men reported that they would be more reluctant to seek help, even informal help from friends, and were more likely to report that they would never seek psychotherapy for depression.

Abouserie (1994a) also looked at gender differentiation in stressors reported by university teachers in training in the UK. She found that stress levels in females were significantly higher than in males. Males, however, reported more stress in areas of conflict with lecturers, financial issues, the amount to learn, loneliness, and boring classes. Other studies have reported similar differences between male and female teacher trainees, such as Clarke and Reiker (1986) and Mallinckrodt et al. (1989), which suggest that further investigations are required to explain why females seem less able than males to cope with stressful situations.

Years of Experience

"Years of work experience" is another variable that is considered to influence the levels of stress workers experience. In a study of Ohio teachers, Feitler and Tokar (1982) surveyed 81 first-year teachers and found that only 16% indicated that their jobs were "very to extremely" stressful. Seventy-seven percent rated their jobs as "mildly to moderately" stressful, and 7% reported "no job-related" stress. In the same study, 350 teachers within 5 years of retirement were surveyed. Eighteen percent reported that their jobs were in the "very to extremely" stress range. Twelve percent of this group reported

that their jobs were "not at all" stressful. Schwab, Jackson, and Schuler (1986) found no significant link between the number of years of experience and burnout among New Hampshire teachers. Gonzalez (2003) asserts that similar to the studies linking age and burnout, the ones linking years of service to burnout are also contradictory.

On the other hand, Goldenberg and Waddell (1990) contend that teachers with fewer years of service in education experience the highest levels of stress and burnout. Lopez's study (2000) seemed to confirm this result. It revealed that the more years of service in education, the lower the level of emotional exhaustion. One possible explanation of this is that as individuals gain work experience, they tend to develop more coping strategies towards the workplace and as a result experience lower levels of burnout than workers with fewer years of work. For example, some teachers try to break up the amount of time of direct contact with their students by such measures as team teaching and establishing learning centers (Weiskopf, 1980). Other persons apply direct-action techniques which may involve simply managing or organizing one's self more effectively or it may involve developing new time management skills and working practices. Still, some teachers will negotiate with colleagues, so that aspects of one's situation are changed or dealt with by others (Kyriacou, 2001). The best strategy, however, is that the individual finds the source of stress and make every effort to eliminate it. The workers who indeed experience burnout tend to leave their jobs (Ashford & Lee, 1997).

In contrast, Borg and Falzon (1989, cited in Vandenbergh & Huberman, 1999) report findings that teachers with more than 20 years of experience exhibit significantly higher levels of stress than do colleagues with fewer years of experience.

Age

In a review of three multipurpose, national probability studies of employment, which were undertaken in 1967, 1973, and 1977, Lowther, Gill, and Coppard (1985) identified a number of age-related factors in teacher responses. They found job satisfaction for teachers increasing with age and job rewards becoming more important. The value of the job neither increased nor decreased overtime, but job satisfaction for younger teachers was directly related to the work of teaching whereas for older teachers job satisfaction was related to matters extrinsic to their work.

Age is a factor in the degree of stress experienced and the potential for burnout in teachers. Farber (1984b) found workers in the 34-44-year age group to be most at risk of burnout. Friedman (1991) also found age associated with levels of burnout. When characteristics of high and low burnout elementary schools were identified, the high burnout schools were found to have older teachers than did the low burnout schools.

In another study (Feitler & Toker, 1982), those persons in the 31-34-year age group reported the highest level of stress. Eighteen percent rated their jobs very to extremely stressful as compared to 13% of those persons less than 30 years of age, and 17% of those over 45 years of age.

In a study using the Maslach Burnout Inventory, younger teachers, age 20-39, scored significantly higher on the emotional exhaustion subscale. They experienced significantly more intense feelings of exhaustion and fatigue than did 50-year-olds. The researchers suggested that one reason for this difference may be that highly stressed and/or burned out younger teachers leave the profession early (Byrne, 1991; Schwab et al., 1986; Schwab & Iwanicki, 1982b).

Maslach and Jackson (1981) found younger people scoring higher than older people on the depersonalization subscale of the MBI, which is one of the components of the burnout dimension in the Maslach Burnout Inventory, typified by a negative shift in responses to recipients. These could be students, clients, or patients. As age increased, there was a consistent decline in both frequency and intensity. Older people scored higher on the personal accomplishment subscale in frequency, and younger people scored higher on the emotional exhaustion subscale on intensity.

Ponquinette (1991), studying the relationship of burnout with selected variables in private colleges, found among other things that age was significantly related to the emotional exhaustion and depersonalization component of the Maslach Burnout Inventory, Form ED (Maslach & Jackson, 1986). Manning (1990), on the other hand, states that burnout was not found to be related to gender, age or faculty rank, and teaching load, in a study conducted at the University of Oklahoma, with 200 full-time associate and assistant professors.

A study by Lopez (2000), investigating burnout in Hispanic institutions of higher education, showed that in regard to age, the older the faculty member, the higher the level of depersonalization. This finding coincides with an investigation of Dutch teachers done by De Heus and Diekstra (1999), which showed lower levels of depersonalization in younger teachers than older ones. However, in regard to burnout symptoms, "teaching appears to become much harder when one gets older" (De Heus & Diskstra, 1999, p. 280).

Faculty, between ages 40 and 49, had higher emotional exhaustion and depersonalization scores than the age group over 50, in a study conducted by Wageman

(2000). According to Hughes (1995), the age category between 46-55 is at a greater risk of burnout than other age categories. On the other hand, Goldenberg and Waddell (1990) and Dua (1994) conclude that young faculty members are more prone to stress from work than those in the 50 and above age group.

Marital Status

Pines and Aronson (1989), in a study to explore the issue of burnout and its causes, looked at women who were at different stages of their teaching career: pre-professional women in college whose average age was 21, professional women whose age was 34, and post-professional women whose average age was 66. They found that the professional women/housewives and mothers, who would have appeared to be the most overwhelmed with what is deemed to be two full-time jobs, projected the most positive image. These women were satisfied with their work and found their professional role enjoyable and rewarding. They had overall good health and felt that both family and career gave meaning to their lives. The pre-professional women reported the most burnout and were least satisfied with their work and their lives. The post-professional women experienced the poorest health, although they were least over-extended and had fewer distractions and conflicts. They also believed that they had the least unconditional support when they needed it.

Maslach and Jackson (1981) found marital status significantly related to the emotional subscale of the Maslach Burnout Inventory, but not to depersonalization or personal accomplishment. Single and divorced people scored higher than married people on the emotional exhaustion scale in both frequency and intensity. In general, married teachers and those with children were found to experience less burnout than unmarried

teachers or married teachers without children (Greenglass & Burke, 1988). Married primary-level teachers were found to score higher on the personal accomplishment subscale of the Maslach Burnout Inventory than married secondary teachers and unmarried teachers at all levels (Russell, Altmaier, & Vanvelzen, 1987). However, Schwab et al. (1986) did not find marital status significantly related to burnout, and Gold (1985) reported only a slightly greater risk for single teachers than those who have been married.

Sources of Stress

Stressors and Strains in Academic Life

Historically, academic work was deemed highly satisfying and, in comparison with other occupations, relatively stress free, but this is apparently no longer the case (French et al., 1982; Scales & House, 1971). Thorsen (1996) points out that it was generally believed that factors such as autonomy, role clarity, and tenure protected academics from the job characteristics and working conditions usually associated with occupational stress. A non-competitive, collegiate culture was also believed to provide a protective and supportive framework that acted as a buffer in potentially stressful situations (Gmelch et al., 1984).

The image of academia as an occupation that is intrinsically low in stress and high in satisfaction is exemplified by a longitudinal study of 1,600 American academics conducted over three decades by Willie and Stecklein (1982). While the study did not examine work-related stress directly, 80% of respondents indicated that they found their careers satisfying and, given the opportunity, would make the same career choice again. Respondents' levels of job satisfaction did not significantly differ between the first and

the second wave of data collection in 1956 and 1968, and only slightly decreased in the final wave (1980). Academic working conditions, however, have changed significantly in the last 20 years. Thorsen (1996) suggests that university lecturers and researchers now experience similar pressures to professionals in any large organization. It is interesting to note that when Willie and Stecklein's (1982) findings are contrasted with a more recent national study conducted in the United Kingdom (Kinman, 1998), 52% of a sample of 782 academics indicated that, if given the opportunity to start afresh in their careers, they would not choose to work in higher education.

The academic dean is not untouched by stress and has been described as an "imperiled species searching for a balance" (Gmelch, Wolverton, Wolverton, & Hermanson, 1996). The writers suggest that, over time, the deans of academic units appear to have undergone a transformation from chief academic officers to chief executive officers, with more emphasis placed on extramural funding, personnel decision making, and alumni relations. They stressed that increasingly the vision of the dean as a quiet scholarly leader has been replaced by an executive image of the dean as politically astute and economically savvy.

The dean's delicate balancing act, according to Bowker (1982), is viewed differently by faculty, provosts, students, and deans themselves. Part of the friction between deans and faculty stems from disagreement on the roles rather than the personalities of deans, which contribute to low levels of satisfaction. He underscores that, similarly, the work of administration and the pursuit of scholarly endeavors do not make good bedfellows, since deans' academic interests turn them firmly toward their

departments, but their leadership of the colleges and schools depends largely on directions from the provost and university.

This aggregation of participants with differing perceptions on the position places multiple, conflicting, and consequential pressures upon deans. The resulting paradoxical situation causes many academic leaders to burn out from the strain of trying to be effective administrators, on the one hand, and attempting to protect the academic autonomy and independence of faculty on the other hand (Gmelch & Miskin, 1993, 1995). Accordingly, many academic leaders, such as deans, end their administrative careers fatigued and suffering from excessive levels of stress (Gmelch & Burns, 1994).

It appears that stress has invaded academia and it seems to be constantly gaining ground. The question might then be, is this really so? What is research suggesting as the cause for this shift and what are the stressors highlighted?

Research in the United States

Research in the United States has also contributed to the body of information on stressors. Gmelch et al. (1984), who did one of the first and largest studies, surveyed more than 1,200 lecturers from 80 universities in the United States. Respondents indicated that 60% of the stress they experienced came from their work as opposed to other life domains. The main stressors identified were:

1. Excessively high self-expectations
2. Pressure to obtain money for research
3. Insufficient time to keep abreast of developments in areas of expertise
4. Inadequate salary
5. Frequent interruptions at work

6. Role conflict

7. Slow career advancement.

Although subsequent studies investigating stress in the American university sector have generally been restricted to single institutions relying on small samples, the stressors identified by Gmelch et al. (1984) above are recurring themes. Time constraints are invariably highlighted as stressful by academic staff. Additional sources of academic staff pressure identified in literature include:

1. Poor faculty communication
2. Interpersonal conflict
3. Lack of human and technical support
4. Role ambiguity; role overload
5. Finding time for research
6. Too much paperwork
7. Striving for publication
8. Variability in demand through the academic year
9. The competing demands of career and family life
10. Long working hours – both on and off campus (Blix et al., 1994; Brown et al., 1986b; Goldenberg & Waddell, 1990; Lease, 1999; Narayanan et al., 1999; Sorcinelli & Gregory, 1987).

Sixty-six percent of respondents to a survey conducted by Blix et al. (1994) perceived "severe" levels of stress at work at least half of the time, with 'heavy work load' and 'research-related activities' being cited as the most significant stressors. They

argue that the degree of stress and professional disillusionment revealed in their study has potentially serious consequences for higher education in the United States.

Research in Australia

Australia has also contributed to the body of knowledge related to sources of stress. Longitudinal research was commissioned with the aim of monitoring changes in the work roles and values of Australian academics. McInnis (1999) reported on a study of 2,609 academic staff from 15 universities in five states, and compares his findings with a study conducted in 1992. He noted that while the level of job commitment reported by respondents remained generally high, there was a significant decrease in job satisfaction, and a significant increase in the proportion of workers who indicated that their jobs were a source of considerable stress. It was observed that, on the whole, academics working on a full-time basis were considerably more stressed and less satisfied than casual or part-time workers. Working hours were generally considered to have increased substantially, with 40% of the sample working in excess of 50 hours per week. Among the activities thought to contribute most to this increase were:

1. Committee work
2. Providing academic and pastoral support for students
3. Seeking funds to support academic work
4. Creating course materials for new technologies.

Interestingly, it was observed that while more than one half of the sample (51%) reported that their work had for the most part taken over their lives, McIniss indicates that hours of work had no impact on job satisfaction and only a minor influence on self-reported stress.

Probably the most extensive research done to investigate various aspects of work-related pressure in academic staff has been done in the United Kingdom.

Research in the United Kingdom

Several studies have been conducted in the United Kingdom that investigated various aspects of work-related pressure on academic staff. Research has focused on working hours and the extent and nature of workloads, as well as working conditions and job characteristics considered as being the most and least stressful by the workforce. The potential impact of these factors has also been explored.

Working Hours

Several studies indicate that, on average, academic staff work considerably more hours than contracted. Research conducted on behalf of the Association of University Teachers (AUT) by Court (1996) on academics' use of time involved more than 2,500 lecturers and researchers from the 'old' university sector who kept work diaries during a term-time week and a vacation week. Findings revealed an average working week of almost 55 hours during term-time. Surprisingly, time spent on administrative duties outranked what might be considered the core academic activities of teaching and research. Almost half of all the personal research and scholarship reported by respondents was done outside 'office hours,' that is 9 a.m. to 5 p.m., Monday to Friday. In a subsequent study of the same sector by Kinman (1998), almost three quarters (72%) of respondents indicated that they now worked considerably longer hours than in recent years, and that working during evenings and weekends had become commonplace.

A study by Earley (1994) commissioned by the National Association of Teachers in Further and Higher Education (NATHFHE) also suggests that staff in the 'new' universities (particularly principal lecturers and departmental heads) tend to work more than their contracted hours. Thirty-eight percent of respondents estimated that their total workloads had increased by approximately one-quarter over the last 5 years, while a further 25% indicated an expansion of about one-third. The participants cited an increase in student enrollment as a contributing factor to longer working hours, but administration was also a key factor.

Although findings are not conclusive, work in the field of occupational stress has linked long working hours with psychological and physical health (Stevens, Faragher, & Sparkes, 1998). This relationship appears to be especially strong where average working weeks regularly exceed 48 hours, and when the individual perceives little job control (Sparkes, Cooper, Fried, & Shiron, 1997). In accordance with these findings, Kinman (1998) found that academics who worked over 50 hours per week, or indicated that they took work home on a regular basis, were significantly poorer in psychological health. Contrary to expectation, expressed, perceived work-related autonomy failed to moderate this relationship.

The Most Stressful Aspects of Academic Work

In a national study of attitudes to work undertaken by M. Brown (1996), university and college lecturers and researchers reported lower levels of satisfaction and job security. Over 50% of academics reported that their jobs stressed them "all," or "most" of the time. Unsatisfactory management practices were cited as the most significant stressor: 58% of respondents from higher education institutions blamed

management for the strain they experienced, compared to an average of 47% for the sample as a whole. One respondent in five admitted thinking about leaving the academic profession on a daily basis while an additional 20% thought about doing so at least once a week. Whereas this survey yielded interesting and valuable findings in terms of how United Kingdom academics feel about their jobs in comparison with other occupations, other studies have focused more specifically on the job characteristics and working conditions that are perceived to be stressful by the workforce.

High levels of self-reported stress, together with a number of specific job-related stressors, have been highlighted by two national surveys of academics. Earley (1994) reported that 45% of respondents working in the new universities admitted feeling stressed at work 'most of the time' or 'all of the time'. More than half of the sample found their workloads in general, the completion of paperwork and administration with little support, and poor communication systems to be 'stressful or 'very stressful'. Twenty percent of respondents wanted to leave the profession entirely, while a greater proportion (25%) wished to retire. The most commonly stated reason given for these responses was unacceptable levels of occupational stress. Another survey conducted by Kinman (1996), 2 years later than Earley (1994) in the new university sector, indicated that the most significant sources of pressure related to:

1. Lack of opportunity for promotion and advancement
2. Poor communication
3. Lack of opportunity and support for scholarly activity
4. Onerous amounts of administrative duties (Kinman, 1996).

Almost half of the respondents to this survey (49%) reported that they had seriously considered leaving the profession. In accordance with Earley's (1994) findings, those who wished to leave were more likely to perceive higher levels of occupational stressors and strains.

An investigation into workplace stress in seven British universities commissioned by the Association of University Teachers (AUT) (Cross & Carroll, 1990) provided evidence that stress is also a problem in the old universities. Over three-quarters of the sample believed that their jobs had become more stressful in recent years, while 62% expected them to become even more so in the future. The most commonly reported stressors were: inadequate salary, absence of promotion prospects, lack of public recognition of worth, and role conflict.

A comparison of Cross and Carroll's findings in 1990 with those obtained from a national survey of 782 academics from the same sector conducted 8 years later (Kinman, 1998) suggests that respondents were accurate in predicting that their jobs would become more stressful. Eighty-eight percent of respondents to the latter survey indicated that they found their jobs stressful, 90% agreed that their jobs had become more stressful over the last 3 years, while the sample was almost unanimous (92%) in anticipating even higher levels of job-related stress in years to come. A significant majority of respondents (74%) indicated that over the last 5 years their jobs had become more demanding and the general pace of their work had become too rushed. More specifically, academics expressed difficulty in coping with the volume of work and the diversity of tasks in the time available. Further sources of stress reported in this survey:

1. Lack of input in decision-making

2. Lack of opportunity for training and development
3. Information overload
4. Conducting high-quality research with limited resources
5. Teaching large numbers of students.

Sources of pressure experienced by United Kingdom academics have also been highlighted by smaller scale studies. A study conducted in the southeast of England by Daniels and Guppy (1994) found 'feeling that the organization does not care for its staff' and 'inadequacy of resources' to be the most frequently occurring stressors. Jackson and Hayday (1997), who examined the gap between desired and perceived work-related features in a northern university, also highlighted the central importance of feeling valued at work, although job security and 'doing a worthwhile job' were also among the most desirable features nominated by respondents. Findings revealed that, while 85% of the sample reported that they experienced a 'good' degree of job security and 75% believed that they were doing a worthwhile job, less than 50% felt valued at the institution.

Role Overload

Role overload is a job characteristic that has long been associated with stress in the workplace (French & Caplan, 1973). Based on studies conducted at Scottish universities, Fisher (1994) suggests that role overload has become a particularly salient stressor for the modern academic, as the work encompasses many different, often conflicting, roles. Staff are "expected to teach, meet tutorial, laboratory or seminar commitments, and at the same time carry out research, run experiments, obtain funding and write papers and books" (p. 33).

Lease (1999) also found that her sample of American academics experienced comparatively high levels of role overload, and claimed they were often overwhelmed by their workloads, while still indicating that their careers were progressing as well as expected.

Workload

Yuker, in 1974, in presenting his seminal review of the literature on faculty workload demonstrated the complexity of the concept and the ways to measure it. One of his conclusions was that "in view of the varying opinions, it will be impossible to define total faculty workload in a way that everyone would find satisfactory" (p. 9).

According to Yuker (1974), in a very narrow definition, workload is the number of classes and the number of students. This is the simplest way to measure faculty workload. In general, external state and governmental agencies monitor workload using this type of indices (Miller, 1994; Winkler, 1992). Within academic circles, however, workload is calculated with quantity and quality parameters in teaching, research, and service, thereby generating a source of friction between academia and governmental agencies in regard to the measurement of workload (Seaberg, 1998).

Teaching, research, and service are interrelated in many ways, and their relationship has been the subject of numerous investigations (Krahenbuhl, 1998; Massy & Zemsky, 1994). Different types of institutions allocate a different percentage of time to each component, in accordance with their mission and objectives (Mancing, 1994; Winkler, 1992).

Academic workload, emulating similar situations in the business and organizational world, has seen both a quantitative and qualitative increase. Quantitative

overloading occurs when a teacher has more work to do than he or she can complete in a given time. Qualitative overloading occurs when the teacher lacks the skills or abilities needed to complete the teaching commitment satisfactorily (Stoner & Wankel, 1986). Laabs (1999) contends that what was once considered crisis-mode has now become business as usual.

Academic workload is increasing internationally as a result of efficiency measures achieved by a decreasing workforce through voluntary attrition and non-replacement (Soliman & Soliman, 1997). Cage (1995) argues that, at Ohio State University, incentives for professors to retire early have caused the number of full-time professors to decline, forcing the ones still on campuses to work even harder.

A survey of 3,800 academic and non-academic staff in 14 higher education institutions found that the decline of tenured positions and the increase in prevalence of short-term or fixed contract work had sent levels of stress soaring (Tytherleigh, 2004). This seems to confirm Cage's (1995) earlier argument about the amount of work persons who are retained for tenure must do. On the other hand, state governments press for greater demands on productivity, in an effort to balance budgets (Winkler, 1992).

Added to this situation is the information overload experienced in the last two decades (Swenson, 1992), as well as new technological advances that require faculty training and use in new modes of learning delivery. This growing use of information technology in teaching presentations was a source of increased demands and possibly stress and burnout (Chalmers, 1998). A faculty survey (1998) conducted by the Higher Education Research Institute, at the University of California, Los Angeles, found that "keeping up with information technology" has proven to be stressful for 67% of college

and university professors. Even more recently, Cooperman (2003) highlights the fact that colleges and universities report a love-hate relationship with computers and technology. This information came out of findings in a study done by University of California, Los Angeles, which was administered to 33,785 faculty members, including some from that campus. While 87% of faculty members surveyed agreed that "student use of computers enhances learning," at the same time 67% say that keeping up with information technology is a source of stress. It was also pointed out in that survey that only time pressures, household responsibilities, and institutional 'red tape' top technology stress. Attention will need to be given to this new phenomenon so that the students can benefit from technology while at the same time the teachers' well-being can be safeguarded.

Regarding an increased workload, Jordan and Layzell (1992) have found that teachers in Arizona work between 50 and 60 hours per week. Altbach (1995) shows that in 1992 academics in the U.S. spent a median of 18.7 hours teaching compared to Sweden, 15.9; Germany, 16.4; Japan, 19.4; and England, 21.3. England has seen the use of many voices in academia criticizing this situation.

Several studies show that university faculty work between 52 and 57 hours per week (Jordan, 1994), devoting 56% on teaching, about 16% on research, and the remainder of the time on other activities (Jordan, 1994; Russell, 1992). A study in Virginia, in 1991, resulted in a figure of 52 hours per week of average work for university faculty (Winkler, 1992). Since 1977 faculty increased their workload by about 10 hours. They worked an average of 42 to 44 hours per week (American Association of University Professors, 1994). This situation disputes the claim that faculty work too few hours and substantiates the fact that workload is a source of stress among academics.

The experience of work overload is not endemic to only British and American teachers. Chan and Hui (1995) explored teacher burnout in a study of 415 Chinese secondary school teachers in Hong Kong. They observed that previous studies in Hong Kong have indicated that one of the major sources of stress was having too heavy a workload. Many teachers in Hong Kong have been given additional duties in school guidance work as part of moves to improve the quality of guidance in Hong Kong schools. As such, in their study they looked to see if these guidance teachers reported more stress than do non-guidance teachers. Surprisingly, they found that despite the guidance teachers reporting a higher level of workload, they did not report a higher level of burnout. Moreover, they reported a greater sense of personal achievement compared to non-guidance teachers. They found that guidance teachers are teachers who value this type of work. As such this study suggests that even in the context of feeling overloaded, taking on additional duties in a valued area of work need not create more stress, and may indeed enhance job satisfaction. Similarly, Doyle and Hind (1998) found that pedagogue activities, together with other aspects of academic work involving contact with students, consistently obtained the lowest rating of all personal stressors. Similarly only 15% of Abouserie's respondents (1996) rated contact with students as being stressful. As opposed to being a source of stress, there is evidence that involvement with students might be a protective feature for teachers and academics.

Workload and Stress Among Staff

Attention will now be given to staff and workload. This category of workers appears to experience stress related to workload. According to Gelston (1995), clerical/secretarial staff found that the job has changed since they started working. They

claim that more responsibility has been added and they are expected to increase their computer skills. Added to this, is the fact that although they acquired the new computer skills through their own initiative, they did not receive salary increments. This was particularly stressful as they were the main financial providers in their homes. Other sources of stress highlighted were that career progression appears confused and they felt that pay, promotion, recognition for their work and feelings of worth were neglected.

Gillespie, Walsh, Winefield, Stough, and Dua (2001), in studying occupational stress in Australian universities, found that both general and academic staff were experiencing more stress than they did 5 years ago. However, they claimed that academic staff experienced greater levels of stress than did general staff. Stress was due to workload, poor management practices, job insecurity, and insufficient recognition and reward.

Devereaux (2002) researched health and well-being in the workplace across a wide range of occupations in the UK and found a significant variation across professions in the extent of stress in the workplace. Those who suffered the greatest degree of perceived job stress include managers, process plant and machine operatives. The occupations with lowest degree of job stress include professional, administrative and secretarial staff.

Consequences of Stress

Much has been written about the consequences of stress. Different individuals or groups respond differently to stress.

Kinman (1998) stated that research has demonstrated that work-related stressors can have a wide-ranging negative impact on the individual. She added that strain is observable at several different levels including:

1. Cognitive: poorer quality decision making, lower levels of creativity, impaired memory
2. Behavioral: absenteeism, poor time management, substance abuse, irritability
3. Physical: headaches, digestive disorders, cardiovascular disease
4. Psychological: depression, anxiety, and low self-esteem.

Occupational stressors are also commonly linked with lower levels of job satisfaction and higher turnover. This section will focus on the impact of stress on psychological health, physiological and mental health effects of stress, economic consequences of stress, stressors and job performance, the spouses' perspective, and stress and job satisfaction.

Stress and Psychological Health

The negative impact of stressors on the psychological health of academics has also been documented. In comparison with other professions and with the general population, levels of self-reported psychological well-being are generally low. An epidemiological study of suicide conducted by Kelly, Charlton, and Jenkins (1995) suggests that a university academic staff member is at about 50% greater risk than the average worker. In a national survey of working conditions conducted by Millward-Brown (1996), university lecturers reported the lowest levels of self-reported psychological health of all 20 occupations included.

Studies that have been conducted in United Kingdom universities also highlight low levels of psychological health among the workforce. Doyle and Hind (1998) found levels of 'burnout' in a sample of nearly 600 academics comparable with those reported by members of the medical profession (generally considered to be a highly stressed group). A diary study conducted in two Scottish universities in 1998 revealed a higher incidence of self-reported depression and anxiety than the general population (Fisher, 1994). Research by Kinman (1998) reported that 53% of a sample of 782 academics from British universities achieved what are considered to be 'caseness' levels of psychological ill health, where some degree of intervention is recommended. This proportion should be compared with that quoted in the British Household Panel Survey (BHPS) that used the same questionnaire, where an overall caseness rate of 27% was reported for the general population (Taylor, Brice, Buck, & Prentice-Lane, 1999). The incidence of self-reported psychological ill health found in Kinman's study is significantly greater than that obtained from, for example, studies of managers and various other professionals (Mullarkey, Wall, Warr, Clegg, & Stride, 1999). Interestingly, the mean score obtained in this study is also significantly higher than that found by Rick and Guppy (1994) within a white-collar public organization during a time of crisis.

Studies highlighted in this section clearly articulated relationships between perceptions of stressful working conditions and strains such as impaired job performance, job dissatisfaction, and psychological ill health. Consideration will now be given to work-home effects of stress on academic life.

Work-Home Conflict and Its Impact on Academic Staff

It is not surprising that academic staff report difficulty in maintaining firm boundaries between the workplace and the home, as, for many, it appears that the home is an extension of the workplace. More than half of the respondents (58%) to Kinman's study (1998) reported that they commonly worked during evenings and weekends. A high proportion of the sample (67%) indicated that their work encroached more into other life domains than ever before and, unsurprisingly, a similar proportion (67%) reported that a healthy work/home balance was becoming harder to achieve. The impact of academic life on non-working life was also highlighted by Harlow and Cantor (1994) who found that work-related worries and concerns tended to have a negative impact on respondents 'social lives,' such that satisfaction with the non-work domain had become contingent upon work-related events. A more serious outcome of work/home conflict is highlighted in a study of academics by Doyle and Hind (1998). One third of respondents indicated that their children and/or partners suffered as a result of their workload, and 13% believed it had been a contributory cause of breakdown of relationships.

While it is undoubtedly important to isolate the consequences of stress related to psychological health as experienced by the workforce, in order to properly inform policy and practice on stress at the workplace, it is also necessary to give attention to the physiological effects of stress.

Physiological and Mental Effects of Stress

Focus will be given to the effects of stress in this section, especially as to how this relates to physical and mental well-being.

Dunham (1980) did an exploratory comparative study in two West German and two English comprehensive schools in a quest to ascertain teachers' responses to stress. The teachers completed a checklist of stress responses and identified their stress responses by interview. The findings suggest that the English and German teachers reacted to stress in almost identical ways. For example, reports of frustration were experienced and expressed as irritation, anger, and indirect forms of aggression. Frustration was also associated with the development of psychosomatic symptoms that included stomach upsets and body rashes with feelings of depression where the frustration in the school has been prolonged. Anxiety was considered a major emotional response to stress.

Cox (1975), in his 'physiological model,' concentrated on the identification and measurement of the manifestation of stress in the individual. He observed that physical symptoms associated with stress included increased heart rate, digestive disorders, and sleep loss. There were also other psychological symptoms associated with stress such as tension, anxiety, fear, and discomfort. The writer points out that while it is possible to identify individuals who respond to stress in certain ways, the concern continues to be why certain individuals become stressed while others do not.

Kyriacou (1987) reports on an international review that related to teacher stress and burnout. The review was done because of the mounting evidence that prolonged occupational stress can lead to both mental and physical ill health; a general concern to improve the quality of teachers' working lives; and a concern that stress and burnout may significantly impair the working relationship a teacher has with pupils and the quality of teaching and commitment he or she is able to display.

A number of methods were employed in measuring the effects of stress, including the Maslach Burnout Inventory and Teacher Event Stress Inventory. Physiological measures have also been widely used, involving, for example, monitoring heart rate and analysis of urine as have behavioral measures based on indices such as stuttering, facial expression, resigning from teaching, and absenteeism. However, none of these measures—physiological or behavioral—have been conclusive in providing an unequivocal objective measure of stress and burnout. Kyriacou (1980) concludes that there is no evidence generally of greater stress-related ill health, either mental or physical, among teachers compared to other professions such as medicine and nursing.

The Education Service Advisory Committee (ESAC, 1990) working party in studying the effects of stress in teachers stated that stress can result in a range of unpleasant emotions such as tension, frustration, anxiety, and depression. These, they claim, can lead to a lack of interest at work and reduced job satisfaction, which combine to worsen performance. Self-confidence, which is an essential for successful teaching, can also be severely eroded. The ESAC further articulated that stress might cause such symptoms as headaches, indigestion, and muscle tension. They point out that over a longer period, it may also contribute to chronic health problems such as raised blood pressure, heart disease, and stomach ulcers. They add that responses to stress vary, both with individuals and over time. Some individuals, they claim, may primarily experience physical symptoms while others may experience psychological disturbance.

Stress authors, such as Aikman and McQuade (1974), Anderson (1978), Blythe (1973), and Dohrenwend and Dohrenwend (1973), have all noted that stress has

physiological effects on a number of basic components of the body. These include immune system, the cardiopulmonary system, and the gastrointestinal system.

Stress and Immunity

Aikman and McQuade (1974) and Stein and Schleifer (1985) observed that stress has a very negative effect on the immune function. An extensive network of the central nervous system and endocrine system processes may be responsible for the modulation of the immune system in reaction to stressors, which in turn may change the development, onset, and course of a range of illnesses. Stress has also been associated with cancer causation, because it depresses the immune response, a body's natural means of defending itself. According to Anderson (1978), the function of the immunologic system can be influenced by stress and emotions through the nervous system and productions of hormones. Anderson (1978) further indicated that there is considerable data linking personality factors, stress, and failure of psychological adaptations to the onset of cancer, infectious disease, and autoimmune disease (rheumatoid arthritis, systemic lupus, acquired hemolytic anemia, and pernicious anemia).

Cardiopulmonary System

Mental stress or stressful life has been associated with stimuli causing elevated blood pressure (Falkner, Onesti, Angelakos, Fernandes, & Langman, 1978; Zales, 1984). Anderson (1978) observed that the significant thing about high blood pressure is that its continuance over long periods causes damage to the circulatory structures of the heart, and kidney damage. Dohrenwend and Dohrenwend (1973) and Zales (1984) indicated that many rapid and irregular heart-beats in which no structural disease of the heart

muscle or blood vessels is apparent may be the result of stress in an individual's life experience.

According to Aikman and McQuade (1974, p. 21), when a person feels threatened, even by such a minor sensation as stage fright, it is the cardiovascular system that most clearly responds in changing the entire tempo of the body. The pulse rate increases, blood pressure rises, and the hands turn cold as blood is diverted from the skin to the vital organs.

Gastrointestinal Disturbances

Studies of gastrointestinal diseases have revealed that a relationship exists between stress and ulcers (Engel, 1956). Other studies have identified that people who are highly competitive, workaholics, and those generally experiencing frustration or stress in expressing their feelings, and those with aggressive behaviors have a tendency to develop peptic and duodenal ulcers (Elliott & Eisdorfer, 1982; Nuernberger, 1981). Nuernberger (1981) in expanding on the consequences of personality characteristics stated:

> The traits result in an overly acidic condition in the gastro-intestinal tract. Poor eating habits further aggravate the internal condition (interfering with proper digestion), and the overly acidic internal environment "eats away" at the lining of the stomach wall, or duodenum, thus creating an ulcer. This, besides being extremely painful, can lead to such dangerous complications as internal bleeding. (p. 8)

Excessive hypothalamic nervous stimulation occurring from stress inflexible response patterns and from insufficient bulk in the colon has been associated with excessive bowel activity. The problem of diverticulitis is related to prolonged and excessive bowel activity (Elliot & Eisdorfer, 1982; Levi, 1973).

Economic Consequences of Stress

Because stress is so widespread, it has created very high costs for individuals, companies, organizations, and society. For the individual, in addition, to the devastating impact on the serious health impairments, the loss of capacity to cope with working and social situations can lead to less success at work, including loss of career opportunities and even employment. According to Hallman (2003), it can give rise to greater strain in family relationships and with friends. Additionally, Hallman states that for a company or an organization, the costs of stress may take many forms. These include absenteeism, higher medical costs, and a higher staff turnover rate, with the associated cost of recruiting and training new workers. It has also been shown that stress takes a heavy toll in terms of reduced productivity and efficiency.

The following, she states, are recent estimates, which relate to the cost of work-related stress:

1. In the United Kingdom it has been suggested that over 40 million working days are lost each year due to stress-related disorders.

2. In Australia, the Federal Assistant Minister for Industrial Relations estimated cost of occupational stress to be around $30 million in 1994, and the amount continues to increase.

3. In the United States, over half of the 550 million working days lost each year due to absenteeism are stress-related.

Stressors and Job Performance

Occupational stress has long been associated with impaired job performance. Specifically, strong associations have been found between role stressors such as ambiguity, conflict, and overload and performance at work (Sullivan & Bhagat, 1992).

Findings of studies suggest that these relationships are not simply cause and effect, and stressors are likely to exert a more indirect impact on performance. This is evidenced through:

1. Physiological and/or psychological factors such as depression, anxiety, and tiredness engendered by long working hours

2. Cognitive and or motivational factors such as impaired concentration, problem solving and decision making, lower levels of involvement, perseverance, flexibility, and personal organization

3. Inter-personal factors that include reduced levels of sensitivity, warmth, consideration, altruism, and tolerance (Barling, Cheung, & Kelloway, 1996; Daniels, 1999; Motowidlo, Packard, & Manning, 1986).

Studies investigating the consequences of stress on academics have found strong inverse relationships between perceived work stress and a range of cognitive functions such as creativity, problem-solving, decision-making, and concentration (Stead, Fletcher, & Jones, 1996; Kinman, 1996, 1998). While these capabilities are desirable in the majority of professions, they are also vital aspects of high-quality teaching and researching. It is not surprising that self-reported stress has been related to individual perceptions of impaired performance at work, in both teaching and research activities (Blix et al., 1994; Kinman, 1998) and, more objectively, to a general decrease in faculty

productivity (Wilke, Gmelch, & Lovrich, 1984). Klenke-Hamel and Mathieu (1990) found that academics who experience more stress than they believe they can cope with are likely to be less accessible to students, and be less involved in departmental decision-making and committee work. It is therefore to be expected that withdrawal from personal interactions with students and colleagues, and lack of input into faculty and institutional decision-making are likely to reduce perceptions of social support, job involvement, and autonomy, and consequently compound the negative impact of stressors on the individual (Sarafino, 1998).

The Spouses' Perspective

Stress can and does influence the home life of the college president. Often the spouse and children feel the effects of the president under stress (Vaughan, 1986). The author found that all spouses interviewed referred to the tendency of their spouse-president to become a bit more short tempered while under stress, a bit sharper with the children. One used sleep as a means of escaping stress; on the other hand, some cannot sleep while under pressure. Some spouses are the ones who lose sleep as a result of the strains on the president.

Vaughan (1986) added that while the stress-inducing factors as perceived by the spouses were not that different from those identified by the presidents, the spouses brought a perspective to the discussion that was not apparent from talking with presidents. The home environment feels some effects of stress. When it affects the home environment, according to Vaughan (1986), it can often set a vicious chain reaction into motion: the president feels stress; takes it home; the spouse and children feel the results; the home life then adds to the tension the president already feels; and a blow-up of sorts

often occurs, either at home, within the individual president, or, in some cases, at the office. The author concluded that the spouses agreed that the presidents were 'masters' at concealing stress from college personnel. On the other hand, he suggested that the spouse and the children are almost always able to detect when things are not going well for the president. The result is that stress is generated for all family members. As with other aspects of the problem, job-related home stress, if not kept in perspective, can become a major problem for those who occupy the presidency. It is evident from this report, that the consequences of stress span the entire workforce.

Stress and Job Satisfaction

Research has accumulated findings that link occupational stress with job dissatisfaction (Guppy & Rick, 1996; Sullivan & Bhagat, 1992). It is suggested that this is not simply a cause-and-effect relationship, but is rather likely to be more complex. While professionals might perceive high levels of occupational stress and express dissatisfaction with many extrinsic aspects of their jobs such as workload, pay and promotion prospects, there is evidence to suggest that they may still feel generally satisfied at work, providing certain intrinsic needs are met (Kacmar & Ferris, 1989). Research on university faculty tends to support this viewpoint. It appears that, on average, academic staff are enthusiastic about their work and obtain a significant degree of satisfaction, enthusiasm, and challenge from their jobs, as well as stressors and strains. This seeming duality has been illustrated by several studies. For example, respondents to a survey of 850 university workers claimed that they worked long hours, were overloaded with work, and lacked support, but almost three-quarters claimed to be satisfied or very satisfied with their jobs. Less than 7% expressed extreme dissatisfaction (Watts et al.,

1991). On the other hand, Doyle and Hind (1998) studied long working hours and high levels of burnout among a sample of university lecturers. Forty percent of respondents found their work intrinsically motivating, enjoyable, and potentially very rewarding. As well, Lease (1999) found that her sample of American academics experienced comparatively high levels of overload, and claimed that they were often overwhelmed by their workloads, while still indicating that their careers were progressing as well as expected.

Whereas some studies indicate that academics obtain satisfaction from certain areas of their jobs, the scale of job dissatisfaction, in comparison with other professions, was highlighted by two national studies. A survey by Millward-Brown (1996) in Britain found that lecturers and researchers in post-compulsory education reported the lowest levels of job satisfaction of all 20 occupational groups included. Job satisfaction profiled of 143 occupational groups in Britain analyzed by Rose (1999) placed "university and polytechnic teaching professionals" in the bottom 25% (as cited in Kinman & Jones, 2003, p. 3). The data indicate that the 30% of academics who were generally satisfied with their jobs were considerably more contented with intrinsic factors than more extrinsic rewards.

Evidence has also been provided that job satisfaction levels are eroding among the workforce, with potentially serious consequences for the well-being and retention of employees. In 1990, 48% of a sample of academics reported that they had found their jobs less, or much less, satisfying in the recent past (Cross & Carroll, 1990), whereas a survey conducted 8 years later reported that this proportion had increased to 73% (Kinman, 1998). In fact, 45% of respondents to Kinman's study had seriously considered

leaving academia, and a similar proportion regretted their choice of career. It was noted that, in general, academics who reported reduced levels of job satisfaction and commitment, who regretted their choice of career, or who expressed a wish to leave the sector, also evidenced higher levels of job-related stressors and strains.

Coping Strategies

As many schools of thought exist on coping with stress as there are different definitions of stress (George et al., 1986; McGuigan, 1983). George et al. (1986) pointed out that the most important decision in controlling stressors and stress reactions is a "personal willingness to change how you approach life and work in order to gain more control over the pressure you face, as well as forge a commitment to build up a repertoire of coping experiences and skills" (p. 21).

Adams (1980) in reflecting his view on effective stress management highlighted some of the primary mediators of stress such as: "individual's personality, inherited characteristics and past history, the quality of interpersonal support inherent in his or her environment and the nature of the organization" (p. 201). These he claimed are very difficult to change. He therefore suggested that self-management, creation and use of supportive relationships, and organization improvement are ways to manage those factors.

In commenting on self-management, Adams (1980) states that effective self-management requires a healthy lifestyle. Additionally, he indicated that employees within any organization must be willing to adapt to changes in life and in the organization for which they work in order to reduce the degree of stress in their lives. The changes in life that an individual must be willing to adapt to, according to Adams (1980), are: good

nutrition habits, good exercise habits, self-awareness, "letting-go techniques", and personal planning. Good nutrition habits, he opines, include balanced diet, regular meals, maintaining recommended weight, moderate use of alcohol and caffeine, and no smoking.

Regular, aerobic exercise to improve cardiovascular fitness and regular recreational exercise for tension reduction and diversion constitute good exercise habits. He stressed that self-awareness includes such aspects as an understanding of personal needs, preferences, and idiosyncrasies. Assertive behavior and role negotiation are other features considered to constitute self-awareness. He suggests that "letting-go techniques" also serve to manage stress, and these include regular relaxation habits, seeking closure on task, and interpersonal situations, or generally finishing "unfinished" business.

Finally, Adams (1980) articulates that personal planning is another effective way of managing stress. This can be accomplished, he states, through effective time management on a regular basis and through life and career planning for the long term.

Literature abounds with other suggestions on how people cope with stress. Pinpointing, identifying, and recognizing the sources of stress are cited over and over as a most important stress controller (Collins, 1981; Hendrickson, 1979; Kyriacou, 1981; Leffingwell, 1979; Weiskopf, 1980). Broder (1979), Goodall and Brown (1980), Harlin and Jerrick (1976), and Moe (1979) suggest that a person who is experiencing stress should be kind and good to himself/herself; for example, buy a new outfit, go to a movie, go out to dinner or any other fun activity. In other words, he or she deserves it!

Getting away, taking a day off, going on vacation, or even taking a leave of absence from teaching are other techniques suggested to help cope with stress (Alley,

1980; Calhoun, 1980; Kossack & Woods, 1980; Moe, 1979; Weiskopf, 1980). Weiskopf (1980) further suggests that people who are undergoing stress should avoid isolation, and should instead interact with people who they consider to be fun and interesting to be around. Another suggestion is for stressed teachers to try to break up the amount of time of direct contact with their students by such measures as team teaching and establishing learning centers (Weiskopf, 1980). One who is experiencing stress in his or her life should avoid people and situations that are depressing and toxic (Collins, 1981; Goodall & Brown, 1980).

Physical exercise, such as isometrics and jogging, are also mentioned as effective ways of controlling stress (Alley, 1980; Anderson, 1980; Broder, 1979; Bry, 1978; Cochrane & Robertson, 1973; Freudenberger, 1977; Harlin & Jerrick, 1976). Establishing good eating and sleeping habits is essential to maintaining a healthy body and to preventing susceptibility to disease brought on by stress (Bloch, 1977; Broder, 1979; Calhoun, 1980; Collins, 1981; Harlin & Jerrick, 1976; Kossack & Woods, 1980; Moe, 1979). It is also suggested that learning effective relaxation techniques such as deep breathing, exercises, meditation, and yoga are also effective ways of coping with stress (Alley, 1980; Benson, 1975; Bry, 1978; Calhoun, 1980; Cochrane & Robertson, 1973; Goodall & Brown, 1980; Leffingwell, 1979; Pelletier, 1977; Selye, 1978).

Having considered how earlier writers articulate stress coping mechanisms, attention will now be given to how writers within the last decade relate to this issue. Kyriacou (2001) declares that individual coping strategies fall into two main types: direct action techniques and palliative techniques. Direct action techniques relate to activities that a teacher can do to eliminate the source of stress. This helps the teacher to

get a clear idea of what the source of stress is and then carrying out some form of action that will mean that the demands that are causing the stress can be successfully dealt with in the future or changing the situation in some way so that the demands no longer occur. Direct action techniques may involve simply managing or organizing one's self more effectively; it may involve developing new knowledge, skills, and working practices; it may involve negotiating with colleagues, so that aspects of one's situation are changed or dealt with by others.

Palliative techniques, according to Kyriacou (2001), do not deal with the source of stress itself, but rather are aimed at lessening the feeling of stress that occurs. Palliative techniques can be mental or physical. Mental strategies involve the teacher in trying to change how the situation is appraised. Physical strategies involve activities that help the teacher retain or regain a sense of being relaxed, by relieving any tension and anxiety that have built up.

Studies of how teachers cope with stress, according to Borg and Falzon (1989), Cockburn (1996), and Benmansour (1998), indicate that the most frequent coping actions used by teachers are:

1. Try to keep problems in perspective
2. Avoid confrontations
3. Try to relax after work
4. Take action to deal with problems
5. Keep feelings under control
6. Devote more time to particular tasks
7. Discuss problems and express feelings to others

8. Have a healthy home life

9. Plan ahead and prioritize

10. Recognize one's own limitations.

It can be observed that the aforementioned list reflects the mix of direct action and palliative techniques described earlier. The list reflects results of a study by Griffith, Steptoe, and Cropley (1999) who conducted a questionnaire survey of 780 primary and secondary school teachers in London. Their data indicate that both the presence of social support and the use of effective coping behavior can affect the teacher's perception of stress. Their findings highlight the importance of recognizing that a teacher's perception of stress is real for that person. Their findings also indicated the importance of recognizing that a teacher's perception of the demands made upon him or her is itself influenced by the degree of stress being experienced and that social support and successful coping can create a virtuous circle whereby the same 'objective' situation can begin to appear to be less demanding to the teacher.

As well as individual coping actions that a teacher can take, a number of studies have highlighted the importance of working in a school where a positive atmosphere of social support exists (Punch & Tuetteman, 1996; Sheffield, Dobbie, & Carroll, 1994). This enables the teacher to share concerns with one another, which can lead to helpful suggestions that, if implemented, could help to alleviate the sources of stress. Often, simply sharing problems or engaging in some social activity with colleagues during break periods can effectively help to dissipate the feelings of stress.

Kyriacou (2001) points out that teachers and senior managers in school also need to give thought to the way in which they may be creating unnecessary sources of stress

through poor management. He declares, for example, that a senior manager can set unrealistic targets for the completion of certain tasks or fail to communicate adequately with others, which then gives rise to unavoidable problems.

A very important development in reducing teacher stress comes from the need to think more in terms of what characteristics make for healthy organizational functioning and then to develop individual and organizational practices to come into line with these, so that staff stress can then be reduced almost as a by-product of this (Cartwright & Cooper, 1997; Education Service Advisory Committee, 1998; Rogers, 1996). Characteristics of a healthy school are:

1. Good communication between staff
2. A strong sense of collegiality
3. Management of decisions based on consultation
4. Consensus established on key values and standards
5. Whole school policies in place
6. Role and expectations clearly defined
7. Teachers receive positive feedback and praise
8. Good level of resources and facilities to support teachers
9. Support available to help solve problems
10. Policies and procedures that are easy to follow
11. Red tape and paper work is minimized
12. Additional duties are matched to teachers' skills
13. Building environment is pleasant to work in
14. Senior management makes good use of forward planning

15. Induction and career development advice given.

In addition, some schools are able to make counseling services available to members of staff who are experiencing high levels of stress. The writers indicate that an important innovation in the United Kingdom has been the establishment of a telephone 'helpline' for teachers, called 'teacherline'. This service, which is funded by the government, local education authorities, and teacher rations, enables any teacher to receive free telephone counseling for stress-related problems.

Additionally the writers pointed out that over the years a number of teachers have taken part in in-service workshops aimed at helping them to reduce their level of experienced stress. Such workshops, they explained, typically focus on helping teachers to develop a mix of direct action and palliative techniques and also helping teachers individually and the school as a whole to develop methods of working which will minimize the occurrence of unnecessary sources of stress. A common feature in such workshops is training in the use of relaxation exercises that gives temporary or partial relief. Rogers and Hudson (1995) have argued that a key feature in prolonging the experience of stress is a tendency for emotional rumination and thereby enabling palliative techniques to be more effective. However, they assert that the most important thing to recognize about effective coping strategies is that each teacher has to discover what strategies work best for them.

This observation concurs with what Selye (1976), the 'father of stress,' articulated years ago:

> It must be clearly understood that there is no ready-made success formula, which would suit everybody. We are all different. The only thing we have in common is our obedience to certain fundamental biological laws, which govern all men. I think the best the professional investigation of stress can do is to explain the mechanism of stress

> as far as he understand it; then, to outline the way he thinks this knowledge could be applied to problems on daily life; and, finally, as a kind of laboratory demonstration to describe the way he himself applied it successfully to his own problem. (p. 54)

Summary

This chapter presented the review of literature related to the levels of stress that individuals experience and also described the relationship of the demographic variables gender and years of employment to this phenomenon.

The review included an in-depth presentation of sources of stress. Attention was focused on research done in the United States of America, United Kingdom, and Australia. Quite an array of stressors emerged from these studies. Common stressors include role overload, long working hours, and role conflict, pressure to obtain money for research, inadequate salary, and poor faculty communication.

Consequences of stress also merited attention, in this review, considering that these can have wide-ranging impact on the individual in terms of job performance, job satisfaction, and both the physiological and psychological health.

Finally, coping strategies were considered. The conclusion is that the most important thing to recognize about effective coping strategies is that each worker has to discover what strategies work best for him or her, as there is no ready-made formula that would suit everybody.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

The review of literature articulated information related to the levels of stress that individuals experience and also described the relationship of the demographic variables of gender, years of employment, age, and marital status to this phenomenon.

The purpose of the study was to investigate levels of stress among staff and faculty of Northern Caribbean University and to find out how this relates to gender, years of employment, age, marital status, sources of stress, and coping strategies.

This chapter provides insight on the research methodology that was used, detailing the research design, the sample, the instrument used, the hypotheses, the procedures for gathering and analyzing the data obtained.

Research Design

The study was a non-experimental design. According to Voigt (1993, as cited in Brown, 1996), a non-experimental design is a research design in which the researcher observes or measures objects without altering or controlling the situation. The survey method was used to obtain the perception of the members and faculty and staff on the Northern Caribbean University Campus. A standardized questionnaire was used. This

was the Occupational Stress Inventory (OSI). It assessed occupational stress levels among faculty and staff, sources of stress, and coping strategies.

This study attempted to answer the following questions already presented in chapter 1.

1. What are the sources of stress among faculty and staff at NCU?
2. Are the sources of stress related to gender, age, marital status, years of employment, and employment status (faculty versus staff)?
3. What are the types of stress among faculty and staff at NCU?
4. Are the types of stress related to gender, age, marital status, years of employment, and employment status (faculty versus staff)?
5. What are the coping strategies for stress do faculty and staff at NCU use?
6. Are coping strategies related to gender, age, marital status, years of employment, and employment status (faculty versus staff)?
7. What is the relationship between sources of stress and coping strategies?
8. What is the relationship between types of stress and coping strategies?

Population and Sample

The whole population of faculty and staff at Northern Caribbean University was invited to participate in the study. Thus no sampling technique was used. In that way sampling error would have been eliminated. A good response was anticipated, especially as colleagues promised their participation. This did not materialize. Table 1 presents the sample.

Table 1

Sample Subgroups at Northern Caribbean University

	N	*%*
Administrators	38	11
Instructors	239	68
Secretarial staff	47	13
Accountant	17	5
Support staff	9	3
Total	**350**	**100**

Participation in the study was completely voluntary. Three hundred and fifty questionnaires (OSI) were distributed to workers. Of the 350 questionnaires disbursed, the number who participated was 117, which was a return rate of 34%.

Instrumentation

The Occupational Stress Inventory (OSI), a standardized instrument, was used to collect the data. It measures the three dimensions of occupational adjustment: occupational stressors, psychological strain, and coping resources in working adults employed in technical, professional, or managerial fields. Permission was sought and received from Psychological Assessment Resources, Inc., to use this instrument (Appendix B).

The Occupational Stress Inventory (OSI) consists of three questionnaires. These are the Occupational Roles Questionnaire (ORQ), Personal Strain Questionnaire (PSQ), and Personal Resources Questionnaire (PRQ) (Appendix D).

The Occupational Roles Questionnaire (ORQ) is used to measure sources of stress and consists of six subscales. These are Role Overload, Role Insufficiency, Role

Ambiguity, Role Boundary, Responsibility, and Physical Environment. Sixty items constitute this questionnaire.

Levels of stress are measured by the Personal Strain Questionnaire (PSQ). This questionnaire consists of 40 items and these are grouped under four subscales. These are Vocational Strain, Psychological Strain, Interpersonal Strain, and Physical Strain.

The Personal Resources Questionnaire (PRQ) is used to measure coping resources. Forty questions and four subscales constitute this questionnaire. The subscales are Recreation, Self-care, Social Support, and Rational/Cognitive coping. Items for all three questionnaires are scaled along a 5-point modified Likert Scale for 1 (rarely or never true) to 5 (true most of the time). Definition and context for interpretation of the various variables were measured by the Occupational Stress Inventory (OSI) follow.

Occupational Stress Inventory Scale Descriptions and Possible High Score Interpretation

The Occupational Roles Questionnaire (ORQ) consists of 60 items which measure six subscales. These are Role Overload, Role Insufficiency, Role Ambiguity, Role Boundary, Responsibility, and Physical Environment.

The subscale Role Overload measures the extent to which job demands exceed resources – both personal and in the workplace, and the extent to which the individual is able to accomplish workloads. High scores may describe their workload as increasing, unreasonable, and unsupported. They may describe themselves as not feeling well trained or competent for the job at hand, needing more help, and/or working under tight deadlines.

Role Insufficiency measures the extent to which the individual's training, education, skills, and experience are appropriate to job requirements. Persons with high scores may report a poor fit between their skills and the job they are performing. They may also report that their career is not progressing and has little future. Needs for recognition and success may not be met. They may report boredom and/or underutilization.

Role Ambiguity measures the extent to which priorities, expectations, and evaluation criteria are clear to the individual. High scorers may report an unclear sense of what they are expected to do, how they should be spending their time, and how they will be evaluated. They seem not to know where to begin on new projects and experience conflicting demands from supervisors. They also may not have a clear sense of what they should do to "get ahead."

Role Boundary measures the extent to which the individual is experiencing conflicting role demands and loyalties in the work setting. Persons who score high on this subscale may report feeling caught between conflicting supervisory demands and factions. They may report not feeling proud of what they do. They may also report being unclear about authority lines and having more than one person telling them what to do.

The subscale, Responsibility, measures the extent to which the individual has, or feels, a great deal of responsibility for the performance and welfare of others on the job. High scorers may report high levels of responsibility for the activities and work performance of subordinates. They are sought out for leadership and frequently have to respond to others' problems. They may also have poor relationships with people at work or feel pressure from working with angry or difficult employees or the public.

Physical Environment, the final subscale in the Occupational Roles Questionnaire, measures the extent to which the individual is exposed to high levels of environmental toxins or extreme physical conditions. High scorers may report being exposed to high levels of noise, moisture, dust, heat, cold, light, poisonous substances, or unpleasant odors. They may also report having an erratic work schedule or feeling personally isolated.

The Personal Strain Questionnaire (PSQ) is made up of 40 items, which measure four subscales. These are Vocational Strain, Psychological Strain, Interpersonal Strain, and Physical Strain. Vocational Strain measures the extent to which the individual is having problems in work quality or output. It also measures attitudes toward work. High scorers may report poor attitudes toward their work, including dread, boredom, and lack of interest. They may report errors in their work and that the quality of their work is suffering. Concentration problems and absenteeism may be present.

The subscale Psychological Strain measures the extent of psychological and/or emotional problems being experienced by the individual. Persons scoring high on this subscale may report feeling depressed, anxious, unhappy, and/or irritable. They may also complain about little things, respond badly in routine situations, and have no sense of humor.

Interpersonal Strain is the subscale that measures the extent of disruption in interpersonal relationships. High scorers may report frequent quarrels or excessive dependency on family members, spouses, and friends. They may also report wanting to withdraw and not having time to spend with friends.

Finally, the subscale Physical Strain measures complaints about physical illness and/or poor self-care habits. Persons scoring high on this subscale may report frequent worries about their health as well as a number of physical symptoms such as, cold, heart palpitations, aches and pains, and erratic eating habits. They may report unplanned weight change, abuse of alcohol, and disturbances in sleeping patterns.

The subscales Recreation, Self-care, Social Support, and Rational/Cognitive Coping constitute the Personal Resources Questionnaire. Forty questions make up this questionnaire.

The subscale Recreation measures the extent to which the individual makes use and derives pleasure and relaxation from regular recreational activities. Persons who score high on the questionnaire may report that they take advantage of the recreational/leisure time coming to them and engage in a variety of activities that they find relaxing and satisfying. They also may report doing the things they most enjoy in their spare time.

Self-Care measures the degree to which the individual regularly engages in personal activities, which reduce or alleviate chronic stress. High scorers may report that they regularly exercise, sleep 8 hours per day, are careful about their diet, practice relaxation techniques, and avoid harmful substances such as alcohol, drugs, tobacco, and coffee.

The subscale Social Support measures the extent to which the individual feels support and help from those around him or her. High scorers may indicate that they feel that there is at least one person they can count on, one who values and/or loves them.

They may report having sympathetic people with whom to talk and work out problems. The may also report feeling close to another individual.

Finally, the subscale Rational/Cognitive Coping measures the extent to which the individual possesses and uses cognitive skills in the face of work-related stressors. High scorers may report that they have a systematic approach to solving problems, think through the consequences of their choices, and are able to identify important elements of problems encountered. They may report being able to set and follow priorities and having techniques to avoid being distracted. They put their jobs out of their mind when they go home and feel that there are other jobs besides their present one that they can do.

Interpretative Guidelines

The interpretative guidelines indicate that for the ORQ and PSQ scales, high scores suggest significant levels of occupational stress and psychological strain, respectively. Because scores above 70*T* occurred in only approximately 2% of the normative sample, scores at or above 70*T* indicate a strong probability of maladaptive stress, debilitating strain, or both. Scores in the range 60*T* to 69*T* suggest mild levels of maladaptive stress and strain. Scores in the range of 40*T* to 59*T* should be interpreted as being within the normal range. Scores below 40*T* indicate a relative absence of occupational stress or psychological strain.

For the PRQ scales, high scores indicate highly developed coping resources. For these scales, scores below 30*T* indicate a significant lack of coping resources. Scores in the range of 30*T* to 39*T* suggest mild deficits in coping skills. Scores in the range of 40*T* to 59*T* indicate average coping resources, whereas scores of 60*T* and above indicate increasingly strong coping resources.

Raw scores were transferred to the gender profile form to facilitate calculation of *T* scores.

Validity

The validity data for the OSI are derived from four principal sources. These are factor analytic studies, correlation studies of relationships of the scales to variables of practical and theoretical importance, studies using scales as outcome measures following stress of strain, and a coping model employing comparisons of selected criterion groups.

In looking at the OSI, it is noted that each of the three questionnaires (ORQ, PSQ, and PRQ) was separately subjected to a confirmatory factor analysis using a varimax rotation procedure (Osipow & Spokane, 1983). Six factors were found in the ORQ based on the item loadings. These are Insufficiency, Physical Stress, Overload, Ambiguity, Confusion, and Responsibility. The factor structure provides confirmatory evidence for the scales and accounted for 4% or more of the variance.

The factor structure for the PSQ suggested a somewhat different structure than represented by the scales and four factors accounting for 5% or more of the variance and are labeled as Exhaustion (physical or psychological), Physical Strain, Boredom, and Interpersonal Strain. A fifth factor was not interpretable.

The analysis of the PRQ produced five factors, which accounted for 6% or more of score variance. The first four factors are labeled Social Support, Recreation, Cognitive/Rational Coping, and Self-Care, and conform to the scales of PRQ. A fifth factor was not interpretable.

A second and independent confirmatory factor analysis (Alexander, 1983) tested the factor structure of the ORQ, PSQ, and PRQ. The analysis examined major factor

loading, greater than .30, and minor factor loadings, less than .30, assuming that confirmation of major loading factors would establish a legitimate scale. Alexander (1983) concluded that there was substantial agreement between the scales of the OSI and patterns of factor loadings.

Correlation and multivariate studies have employed the OSI as an experimental measure and provide evidence of the relationship between stress, strain, and coping and a variety of variables that form a network of relationships between stress and these work-related variables. The studies are organized by the variables examined and their relationship to stress, strain, and/or coping. Although there are exceptions (e.g., Golec, 1983), these studies provide moderate to strong support of the concurrent validity of the OSI.

Examples of correlation and multivariate studies were reported (Van Wagoner, 1985; Van Wagoner & Spokane, 1986). Van Wagoner (1985) developed a scale to measure nonproductive work behaviors and examined the relationship of this variable to stress as measured by the ORQ. The subjects consisted of 24 workers balanced among the six Holland types and two educational scales. Significant correlations were found between the nonproductive measure and all but one of the ORQ scales. These relationships were found to be linear.

Two studies (Higgins, 1986; Smith, 1987) used one or more of the OSI scales to assess the effectiveness of treatment to reduce occupationally induced stress or strain. In the first study (Higgins, 1986), two seven-session management programs were compared with a wait-list control condition. One treatment program was behavioral, employing progressive relaxation and systematic desensitization, whereas the second program was

cognitive and consisted of training in time management, rational emotive therapy, and assertiveness training. The subjects for the study were 53 adult female volunteers from a variety of backgrounds. Outcome measures in this study were the total score from the PSQ, the Emotional Exhaustion Frequency (EEF) scale from the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981), and an absenteeism index. A random assignment, pre-post, control group design was employed. Although the two treatments (behavioral versus cognitive) were equally effective, both treatments were significantly more effective than the waiting list control in reducing total PSQ and EEF scores.

In the second study (Smith, 1987) a computerized stress self-help program (Reitman, 1984) based on cognitive learning theory was used to reduce strain in adult males. Smith (1987) hypothesized that strain and state anxiety would decrease and coping increase in treatment group as compared to an untreated control group. He also hypothesized that stress and trait anxiety would remain unchanged, since role stress should be more a function of job environment than personal behaviors and trait anxiety should be unaffected by situational intervention. A significant decrease was found in total PSQ, as predicted, and a significant increase was found in total PSQ scores among subjects who completed the computerized self-help treatment. Also, as hypothesized and consistent with model prediction, there were no differences in reported total PSQ or trait anxiety scores.

The results of these treatment studies reveal that the PSQ and PRQ are sensitive outcome measures of treatment effects. The lack of change in stress scores, as opposed to strain scores, was predicted by the model (Osipow & Spokane, 1983) and suggests an important role for coping resources in stress reduction programs.

A study of the OSI model was one of the selected criterion group used to validate the instrument (OSI). In a series of three interrelated studies, Brown et al. (1986a, 1986b) and Brown (1987) drew a stratified random sample ($N = 268$) of faculty and student affairs staff who completed the ORQ, PSQ, and PRQ. Sub-samples were taken at three times during the spring academic semester (January; early March; early April). Three-factor ANOVAS (Role x Time of semester x Gender) revealed significant main effects for all three independent variables. For campus role, faculty was significantly higher than students on Role Overload, Responsibility, and Role Insufficiency. Women had significantly higher total PSQ scores than men. All subjects dropped in reported self-care at the beginning of the semester. Major stressors reported in open-ended questions for the faculty and student affairs group included time pressures, work overload, and interpersonal relationships. Subjects reported bodily signals and poor interpersonal relationships as primary indicators of their own stress, and reported that taking specific action and increasing exercise were their preferred coping strategies.

Reliability

An internal consistency analysis was completed using a sample of 549 working adults. Alpha coefficients for total questionnaire scores were .89 (ORQ), .94 (PSQ), and .99 (PRQ). Coefficients for individual scales ranged from .71 to .94. Alexander (1983) reported comparable internal consistency data on a sample of 155 military and civilian physicians.

Means, standard deviations, standard errors of measure, and alpha coefficients for the 14 scales comparable to internal consistency coefficients from Alexander (1983) are presented in Table 2.

Table 2

Means, Standard Deviations, Standard Errors of Measure (SEM), and Internal Consistency Reliability Coefficients (Alpha)

Scales	Number of items	Mean	*SD*	Alpha	SEM	Alpha
Role Overload	10	25.49	7.79	.83	3.21	.76
Role Insufficiency	10	27.03	10.08	.90	3.19	.88
Role Ambiguity	10	20.28	6.67	.78	3.13	.81
Role Boundary	10	22.67	8.15	.82	3.46	.77
Recreation	10	25.79	7.38	.71	3.97	.64
Physical Environment	10	17.40	7.45	.85	2.89	.81
Total ORQ	60	137.64	26.59	.89		.81
Vocational Strain	10	19.18	5.64	.71	3.04	.75
Psychological Strain	10	21.61	8.14	.89	2.70	.75
Interpersonal Strain	10	20.78	5.84	.81	2.55	.88
Physical Strain	10	24.05	10.11	.87	3.65	.84
Total PSQ	40	86.26	27.19	.94		.94
Recreation	10	28.38	6.57	.71	3.54	.76
Self-care	10	27.34	6.51	.73	3.38	.89
Social Support	10	41.16	7.23	.83	2.98	.76
Rational/Cognitive Coping	10	37.72	6.59	.78	3.09	.84
Total PRQ	40	134.53	20.20	.88		.94

Note. ORQ=Occupation Roles Questionnaire, PSQ = Personal Strain Questionnaire, and PRQ = Personal Resources Questionnaire. From *The Occupational Stress Inventory* (p. 11) by H. Osipow and R.H. Spokane, 1983, New York: Marathon Consulting Press.

Measures of Reliability for Study Done at Northern Caribbean University

Table 3 shows the reliability estimates for the study done at Northern Caribbean University. The reliability estimates for the Scales Occupational Roles Questionnaire (ORQ), Personal Strain Questionnaire (PSQ), and Personal Resources Questionnaire (PRQ) are 0.77, 0.89, and 0.88, respectively. These reliability estimates suggest, according to Cronbach's alpha, that the items are sufficiently related to justify their combination in the instruments.

The reliability estimates for the subscales – Role Overload, Role Insufficiency, Role Ambiguity, Role Boundary, Responsibility, and Physical Environment – that constitute the Occupational Roles Questionnaire (ORQ) were: 0.79, 0.83, 0.73, 0.73, 0.70, and 0.77.

The reliability estimates for the subscales Vocational Strain, Psychological Strain, Interpersonal Strain, and Physical Strain that constitute the Personal Strain Questionnaire (PSQ) were: 0.76, 0.84, 0.71, and 0.82, respectively.

Finally, the reliability estimate for the Personal Resource Questionnaire (PRQ) that comprises the subscales Recreation, Self-care, Social Support, and Rational/Cognitive Coping were: 0.78, 0.61, 0.87, and 0.81.

Although one of the subscales Self-care (0.61) yielded a reliability estimate below the acceptable alpha coefficient of 0.70 for this study, the overall coefficient alpha for the scales met that standard. That is, the alpha coefficient for the ORQ was 0.77, the PSQ was 0.89, and the PRQ was 0.88. The Occupational Stress Inventory, standardized for the North American culture, was usable for the Jamaican culture.

Table 3

Reliability Estimate for Study Done at Northern Caribbean University

Scale	Subscale	Items	Reliability (Cronbach's Alpha)
Occupational Roles Questionnaire		1-60	0.77
	Role Overload	1, 2, 3, 4, 5, 6, 7, 8, 9,10	0.79
	Role Insufficiency	11,12,13,14,15,16,17,18,19,20	0.83
	Role Ambiguity	21,22,23,24,25,26,26,28,29,30	0.73
	Role Boundary	31,32,33,34,35,36,37,38,39,40	0.73
	Responsibility	41,42,43,44,45,46,47,48,49,50	0.70
	Physical Environment	51,52,53,54,55,56,57,58,59,60	0.77
Personal Strain Questionnaire		1-40	0.89
	Vocational Strain	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	0.76
	Psychological Strain	11, 12, 13,14,15,16,18,19,20	0.84
	Interpersonal Strain	21,22,23,24,25,26,27,28,29,30	0.71
	Physical Strain	31,32,33,34,35,36,37,38,39,40	0.82
Personal Resources Questionnaire		1-40	0.88
	Recreation	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	0.78
	Self-care	11,12,13,14,15,16,17,18,19,20	0.61
	Social Support	21,22,23,24,25,26,27,28,29,30	0.87
	Rationale/Cognitive Coping	31,32,33,34,35,36,37,38,39,40	0.81

A demographic questionnaire consisting of three sections was also used. The first section consisted of three items designed to elicit information about gender, age, and marital status. The second section sought information on educational level. Work history constituted the third section, while section four investigated work history—years worked at NCU, current job title, and type of work (full- or part-time). Information on how long a position was held was also examined.

Null Hypotheses

The following null hypotheses were tested:

Hypothesis 1: There is no difference between the sources of stress of male and female faculty and staff at NCU.

Hypothesis 2: There is no relationship between the sources of stress and age among faculty and staff at NCU.

Hypothesis 3: There is no relationship between sources of stress and marital status at NCU.

Hypothesis 4: There is no relationship between sources of stress and length of employment at NCU.

Hypothesis 5: There is no difference between the sources of stress of faculty and staff at NCU.

Hypothesis 6: There is no difference between the types of stress of male and female faculty and staff at NCU.

Hypothesis 7: There is no relationship between types of stress and age among faculty and staff at NCU.

Hypothesis 8: There is no relationship between types of stress and marital status at NCU.

Hypothesis 9: There is no relationship between types of stress and length of employment at NCU.

Hypothesis 10: There is no difference between types of stress among faculty and staff at NCU.

Hypothesis 11: There is no difference between coping strategies of male and female faculty at NCU.

Hypothesis 12: There is no relationship between coping strategies and age among faculty and staff at NCU.

Hypothesis 13: There is no relationship between coping strategies and marital status at NCU.

Hypothesis 14: There is no relationship between coping strategies and length of employment among faculty and staff at NCU.

Hypothesis 15: There is no difference between coping strategies of faculty and staff at NCU.

Hypothesis 16: There is no relationship between sources of stress and coping strategies at NCU.

Hypothesis 17: There is no relationship between types of stress and coping strategies at NCU.

Procedure

A package was sent to all departmental chairs and sector managers containing the following items: A cover letter to chairs and sector managers regarding the study and

instructions on how to fill out and return the questionnaire; a letter from the University President, Dr. Hebert Thompson, giving permission to carry out the study; a sample letter of willingness to participate in the study, which the President wrote on his letterhead and directed to the Office of Scholarly Research at Andrews University; and the Occupational Stress Inventory (OSI) questionnaire.

In the same package, directed to the chairs and sector managers, were envelopes for each staff and faculty member in the department or sector, with a cover letter explaining the study and instructions on how to complete the questionnaire (OSI). Participants were requested to return the questionnaire within seven calendar days after receiving the package. Completed questionnaires were placed in a box provided for this at each department to be collected by courier.

A follow-up was done to departmental chairs and sector managers by telephone calls 3 weeks after the date the packages were sent out, encouraging them to fill out the surveys and also 4 weeks after and 6 weeks after to encourage persons in their team to participate.

Appendix A contains copies of letters of participation and endorsement from the President of the University, cover letter to staff and faculty, letter from the Intellectual Review Board (IRB), and permission letter for Psychological Assessment Resources.

Data Analysis

The study used descriptive statistics, *t*-test for independent samples, analysis of variance, and canonical and Pearson correlations for data analysis. The analyses were done using the Statistical Package for Social Science (SPSS) Version 10.

Research questions 1, 3, and 5 were tested using *t*-test for independent samples, to determine whether there were differences in levels of stress, sources of stress, and coping strategies between the variables of gender and employment status (faculty versus staff).

Research questions 2, 4, and 6 were analyzed using one-way analysis of variance. This operation was done to test for differences in group means for levels, and sources of stress and coping strategies as they related to age, marital status, and years of employment. A Student Newman-Keul's test of multiple comparisons was then completed as a post-hoc test to determine which pairs of variables within each demographic category contributed to significant *F* values.

Canonical and Pearson correlations were used to test research questions 7 and 8. These operations were utilized to test the relationships between the set of variables related to levels and sources of stress and coping strategies.

All hypotheses were tested at the 0.05 level of significance.

Summary

This chapter presented the research design, the description of the sample, a description of the instrument and the variables, and the Occupational Stress Inventory (OSI) scale descriptions and interpretation guidelines. Also, included in this chapter are the null hypotheses, the procedure for data collection, and the statistical methods that were utilized.

CHAPTER 4

ANALYSIS OF THE DATA

Introduction

The purpose of this study was to investigate the sources and levels of stress experienced by faculty and staff of Northern Caribbean University. It also determined what coping strategies were used by these participants. In addition, it examined the extent to which these sources, levels, and coping strategies were related to gender, employment status, length of employment, age, and marital status. In this chapter, the characteristics of the sample and the results of the analyses are presented.

Description of the Sample

One hundred and seventeen participants took part in the study. Table 4 shows the demographic characteristics of the participants in relation to gender, age, marital status, educational level, length of service, current job title, and type of work.

The results show that about two thirds of the respondents were females (65.3%) in contrast to males (27.4%). More than three-fourths of the respondents (76.6%) were below the age of 50 years while 20.5% were over 50 years of age. Of the respondents, 47.6% were married, 35% were single, 3.4 % were widowed or separated, and 6.0% were divorced.

Approximately 49% of the participants had either a bachelor's, associate, or professional degree, whereas 35.3% held master's or doctoral degrees. A small percentage (9.4%) had high-school certificates. The results indicated that the larger percentage of respondents (74.4%) had worked at Northern Caribbean University for less than 10 years, while about 21.4% had worked for over 10 years.

The categories of persons in the study were staff, which represented the highest percentage (46.8%), faculty (33.1%), and administrators (13.7%). More than three-quarters (77.8%) of the respondents were employed full-time, while 16.2% worked part-time.

Scoring

Some items were reversed – scored as indicated by the scoring instructions (Osipow, 1983). The following items were reversed scored: Occupational Roles Questionnaire (ORQ): 5, 6, 11, 12, 14-17, 19, 21, 22, 24, 25, 27-30, 34, 35, 38-50; Personal Strain Questionnaire (PSQ): 6, 8, 9, 14, 19, 20, 24, 27, 39, and 40; and Personal Resource Questionnaire (PRQ): 8.

Interpretive Guidelines for Sources of Stress, Levels of Stress, and Coping Strategies

The Occupational Roles Questionnaire (ORQ) that is made up of six scales was used to measure the sources of stress among faculty and staff at Northern Caribbean University (NCU). The scales are Role Overload, Role Insufficiency, Role Ambiguity, Role Boundary, Responsibility, and Physical Environment. Sixty items constitute the ORQ.

Table 4

Description of the Sample (N = 117)

Variable	*n*	%
Gender		
Male	32	27.4
Female	77	65.8
Age		
20-30	27	23.1
31-40	31	26.5
41-50	31	26.5
51 or more	24	20.5
Marital Status		
Single	41	35.0
Married	55	47.0
Widowed	4	3.4
Separated	4	3.4
Divorced	7	6.0
Educational Level		
High School	11	9.4
BA/A.S./A.A./Prof	57	48.7
Master's Degree	39	33.3
Doctorate	3	2.6
Years worked at NCU		
0-4 years	64	57.1
5-10 years	23	20.5
Over 10 years	25	22.3
Current Job Titles		
Faculty	37	31.6
Staff	72	61.5
Full-time	91	77.8
Part-time	19	16.2

Means and scale scores of the sample were compared according to normative data using validated studies (Alexander, 1983; Osipow & Spokane, 1983). Accordingly, for the ORQ and PSQ scales, high scores suggest significant levels of occupational stress and psychological strain, respectively. Because scores above 70*T* occurred only in approximately 2% of the normative sample, scores at or above 70*T* indicate a strong probability of maladaptive stress, debilitating strain, or both. Scores in the range of 60*T* to 69*T* suggest mild levels of maladaptive stress and strain. Scores in the range of 40*T* to 59T are within 1 standard deviation of the mean and should be interpreted as being within normal range. Scores below 40*T* indicate a relative absence of occupational stress or strain. Tables 5-10 present descriptive statistics for the sources of stress variables for faculty and staff at Northern Caribbean University. The item means will be ranked from highest to lowest.

For the PRQ scales, high scores indicate highly developed coping resources. For these scales, scores below 30*T* indicate a significant lack of coping resources. Scores in the range of 30*T* to 39*T* suggest mild deficits in coping skills. Scores in the range 40*T* to 59T indicate average coping resources, whereas higher scores (i.e., 60*T* and above) indicate increasingly strong coping resources. Tables 5-10 present descriptive statistics for variables in the ORQ.

For the purpose of this study only, I examined each item in each scale to determine its 'influence' on the overall scale. I considered items with means of 3.0 ('often true' along the 5-point Likert Scale used in the ORQ) as important contributors to the overall value of each scale.

Sources of Stress

Role Overload

Table 5 presents the item means ranking for the subscale Role Overload. Using the criterion presented earlier, Role Overload among NCU staff and faculty is primarily defined by working under tight deadlines.

Role Insufficiency

Table 6 presents descriptive statistics for the subscale Role Insufficiency in rank order. Among faculty and staff at NCU, Role Insufficiency is mainly defined by being unable to satisfy their needs for success and recognition.

Role Ambiguity

Item means and standard deviations for Role Ambiguity are shown in Table 7. Based on criteria presented earlier, Role Ambiguity is primarily defined by supervisors not providing useful feedback.

Role Boundary

Table 8 shows the means and standard deviations for the 10 items used to define Role Boundary. It appears that Role Boundary among the faculty and staff at NCU is mainly defined by having to work with individuals from several departments.

Responsibility

Responsibility among faculty and staff at NCU is primarily defined by jobs that require making important decisions, being looked upon for leadership, and having to

Table 5

Descriptive Statistics for Role Overload (N = 117)

Item Description	Mean	*SD*	Rank
7. I work under tight deadlines.	3.05	1.16	1
5. I do not have the resources to get my job done.	2.98	1.25	2
2. I feel my responsibilities are increasing.	2.93	1.35	3
9. My job requires me to work in several equally important areas at once.	2.76	1.43	4
8. I wish I had more help to deal with demands at work.	2.61	1.31	5
4. I have to take work home.	2.53	1.49	6
1. At work I am expected to do too many different tasks in too little time.	2.50	1.21	7
10. I am expected to do more work than is reasonable.	2.22	1.23	8
3. I am expected to perform tasks on my job for which I have never been trained.	1.99	1.26	9
6. I am no good on my job.	1.62	0.87	10

Note. Items 5 and 6 were reversed for scoring Role Insufficiency.

Table 6

Descriptive Statistics for the Subscale Role Insufficiency (N = 117)

Item Description	Mean	*SD*	Rank
17. I am unable to satisfy needs for success and recognition.	3.02	1.34	1
11. I do not feel that my career is progressing.	2.96	1.34	2
19. I do not learn new skills in my work.	2.88	1.25	3
16. I do not feel that my job has a good future.	2.75	1.32	4
15. I feel my talents are not being used on the job.	2.33	1.20	5
12. My job does not fit my skills and interests.	2.31	1.23	6
14. I do not feel that I have enough responsibility on my job.	2.17	1.13	7
18. I feel overqualified for my job.	2.10	1.40	8
13. I am bored with my job.	1.83	1.22	9
20. I have to perform tasks that are beneath my ability.	1.78	1.15	10

Note. Items 11, 12, 14, 15, 16, 17, and 19 were reversed for scoring.

Table 7

Descriptive Statistics for Subscale Role Ambiguity (N = 117)

Item Description	Mean	*SD*	Rank
21. My supervisor does not provide useful feedback.	3.08	1.49	1
30. I do not know the basis on which I am evaluated.	2.51	1.45	2
22. I am not clear about what to do to get ahead.	2.40	1.24	3
29. I am not clear about how my boss wants me to spend my time.	2.20	1.25	4
25. I do not know where to begin a new project.	2.16	1.16	5
24. When faced with many tasks I do not know what to do first.	1.90	1.06	6
28. The priorities on my job are not clear to me.	1.88	0.99	7
26. My supervisor asks for one thing, but really needs another.	1.74	1.20	8
23. I am uncertain about what to accomplish in my work.	1.65	1.09	9
27. I do not understand what is acceptable personal behavior.	1.47	0.92	10

Note. Items 21, 22, 24, 25, 27, 28, 29, and 30 were reversed for scoring.

Table 8

Descriptive Statistics for Role Boundary ($N = 117$)

Item Description	Mean	*SD*	Rank
37. My job requires working with individuals from several departments.	3.11	1.53	1
38. It is not clear who runs things where I work.	2.11	1.35	2
34. I do not know where I fit in my organization.	2.11	1.20	3
35. I do not feel good about the work I do.	1.86	1.09	4
33. More than one person is telling me what to do.	1.75	1.23	5
31. I experience conflict.	1.73	1.11	6
40. I frequently disagree with individuals from other departments.	1.58	0.95	7
32. I am caught between factions at work.	1.53	0.88	8
36. My supervisor has conflicting ideas.	1.53	1.05	9
39. I have divided loyalties.	1.53	0.99	10

Note. Items 34, 35, and 38 were reversed for scoring.

work with those whom they do not like. Means and standard deviations for these items are shown in Table 9.

Physical Environment

In Table 10, the item means and standard deviations for physical environment are presented. Based on the criteria specified earlier, none of the statements appear to be important contributors to stress due to physical environment.

Types of Stress

The Personal Strain Questionnaire (PSQ) is made up of four scales and was used to measure types and levels of stress among faculty and staff of Northern Caribbean University. The scales are Psychological Strain, Physical Strain, Vocational Strain, and Interpersonal Strain. The questionnaire is made up of 40 items. Means and scale scores of the sample were compared according to the normative data using validated studies (Alexander, 1983; Osipow & Spokane, 1987). The criteria set for the Occupational Roles Questionnaire (ORQ) was followed for the Personal Strain Questionnaire (PSQ) (Alexander, 1983; Osipow & Spokane, 1983). Tables 11 to 14 present descriptive statistics for the types of stress experienced by faculty and staff at Northern Caribbean University. The item means are also ranked from highest to lowest.

Vocational Strain

Using the criterion presented earlier, none of the statements seemed to be important contributors to vocational strain for faculty and staff at NCU. Item means standard deviations for items used to define vocational strain are shown in Table 11.

Table 9

Descriptive Statistics for the Subscale Responsibility (N = 117)

Item Description	Mean	*SD*	Rank
50. I do not like the people I work with.	3.98	1.13	1
47. My job requires me to make important decisions.	3.57	1.26	2
44. People on the job look to me for leadership.	3.24	1.25	3
45. I have on-the-job responsibility for the activities of others.	2.93	1.36	4
48. If I make a mistake in my work, the consequences for others can be pretty bad.	2.80	1.43	5
46. I worry about whether the people who work with me will get things done properly.	2.45	1.26	6
43. I am responsible for the welfare of subordinates.	2.39	1.34	7
41. I deal with more people during the day than I prefer.	2.14	1.26	8
49. I worry about meeting my job responsibilities.	2.10	1.21	9
42. I spend time concerned with the problems others at work bring to me.	2.09	1.11	10

Note. Item 50 was reversed for scoring.

Table 10

Descriptive Statistics for Items in the Subscale Physical Environment (N = 117)

Item Description	Mean	*SD*	Rank
51. On the job I am exposed to high levels of noise.	2.56	1.43	1
58. I work by myself.	2.36	1.35	2
57. I have an erratic work schedule.	1.95	1.18	3
53. On the job I am exposed to high levels of dust.	1.91	1.20	4
54. On the job I am exposed to temperature extremes.	1.80	1.14	5
55. On the job I am exposed to bright light.	1.66	1.16	6
59. On the job I am exposed to unpleasant odors.	1.56	0.94	7
56. My job is physically dangerous.	1.45	0.91	8
52. On the job I am exposed to high levels of wetness.	1.32	0.78	9
60. On the job I am exposed to poisonous substances.	1.24	0.60	10

Table 11

Descriptive Statistics for the Subscale Vocational Strain (N = 117)

Item Description	Mean	*SD*	Rank
8. I do not find my work interesting/exciting.	2.35	1.19	1
9. I cannot concentrate on the things I need to at work.	2.28	1.19	2
2. I dread going to work lately.	1.96	1.30	3
6. The quality of my work is not good.	1.92	1.16	4
1. I don't seem to be able to get much work done.	1.82	1.03	5
3. I am bored with work.	1.72	1.07	6
4. I find myself getting behind in my work lately.	1.72	1.02	7
10. I make errors or mistakes in my work.	1.71	0.82	8
7. I have been absent from work lately.	1.40	0.95	9
5. I have accidents on the job of late.	1.11	0.55	10

Note. Items 6, 8, and 9 were reversed for scoring.

Psychological Strain

Table 12 presents rank-ordered item means for the subscale Psychological Strain. As with vocational strain, none of the statements are considered important contributors to psychological strain.

Interpersonal Strain

Table 13 presents descriptive statistics for the subscale Interpersonal Strain. Among faculty and staff at NCU, interpersonal strain is defined primarily by their wish to be able to spend more time with friends.

Physical Strain

As with vocational and psychological strain, there appear to be no statements that could be considered as important contributors to physical strain. Item statistics for physical strain are shown in Table 14.

Coping Strategies

The Personal Resources Questionnaire (PRQ) is made up of four scales. These are Social Support, Rational/Cognitive Coping, Recreation, and Self-care. The PRQ was used to measure coping strategies among faculty and staff at Northern Caribbean University (NCU). Forty items constitute the PRQ. Means and scale scores of the sample were compared according to the normative data using validated studies (Alexander, 1983; Osipow & Spokane, 1983). The interpretive guidelines for the Personal Resources Questionnaire (PRQ) scales have already been presented (Alexander, 1983; Osipow & Spokane, 1983).

Table 12

Descriptive Statistics for the Subscale Psychological Strain (N = 117)

Item Description	Mean	*SD*	Rank
20. Things have not been going as they should.	2.77	1.15	1
14. I have been unhappy lately.	2.70	1.15	2
15. I have trouble falling asleep.	2.11	1.32	3
19. I do not have a good sense of humor.	2.09	1.08	4
18. Lately, I have been worrying.	2.09	1.16	5
13. I have been feeling anxious lately.	2.05	1.02	6
11. Lately, I am easily irritated.	1.97	1.05	7
12. Lately, I have been depressed.	1.96	1.16	8
16. I respond badly to situations.	1.72	0.97	9
17. I have been complaining about little things.	1.70	0.86	10

Note. Items 14, 19, and 20 were reversed for scoring.

Table 13

Descriptive Statistics for the Subscale Interpersonal Strain (N = 117)

Item	Description	Mean	*SD*	Rank
21.	I wish I had more time to spend with close friends.	3.29	1.29	1
24.	My spouse and I are unhappy together.	2.61	1.31	2
28.	I find I need time to myself to work out my problems.	2.60	1.31	3
25.	Lately, I do things by myself instead of with other people.	2.60	1.29	4
27.	Lately, my relationships with people are not good.	1.98	1.10	5
22.	I often quarrel with the persons closest to me.	1.78	1.12	6
29.	Lately, I am worried about how others at work view me.	1.66	1.08	7
30.	I have been withdrawing from people lately.	1.63	1.10	8
23.	I often argue with friends.	1.50	0.87	9
26.	I quarrel with members of the family.	1.50	0.95	10

Note. Items 24 and 27 were reversed for scoring.

Table 14

Descriptive Statistics for the Subscale Physical Strain (N = 117)

Item Description	Mean	*SD*	Rank
40. My energy level has been low lately.	2.94	1.19	1
34. Lately, I have been tired.	2.84	1.35	2
35. I have been feeling tense.	2.35	1.37	3
39. I do not feel well.	2.27	1.12	4
36. I have trouble falling and staying asleep.	2.06	1.30	5
37. I have aches and pain I cannot explain.	1.94	1.26	6
38. I eat the wrong food.	1.92	1.03	7
32. My eating habits are erratic.	1.85	1.17	8
31. I have unplanned weight gains.	1.77	1.27	9
33. I find myself drinking a lot lately.	1.39	0.86	10

Note. Items 39 and 40 were reversed for scoring.

Recreation

Table 15 presents ranked-ordered descriptive statistics for Recreation. Based on criteria presented earlier, for faculty and staff at NCU, recreation is mainly defined by not thinking about work when they are relaxing and being able to do what they want during their free time.

Self-Care

Item means and standard deviations for Self-Care are shown in Table 16. As the table suggests, self-care for faculty and staff at NCU is primarily defined by statements related to diet. These included being careful about their diet, eating or drinking only what is healthful for them, and not consuming alcoholic beverages.

Social Support

Table 17 presents the descriptive statistics for the subscale Social Support by rank order. It is quite clear from the item statistics that faculty and staff at NCU have strong social support from those at home as well as from those at work. They feel loved and supported; they have people whom they can count on; they have a circle of friends; they have sympathetic friends; and they have people they feel close to.

Rational/Cognitive Coping

Rational/cognitive coping has to do with having a systematic approach to solving problems. The item statistics for this subscale are shown in Table 18. Again, it is quite clear from the results shown in the table that faculty and staff at NCU are quite systematic in coping sources and levels of stress. For them, Rational/Cognitive coping is

Table 15

Descriptive Statistics for the Subscale Recreation (N = 117)

Item Description	Mean	*SD*	Rank
8. When I am relaxing I do not think about work.	3.36	1.20	1
2. I am able to do what I want in my free time.	3.03	1.42	2
3. On weekends I spend time doing the things I enjoy most.	2.82	1.31	3
1. When I need a vacation I take one.	2.49	1.41	4
7. I set aside time to do the things I really enjoy.	2.49	1.30	5
4. I hardly ever watch television.	2.29	1.15	6
9. I spend enough time in recreational activities to satisfy my needs.	2.02	1.04	7
6. I spend a lot of free time in participant activities (e.g., Sports, music, painting).	1.98	1.18	8
10. I spend a lot of my free time on hobbies (e.g., Collections of various kinds).	1.92	1.11	9
5. A lot of free time is spent attending performances.	1.60	0.92	10

Note. Item 8 was reversed for scoring.

Table 16

Descriptive Statistics for the Subscale Self-care (N = 117)

Item Description	Mean	*SD*	Rank
13. I avoid excess use of alcohol.	4.04	1.56	1
17. I avoid eating or drinking things I know are unhealthy (e.g., coffee, tea, etc.).	4.03	1.42	2
11. I am careful about my diet.	3.37	1.17	3
16. I get the sleep I need.	2.96	1.32	4
20. I floss my teeth regularly.	2.82	1.29	5
12. I get regular physical check-ups.	2.77	1.30	6
14. I exercise regularly.	2.69	1.37	7
18. I engage in meditation.	2.57	1.48	8
19. I practice deep breathing exercises a few minutes daily.	2.06	1.21	10
15. I practice relaxation techniques.	1.81	1.00	11

Table 17

Descriptive Statistics for the Subscale Social Support (N = 117)

Item Description	Mean	*SD*	Rank
21. There is at least one person important to me who values me.	4.66	0.67	1
26. I feel I have at least one good friend I can count on.	4.41	0.95	2
28. There is one person with whom I feel really close.	4.39	0.96	3
24. There is at least one sympathetic person with whom I can discuss my concerns.	4.32	1.0	4
27. I feel loved.	4.24	1.07	5
25. There is at least one sympathetic person with whom I can discuss my work problems.	4.17	1.08	6
29. I have a circle of friends who value me.	4.05	1.18	7
30. If I need help at work, I know whom to approach.	3.85	1.25	8
22. I have help with tasks around the house.	3.44	1.45	9
23. I have help with important things that have to be done.	3.27	1.37	10

mainly defined by being able to identify important elements of a problem; being able to establish priorities for their time and stick to them; having the techniques to avoid distraction; and being able to think through consequences of their actions. They are aware of things they have to do and have systematic ways for solving problems.

Levels of Stress for Sources and Types, and Coping Strategies

Table 19 shows percentages of respondents at various levels of stress for sources and types as well as levels of coping. It is interesting to note that stress as a result of role boundary is absent for about 42% of the faculty and staff at NCU. For all sources and types of stresses, 50-80% of the respondents are within normal range. Another 6 to 10% experience mild levels of stress, and then about 2 to 6% reported high levels of stress.

Mean *T* scores and associated standard deviations for sources, types, and coping strategies are shown in Table 20. Based on the normative sample (see Alexander, 1983; Osipow & Spokane, 1983), on the average, faculty and staff at NCU have normal levels of stress for various sources (role overload, role ambiguity, etc.) and types (vocational strain, psychological strain, etc) of stress. They also have normal levels of coping abilities (self care, social support, etc.). This is reasonable since levels of stress are within the normal range.

Testing the Null Hypotheses

Seventeen null hypotheses were tested. *T*-test for independent samples, analysis of variances, and canonical correlation analysis were used to test these hypotheses. Null hypotheses 1 through 5 relate to sources of stress, 6 through 10 relate to types of stress, and 11-15 relate to coping strategies. Null hypothesis 16 tests the hypothesis that there is

Table 18

Descriptive Statistics for the Subscale Rational/Cognitive Coping (N = 117)

Item Description	Mean	*SD*	Rank
40. I try to keep aware of important ways I behave and things I do.	4.34	0.76	1
39. When faced with the need to make a decision I think through consequences of choices I might make.	4.18	0.81	2
37. I can identify important elements of problems I encounter.	3.86	0.89	3
34. I can establish priorities for the use of my time.	3.84	1.02	4
35. Once they are set I can stick to my priorities.	3.69	1.10	5
38. When faced with a problem, I use a systematic approach.	3.55	0.97	6
32. I feel that there are other jobs I could do beside the current one.	3.55	1.27	7
36. I have techniques to help avoid distractions.	3.36	1.00	8
33. I periodically re-examine or re-organize my work style and schedule.	3.33	1.04	9
31. I am able to put my job out of my mind when I go home.	2.79	1.26	10

Table 19

Percentage of Respondents at Various Levels for Sources, Types, and Coping Strategies of Stress ($N = 117$)

Variables	Levels			
	Absent	Normal	Mild	High
Sources				
Role Overload	14.5	65.8	6.2	3.4
Role Insufficiency	18.8	70.9	6.8	3.4
Role Ambiguity	15.4	62.4	17.1	5.1
Role Boundary	41.9	50.4	6.0	1.7
Responsibility	6.0	67.5	20.5	6.0
Physical Environment	6.8	79.5	11.1	2.6
Types				
Vocational Strain	18.8	59.0	15.4	6.0
Psychological Strain	12.0	72.6	12.8	2.0
Interpersonal Strain	6.8	73.5	12.8	6.0
Physical Strain	20.5	64.1	15.4	0.0
Coping Strategies				
Recreation	23.9	67.5	6.0	2.0
Self-care	1.7	70.1	20.5	7.0
Social Support	16.2	65.8	17.9	0.0
Rational/Cognitive	17.9	59.8	22.2	0.0

Table 20

Levels of Stress and Coping Strategies Based on Normative Sample ($N = 117$)

Variables	Mean	*SD*	Status
Sources			
Role Overload	50.88	11.00	Normal
Role Insufficiency	49.00	9.40	Normal
Role Ambiguity	50.90	10.26	Normal
Role Boundary	44.40	9.96	Normal
Responsibility	53.62	9.38	Normal
Physical Environment	49.30	11.07	Normal
Types			
Vocational Strain	50.40	11.56	Normal
Psychological Strain	50.92	9.35	Normal
Interpersonal Strain	50.43	9.97	Normal
Physical Strain	46.68	9.27	Normal
Coping Strategies			
Recreation	46.93	10.16	Normal
Self-care	54.66	9.51	Normal
Social Support	49.79	9.72	Normal
Rational/Cognitive Coping	51.09	9.82	Normal

no relationship between sources of stress and coping strategies, whereas null hypothesis 17 tests the hypothesis that there is no relationship between types of stress and coping strategies. Canonical correlation analysis was used to test the last two hypotheses.

Testing of the Null Hypotheses Related to Sources of Stress

Null Hypothesis 1

Research Question 1 asked: What are the sources of stress among faculty and staff at NCU? Null Hypothesis 1 stated that there is no difference in the sources of stress between male and female staff and faculty at Northern Caribbean University. This hypothesis was tested by using *t*-test for independent samples. The results of this analysis are found in Table 21.

Statistically significant gender differences were found for Responsibility ($t(107) = -2.122, p = 0.036$), and Physical Environment ($t\ (107) = -3.457, p = 0.001$). Females ($M = 54.88$, $SD = 8.86$) experienced significantly higher amount of stress in Responsibility than males ($M = 50.75$, $SD = 10.18$). Similarly, female faculty and staff ($M = 50.53$, $SD = 7.78$) experienced more stress in Physical Environment than their male counterparts ($M = 44.75$, $SD = 8.36$). Thus, the null hypotheses for Responsibility and Physical Environment were rejected. However, it should be pointed out that, based on normative data, levels of stress for both males and females in these areas are within the normal range (Alexander, 1983; Osipow & Spokane, 1983).

Table 21

Gender Differences in Sources of Stress

Variables	Male ($N = 32$) Mean	*SD*	Female ($N = 77$) Mean	*SD*	*df*	*t*	*p*
Role Overload	50.53	13.58	50.71	10.00	107	-0.78	0.938
Role Insufficiency	49.53	11.51	47.96	8.73	107	0.776	0.439
Role Ambiguity	48.36	9.74	52.16	10.31	107	-1.772	0.079
Role Boundary	42.59	10.21	44.42	9.28	107	-0.906	0.367
Responsibility	50.75	10.18	54.88	8.86	107	-2.122	0.036*
Physical Environment	44.75	8.36	50.53	7.78	107	-3.457	0.001*

* $p<0.05$.

Null Hypothesis 2

Research Question 2 asked: Are sources of stress related to gender, age, marital status, years of employment and employment status (faculty versus staff)? Null hypothesis 2 stated that there is no relationship between the sources of stress and age among faculty and staff Northern Caribbean University. The one-way analysis of variance was used to test this hypothesis. Table 22 presents the mean *T*-scores and standard deviations for the six sources of stress by age. Table 23 shows the analysis of variance results for comparing four age categories on six sources of stress. Statistically significant differences were found for Role Insufficiency ($F_{(3, 109)} = 3.927, p = 0.011$) and

Role Boundary ($F_{(3, 109)} = 4.038$, $p = .009$). Post-hoc multiple comparison using Student-Newman Keuls (see Tables 24 and 25) indicated that faculty and staff in the 31-40 age group ($M = 52.32$, $SD = 10.48$) experienced more stress in Role Insufficiency than their colleagues in the 50-above age group ($M = 43.96$, $SD = 6.93$). Faculty and staff in the age group 31-40 ($M = 47.74$, $SD = 11.58$) experienced more stress in Role Ambiguity than their colleagues in the 20-30 ($M = 40.11$, $SD = 8.88$) age group. The null hypotheses for role boundary and role insufficiency were therefore rejected. *T*-scores for these variables for all age groups are within normal range, however (Alexander, 1983; Osipow & Spokane, 1983).

Table 22

Means and Standard Deviations for Sources of Stress by Age Group

	1 (N=27)		2 (N=31)		3 (N=31)		4 (N=24)	
Sources of Stress	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*
Role Overload	48.48	11.72	51.13	8.60	54.23	11.32	47.67	12.13
Role Insufficiency	49.30	10.79	52.32	10.48	47.71	7.48	43.96	6.93
Role Ambiguity	49.74	11.14	51.68	8.55	53.23	10.58	47.46	9.26
Role Boundary	40.11	8.88	47.74	11.58	46.10	8.88	41.54	8.49
Responsibility	51.37	8.48	54.32	8.68	54.90	10.38	52.95	10.09
Physical Environment	47.74	7.76	52.81	10.97	48.41	7.12	47.21	6.67

Note. 1 = 20-30, 2 = 31-40, 3 = 41-50, 4 = 51-above.

Table 23

One-Way Analysis of Variance for Sources of Stress by Age

Sources of Stress	*SS*	*df*	*MS*	*F*	Sig.
Role Overload					
Between Groups	743.890	3	247.963	2.077	0.107
Within Groups	13014.977	109	119.403		
Total	13758.876	112			
Role Insufficiency					
Between Groups	984.127	3	328.042	3.927	0.011*
Within Groups	9105.749	109	83.539		
Total	10089.876	112			
Role Ambiguity					
Between Groups	504.220	3	168.073	1.705	0.170
Within Group	10743.337	109	98.563		
Total	11247.558	112			
Role Boundary					
Between Groups	1121.172	3	373.724	4.038	0.009*
Within Groups	10089.270	109	92.562		
Total	11210.442	112			
Responsibility					
Between Groups	211.492	3	70.497	0.793	0.500
Within Groups	9686.739	109	88.869		
Total	9898.230	112			
Physical Environment					
Between Groups	574.788	3	91.596	2.695	0.050
Within Groups	7749.531	109	71.097		
Total	8324.319	112			

* $p<0.05$.

Table 24

Post Hoc for Role Insufficiency by Age

Age	*N*	*M*	*SD*	20-30 Years	31-40 Years	41-50 Years	50-above Years
20-30	27	49.30	10.79				
31-40	31	52.32	10.48	NS	-		
41-50	31	47.71	7.48	NS		-	
50-above	24	43.95	6.93	NS	*	NS	-

* $p<0.05$. NS means not significant.

Table 25

Post Hoc for Role Boundary by Age

Age	*N*	*M*	*SD*	20-30 Years	31-40 Years	41-50 Years	50-above Years
20-30	27	40.11	8.88	-			
31-40	31	47.74	11.58	*	-		
41-50	31	46.10	8.88	NS	NS	-	
50-above	24	41.54	8.49	NS	NS	NS	-

* $p<0.05$. NS means not significant.

Null Hypothesis 3

Null hypothesis 3 stated that there is no relationship between sources of stress and marital status among faculty and staff at Northern Caribbean University. One-way analysis of variance was used to test this hypothesis. Table 26 presents the means and standard deviations by marital status. Table 27 presents the results for the ANOVA for the three marital statuses on the six sources of stress.

Statistically significant group differences were found for Role Insufficiency ($F_{(2,108)} = 3.386, p = .037$) and Role Ambiguity ($F_{(2, 108)} = 4.043, p = .020$). When post-hoc multiple comparison was done using Student-Newman-Keuls (Tables 28 & 29), the results indicated that single faculty and staff ($M = 51.51$, $SD = 9.71$) experienced more stress in Role Insufficiency than faculty and staff who were single but previously married ($M = 46.53$, $SD = 7.56$). Also, faculty and staff who were single ($M = 54.07$, $SD = 10.11$) experienced more stress in Role Ambiguity than faculty and staff who were single but previously married ($M = 46.68$, $SD = 9.90$). The null hypotheses for Role Insufficiency and Role Ambiguity were rejected.

Null Hypothesis 4

Null hypothesis 4 stated that there is no relationship between sources of stress and length of employment of the faculty and staff at Northern Caribbean University. Scale means and standard deviations by length of employment are presented in Table 30. The analysis of variance results for relating length of employment and sources of stress are found in Table 31. At α=0.05, there were no statistically significant differences among the three categories of length of employment on all six sources of stress. Thus, the hypotheses related to these six sources of stress were retained.

Table 26

Means and Standard Deviations for Sources of Stress by Marital Status

Sources of Stress	Single ($N = 41$) Mean	*SD*	Married ($N = 55$) Mean	*SD*	Single-Previously Married ($N = 15$) Mean	*SD*
Role Overload	50.78	10.89	50.87	10.54	50.13	11.06
Role Insufficiency	51.51	9.71	46.84	9.34	46.53	7.56
Role Ambiguity	54.07	10.11	49.76	9.22	46.67	9.90
Role Boundary	44.85	10.48	45.04	9.81	40.53	9.02
Responsibility	51.29	9.41	54.82	9.07	54.67	10.71
Physical Environment	51.22	9.20	48.45	8.67	46.27	6.16

Table 27

One-Way Analysis of Variance for Sources of Stress by Marital Status

Sources of Stress	*SS*	*df*	*MS*	*F*	Sig.
Role Overload					
Between Groups	6.557	2	3.278	0.026	0.974
Within Groups	13452.867	108	124.564		
Total	13459.423	110			
Role Insufficiency					
Between Groups	582.189	2	291.095	3.386	0.037*
Within Groups	9283.505	108	85.958		
Total	9865.694	110			
Role Ambiguity					
Between Groups	752.517	2	376.259	4.043	0.020*
Within Groups	10052.041	108	93.074		
Total	10804.559	110			
Role Boundary					
Between Groups	254.803	2	127.402	1.283	0.281
Within Groups	10726.783	108	99.32		
Total	10981.586	110			
Responsibility					
Between Groups	315.745	2	157.872	1.777	0.174
Within Groups	9596.003	108	88.852		
Total	9911.748	110			
Physical Environment					
Between Groups	326.802	2	163.401	2.213	0.114
Within Groups	7975.594	108	73.848		
Total	8302.396	110			

* $p<0.05$.

Table 28

Post-Hoc for Role Insufficiency by Marital Status

Marital Status	*N*	*M*	*SD*	Single	Married	Single-Previously Married
Single	41	51.51	7.71	-		
Married	55	46.84	9.34	NS	-	
Single/Previously Married	15	46.53	7.55	*	NS	-

* $p<0.05$. NS means not significant.

Table 29

Post-Hoc for Role Ambiguity by Marital Status

Marital Status	*N*	*M*	*SD*	Single	Married	Single/Previously Married
Single	41	54.07	10.11	-		
Married	55	49.76	9.22	NS	-	
Single/Previously Married	15	46.67	9.90	*	NS	-

* $p<0.05$. NS means not significant.

Table 30

Means and Standard Deviations for Sources of Stress by Years at NCU

Variables	0-4 years ($N = 64$) Mean	*SD*	5-10 years ($N = 23$) Mean	*SD*	Over 10 years ($N = 25$) Mean	*SD*
Role Overload	51.33	10.00	47.00	10.95	62.64	13.02
Role Insufficiency	48.97	10.20	50.83	8.78	45.60	7.60
Role Ambiguity	51.78	10.05	49.83	10.02	49.40	9.88
Role Boundary	44.86	9.57	43.21	12.35	44.20	8.37
Responsibility	53.17	9.62	51.83	9.82	56.40	8.45
Physical Environment	49.28	8.67	51.13	10.16	47.08	6.84

Table 31

One-Way Analysis of Variance for Sources of Stress by Years at NCU

Sources of Stress	*SS*	*df*	*MS*	*F*	Sig.
Role Overload					
Between Groups	434.095	2	217.047	1.821	0.167
Within Groups	12993.869	109	119.210		
Total	13427.964	111			
Role Insufficiency					
Between Groups	347.678	2	173.839	1.969	0.145
Within Groups	9625.242	109	88.305		
Total	9972.920	111			
Role Ambiguity					
Between Groups	132.178	2	66.089	0.660	0.519
Within Groups	10910.242	109	100.094		
Total	11042.420	111			
Role Boundary					
Between Groups	46.603	2	23.301	0.235	0.791
Within Groups	10811.647	109	99.189		
Total	10858.250	111			
Responsibility					
Between Groups	280.077	2	140.039	1.580	0.211
Within Groups	9662.414	109	88.646		
Total	9942.491	111			
Physical Environment					
Between Groups	198.391	2	99.195	1.330	0.269
Within Groups	8129.386	109	74.582		
Total	8327.777	111			

Null Hypothesis 5

Null hypothesis 5 stated that there was no difference in the sources of stress between faculty and staff at Northern Caribbean University.

The *t* test for independent samples was used to test this hypothesis. Scale means and standard deviations as well as the *t*-test results are shown in Table 32. At α=0.05, there were no statistically significant differences between faculty and staff on all six sources of stress. Thus, the null hypotheses that there would be no differences between faculty and staff on all six sources of stress were retained.

Table 32

t *Tests for Sources of Stress by Job Title*

	Faculty (*N* = 37)		Staff (*N* = 72)				
Variables	Mean	*SD*	Mean	*SD*	*df*	*t*	*p*
Role Overload	51.19	11.05	50.45	11.35	107	0.321	0.749
Role Insufficiency	46.16	8.99	49.32	9.65	107	-1.660	0.100
Role Boundary	44.00	9.69	44.33	10.22	107	-0.164	0.870
Role Ambiguity	51.86	10.49	50.00	9.55	107	0.933	0.353
Responsibility	51.51	8.87	54.64	8.96	107	-1.730	0.087
Physical Environment	49.03	8.35	49.44	8.96	107	-0.236	0.814

Testing of the Null Hypotheses Related to Types of Stress

Null Hypothesis 6

Research Question 3 asked: What are the types of stress among faculty and staff at NCU? Null hypothesis 6 stated that the type of stress experienced by males is equal to that of females at Northern Caribbean University. Null Hypothesis 6 was tested by using the *t* test for independent samples. The results for this analysis are shown in Table 33. Statistically significant gender differences were found for Vocational Strain ($t_{(76..26)} = -2.56, p = 0.012$), Interpersonal Strain ($(t_{107}) = -2.00, p = 0.048$) and Physical Strain ($(t_{107}) = -2.27, p = 0.025$. Female faculty and staff ($M = 51.45$, $SD = 11.52$) had significantly higher levels of Vocational Strain than did male faculty and staff ($M = 46.28$, $SD = 8.69$). Female faculty and staff ($M = 51.21$, $SD = 10.19$) also had significantly higher levels of Interpersonal Strain than did male faculty and staff ($M = 47.13$, $SD = 8.33$). This was also true for Physical Strain. Females ($M = 49.61$, $SD = 8.45$) had significantly higher levels of stress than did their male counterparts ($M = 45.34$, $SD = 10.01$). Accordingly, the null hypotheses for vocational, interpersonal, and physical strains were rejected. However, it is important to note that, based on normative data, the levels of stress experienced by male and female staff and faculty of NCU for all types of stress (psychological, personal, etc.) are within the normal range (Alexander, 1983; Osipow & Spokane, 1983).

Null Hypothesis 7

Research Question 4 asked: Are the types of stress related to gender, age, marital status, length of employment and employment status (faculty versus staff)? This null

hypothesis stated that there is no relationship between types of stress and age among faculty and staff at Northern Caribbean University. One-way analysis of variance was used to test this null hypothesis. Table 34 shows age group means and standard deviations for each type of stress Table 35 shows the results of the analysis of variance for comparing the four different age groups on the four types of stress or strains. At the 0.05 level of significance, the results showed no significant difference in the levels of stress among the various age groups. Thus, the null hypotheses for the four types of stress for age groups were retained.

Null Hypothesis 8

Null Hypothesis 8 stated that there is no relationship between the levels of stress and marital status among faculty and staff at Northern Caribbean University. The one-way analysis of variance was used to test this null hypothesis. Table 36 shows the means and standard deviations for each type of strain, whereas Table 37 shows the results of the analysis of variance for comparing levels of stress among the three categories of marital status. A statistically significant difference among the three categories of marital status was found only for Interpersonal Strain ($F_{(2, 108)} = 3.47, p = 0.035$). Thus, for interpersonal strain, the null hypothesis was rejected. When post-hoc multiple comparison was done using Student-Newman Keuls (Table 38), it was found that faculty and staff who were married ($M = 47.87$, $SD = 9.47$) had a significantly lower level of Interpersonal Strain than their colleagues who where single ($M = 53.02$, $SD = 10.28$). However, no significant difference existed between the workers who were married ($M = 47.87$, $SD = 9.47$) and those who were single/previously married ($M = 49.93$, $SD = 6.76$).

Again, it is important to note that stress levels among the three categories of marital status are within normal range (Alexander, 1983; Osipow & Spokane, 1983).

Table 33

t *Test for Gender Differences in Types of Stress*

Variables	Male (N=37) Mean	*SD*	Female (N = 77) Mean	*SD*	*df*	*t*	*p*
Vocational Strain	46.28	8.69	51.45	11.52	76.26	-2.561	0.012*
Psychological Strain	47.47	9.55	51.22	0.69	107	-1.950	0.054
Interpersonal Strain	47.13	8.33	51.21	0.65	107	-2.004	0.048*
Physical Strain	45.34	10.01	49.61	8.45	107	-2.272	0.025*

* $p<0.05$.

Table 34

Descriptive Statistics for Types of Stress and Age

Variables	1 Mean	*SD*	2 Mean	*SD*	3 Mean	*SD*	4 Mean	*SD*
Vocational Strain	46.59	10.81	51.97	11.37	51.81	10.91	49.88	12.01
Psychological Strain	49.52	10.00	52.68	10.34	49.90	8.27	48.42	8.36
Interpersonal Strain	50.18	11.40	51.00	11.51	50.19	8.60	50.17	8.25
Physical Stain	47.78	9.88	51.00	9.63	47.97	8.70	47.46	9.04

Note. 1 = 20-30, 2 = 31-40, 3 = 41-50, 4 = 51 & above.

Table 35

One-Way Analysis of Variance–Types of Stress by Age

Sources	*SS*	*df*	*MS*	*F*	Sig.
Vocational Strain					
Between Groups	530.767	3	176.922	1.394	0.249
Within Group	13836.950	109	126.944		
Total	14367.717	112			
Psychological Strain					
Between Groups	281.500	3	93.833	1.080	0.361
Within Groups	9470.058	109	86.881		
Total	9751.558	112			
Interpersonal Strain					
Between Groups	15.028	3	5.009	0.049	0.986
Within Groups	11140.246	109	102.204		
Total	11155.274	112			
Physical Strain					
Between Groups	240.248	3	80.083	0.922	0.433
Within Groups	9471.593	109	86.895		
Total	9711.841	112			

Table 36

Descriptive Statistics for Types of Stress by Marital Status

Types of Stress	Single ($N = 41$) Mean	*SD*	Single/Previously Married (N=15) Mean	*SD*	Married ($N = 55$) Mean	*SD*
Vocational Strain	52.44	12.18	49.60	12.81	48.87	10.33
Psychological Strain	51.51	9.87	47.33	7.50	49.91	9.36
Interpersonal Strain	53.02	10.28	49.93	6.76	47.87	9.45
Physical Strain	50.56	9.82	46.07	8.29	47.71	9.05

Null Hypothesis 9

Null hypothesis 9 stated that there is no relationship between the types of stress and the length of employment of faculty and staff at Northern Caribbean University. This null hypothesis was tested by using the one-way analysis of variance. Table 39 presents scale means and standard deviations for each type of strain by length of employment. The results of the analysis of variance are presented in Table 40. The analysis showed that there was no significant difference in the levels of stress among the three categories of length of employment (p<0.05). This suggests that levels of stress in all four types of strain (vocational, psychological, interpersonal, and physical) are not related to length of employment. Thus, all null hypotheses related to types of strain for length of employment are retained.

Table 37

One-Way Analysis of Variance – Types of Stress by Marital Status

Types of Stress	*SS*	*df*	*MS*	*F*	Sig.
Vocational Strain					
Between Groups	306.968	2	153.484	1.184	0.310
Within Groups	14003.807	108	129.665		
Total	14310.775	110			
Psychological Strain					
Between Groups	198.274	2	99.137	1.138	0.324
Within Groups	9412.123	108	87.149		
Total	9610.396	110			
Interpersonal Strain					
Between Groups	623.658	2	311.829	3.470	0.035*
Within Groups	9704.018	108	89.852		
Total	10327.676	110			
Physical Strain					
Between Groups	297.191	2	148.596	1.736	0.181
Within Groups	9244.376	108	85.596		
Total	9541.568	110			

* $p<0.05$.

Table 38

Post-Hoc Analysis for Interpersonal Strain by Marital Status

Marital Status	*N*	*M*	*SD*	Single	Married	Single/Previously Married
Single	41	53.02	10.28	-		
Married	55	47.87	9.47	*	-	
Single/Previously Married	15	49.93	6.76	NS	NS	-

* $p<0.05$. NS means not significant.

Table 39

Means and Standard Deviations for Types of Stress by Years of Employment

Variables	0-4 years (*N* = 64)		5-10 years (*N* = 23)		Over 10 years (*N* =25)	
	Mean	*SD*	Mean	*SD*	Mean	*SD*
Vocational Strain	50.28	11.59	49.69	12.60	50.20	10.19
Psychological Strain	50.48	9.51	47.96	9.43	51.12	8.71
Interpersonal Strain	50.67	9.98	48.74	9.17	49.64	9.43
Physical Strain	49.17	9.67	46.22	8.13	48.76	9.30

Table 40

One-Way Analysis of Variance–Types of Stress by Years of Employment

Types of Stress	*SS*	*df*	*MS*	*F*	Sig.
Vocational Strain					
Between Groups	5.907	2	2.954	0.020	0.978
Within Groups	14447.807	109	132.549		
Total	14453.714	111			
Psychological Strain					
Between Groups	141.133	2	70.567	0.812	0.447
Within Groups	9471.581	109	86.895		
Total	9612.714	111			
Interpersonal Strain					
Between Groups	68.473	2	34.236	0.364	0.696
Within Group	10260.304	109	94.131		
Total	10328.777	111			
Physical Strain					
Between Groups	150.337	2	75.169	0.869	0.422
Within Groups	9423.582	109	86.455		
Total	9573.920	111			

Null Hypothesis 10

Null Hypothesis 10 stated that there is no difference in the types of stress between faculty and staff at Northern Caribbean University. Table 41 shows scale means and standard deviations as well as the *t*-test results for comparing the types of stress among faculty and staff. Statistically significant differences between faculty and staff were found only for Interpersonal Strain ($t_{(107)} = 2.180, p = .033$). Faculty ($M = 53.41$, $SD = 11.77$) had significantly higher levels of interpersonal strain than did staff ($M = 48.65$, *SD*

= 8.61). Thus the null hypothesis for interpersonal strain was rejected. It should be noted, however, that scores for both faculty and staff are within normal range, according to normative data (Alexander, 1983; Osipow & Spokane, 1983).

Testing of the Null Hypotheses Related to Coping Strategies

Null Hypothesis 11

Research Question 5 asked: What coping strategies for stress do faculty and staff use at Northern Caribbean University? Null hypothesis 11 stated that there was no difference in coping strategies and gender among faculty and staff at Northern Caribbean University. The *t* test for independent samples was used to test this hypothesis. The results for this analysis are shown in Table 42. Statistically significant gender differences were found for self-care ($t_{(107)} = 2.258, p = .026$) and rational/cognitive coping ($t_{(107)} = 2.482, p = .015$). Male faculty and staff ($M = 57.53$, $SD = 8.18$) had significantly higher levels of coping skills in self-care than did females ($M = 53.03$, $SD = 9.93$). Similarly male faculty and staff ($M = 54.72$, $SD = 9.79$) also had significantly higher levels of coping skills in rational/cognitive coping than their female counterparts ($M = 49.62$, $SD = 9.75$). The null hypotheses for self-care and rational/cognitive coping were rejected. However, it is important to note that based on normative data, the coping resources (self-care and rational/cognitive coping) for both male and female faculty and staff at NCU are within the normal range (Alexander, 1983; Ospow & Spokane, 1983).

Table 41

t *Test for Types of Stress and Job Title*

Variables	Faculty (*N* = 37) Mean	*SD*	Staff (*N* = 72) Mean	*SD*	*df*	*t*	*p*
Vocational Strain	51.73	12.61	48.25	9.99	59.835	1.460	0.150
Psychological Strain	52.27	10.97	49.11	8.26	57.563	1.541	0.129
Interpersonal Strain	53.41	11.77	48.65	8.52	55.960	2.180	0.033*
Physical Strain	50.11	9.93	47.38	8.62	107	1.488	0.140

* $p<0.05$.

Table 42

t *Tests for Gender Differences in Coping Strategies*

Variables	Male (*N* = 32) Mean	*SD*	Female (*N* = 77) Mean	*SD*	*df*	*t*	*p*
Recreation	49.56	11.15	45.60	9.93	107	1.831	0.070
Self-care	57.53	8.18	53.04	9.93	107	2.258	0.026*
Social Support	51.97	8.52	49.18	10.06	107	1.375	0.172
Rational/Cognitive Coping	54.72	9.79	49.62	9.75	107	2.482	0.015*

* $p<0.05$.

Null Hypothesis 12

Research Question 6: Are coping strategies related to gender, age, marital status, length of employment, and employment status (faculty versus staff)? Null hypothesis 12 stated that there is no difference between coping strategies and age among faculty and staff at NCU. One-way analysis of variance was used to test this hypothesis. Table 43 presents age group means and standard deviations for each coping strategy. Table 44 presents the results of analysis of variance for comparing the four different age groups on the four coping strategies. At the 0.05 level of significance, the results showed no significant difference in coping strategies among the various age groups. The null hypotheses for all four coping strategies were retained.

Table 43

Descriptive Statistics for Coping Strategies by Age

	1 (*N* = 27)		2 (*N* = 31)		3 (*N* = 31)		4 (*N* = 24)	
Coping Strategies	Mean	*SD*	Mean	*SD*	Mean	*SD*	*Mean*	*SD*
Recreation	46.70	12.09	46.19	9.96	45.90	8.46	49.67	10.65
Self-Care	55.93	8.91	52.65	9.53	52.52	8.41	58.13	11.20
Self-Support	50.07	9.86	48.65	10.63	49.81	10.03	50.20	8.94
Rational/Cognitive Coping	54.30	10.19	47.48	8.71	50.87	10.04	51.83	10.02

Note. 1 = 20-30, 2 = 31-40, 3 = 41-50, 4 = 50 or more.

Table 44

One-Way Analysis of Variance—Coping Strategies by Age

Sources	*SS*	*df*	*MS*	*F*	Sig.
Recreation					
Between Groups	230.409	3	76.803	0.726	0.539
Within Group	11528.920	109	105.766		
Total	11758.920	112			
Self-care					
Between Groups	598.561	3	199.520	2.221	0.090
Within Groups	9793.316	109	89.847		
Total	10391.876	112			
Social Support					
Between Groups	44.378	3	14.793	0.150	0.930
Within Groups	10769.746	109	98.805		
Total	10814.124	112			
Rational/Cognitive Coping					
Between Groups	693.670	3	231.223	2.445	0.068
Within Groups	10308.189	109	94.57		
Total	11001.859	112			

Null Hypothesis 13

Null hypothesis 13 stated that there is no difference in coping strategies and marital status among faculty and staff at NCU. One-way analysis of variance was used to test this null hypothesis. Table 45 shows means and standard deviations by marital status and coping strategies. Table 46 shows the results of the analysis for comparing the three categories of marital status on the four coping strategies. The results showed no

significant differences among the various categories of marital status at the 0.05 level of significance. The null hypotheses for the four coping strategies were retained.

Table 45

Descriptive Statistics for Coping Strategies by Marital Status

Coping Strategy	Single ($N = 41$) Mean	*SD*	Married ($N = 55$) Mean	*SD*	Single/previously Married ($N = 15$) Mean	*SD*
Recreation	49.12	10.94	45.82	8.72	46.87	12.57
Self-Care	56.07	9.31	53.09	9.61	56.47	10.68
Social Support	48.66	9.28	51.55	9.10	49.27	9.48
Rational/Cognitive Coping	51.29	10.36	50.24	9.77	53.80	9.47

Null Hypothesis 14

This hypothesis stated that there was no difference between coping strategies and years of employment among faculty and staff at NCU. The one-way analysis of variance was used to test this hypothesis. Table 47 shows scale means and standard deviations for each coping strategy by length of employment. The results of the analysis of variance are presented in Table 48. The results showed that there was no significant difference in coping strategies among the three categories of employment ($p < 0.05$). Thus, all the null hypotheses related to coping strategies for length of employment were retained.

Table 46

One-Way Analysis of Variance—Coping Strategies by Marital Status

Coping Strategies	*SS*	*df*	*MS*	*F*	Sig.
Recreation					
Between Groups	258.091	2	129.046	1.255	0.289
Within Group	11106.305	108	102.836		
Total	11364.396	110			
Self-care					
Between Groups	266.238	2	133.119	1.431	0.244
Within Groups	10047.059	108	93.028		
Total	10313.297	110			
Social Support					
Between Groups	209.959	2	104.979	1.236	0.295
Within Groups	9175.789	108	84.961		
Total	9385.748	110			
Rational/Cognitive Coping					
Between Groups	151.888	2	75.944	0.766	0.467
Within Groups	10700.815	108	99.082		
Total	10852.703	110			

Table 47

Descriptive Statistics for Years at NCU and Coping Strategies

Coping Strategy	0-4 years (*N* = 64) Mean	*SD*	5-10 years (*N* = 23) Mean	*SD*	Over 10 years (*N* =25) Mean	*SD*
Recreation	45.84	10.44	50.52	9.29	45.76	9.00
Self-Care	55.23	10.33	54.30	8.18	53.40	9.26
Social Support	49.16	9.64	50.70	10.34	50.92	8.09
Rational/Cognitive	50.47	10.07	53.87	9.03	49.52	10.12

Null Hypothesis 15

This hypothesis stated that there is no difference in coping strategies among faculty and staff at NCU. Table 49 shows scale means and standard deviations as well as *t*-test results for comparing coping strategies between faculty and staff. At the 0.05 level of significance, the results showed no statistically significant differences between faculty and staff on all four coping strategies. The null hypotheses related to the four coping strategies were retained.

Null Hypothesis 16

Research Question 7 asked: What is the relationship between sources of stress and coping strategies? Null hypothesis 16 stated that there is no relationship between sources of stress and coping strategies among faculty and staff at Northern Caribbean University.

Table 48

One-Way Analysis of Variance for Years at NCU and Coping Strategies

Coping Strategies	*SS*	*df*	*MS*	*F*	Sig.
Recreation					
Between Groups	404.121	2	202.060	2.056	0.133
Within Group	10710.737	109	98.264		
Total	11114.857	111			
Self-care					
Between Groups	63.637	2	31.819	0.338	0.714
Within Groups	10254.354	109	94.077		
Total	10317.991	111			
Social Support					
Between Groups	75.844	2	37.922	0.422	0.657
Within Groups	9787.147	109	89.790		
Total	9862.991	111			
Rational/Cognitive Coping					
Between Groups	261.991	2	130.995	1.342	0.266
Within Groups	10642.786	109	97.640		
Total	10904.777	111			

Zero-order correlations between sources of stress and coping strategies are shown in Table 50. Correlations among sources of stress variables range from 0.05 to 0.46, suggesting that these variables are somewhat independent of each other. Correlations among coping strategies variables range from 0.26 to 0.51. Correlations between sources of stress and coping strategies range are all negative (-0.01 to -0.48), except for the correlation between social support and responsibility (0.16).

Table 49

t *Tests for Job Title and Coping Strategies*

Variables	Faculty ($N = 37$) Mean	*SD*	Staff ($N = 72$) Mean	*SD*	*df*	*t*	*p*
Recreation	47.57	10.06	46.60	10.19	107	0.473	0.638
Self-Care	56.24	10.69	53.97	8.96	107	1.172	0.244
Social Support	48.78	10.68	50.21	9.30	107	-0.720	0.473
Cognitive Coping	51.03	9.53	51.09	9.53	107	-0.036	0.971

To examine the relationship between sources of stress and coping strategies, a canonical correlation analysis was performed. Canonical loadings, standardized coefficients, canonical correlation, and within set variance (% of variance) are shown in Table 51. The first canonical correlation is 0.56 (31.36% overlapping variance) whereas the second canonical correlation is 0.48 (23.04% overlapping variance). The remaining two canonical correlations were effectively zero. With all four canonical correlations included, χ^2 (24) =78.27, p<0.001, and with the first canonical correlation removed, χ^2 (15) =37.03, p<0.01, subsequent chi-square tests were not statistically significant. Therefore, the first two pairs of canonical correlation accounted for the significant relationships between sources of stress and coping strategies.

Table 50

Inter-correlations Between Sources of Stress and Coping Strategies (N=117)

	RO	RI	RA	RB	R	PE	RC	SC	SS	RCC
Sources of Stress										
Role Overload	--									
Role Insufficiency	0.05	--								
Role Ambiguity	0.24**	0.44**	--							
Role Boundary	0.43**	0.39**	0.46**	--						
Responsibility	0.27**	-0.11	-0.14	0.12	--					
Physical Environment	0.25**	0.22**	0.27**	0.44**	0.27**	--				
Coping Strategies										
Recreation	-0.37**	-0.19	-0.17	-0.22*	-0.35**	-0.22*	--			
Self-Care	-0.30**	-0.18*	-0.18	-0.18	-0.24**	-0.20*	0.50**	--		
Social Support	-0.10	-0.24**	-0.30**	-0.15	0.16	-0.09	0.36**	0.26**	--	
Rational/Cognitive Coping	-0.23*	-0.18	-0.48**	-0.30**	-0.01	-0.13	0.36**	0.40**	0.51**	--

* $p<0.05$. ** $p<0.01$.

Table 51

Canonical Correlations Analysis for Sources of Stress and Coping Strategies

	Canonical Loadings		Standardized Canonical Coefficients	
	1	2	1	2
Set 1 Variables				
Role Overload	0.73	0.05	0.48	-0.13
Role Insufficiency	0.28	0.26	0.21	-0.22
Role Ambiguity	0.40	0.89	0.31	0.89
Role Boundary	0.48	0.41	-0.04	0.24
Responsibility	0.72	-0.50	0.66	-0.36
Physical Environment	0.41	-0.02	0.01	-0.15
% of Variance	0.28	0.21		
Redundancy	0.09	0.05		
Set 2 Variables				
Recreation	-0.89	0.08	-0.77	0.42
Self-Care	-0.70	-0.02	-0.28	0.21
Social Support	-0.13	-0.58	0.37	-0.31
Rational/Cognitive Coping	-0.52	-0.85	-0.32	-0.93
% of Variance	0.39	0.27		
Redundancy	0.12	0.06		
Canonical Correlation	0.56	0.48		
Wilk's	0.49	0.72		
Chi-Square	78.27	37.03		
df	24	15		
p	0.000	0.001		

Canonical loadings of 0.3 (absolute value) are interpreted (Tabachnick & Fidell, 2001). Sources of stress that were correlated with the first canonical variate were role overload, role ambiguity, role boundary, responsibility, and physical environment. Coping strategies that were correlated with the first canonical variate were recreation, self-care, and rational/cognitive coping. The first canonical variate indicated that high scores in role overload (0.73), role ambiguity (0.40), role boundary (0.48), responsibility (0.72), and physical environment (0.41) are associated with low scores in recreation (-0.89), self-care (-0.70), and rational/cognitive coping (-0.52).

Role ambiguity, role boundary, and responsibility of the sources of stress set were correlated with the second canonical variate while social support and rational/cognitive coping of the coping strategies set were correlated with the second canonical variate. Thus, high scores in role ambiguity (0.89) and role boundary (0.41) but low in responsibility (-0.50) are associated with low social support (-0.58) and low rational/cognitive coping (-0.85).

Taken as a pair, the canonical variates appear to suggest that higher levels of stress due to role overload, role insufficiency, role ambiguity, and role boundary, but lower levels of stress due to responsibility are associated with lower levels of coping from recreation, self-care, social support, and rational/cognitive coping.

Null Hypothesis 17

Research Question 8 asked: What is the relationship between types of stress and coping strategies? Null hypothesis 17 states that there is no relationship between types of stress and coping strategies among faculty and staff at NCU. Zero-order correlation coefficients between types of stress (strains) and coping strategies are found in Table 52.

Correlations among types of stress range from 0.44 to 0.70, while the correlations among coping strategies range from 0.26 to 0.51. Correlations between types of stress and coping strategies are all negative. Although most of them are statistically significant ($p<0.05$), they are quite small ($r= -0.07$ to $r= -0.46$).

The relationships between types of stress and coping strategies are shown by the results of the canonical correlation analysis in Table 53. The first canonical correlation was 0.56 (31.36% overlapping variance); the second was 0.43 (18.49% overlapping variance); the third was 0.35 (11.25% overlapping variance); and the fourth was 0.22 (4.84% overlapping variance). With all four canonical correlations included, χ^2 (16)=83.60, $p<0.001$. With three canonical correlations removed, χ^2 (1)=5.35, $p<0.05$. Therefore all four pairs of canonical variates accounted for the significant relationships between the set of types of stress and the set of coping strategies.

Canonical loadings of 0.3 (absolute value) are interpreted (Tabachnick & Fidell, 2001). Types of stress that were correlated with the first canonical variate were psychological strain and physical strain. Among coping strategies, recreation and self-care were correlated with the first canonical variate. Thus, the first canonical variate indicates that those with low scores in psychological strain (-0.55) and physical strain (-0.76) are associated with high scores in recreation and self-care. The second canonical variate is defined by an association between vocational strain, psychological strain, interpersonal strain, and physical strain of the Types of Stress set, and recreation, social support, and rational/cognitive coping of the Coping Strategies set. This canonical variate indicates that those with low scores in vocational strain (-0.40), psychological strain (-0.73), interpersonal strain (-0.97), and physical strain (-0.48) are associated

Table 52

Inter-correlations Between Types of Stress and Coping Strategies (N=117)

	VS	PSY	IS	PHS	RC	SC	SS	RCC
Types of Stress								
Vocational Strain	--							
Psychological Strain	0.53**	--						
Interpersonal Strain	0.44**	0.70**	--					
Physical Strain	0.50**	0.67**	0.64**					
Coping Strategies								
Recreation	-0.10	-0.39**	-0.20*	-0.46**	--			
Self-Care	-0.24*	-0.17	-0.07	-0.34**	0.50**	--		
Social Support	-0.20*	-0.29**	-0.41**	-0.25*	0.36**	0.26**	--	
Rational/Cognitive Coping	-0.34**	-0.33**	-0.25**	-0.26*	0.36**	0.40**	0.51**	--

* $p<0.05$. ** $p<0.01$.

Table 53

Canonical Correlation Analysis for Strain and Coping Strategies (N=117)

Variables	Canonical Loadings 1	2	3	4	Standardized Canonical Coefficients 1	2	3	4
Set 1								
Vocational Strain	-0.15	-0.40	-0.90	-0.04	0.33	0.01	-1.16	0.04
Psychological Strain	-0.55	-0.73	-0.15	-0.37	-0.61	-0.27	0.28	-1.39
Interpersonal Strain	-0.11	-0.97	0.05	0.22	0.84	-1.00	0.28	0.62
Physical Strain	-0.76	-0.48	-0.24	0.37	-1.06	-0.33	-0.02	0.93
% of Variance	0.23	0.47	0.22	0.08				
Redundancy	0.07	0.08	0.03	0.01				
Set 2								
Recreation	0.93	0.34	-0.11	-0.03	0.95	0.15	-0.67	0.29
Self-Care	0.60	-0.01	0.63	-0.49	0.21	-0.40	0.73	-0.83
Social Support	0.04	0.94	0.13	-0.32	-0.36	0.87	-0.19	-0.70
Rational/Cognitive Coping	0.27	0.57	0.67	0.38	-0.03	0.24	0.72	0.96
% of Variance	0.33	0.33	0.22	0.12				
Redundancy	0.10	0.06	0.03	0.01				
Canonical Correlation	0.56	0.43	0.35	0.22				
Wilk's	0.47	0.68	0.84	0.95				
Chi-Square	83.60	42.55	19.57	5.35				
df	16	9	4	1				
p	0.00	0.00	0.001	0.02				

with high scores in recreation (0.34), social support (0.94), and rational/cognitive coping (0.57).

Vocational strain was the only Type of Stress that was correlated with the third canonical variate. Two coping strategies (self-care and rational/cognitive coping) were correlated with the third canonical variate. This variate indicates that low vocational strain (-0.90) is associated with high self-care (0.63) and rational/cognitive coping (0.67). Types of stress correlated with the fourth canonical variate were psychological strain and physical strain. Coping strategies correlated with the fourth canonical variate were self-care, social support, and rational/cognitive coping. In this variate, low psychological strain (-0.37) but high physical strain (0.37) are associated with low self-care (-0.49) and social support (-0.31) but high rational/cognitive coping (0.38).

When all four canonical variates are taken together, they suggest that lower levels of stress due to vocational strain, psychological strain, interpersonal strain, and physical strain are associated with better coping strategies in the form recreation, self-care, social support, and rational/cognitive coping.

Major Findings of the Study

The following findings are reported for this study:

1. Generally, levels of stress due to various sources (role ambiguity, role boundary, etc.) and types (vocational, psychological, etc.) of strain are within normal range, although 2-6% appeared to experience strong maladaptive stress.

2. Levels of coping for various strategies (recreation, self-care, social support, and rational/cognitive coping) are within normal range.

Sources of Stress

3. Stress due to responsibility and physical environment were significantly higher for female than for male faculty and staff, although the levels are within normal range.

4. Faculty and staff at Northern Caribbean University in the 31-40 age group experience higher levels of stress due to role boundary and role insufficiency than colleagues in other age groups.

5. Singles (never married) experienced higher levels of stress than singles (previously married) due to role insufficiency and role boundary.

6. Length of employment was not related to sources of stress.

7. Sources of stress were not related to employment status (faculty vs. staff).

Types of Stress

8. Female faculty and staff at Northern Caribbean University experienced significantly higher levels of vocational strain, interpersonal strain, and physical strain than their male colleagues.

9. Levels of stress due to vocational, psychological, interpersonal, and physical strains were not related to the ages of the faculty and staff.

10. Single faculty and staff who were never married experienced higher levels of interpersonal strain than did their colleagues who were married.

11. Stress due to the various types of strain (vocational, psychological, etc.) was not related to length of employment.

12. Stress due to the various types of strain (vocational, psychological, etc.) was not related to employment status (faculty vs. staff).

Coping Strategies

13. Faculty and staff who were males appear to have better coping skills in self-care and rational/cognitive coping than their female counterparts.

14. Ability to cope was not related to age, marital status, length of employment, or employment status.

15. Higher levels of stress due to role overload, role insufficiency, role ambiguity, and role boundary, but lower levels of responsibility are associated with lower levels of coping from recreation, self-care, social support, and rational/cognitive coping.

16. Lower levels of stress due to vocational strain, psychological strain, interpersonal strain, and physical strain are associated with better coping strategies in the form of recreation, self-care, social support, and rational/cognitive coping.

Summary

This chapter presented demographic characteristics of the participants and the results of the data analyses. The major findings are then reported. In the next chapter, these findings will be discussed and implications for practice and future studies are suggested.

CHAPTER 5

SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to investigate sources and levels of stress, and coping strategies of faculty and staff at Northern Caribbean University. In this chapter, brief summaries of the methodology, literature review, and results are presented. A discussion of the major findings is then reported, followed by conclusions, implications for practice, and further research.

Research Methodology

A descriptive research design was used to conduct this study. A standardized questionnaire, the Occupational Stress Inventory (OSI), was administered to the faculty and staff of Northern Caribbean University in Jamaica. The OSI consists of the (a) Occupational Roles Questionnaire (ORQ) which measures six sources of stress (role overload, role insufficiency, role ambiguity, role boundary, responsibility, and physical environment), (b) the Personal Strain Questionnaire (PSQ), which measures levels of stress in four types of stress (vocational strain, psychological strain, interpersonal strain), and (c) Personal Resources Questionnaire (PRQ), which measures four coping strategies (recreation, self-care, social support, and rational/cognitive coping). Reliability estimates for various scales of the OSI range from 0.61 for self-care, to a high of 0.87 for

social support. Seventeen null hypotheses were tested using *t*-test for independent samples, one-way analysis of variance, and canonical correlation analysis.

Summary of the Literature

The proliferation of literature on organizational change and the management of change may lead one to conclude that the area of organization development and managed change is a settled discipline. Closer scrutiny of the literature, however, will disclose that the process is an inexact science fraught with uncertainties. Tragically, a large percentage of change efforts fail (Duck, 1993).

Organizational Change

Change can in fact create a number of potentially stressful conditions (Bolman & Deal, 1991). Change can result in new roles and performance expectations that conflict with other roles an individual is expected to perform (Brett, 1980, & Louis, 1990). Difficulties arise during the change process because of the variability of the human factor and because of the complex interdependence of the many organizational components such as reporting structures, work flow, the required fit of individual competencies and job skills, the nature of the services, or the goods produced and the productivity tools and equipment used within the organization (Daft, 1995). Because of these and other considerations, the human component becomes a major consideration in the success or failure of any change effort. As Hersey and Blanchard (1982) have noted, "There is no best strategy for implementing change" (p. 274). The best choice is highly dependent on the specific profile of an organization, its culture, and the disposition of the people who

work there. Given the foregoing, it is little wonder that it is suggested that educational change can create potentially stressful situations for teachers (Fullan, 1991).

Stress has become one of the most significant health and safety issues in the workplace. However, in order for any institution or organization to develop policy and practice on stress-related issues and to implement effective interventions, it is necessary that there be an understanding and an awareness of the elements of stress. This is especially necessary, since stress means different things to different people. The Education Service Advisory Committee (ESAC, 1990) defines stress as a process that can occur when there is an unresolved mismatch between the perceived pressures of the work situation and an individual's ability to cope.

Reese (1989) suggests that stress is not simply a mechanical reaction to the application of pressure, but rather involves a complex interplay of individual characteristics, which may include 'self-generated' pressure of external demands or constraints, and of support and coping patterns that are either inadequate or inappropriate.

Selye (1956b) asserts from a medical perspective that stress is essentially the rate of "wear and tear" on the body. He maintains that stress is a necessary condition of life, since without stimulus an organism will die. He suggests therefore that a distinction be drawn between 'eustress' and 'distress.' At one extreme he claims that eustress is the situation that can be described as stimulating, challenging, and exhilarating; and the other, 'distress,' is a situation which is threatening, disturbing, and distressing. This definition draws attention to the fact that in common usage, the term 'stress' applies to the negative end of a spectrum of experience.

Definitions of Stress

According to Hallman (2003), there are some recent definitions of stress. For example, according to the United States National Institute of Occupational Safety and Health (1999), job stress can be defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the work. Job stress, it is claimed, can lead to poor health and even injury.

The European Commission Directorate-General for Employment and Social Affairs (2003) defines stress as the emotional, cognitive, behavioral, and physiological reaction to aversive and noxious aspects of work, work environments, and work organizations. It is also described as a state characterized by high levels of arousal and distress and often feelings of not coping.

Models of Stress

Two models of stress were utilized for the purpose of this study. These are (a) managerial-oriented model of stress and (b) the physiological model of stress. The managerial-oriented model emphasized external or environmental influence on human beings (Cox, 1975; Hinkle, 1974; Lewinsohn, 1974; Lewinsohn & Libet, 1972; Wild & Hanes, 1976). The second model, the physiological model, refers to the physiological reactions of individual to situations of life (Selye, 1956b). According to Kyriacou and Sutcliff (1978), the physiological model is more widely used. However, Moracco and McFadden (1980) indicated that the models are very similar although the terms used may be different.

Many stressors have been identified but the main ones highlighted were role overload (Fisher, 1994; French & Caplan, 1973; Lease, 1999), insufficient time to keep abreast of developments in areas of expertise, slow career advancement (Gmelch et al., 1984), long working hours (Earley, 1994; Kinman, 1998), excessive workload, work interfering with personal life (Doyle & Hind, 1998), uncaring organization (Daniels & Guppy, 1994), lack of opportunities for promotion, and ineffective organizational communication (Kinman, 1996).

Coping Mechanisms

Various stress-coping mechanisms have been identified. However, Kyriacou (2001) declares that individual coping strategies fall into two main types: direct-action techniques and palliative techniques. Direct-action techniques relate to activities that a teacher can do to eliminate the source of stress. These may involve simply managing or organizing one's self more effectively; developing new knowledge, skills, and working practices or negotiating with colleagues, so that aspects of one's situation are changed or dealt with by others.

Palliative techniques, according to Kyriacou (2001), are aimed at lessening the feeling of stress that occurs. These can be mental or physical. Mental strategies involve the teacher in trying to change how the situation is appraised. Physical strategies involve activities that help the teacher regain a sense of being relaxed, by relieving any tension and anxiety that have been built up. Several studies have linked gender and years of experience as variables that relate to levels of stress in institutions of higher education (Goldenberg & Waddell, 1990; Hallman, 2003; Nesbitt et al., 2003; Pines & Aronson, 1989).

Discussion

Several major findings were found in this study. These are summarized and discussed in this section. Each subsection corresponds to the eight research questions and 17 null hypotheses tested.

Sources of Stress

Research Question 1 asked: What are the sources of stress among faculty and staff at NCU?

Six sources of stress were examined. These were role overload, role insufficiency, role ambiguity, role boundary, responsibility, and physical environment. Based on normative interpretation (Alexander, 1983; Osipow & Spokane, 1983), stress levels due to these sources are within normal range, although 2%-6% of respondents did report maladaptive levels of stress. These were mostly females and staff.

Findings

The findings related to the sources of stress were somewhat surprising, especially given the reasons that triggered this study. Northern Caribbean University had transitioned from college to university status. The enrollment had tripled in a very short time. Classes had become larger and continued to be housed in the same spaces that previously held smaller classes. Students were spilling out in the hallways. Teachers were complaining about the lack of resources, and some persons had even become sick. In fact, a worker died and many individuals felt that the death was due to stress. Coupled

with all the foregoing is the view that organizational change could create a number of potentially stressful conditions (Bolman & Deal, 1991). Fullan (1991) also suggested that educational change could create potentially stressful situations for teachers. It was therefore not unreasonable to expect that high levels of stress could have resulted because of the change. Why then were the stress levels for the majority of workers within normal range although a small percentage (2%-6%) reported maladaptive stress?

The following could be possible reasons for the findings. It is possible that the persons who were stressed were not among those who participated in the study. It is also possible that some faculty and staff may be in denial as they felt that reporting that they experienced stress would suggest that they were weak and ineffective. Another important reason could be that because faculty and staff are committed to the mission of the institution they worked hard and so did not seem to experience stress. In fact, Brown (2005) found that in every category of employment, employers at Northern Caribbean University exhibited high levels of organizational commitment.

And yet, there could be other reasons. If they value the work that they do, overload may not necessarily create more stress for them. This idea is substantiated by Chan and Hui (1995), who explored teacher burnout in a study of Chinese secondary school teachers in Hong Kong. They observed that one of the major sources of stress was having too heavy a workload. Many of the teachers were given additional duties in school guidance work as part of moves to improve the quality of guidance in Hong Kong schools. It was found that although the guidance teachers reported higher levels of workload, they did not report a higher level of burnout. Rather, they reported a sense of personal achievement compared to non-guidance teachers. They concluded that guidance

teachers are teachers who valued this type of work. The study seems to suggest that even in the context of feeling overloaded, taking on additional duties in a valued area of work need not create stress, and may indeed enhance job satisfaction.

Further, while professionals might perceive high levels of occupational stress and express dissatisfaction with many extrinsic aspects of their jobs such as workload, pay, and promotional prospects, there is evidence to suggest that they may still feel generally satisfied at work, providing that certain intrinsic needs are met (Kacmar & Ferris, 1989). Research on university faculty tends to support this viewpoint. It appears that, on average, academic staff are enthusiastic about their work and obtain a significant degree of satisfaction, enthusiasm, and challenge from their jobs, as well as stressors and strain. It should therefore not be considered unusual that faculty and staff at Northern Caribbean University experienced normal levels of stress in spite of the change and the apparent complaints and dissatisfaction that may have arisen as a result.

Sources of Stress and Demographic Characteristics

Question 2 asked: Are the sources of stress related to gender, age, marital status, years of employment, and employment status (faculty versus staff)?

1. Stress levels due to responsibility and physical environment were significantly higher for female than male faculty and staff, although the levels are within normal range.

2. Faculty and staff at Northern Caribbean University in the 31-40 age range experience higher levels of stress due to role boundary and role insufficiency than colleagues in other age group.

3. Singles (never married) experienced higher levels of stress than singles (previously married) due to role insufficiency and role boundary.

4. Length of employment was not related to sources of stress.
5. Sources of stress were not related to employment status (faculty vs. staff).

The findings indicated that stress levels due to responsibility and physical environment were significantly higher for female faculty and staff than for male faculty and staff, although the levels are within normal range. Several factors appear to magnify the impact of stress in women, chief among them being the preponderant role that women still play in the provision of family care. It is well established that the total workload of women who are employed full-time is higher than that of full-time male workers, particularly when they have family responsibilities. Research carried out in Sweden seems to confirm this fact, since the findings revealed that the total workload of women employed part-time is as much as that of men employed full-time (Frankensteiner, 1999).

In addition to family responsibilities, other factors may make women more vulnerable to work-related stress. Among these are the lower levels of control in their jobs, since the majority of women still tend to occupy less senior jobs than men. As well, Hallman (2003) documents the prejudice and discrimination suffered by many women who are in more senior positions, such as managerial jobs, both as a result of organization and corporate policy and from their colleagues at work.

The results also indicated that sources of stress are related to the age of faculty and staff. The findings show that faculty and staff in the age group 31-40 experienced higher levels of stress in role insufficiency and role boundary than colleagues in the other age groups. Role insufficiency relates to the need for recognition and success not being met. It is vital and important that workers are made to feel valued at work and be made a

vital part of the decision-making process of the institution. Jackson and Hayday (1997) highlighted the importance of workers feeling valued at work.

Role boundary was also found to be a source of stress in the age group 31-40. That this age group is again mentioned as experiencing stress is worthy of note. Farber (1984a) found teachers in the age group 34-44 to be most at risk of burnout. It is possible that at this stage they are in the throes of "midlife crisis," and are reassessing their career path—a time of seeming adult confusion.

Marital status was also found to be related to the sources of stress. Faculty and staff who are single/never married were found to experience higher levels of stress in both role insufficiency and role boundary than those who were married or single/previously married. A possible reason for their being more stressed could be due to a lack of experience, since they may be the younger workers on the team. This being the case, they might not have as yet settled into the routine of the change. Also, since role boundary is defined as "working with individuals from several departments," having to cope with different personalities and different types of leadership could be for them quite stressful.

Maslach and Jackson (1981) found marital status significantly related to the emotional subscale of the Maslach Burnout Inventory (MBI), but not depersonalization or personal accomplishment. They found that single and divorced persons scored higher than married people on the emotional exhaustion scale in both frequency and intensity. It is therefore possible for persons in this category to be expected to experience a level of stress, if only in the normal range.

The study indicated that faculty and staff at Northern Caribbean University experienced higher levels of stress than staff in interpersonal strain. This finding is not unique to Northern Caribbean University. Gillespie et al. (2001), in studying occupational stress in Australian universities, confirmed that although both general and academic staff experienced stress, academic staff experienced greater levels of stress. Devereaux (2002) also found that the occupations with the lowest degree of job stress include professional, administrative, and secretarial staff.

Is it any wonder then that Yuker (1974) in presenting his seminal review of literature on faculty workload demonstrated the complexity of the concept and the ways to define workload. He therefore concluded that "in view of the varying opinions, it will be impossible to define total faculty workload in a way that everyone would find satisfactory" (p. 9). He, however, stated that, in a narrow definition, workload is the number of classes and the number of students. Seaberg (1998), in relating to workload, seems to capture the experience of the Northern Caribbean University faculty when he stated that within academic circles, workload is calculated with quantity and quality parameters in teaching, research, and service.

Added to the matter of workload there is the matter of role overload, which is a job characteristic that has long been associated with stress in the workplace (French & Caplan, 1973). Based on studies conducted by Scottish universities, Fisher (1994) suggests that role overload has become a particularly salient stressor for the modern academic, as the work encompasses many different, often conflicting roles. He articulated that staff are expected to teach, meet tutorial, laboratory seminar commitment and at the same time carry out research, run experiments, obtain funding, and write

papers. This further defines the work of the faculty at Northern Caribbean University and could serve to underscore the reason why faculty appeared to be more stressed than staff.

Length of employment and employment status (faculty versus staff) were not found to be contributors to the sources of stress in this study.

Levels of Stress

Research Question 3 asked: What is the level of stress among faculty and staff at NCU?

Generally, levels of stress due to vocational, psychological, interpersonal, and physical strains are within normal range, although 2-6% appeared to experience strong maladaptive stress.

The findings related to levels of stress were unexpected given the considerations and observations that motivated the study. Northern Caribbean University changed from college to university status. Such change could represent a traumatic and disruptive event in the lives of individuals and in the organization (Connor & Lake, 1964, Farmer, 1990; Lawler, 1986). Change in any area of the organization can have ripple effects and unintended consequences across the organization. This was quite evident with the change at Northern Caribbean University.

Levels of Stress and Demographic Characteristics

Research Question 4 asked: Are the levels of stress related to gender, age, marital status, years of employment, and employment status (faculty versus staff)? The results suggest that:

1. Female faculty and staff at Northern Caribbean University experienced significantly higher levels of vocational strain, interpersonal strain, and physical strain than did their male colleagues.

2. Levels of stress due to vocational, psychological, interpersonal, and physical strains were not related to the ages of faculty and staff.

3. Single faculty and staff who were never married experienced significantly higher levels of interpersonal strain than their colleagues who were married.

4. Stress due to the various types of strain (vocational, psychological, etc.) was not related to length of employment.

5. Stress due to the various types of strain (vocational, psychological, etc.) was not related to employment status (faculty vs. staff).

The findings from this study indicated that female faculty and staff at Northern Caribbean University appeared to experience higher levels of stress than did their male counterparts in vocational strain, interpersonal strain, and physical strain. This result is not unusual and could be the result of several factors. Among them, according to Romeo (1992), is the fact that women are often paid less than men for their work, even if they have college degrees, and many organizations and institutions also lack policies that respond to family issues. Added to this is the preponderant role that women still play in the provision of family care. It is well established that the total workload of women who are employed full-time is higher than that of full-time male workers, particularly where they have family responsibilities. Additionally, Hallman (2003) cites the prejudice and discrimination suffered by many women who are in more senior positions, such as

managerial jobs, both as a result of organization and corporate policy and from their colleagues at work.

The findings also indicated that faculty and staff who were single/never married experienced a higher level of interpersonal strain than their colleagues who were married. This means that, according to Sarafino (1998), they would be expected to withdraw from personal interactions with students and colleagues, lack input in faculty and other institutional decision making, and also to cut back in giving social support. This approach if taken by these workers could be due to a lack of experience and possible support. Hopefully, in time, they would be able to respond differently as they develop the skills to manage and cope with the various issues that are a part of the academic process.

Maslach and Jackson (1981) found marital status significantly related to the emotional exhaustion subscale of the MBI, but not to depersonalization or personal accomplishment. Single and divorced people, they found, scored higher than married people on the emotional exhaustion scale in both frequency and intensity. Schwab et al. (1996), however, did not find marital status significantly related to burnout, while Gold (1985) reported only a slightly greater risk for single teachers than those who have been married.

Coping Strategies

Research Question 5 asked: What are the coping strategies for stress that faculty and staff use at Northern Caribbean University?

Four coping strategies were examined. These were recreation, self-care, social support, and rational/cognitive coping. Based on the normative interpretation (Alexander, 1983; Osipow & Spokane, 1983), the faculty and staff at Northern Caribbean University

have average coping skills. However, the findings from the study indicate that self-care and rational/cognitive coping are used at a slightly higher level than recreation or social support.

That the faculty and staff at Northern Caribbean University experience normal levels of coping skills is not unexpected since they experience for the most part normal levels of stress. How has this level of coping been achieved? The faculty and staff cope by using self-care, rational/cognitive coping, social support, and recreation. Adams (1980) in reflecting his views on stress management highlighted some primary mediators of stress such as: the person's personality, inherited characteristics and past history, the quality of interpersonal support inherent in his or her environment, and the nature of the organization. These, he claimed, are very difficult to change. He therefore suggested that self-management, creation, and use of supportive relationships and organization improvement are ways to manage those factors.

In commenting on self-management, Adams (1980) states that effective self-management requires a healthy lifestyle. Additionally, he indicated that the employees within any organization must be willing to adapt to changes in life and in the organization for which they work to reduce the level of stress in their lives. The changes in life that an individual must be willing to adapt to, he claims, are good nutrition habits, self-awareness, letting go techniques, and personal planning. Good nutrition habits, he suggests, include balanced diet, regular meals, maintaining recommended weight, moderate use of alcohol and caffeine, and no smoking. These last suggestions constitute self-care, which is one of the approaches utilized by the faculty and staff at Northern Caribbean University.

Recreation is another strategy used by the workers at Northern Caribbean University. Getting away, taking a day off, going on a vacation, or even taking leave of absence from teaching are among the techniques to help cope with stress (Alley, 1980; Calhoun, 1980; Kossac & Woods, 1980; Moe, 1979; Weiskopf, 1980). Weiskopf (1980) further suggests that people who are undergoing stress should avoid isolation and should instead interact with people who they consider to be fun and interesting.

Another strategy for coping used by faculty and staff at Northern Caribbean University is social support. Studies have highlighted the importance of working in a school where a positive atmosphere of social support exists (Sheffield et al., 1994; Punch & Tuetteman, 1996). This enables the teacher to share concerns with one another, which can lead to helpful suggestions which if implemented could help to alleviate the sources of stress. Often simply sharing problems or engaging in some social activity with colleagues during break periods can effectively help to dissipate the feelings of stress.

Rational/cognitive coping, the final coping strategy utilized by faculty and staff at Northern Caribbean University, is defined by the findings of this study as being able to identify important elements of a problem: being able to establish priorities for their time and stick to them; having the techniques to avoid distraction; and being able to think through consequences of their actions. They are aware of things they have to do and have systematic ways for solving problems. The faculty can only be further encouraged to continue to build on this strength.

Coping Strategies and Demographic Characteristics

Research question 6 asked: Are coping strategies related to gender, age, marital status, years of employment, and employment status? The analysis shows that:

1. Faculty and staff at NCU who are males appear to have better coping skills in self-care and rational/cognitive coping than their female counterparts.

2. Ability to cope was not related to age, marital status, length of employment, or employment status.

The findings suggest that faculty and staff who are males appeared to have better coping skills in the areas highlighted (self-care and rational/cognitive coping) than their female counterparts. Abouserie (1994a) looked at gender differentiation in stressors reported by university teachers in training. She found levels of stress in females significantly higher than in males. Other studies reported similar differences (Clarke & Reiker, 1986; Mallinckrodt et al., 1989), which suggests that further investigations are required to explain why females seem less able than males to cope with stress situations.

Marital status, age, years of employment, and employment status were not found to be related to coping strategies among faculty and staff.

Relationship Between Sources of Stress and Coping

Research Question 7 asked: What is the relationship between sources of stress and coping?

The findings indicate that higher levels of stress due to role overload, role insufficiency, role ambiguity, and role boundary, but lower levels due to responsibility are associated with lower levels of coping from recreation, self-care, social support, and rational/cognitive coping. The results should not be unexpected especially that the workers experience normal levels of stress for the most part. Certainly, the goal must be to maintain a balance. Probably Kyriacou's (2001) "direct action technique" could be a way forward. This technique speaks to helping the worker get a clear idea of what the

source of stress is and then carrying out some form of action that will mean that the demands that are causing the stress can be successfully dealt with in the future or changing the situation in some way so that the demands no longer occur. Direct-action techniques may also involve, he adds, simply managing or organizing oneself more effectively. This may mean involving new knowledge, skills, and practices, and negotiating with colleagues so that aspects of one's situation are changed or dealt with by others.

Relationship to Types of Stress and Coping

Research Question 8 asked: What is the relationship between types of stress and coping strategies?

The findings in this study suggest that lower levels of stress due to vocational strain, psychological strain, interpersonal strain, and physical strain are associated with better coping strategies in the form of recreation, self-care, social support, and rational/cognitive coping. This ought to be the balance faculty and staff at Northern Caribbean University should seek to maintain. This can be done according to Borg and Falzon (1989), Cockburn (1996), and Benmansour (1998) through trying to keep problems in perspective, avoiding confrontations, trying to relax after work, taking action to deal with problems, keeping feelings under control, planing ahead, prioritizing, and recognizing one's own limitations.

Conclusions

The following conclusions can be drawn from this study:

1. Faculty and staff at Northern Caribbean University experience normal levels of stress.

2. Demographic characteristics do not have much effect on levels and sources of stress.

3. People with good coping skills manage stress better than those that do not have those skills.

4. Female faculty and staff appear to experience higher levels of stress and strain.

Implications for Practice

The study investigated the sources, types, and levels of stress experienced by faculty and staff at Northern Caribbean University. The following implications for practice are suggested based on the findings of the study:

1. Northern Caribbean University, in an effort to help its workers maintain normal levels of stress, should promote the health and fitness of its workers.

2. Effort should be made to encourage group solving to discuss perceived stressors among female faculty and staff and put forward suggestions for appropriate action.

3. Northern Caribbean University should, in conjunction with the Family Life Department of the West Indies Union, plan workshops to assist the single/never married workers to manage stress and in that way to help them achieve balance in their lives.

4. Northern Caribbean University presently has a teacher award system, but it could probably take further steps to set clearer targets with clear policies, plan and recognition for achievement of its workers.

5. The administrators of the institution should make every effort to continue to demonstrate a genuine interest in the workforce and to continue to engender a supportive culture.

6. Finally, NCU should use periodic anonymous surveys to obtain employee feedback about work and possibly other concerns.

Recommendations for Future Research

The following recommendations for further study are proposed based on the findings and conclusions of this research:

1. A comparative study could be conducted to examine the levels of stress, types and sources, and coping strategies in other Seventh-day Adventist universities in the Inter-American Division. This could provide additional information about variables, and to compare the effectiveness of particular intervention strategies and policies in reducing stress among workers.

2. This study could be replicated among the other universities in Jamaica to evaluate the levels and sources of stress among workers in those institutions and the coping techniques used.

3. A study could be done to investigate why female workers seem less able than males to cope with stressful situations.

4. A longitudinal study could be done on a national scale to examine the impact of a range of potential stressors overtime on outcome variables that might include psychological and physiological symptoms, performance, and intention to leave. This could provide the government of Jamaica and policymakers with an ongoing critique of how various educational reforms impact on teachers' experience of stress.

5. A qualitative study could be conducted to assess the nature of stressors and strains experienced in the workplace and also to isolate areas of work that employees see as satisfactory and fulfilling. These findings could be integrated with the knowledge obtained by quantitative approaches.

6. In spite of my gut feelings as an administrator that faculty and staff at Northern Caribbean University experience high levels of stress, this was not substantiated by this study. Probably, this study could be replicated using a qualitative approach to ensure whether in fact, for the most part, the faculty and staff do experience normal levels of stress.

APPENDIX

APPENDIX A

AUTHORIZATION TO PERFORM STUDY

Andrews University

April 12, 2004

Gloria Roberts
5 Wesley Heights
c/o Northern Caribbean University
Mandeville, Jamaica W.I.

Dear Gloria

RE: APPLICATION FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS
IRB Protocol #: 04-027 **Application Type:** Original **Dept:** Education
Review Category: Exempt **Action Taken:** Approved **Advisor:** Jim Jeffrey
Protocol Title: Levels of Stress in Faculty and Staff at Northern Caribbean University: Sources of Stress and Coping Strategies

This letter is to advise you that the Institutional Review Board (IRB) has reviewed and approved you proposal for research. You have been given clearance to proceed with your research plans.

All changes made to the study design and/or consent form, after initiation of the project, require prior approval from the IRB before such changes can be implemented. Feel free to contact our office if you have any questions.

The duration of the present approval is for one year. If your research is going to take more than one year, you must apply for an extension of your approval in order to be authorized to continue with this project.

Some proposal and research design designs may be of such a nature that participation in the project may involve certain risks to human subjects. If your project is one of this nature and in the implementation of your project an incidence occurs which results in a research-related adverse reaction and/or physical injury, such an occurrence must be reported immediately in writing to the Institutional Review Board. Any project-related physical injury must also be reported immediately to the University physician, Dr. Loren Hamel, by calling (269) 473-2222.

We wish you success as you implement the research project as outlined in the approved protocol.

Sincerely,

Jessica Shine

APPROVED
Office of Scholarly Research

Jessica Shine,
Graduate Assistant
Institutional Review Board
Cc: Jim Jeffrey

Office of Scholarly Research
(269) 471-6361 Fax: (269) 471-6246 E-mail: irb@andrews.edu

APPENDIX B

AUTHORIZATION TO USE INSTRUMENT

PAR
Psychological Assessment Resources

16204 N. FLORIDA AVENUE
LUTZ, FLORIDA 33549
Tel: (813) 968-3003
Fax: (813) 968-2598
www.parinc.com

Sent Via Email: gadr2@yahoo.com

February 9, 2004

Gloria Roberts
Student Development, Campus Safety and
University Records
Northern Caribbean University, Mandeville
Manchester
Jamaica W.I.

Dear Ms. Roberts:

In response to your recent request, permission is hereby granted to you to incorporate the Occupational Stress Inventory-Revised (OSI-R) into a survey and reproduce up to a total of 430 copies for use in your research entitled *Investigating levels of stress on a university campus, sources of stress and coping strategies*. If additional copies are needed, you will need to write to PAR for further permission.

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Sincerely,

Patty Drexler
Executive Assistant
to the Chairman and CEO

ACCEPTED AND AGREED:

BY: GRoberts
GLORIA ROBERTS

DATE: Feb. 10, 2004

ACCEPTED AND AGREED:

BY: _____
PATTY DREXLER

DATE: _____

PAYMENT RECEIVED: _____

SIGNATURE OF PROFESSOR REQUIRED:

I hereby agree to supervise this student's use of these materials. I also certify that I am qualified to use and interpret the results of these tests as recommended in the *Standards for Educational and Psychological Testing*, and I assume full responsibility for the proper use of all materials used per this Agreement.

BY: _____

Printed Name: _____

APPENDIX C

LETTERS

February 26, 2004

Administrators, Faculty & Staff
Northern Caribbean University

Mrs. Gloria Roberts, Vice President for Student Development, and a student at Andrews University, where she is reading for the Ph.D. in Educational Administration & Leadership, will be conducting research toward her dissertation.

Mrs. Roberts has the permission and support of the NCU Administration, to investigate the *"Levels of Stress among Faculty and Staff at Northern Caribbean University, Sources of Stress and Coping Strategies,"* and will be seeking information from members of the University family in this regard. We are therefore asking that you facilitate her, as she conducts this research.

Respectfully

Herbert J. Thompson
PRESIDENT

sg

Student Development, Campus Safety and University Development

February 2, 2004

Dear Colleague

I am presently involved in a study which will investigate the level of stress among faculty and staff of the Northern Caribbean University Campus, and to find out how this relates to gender and years of experience; sources of stress and coping strategies.

Your participation in this study will provide not only useful information on this current exercise, but the findings will also serve as a basis for intervention techniques and work site policies and regulations that will serve to lessen the sources of stress, if any. You will be asked to fill out a background questionnaire, plus an Occupational Stress Inventory. This will consist of three sections. The directions for the test are easy to follow.

Please bear in mind that the study is strictly voluntary. You may withdraw from the study at any point. All data from this study will be treated confidentially and will be used for research purposes only. You should not put your names on the questionnaires.

I know you are all very busy at this time of the year, but I would appreciate very much your assistance in this effort. If you have any questions or suggestions, please do not hesitate to contact me at 523-2133/2134 or e-mail me at GADR2@yahoo.com. You may also contact my primary advisor at Andrews University, Dr. Jim Jeffrey, by telephone at 269-471-3481 or by e-mail at jimieff@andrews.adv. If you have questions regarding your rights as a research subject, please contact Andrews University Institutional Review Board at 269-471-6361 or mpearson@andrews.adv.

The questionnaires will be collected by staff from the Student Development Office. If you would like a summary of the findings of the survey, I would be glad to provide this for you upon request

Thank you for your kind assistance.

Sincerely yours

Gloria A. Roberts M.A., M.Sc.
Vice President

APPENDIX D

SAMPLE ITEMS FROM OSI

DEMOGRAPHICS

DIRECTIONS

Read each statement carefully. For each statement, fill in the circle with the number which fits you best.

Fill in ① if the statement is *rarely* or *never* true.
Fill in ② if the statement is *occasionally* true.
Fill in ③ if the statement is *often* true.
Fill in ④ if the statement is *usually* true.
Fill in ⑤ if the statement is true *most of the time*.

For example, if you believe that a statement is often true about you, you would fill in the circle for that statement on your rating sheet.

Example
1. 1 2 **3** 4 5

Fill in only one circle for each statement. Be sure to rate ALL of the statements for each section you are asked to complete. DO NOT ERASE! If you need to change an answer, make an "X" through the incorrect response and then fill in the correct circle.

SECTION ONE (ORQ)

Make your ratings in Section One of the Rating Sheet

Sample Items from the Subscales ORQ

Role Overload

1. I work under tight deadlines.
2. I feel my responsibilities are increasing.

Role Insufficiency

1. I do not feel that my career is progressing.
2. I am unable to satisfy needs for success and recognition.

Role Ambiguity

1. My advisor does not provide useful feedback.
2. The priorities on the job are not clear to me.

Role Boundary

1. It is not clear who runs things where I work.
2. I experience conflict.

Responsibility

1. I do not like the people I work with.
2. My job requires me to make important decisions.

Physical Environment

1. I have an erratic work schedule.
2. My job is physically dangerous.

SECTION TWO (PSQ)

Sample Items from the subscales in the PSQ

Vocational Strain

1. I do not find my work interesting/ exciting.
2. I dread going to work lately.

Psychological Strain

1. I have been unhappy lately.
2. I respond badly to situations.

Interpersonal Strain

1. I have been withdrawing from people lately.
2. I find I need time to myself to work out my problems.

Physical Strain

1. My energy level has been low lately.
2. I have unplanned weight gains.

SECTION THREE (PRQ)

Sample items from the subscales of PRQ

Recreation

1. When I am relaxing I do not think about work.
2. When I need a vacation I take one.

Self-care

1. I am careful about my diet.
2. I get the sleep I need.

Social Support

1. There is at least one person important to me who values me.
2. I feel loved

Rational/ Cognitive Coping

1. I can establish priorities for the use of my time.
2. I have techniques to help avoid distractions.

Demographic Information

The following questions are concerned with personal and background features concerning yourself and your job as a worker at Northern Caribbean University.

The answers to these questions are critical to the study and are for the purpose of statistical analysis only.

THEY WILL REMAIN ANONYMOUNS AND STRICTLY CONFIDENTIAL.

Please answer by circling the appropriate items.

Part A: You and Your Family

1. Sex: Male/Female

2. Age: □ 20 – 30 years □ 31 – 40 years □ 41-50 years □ 51 – above.

3.Marital Status: □ Single □ Married □ Widowed □ Separated □ Divorced

4. Is your spouse working at NCU? Yes/No

Please tick your educational status below:

Part B: Educational Level

□ High School □ BA, Prof. or Assoc. degree □ Masters degree □ Doctoral degree

Part C: Work History

How many years have you been working at NCU?

□ 0-4 years □ 5-10 □ 11-20 □ 21-30 years □ 31-50 years 41-50 years

What is your current job title?

□ Faculty □ Administrator □ Hourly staff □ Salaried staff

Type of work: □ Full-time □ Part-time

1. How long have you held this position? □ Years (months)

REFERENCE LIST

REFERENCE LIST

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