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**Occupational Role Stress in the Canadian Forces: Its Association with
Individual and Organizational Well-being**

Tzvetanka Dobрева-Martinova

**A thesis submitted to the Faculty of Graduate Studies and Research in partial
fulfillment of the requirements for the degree of
Doctor of Philosophy**

**Department of Psychology
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January 11th, 2002

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Acceptance of the thesis:

"Occupational Role Stress in the Canadian Forces: Its Association
with Individual and Organizational Well-being"

submitted by

Tzvetanka Dobрева-Martinova

in Partial fulfillment of the requirements for

the degree of Doctor of Philosophy

Chair
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Carleton University
November, 2001

Abstract

This study examines occupational stress in the Canadian Forces within the framework of social role theory and its relation to service members' health, job satisfaction and organizational commitment. Of interest were the psychological resources (individual coping skills, workplace leadership and perceived organizational support) that have the potential to alter the perception of work stress and/or alleviate its association with valuable individual and organizational outcomes. Social role theory was selected as the approach for the present study because it provides a framework for understanding not only if, but also how, work stress affects individual well-being and organizational effectiveness.

A survey questionnaire battery was sent to a sample of 2000 Regular Force military members. Participation in the survey was voluntary. 1068 completed questionnaires were returned, yielding a response rate of 53%.

Regression analyses indicated a negative association between occupational role stress and both individual and organizational well-being. No moderating effects were found for coping strategies, workplace leadership or perceived organizational support, although these factors had direct relationships with both individual and organizational well-being.

A test of an ad hoc hypothesis for workplace leadership and perceived organizational support suggested a mediating effect of role conflict on the relationship of

workplace leadership, in particular its “consideration” dimension, with job satisfaction.

Role conflict also mediated the relationship of perceived organizational support with both individual (lack of strain) and organizational (job satisfaction and affective commitment) well-being.

While no gender differences in the experience of role stress were found, role insufficiency and role responsibility for other people were found to differentiate among serving members of different rank.

The results of this study are discussed in terms of the potential of organizational resources and role stress to “cascade” across organizational levels, in terms of potential implications for the Canadian military organization and for social role theory.

Finally, suggestions are offered for further research that might enhance the understanding of occupational role stress in the military and its association and effect on valued individual and organizational outcomes.

Acknowledgments

The completion of this research would not have been possible without all the people who supported, encouraged and guided me. I have been fortunate to work with two mentors to whom I will always be indebted. The late Dr. Bill Jones who helped me discover organizational psychology and the fascinating areas of occupational stress and organizational culture. I have been challenged by his questions and guided by his insights. Dr. Lloyd Strickland shared with me his profound knowledge of social psychology. I have been guided by his advice and strengthened by his support and encouragement. Lloyd has helped me tremendously to improve and master my writing skills, which has proven to be invaluable. And to all of this is added his friendship, always being there for me through difficulties and successes. Working with Bill and Lloyd has been most inspiring and enriching. Their advice and mentoring extended beyond the course of this research, to my career and professional integration, and to my becoming accustomed to Canadian society.

I thank Dr. Kim Matheson for her sound advice and for providing me with the tools, knowledge and guidance to complete this research. I would certainly not have accomplished that without her support.

I also wish to thank Lieutenant Colonel Peter Murphy from the Australian Forces, and also Major Kelly Farley and Captain (Navy) Alan Okros from the Canadian Forces for their support of this research and its implementation. My gratitude is extended to

Major Martin Villeneuve from the Canadian Forces for his encouragement, insights and support, providing a major drive for the completion of this research.

I thank my committee members, Dr. André deCarufel, my external examiner, Dr. Bruce McFarlane and Dr. Hymie Anisman for their insightful questions and thought-provoking discussion.

The funding of this project by the Canadian Forces is greatly appreciated. I am also grateful to the Social Sciences and Humanities Research Council of Canada (SSHRC), the Fonds pour la Formation des Chercheurs et l'Aide à la Recherche (FCAR) and Carleton University for their financial support over the years of my doctoral programme.

My gratitude is further extended to Bill McCauley for his understanding and support.

Finally, a very special thank you to my family, my husband Petromil, my son Martin and my mother, Ludmila, for their unfailing support in uncountable ways, which made this process bearable.

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Introduction

Stress is a fundamental element of the work environment that appears to adversely affect the well-being of individual employees as well as organizations as a whole (e.g., Beehr & Newman, 1978; Burke, 1984; Cooper, 1983; Cooper, Kirkclady & Brown, 1994; Izrael, Baker, Goldenhar, & Heaney, 1996; Ivanchevich & Matteson, 1980; Quick, Murphy, & Hurrell, 1992; Rahim & Psenicka, 1996; Riley & Zaccaro, 1987; Schwartz, Pickering, & Lansbergis, 1996; Spector, Dwyer, & Jex, 1988; Warr, 1996; Wong, Cheuk, & Rosen, 2000). Surveys conducted by the European Foundation and European Commission found that stress is the primary complaint among European workers (Paoli & Costa, 1994). Indeed, Salvo, Lubbers, Rossi, and Lewis (1995) indicated that 50 % to 80 % of the diseases experienced by employees are stress-related and that job-related stress results in organizational problems, such as low job satisfaction and low productivity. The demands of the workplace have become progressively greater. In fact, a nationwide study of occupational stress in the United States revealed that the proportion of workers who reported "feeling highly stressed" had more than doubled from 1985 to 1990 (Spielberger & Reheiser, 1995). Growing concerns about the impact of occupational stress on both employee well-being and organizational effectiveness have stimulated efforts to understand the sources and consequences of stress in the workplace.

Theoretical approaches

When reviewing recent literature on occupational stress, two main approaches are apparent: the transactional approach and the role theory approach. The transactional

approach to the study of occupational stress (Lazarus, 1995) has developed within the context of Lazarus's general theory of stress (Lazarus, 1966; Lazarus & Folkman, 1984). Lazarus (1995) conceptualized occupational stress as a process involving a transaction between the individual and his/her work environment. This understanding of stress as a process assumes that the relationships between the person and the environment are not constant over time or across different occasions. Lazarus suggested exploring the individual patterns of response to various working conditions in order to understand stress in the workplace, rather than attempting to identify adverse conditions of work. Consequently, he further indicated the necessity of employing intra-individual research designs in addition to the inter-individual ones. Brief and George (1995) agreed with Lazarus that stress essentially occurs at the individual level, but they also believed in the usefulness of discovering working conditions that are likely to affect adversely groups of employees exposed to such conditions. Harris (1995) further indicated that the adaptation of the transaction model to the occupational setting requires additional consideration of the effects of the organization.

Almost a half century ago, Sarbin (1954) defined role as "a patterned sequence of learned actions or deeds performed by a person in an interaction situation" (p. 225). He described role theory as an interdisciplinary theory because its variables are drawn from studies of culture, society, and personality. The author also stated that, unlike field-theory or psychoanalysis whose concepts can be traced back to their respective originators,

Lewin and Freud, "role theory has developed as the result of the work of independent investigators who "discovered" the need for such synoptic concepts as self, role, and interaction." (p. 223). This chapter, in the 1954 Handbook of Social Psychology (Lindzey, Ed.), effectively established a "home" for the role concept in social psychology.

Social role theory (Biddle, 1979; Davis, 1996; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964), as the notion is used in occupational context, employs both the individual circumstances and the environment when exploring occupational stress. According to social role theory, every employee holds various roles at work and performs tasks within those roles, which are largely defined by the organizational culture or by the subculture of a particular work group. Within an organizational context, the term "role" is defined as a set of expectations applied to the incumbent of a particular position by the incumbent him/herself and by role senders (persons whose expectations are relevant to the performance of the focal role) within and beyond an organization's boundaries (Van Sell, Brief, & Schuler, 1981). Occupational stress is seen within social role theory as an inevitable consequence of playing various roles in an organization. The "role episode model" developed by Kahn et al. (1964) has generated a large body of systematic research because it incorporates a wide variety of organizational, social and personal factors in the research of occupational stress.

The person-environment fit approach (Caplan, 1983, 1987; Van Harrison, 1978, 1985) to occupational stress can be referred to the conceptual framework of social role

theory. The person-environment fit approach, like social role theory (and also like the transactional approach), involves both the person and the environment, as well as their interrelationships, in the study of occupational stress. According to Van Harrison (1985), person-environment fit theory offers a framework to integrate theories of motivation, perception and cognition, coping and defense, psychosomatic relationships, and organizational functioning. There are two types of fit between the individual and the environment which are specified in person-environment fit theory (Van Harrison, 1985): (1) the extent to which the job provides rewards and supplies to fit with the individual's needs and preferences (e.g., security, pay, achievement opportunities); (2) the extent to which the individual's skills and abilities fit with the demands and requirements of the job (e.g., managerial skills, technical competence). A "misfit"¹ of the first type reflects stress for the individual resulting, for example, in job dissatisfaction, anxiety or strain. A misfit of the second type reflects stress for the organization resulting, for example, in poor coordination or lowered productivity.

According to Spielberger and Reheiser (1995), transactional and person-environment fit approaches to the study of occupational stress should be considered as complementary, rather than contradictory, in providing a meaningful conceptual framework for understanding stress in the workplace. A major difference between the two approaches, according to the authors, is the specificity and the size of the unit of

¹ The term "misfit" is adopted in this work to identify a lack of fit between the individual employee and the work environment.

measurement for assessing the components of job stress. The person-environment fit approach to the study of occupational stress identifies the general conditions that produce job strain. The transactional approach explores the perception and appraisal of a particular stressful event by the employee and the influence of his or her coping skills and past experience on the transaction between the employee and the work environment (Spielberger & Reheiser, 1995).

Social role theory (Biddle, 1979; Davis, 1996; Kahn et al., 1964) was selected as the approach for the present study because it provides a framework for understanding not only whether, but also how, work stress affects individual well-being and organizational effectiveness. This theory, perhaps as most notably developed recently by Bill Jones (e.g., Jones et al., 1995), takes into account both the objective conditions of the individual's circumstances at work and his or her subjective perceptions of events through an analysis of the dynamic interaction of the internal and external systems of organizational behaviour reflected in the workplace roles.

Occupational role stress

Occupational role stress fits within the social role theory as an inevitable consequence of playing various roles in an organization. Thus, role stress is a "perception indicated by ambiguity, conflict, and overload and arising from both the characteristics of the individual and the work environment" (Tetrick, 1992, p. 136).

In their pioneering work on organizational stress, Kahn et al. (1964) conceptualized role in interactive terms bringing together the person, his/her group, and the organizational context. The authors argued that the person's environment consists of formal organizations and groups, and that the life of an individual can be seen as an array of roles which he/she plays in the organizations and groups to which he/she belongs. Workplace roles of individuals have been explored in relation to organizational culture because they reflect the objective conditions of the work environment and the subjective perceptions of employees, both of which are rooted in the culture of organization. Research conducted by Van der Velder and Class (1995) demonstrates that the culture of an organization may affect the level of stress experienced by workers. The authors suggested that the cultures of many organizations create stress for employees by communicating expectations for behavior that are inconsistent with employees' preferences, that are inherently oriented toward conflict, or are ambiguous.

Organizational culture by itself has been a focus of much research effort. We note here the definition of organizational culture given by Schein (1992), an author who, we believe, has made a major contribution to the understanding of this construct. Schein (1992) defined culture as "a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid, and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" (p. 12).

A relation between the roles that the employees have in their organizations and the culture of the organization was also suggested by Stephenson (1978) who referred to Linton's (1945) classic view that the role is the required behavior of someone in a given position and that the concept of role performance assumes its importance because it implies that individual behavior or "personality" may be socially determined. Stephenson (1978) further added that role usually refers to the commonly shared expectations about the appropriate conduct for those in given positions, that role content cannot be rigorously defined, and the manner of its performance even less so.

Social role theory (House, 1981; Kahn et al., 1964) has also been a framework for exploring occupational role stress within the context of organizational culture for Jones et al. (1995; 1996) who stated that the tasks performed by an individual as part of his/her workplace role are specified by the culture of the organization or by the subculture of the specific work group, and that stress is an almost inevitable consequence of playing various roles in any complex organizations. For example, individuals at work may be required to play roles which conflict with their value system, or to play several roles which conflict with each other. It may also be that the behaviors expected of an employee occupying a certain role are not well communicated. Jones et al.'s (1995; 1996) contribution to social role theory was the exploration of occupational role stress and organizational resources at both surface and deep levels of organizational culture.

There are several dimensions that contribute to the experience of role stress: role ambiguity, role insufficiency, role overload, role conflict and role responsibility for other people. The most heavily researched dimensions of role stress are role conflict and role ambiguity (House & Rizzo, 1972; Hughes, 2001; Jackson and Schuler, 1985; King & King, 1990; Liou, 1995; Netemeyer, Johnston, & Burton, 1990; Van Sell et al., 1981; Yousef, 1999).

Role ambiguity is seen by King and King (1990) as deficient or uncertain information about role behaviors available to a given organizational position. According to the authors, role ambiguity appears to stem from both environmental and individual sources. Referring to the research of Graen (1976) and Kahn et al. (1964), Van Sell et al. (1981) defined role ambiguity as the degree to which clear information is lacking with regard to (a) the expectations associated with a role, (b) the methods for fulfilling known role expectations, and/or (c) the consequences of role performance. Stress arising from role ambiguity leads to lower job performance (Babin & Boles, 1996; Jamal, 1984), job dissatisfaction, lack of self-confidence, lowered self-esteem, and intention to leave the job (Hughes, 2001; Sutherland & Cooper, 1988). Role ambiguity has also been causally linked to turnover, although turnover will also obviously depend on economic conditions (Carsten & Spector, 1987).

Role conflict is defined by Van Sell et al. (1981) as incongruity of the expectations associated with a role. Kahn et al. (1964) identified the following kinds of

role conflict: (1) intra-sender conflict, which arises when the role holder is required to perform acts or tasks which are mutually exclusive or incompatible with each other - an example offered by the authors is a situation when a supervisor requests an employee to acquire material which is not available through normal channels and at the same time prohibits violation of normal channels; (2) inter-sender conflict, which occurs when different role senders want the employee to do different things - an example given by Beehr (1985) refers to a salesperson in pharmaceuticals whose supervisors expect him or her to make a large number of sales and whose customers (M.D.s) expect him or her to inform them of problems with the drugs, such as troublesome side effects; (3) inter-role conflict, which arises between the demands and expectations of the role at work and pressures stemming from membership in other groups. For example, the demands of the work role may conflict with the demands of the family role for some professional women; (4) person-role conflict, occurring when the needs and values of the individual conflict with his/her role requirements. Beehr (1985) offers the following example: an American executive of a multinational company whose personal value system considers bribing and being bribed as immoral, and who finds, in dealing with some foreign countries, that it is conventional to offer and accept side payments for services done in the line of one's work role. Role conflict has been associated with lowered job satisfaction, higher job tension and physiological stress (Sutherland & Cooper, 1988; Yousef, 1999).

Role overload refers to the number or the intensity of demands that may be made of employees (Jones et al., 1995). Kahn et al. (1964) defined role overload as a kind of role conflict but many subsequent researchers have explored role overload separately from role conflict (Abdel-Halim, 1981; Barling & Macintyre, 1993; Bhalla, Jones, & Flynn, 1991; Lagace, 1988). Role overload can be quantitative (the amount of work) or qualitative (the nature of work). Quantitative overload refers to the amount of time available to complete the tasks required by the role, and qualitative overload is related to the skill level of the role holder. An example of the latter case is the promotion of an employee into a job as a reward without paying enough attention to the match between the employee's qualifications and the requirements of the job (Beehr, 1985). Role overload may affect the health of the employees, their attitudes toward work, their work performance and their feelings about their jobs and themselves (Jones et al., 1995; O'Driscoll & Cooper, 1996).

Role insufficiency refers to a perceived lack of fit between an individual's abilities and training and the requirements of the job (Jones et al., 1995). The tasks that the employee performs are seen to lack challenge and his/her skills are seen as being underutilized. Stereotypical examples of role insufficiency are production jobs that are at the bottom of the organizational hierarchy (Beehr, 1985). The lack of opportunity to use one's acquired skills and to develop potential ability may lead to low morale, poor

motivation to work, dissatisfaction, irritation and psychosomatic complaints (Sutherland & Cooper, 1988).

Cobb (1973) suggested that role responsibility for people might be one of the most important sources of occupational stress. This notion refers to the responsibility that the person has or feels for the performance and welfare of subordinates, clients, colleagues, or the public. Responsibility for people rather than responsibility for things (e.g., budgets, equipment) is significantly more likely to lead to cardiovascular disease (Wardell et al., 1964). Increased responsibility for people often means that one has to spend more time interacting with others or attending meetings. The findings by French and Caplan (1970) in the Goddard study indicated that responsibility for people was related to stress, particularly among clerical, managerial and professional workers. The results of Bhalla et al. (1991) in their study of Canadian white-collar workers suggested that role responsibility for people increased with job classification and was considerably higher among managers compared to clerical staff and technical and supervisory staff.

Within the present study, the nature and frequency of occupational role stress that was experienced by the members of the Regular Force of the Canadian military was measured using the Occupational Environment Scale (OES) – Form E2 (Osipow & Spokane, 1983).

Occupational stress outcomes

Occupational stress has been studied in relation to a variety of other psychological constructs considered important for individual and organizational well-being, such as employees' health, strain, burnout, organizational commitment, job satisfaction and productivity (e.g., Beehr & Newman, 1978; Bhalla, et al., 1991; Bliese & Halverson, 1996; Decker & Borgen, 1993; Miles, 1975; Karasek, 1994, Spector et al., 1988; Szilagyi, 1977; Theorell, 1993, Vancouver & Schmitt, 1991, Warr, 1996).

Karasek and associates (Karasek, 1979, Karasek & Theorell, 1990) developed a model of occupational stress that provides a framework for the exploration of the influence of a set of psychosocial factors associated with work on a set of outcomes variables ranging from productivity to the health of employees. This model, known as Demand-Control Model of Job Strain, has gained increasing support in the occupational stress literature. The primary factors in the model are psychological demand of the work situation (for example, no time to finish, work fast, work very hard, not enough time, or excessive work) and the worker's job decision latitude (a combination of personal decision control and use of skills on the job) (Karasek, 1994). Demand and control interact in the model, resulting in four job-strain categories: low strain (low demand and high control), active (high demand and high control), passive (low demand and low control), and high strain (high demand and low control) (Radmacher & Sheridan, 1995).

The model's job strain hypothesis (Karasek, 1994) predicts that stress and illness develop in high strain jobs (low decision latitude together with high psychological demands). The model's active behaviour hypothesis (Karasek, 1994) predicts that learning, motivation and labour productivity occur in active jobs (high decision latitude accompanied by high psychological demands, as long as the demands are within limits). A passive job (low demands and low decision latitude) is predicted to restrict learning and motivation (Karasek, 1994). Those predictions have been consistently confirmed in full population studies conducted in the Netherlands, Sweden, and the US (e.g., Karasek & Theorell, 1990; Landsbergis, Schnall, Schwartz, Warren, & Pickering, 1995; Theorell, 1993).

Another stream of research has also focused on the effect of occupational stress, and particularly of excessive stress, on the well-being and mental health in the workplace (Daniels, Brough, Guppy, Peters-Bean, & Weatherstone, 1997; Sevastos, Smith, & Cordery, 1992; Warr, 1986, 1990, 1996). Warr (1990) developed a model of job-related well-being and mental health and argued that affective well-being is "more than just job satisfaction, and that occupational mental health in turn comprises more than affective well-being" (p. 33, Sevastos et al., 1992). Warr (1996) further argued that some stress is inevitable in any job but when the job stress is extreme or extended over a long period of time, then it may be harmful for the employee and his or her family. The author indicated that excessive stress might also impair work effectiveness, reduce productivity and be

costly for the organization. Warr (1996) identified nine characteristics of jobs that influence stress: low job discretion, low use of skills, low or high work demands, low task variety, high uncertainty, low pay, poor working conditions, low interpersonal support and low value in society. He indicated that job discretion is the most important single characteristic of work and that low job discretion is particularly likely to cause excessive stress in a job. In many cases, it is the combination of the above identified job features that should be considered when exploring the effect of excessive stress on mental health and well-being at work (Warr, 1996).

A wide range of detrimental personal and organizational consequences has been ascribed to stress. Occupational stress is believed to have a deleterious effect on employee's job satisfaction and commitment and is also apt to exacerbate such negative attitudes as alienation from work (Bhagat, McQuaid, Lindholm, & Segovis, 1985). The study of the relationship between role perceptions (e.g., role ambiguity and role conflict) and behavioral outcomes, such as job satisfaction and performance, has received considerable attention (e.g., Babin & Boles, 1998; Bhalla et al., 1991; House & Rizzo, 1972; Jackson & Schuler, 1985; Jamal, 1984; Rice, 1992; Spector et al., 1988; Szilagyi, 1977). It is generally assumed that behavioral outcomes valued by the employees (e.g., job satisfaction) will benefit the organization through increased effectiveness and cooperation, and that negative outcomes (e.g., strain) will result in increased withdrawal behaviors and in decreased organizational effectiveness.

Strain. A common practice in the occupational stress literature is to study strain (i.e., symptoms of psychological or physical distress) as an outcome of occupational stress (Landsbergis et al., 1995; Osipow & Spokane, 1983). Strain is believed to diminish the individual's capacity and well-being. Many researchers have attempted to explain the relationship between stress and strain and between strain and illness (Caplan & Jones, 1975; Kristencen, 1996; Wall, Jackson, Mullarkey, & Sharon, 1996).

In most studies, measures of strain have consisted of indices of symptoms of psychological or physical distress. In their review of occupational stress studies, Beehr and Newman (1978) concluded that three negative personal outcomes result from work stress: psychological health consequences (e.g., anxiety, depression, loss of concentration), physical health consequences (e.g., cardiovascular disease, respiratory problems, gastrointestinal disorders), and behavioral consequences (e.g., drug use and abuse, aggression, over- or under-eating).

Studies of occupational role stress suggest that role based stressors have an impact on the psychological and physical well-being of the worker and on his/her role performance (McGrath, 1976). Role conflict, role ambiguity and role overload have been found to be related to individual tension, somatic symptoms, anxiety, depressed mood, low self-esteem, and dissatisfaction (Ivanchevich & Matteson, 1980; Rice, 1992).

Strain as an adverse reaction to stress has been researched in studies of operational effectiveness in peacekeeping environments (e.g., Bartone, Vaitkus, & Adler, 1994;

Farley, 1995). Characteristic symptoms of battlefield or operational stress reactions include anxiety, depression, impaired concentration, emotional instability, social withdrawal, increased smoking, and drinking.

Within the present study, the predicted relation between occupational stress and strain is based on the assumption that job stress produces deviations from the usual responses of the individual (Beehr & Newman, 1978; Blau, 1981). Stress situations are hypothesized to trigger negative thoughts and feelings (e.g., feeling tired or feeling that life is pointless) as well as physiological responses (e.g., headaches, dizziness or shortness of breath) and interpersonal/behavioral reactions (e.g., loss of interest in things and people).

Job satisfaction has been defined by Locke (1976) as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (p.1300).

Based on the assumption that job satisfaction is an indication of workers' overall content with specific facets of their employment such as pay, supervision, benefits, promotion-opportunities, working conditions, and organizational practices, it is one of the most frequently measured outcome variables in occupational stress research. Another reason for the popularity of the job satisfaction construct, indicated by O'Leary-Kelly and Griffin (1995), is that it appears to be relatively easy to measure, while simultaneously requiring little theoretical justification.

The early surveys of job satisfaction asking workers how they feel about their jobs (e.g., Hoppock, 1935), were followed by the development of larger numbers of questions and scales of job satisfaction. Cook, Hepworth, Wall, and Warr (1981) described 17 measures of general job satisfaction and 28 measures of satisfaction with one or more aspects of the work environment (e.g., coworkers, pay, working conditions).

Job satisfaction has frequently been explored in its relation to occupational stress. Studies using job satisfaction as an outcome variable have consistently reported the existence of negative relationship between occupational stress and job satisfaction. For example, Brooke, Russell and Price (1988) reported strong negative correlations between role stress and job satisfaction. Humphrys and O'Brien (1986) found that perceived level of skill utilization was a strong predictor of job satisfaction. Bedeian, Armenakis and Curran (1981) suggested that the most frequently reported finding in the role stress research is the existence of a negative relationship between job satisfaction and both role ambiguity and role conflict. In their meta-analysis of the research on role conflict and role ambiguity in work settings, Jackson and Schuler (1985) indicated that job satisfaction was the most frequently used consequence variable of role stress, and that job satisfaction was negatively correlated with both role conflict and role ambiguity. Szilagyi (1977) reported causal influences of role ambiguity and role conflict on job satisfaction for different organizational levels. The results of his study suggested that role ambiguity was a source of causal inference with job satisfaction at the higher organizational level,

while role conflict was a source of causal inference with job satisfaction at the lower organizational level.

Consistent with the literature, military members' satisfaction with their work was explored in this study using one of the most frequently employed measures of job satisfaction, the Job Descriptive Index (Smith, Kendall, & Hulin, 1969).

Organizational commitment. In their comprehensive and widely cited meta-analytic review of the organizational commitment literature, Mathieu and Zajac (1990) reported a growth in the popularity of this concept during the past decade in the literature of industrial/organizational psychology and organizational behavior. Organizational commitment is a multidimensional construct which may be defined as "the relative strength of an individual's identification with and involvement in a particular organization" (Mowday, Porter and Steers, 1982, p. 27). According to Mowday et al. (1982), commitment is characterized by at least three factors: (1) a strong belief in and acceptance of the organizational goals and values; (2) a willingness to exert effort on behalf of the organization; and (3) a desire to maintain membership in the organization.

Allen and Meyer (1990) developed a three-component conceptualization of organizational commitment based on their observation that existing definitions of the construct reflected three distinct themes: (1) affective orientation toward the organization; (2) a recognition of the costs associated with leaving the organization; and (3) a moral obligation to remain with the organization. The authors referred to the psychological

states reflected in commitment definitions as distinguishable components, rather than types, of commitment and they defined commitment as a three component construct consisting of: (1) affective (emotional) attachment to the organization, (2) continuance (cost-based) stay with the organization, and (3) normative stay or a feeling of obligation to the organization. The employees can experience each of these psychological states to varying degrees. When these states are considered together, a more complete understanding of the employee's relationship with the organization can be achieved.

Meta-analytic studies of organizational commitment revealed its high relatedness to job satisfaction. However, Meyer (1997) indicated a lack of consensus about whether, or how, the two variables are causally connected. He suggested that the relation between the two constructs might be quite complex and that it might be more important how these two constructs relate to behavior than which of them is causally prior. Mowday et al. (1982) argued that organizational commitment is conceptually distinct in its scope and time frame from job satisfaction by its focus on the organization as a whole rather than the specific job and by its emphasis on the attachment or loyalty to the employing organization. Organizational commitment seems to be a more global and more stable construct over time than job satisfaction, the former emphasizing the attitude of attachment to the employing organization, including its goals and values, and the latter emphasizing the specific environment in which the employee performs his or her duties (Bhalla, 1989).

Organizational commitment has been found to be quite strongly related to role stress, particularly to conflict. Reduced commitment to the employing organization on the part of the worker has been found to be a consequence of job stress (Bhagat et al., 1985). In a meta-analysis of correlates of role stress, Fisher and Gitelson (1983) found consistent negative relationship between role stress and organizational commitment. On the other hand, Meyer (1997) indicated that role states (ambiguity, conflict, overload) were not found to have meaningful links to commitment but also pointed to the fact that there was sufficient between-study variance to suggest that moderators might be operating.

Consistent with Allen and Meyer's (1990) conceptualization of organizational commitment, the present study explored the affective and continuance commitment of the military members to the organization of the Canadian Forces.

Moderators, mediators and buffers of occupational stress

Variables considered an intermediate link in the relationship between stressors and various outcomes of stress are referred to as mediators, buffers or moderators of occupational stress. Frone, Russell and Cooper (1995) indicated that most models of occupational stress agree that various psychological resources and vulnerabilities may exert important stress-buffering or stress-exacerbating influences; they further noted that the majority of studies examine the stress-buffering influence of psychological or psychosocial resources rather than stress-exacerbating influences of vulnerability factors.

Harris (1995) distinguished between mediator and moderator variables, proposing that a mediating effect occurs when a variable changes or alters the relationship between independent and dependent variables within a given causal system, while a moderating variable exerts an influence which changes the causal structure of the transaction model, i.e., becomes an antecedent condition. A differentiation between moderating and mediating effects is offered by Griffith and Vaitkus (1999) who noted that “a moderating effect of a variable refers to differences in the relation between two variables, such as stress and strain, when considering a third variable, such as social support” (p.34), while “a mediating effect refers to an intervening variable or a variable that contributes an indirect effect to some outcome” (p. 35). A thorough distinction between moderator and mediator variables in social psychological research with conceptual, strategic and statistical considerations was offered by Baron and Kenny (1986) who defined a moderator as “a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward) variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable” (p. 1174). Baron and Kenny further proposed that “a given variable may be said to function as a mediator to the extent that it accounts for the relation between the predictor and the criterion” (p.1177).

Unfortunately, many occupational stress researchers use the terms mediators, moderators or buffers interchangeably for variables which mitigate or alter the negative effect of stress on various individual or organizational outcomes (e.g., Bhagat, Allie, &

Ford, 1995; Frone et al., 1995; Scheck, Kinicki, & Davy, 1995). Probably the most commonly used term for the intermediate variables in the stress process is “buffers of stress”. Greller, Parsons and Mitchell (1992) described buffers as variables that may operate in two ways: (1) have an additive effect, compensating through their presence for other, stressful events or (2) change the way the stressful event is experienced but have no direct effect on the level of strain. Finally, the authors suggested that a buffer might do both, that is, have a salutary, independent effect on strain and also reduce the relation between a typically stressful event and strain.

Substantial research effort has been directed to resources believed to moderate or buffer occupational stress, such as individual coping skills and social support (e.g., Bhalla et al, 1991; Holahan, Moos, & Schaefer, 1996; Ganster, Fusilier, & Mayes, 1986). Some of these resources may be individual skills (e.g., coping), while others may be offered by the organization (e.g., workplace leadership or organizational support). Based on empirical evidence, social support from colleagues and supervisors has recently been incorporated into Karasek and Theorell’s Demand-Control Model as a moderator of psychological strain symptoms, to make for a three dimensional model in many studies (Karasek, 1994). Furthermore, Jones et al. (1995) suggested that employees’ global belief about the organization’s commitment to them is a strong moderator of the effect of work stress on both the individual and the organization.

In the present study, consistent with Baron and Kenny's (1986) conceptualization, moderators are perceived as resources that change the way the stressful event is experienced, i.e. affect the direction and/or the strength of the relationship between role stressors and indicators of individual and organizational well-being. In statistical terms, moderating effect would be indicated by a significant interaction between predictor and moderator variables.

Individual coping strategies. Coping processes are considered an important link in the stress-health relationship. Murphy (1985) indicated that coping refers to the things people do to avoid being harmed by stress and described these "things" as cognitive, behavioral, and somatic responses aimed at (1) reducing or eliminating the source of discomfort, (2) altering one's appraisal of the stressor, or (3) managing or reducing the feeling of discomfort within the individual.

The conceptual analysis of stress and coping offered by Lazarus in 1966 is considered to be a starting point for much of the coping research (Carver, Scheier, & Weintraub, 1989). Coping may be defined as "efforts, both action-oriented and intra-psychic, to manage (i.e., master, tolerate, reduce, minimize) environmental and internal demands, and conflicts among them, which tax or exceed a person's resources" (Lazarus & Launier, 1978, p.311). Lazarus (1995) suggested that coping affects the individual's immediate emotional reactions, actions and relationships with the environment as well as

long-term adaptational outcomes such as subjective well-being, social functioning and health.

Coping strategies have been conceptualized by some authors as dispositional traits or styles of approaching problems in particular ways. Others have questioned the assumption that coping is consistent across situations and have studied particular coping behaviors employed by the individual to deal with different stressful situations.

However, it has become apparent that coping processes are affected by both personal and situational factors, that they reflect individual preferences and are responsive to changing environmental circumstances (Moos & Schaefer, 1993). Carver et al. (1989) suggested that there are both dispositionally preferred coping styles and situationally specific coping responses which can be measured in way analogous to the trait-state anxiety strategy used by Spielberger, Gorsuch and Lushene (1970), i.e., the content of the behavior that is described in the items remains the same, and only the frame of reference is altered.

There are basically three coping dimensions that were identified by the early coping researchers and that continue to attract much research attention: problem-focused coping, emotion-focused coping and avoidance oriented coping (Parker & Endler, 1996). Problem-focused coping strategies attempt to solve, alter or minimize the effect of a stressful situation, while emotion-focused coping strategies try to regulate the emotional distress associated with the situation. Avoidance coping strategies represent attempts to avoid the problem altogether and can involve person-oriented and/or task-oriented

responses (Parker & Endler, 1992). The majority of the coping measures that have been developed include scales assessing these three dimensions (e.g., Amirkhan, 1990; Carver et al., 1989; Endler & Parker, 1990).

An important issue with regard to individual coping responses is their relative effectiveness. Pearlin and Schooler (1978) considered a coping response to be effective if it buffered the relationship between stressors and strain. They found that people use fewer problem-focused than emotion-focused strategies when dealing with problems in the context of work perhaps due to the impersonal organization of the occupational area of life and to the chronic nature of the work related problems, considered to be beyond the personal coping controls. However, in a study of moderating role of problem-focused and emotion-focused coping strategies on a variety of stress-strain relationships, Bhagat et al. (1995) found the opposite to be true for their sample. In fact, their results complemented those of Folkman and Lazarus (1980) by finding prevalence in the use of problem-focused coping strategies when dealing with work-related stressful episodes. Bhagat et al. (1995) suggested that perhaps the relative "hardiness" and internal locus of control of the teachers in their sample could help explaining their greater reliance on problem-focused coping strategies.

Another issue addressed in many coping studies involves the gender differences in coping strategies. For example, Folkman and Lazarus (1980) found that men used more problem-focused strategies than women in situations that had to be accepted and

suggested that perhaps it could be due to men's longer perseverance in problem-focused coping before deciding that nothing can be done. Carver et al. (1989) found several significant gender differences in their studies of both dispositional and situational coping strategies. In those studies, women reported that they sought social support for both instrumental and emotional reasons more than men and they usually focused on and vented emotions. Men reported turning to alcohol more than did women.

This study explored problem-focused, emotion-focused and avoidance coping strategies employed by the respondents using Carver et al.'s (1989) COPE Scale.

Workplace leadership. Appropriate leadership practices are considered to play an important role in the development and maintenance of productive work behaviors, positive job attitudes, and commitment to the organizational goals and values (Brewer, 1995). As well, leadership practices have been found to affect job satisfaction. Argyle (1972) claimed that job satisfaction is higher when supervisors look after their subordinates and allow participation in decision making. He also suggested that supervisors can affect the mental health of their subordinates by being too authoritarian and can damage their self-confidence by being unskilled in giving appraisal interviews. Supervisor behavior has been strongly associated with work stress and productive behaviors: managerial styles that permit employees to make decisions and feel in control of their activities appear related to the employees' experience of stress and to their productivity (Jones et al., 1995). It has also been shown (Vancouver & Schmitt, 1991)

that supervisor-subordinate goal congruence is positively related to job satisfaction and organizational commitment, and negatively related to the intention to quit.

The importance of the relationship between effective supervisory leadership and role theory has been noted by Bedeian et al. (1981) who referred to studies reporting a significant negative relationship between role stress and numerous measures of leadership. In a study of naval personnel and their immediate supervisors, Tetrick (1989) found that leaders' informational and controlling behaviors influenced subordinates' perceptions of role clarity and psychological influence. Since one of the functions of the leader is to clarify the paths of goal attainment, the extent to which the leader provides relevant information about performance was hypothesized in this study to increase one's perceptions of role clarity or decrease perceptions of role ambiguity. Tetrick's (1989) findings were consistent with those of Frost (1983) whose results revealed a relationship between the perceptions of leaders' behavior and both role ambiguity and role conflict.

Leadership has been explored in military environment both as a dimension of operational effectiveness of small army units (e.g., Bartone & Kirkland, 1991) and as a dimension of executive effectiveness in military organizations (e.g., Jacobs & Jaques, 1991). Jacobs and Jaques (1991) have shown that executive effectiveness is dependent on successful execution of a complex set of role behaviors (the functions served by leader's position in the organization as well as considerations of how the leader's actions

add value to the organization) and that there is greater similarity than difference between executives in the military and those in the private sector.

A number of theories have been advanced since the 1970s to explain how leaders can have major effects on the emotions, preferences, aspirations and commitment of the followers as well as on the structure, culture and performance of complex organizations (House, & Podsakoff, 1994). Yukl (1971) began development of a theory which explains how leader behavior, situational variables, and intermediate variables interact to determine subordinate productivity and satisfaction with the leader. He proposed a system of three distinct leader behavior dimensions in organizations: consideration, initiating structure and decision centralization. Yukl (1971) defined consideration and initiating structure in a way consistent with the studies of those two dimensions of leadership behavior conducted in the 1950s (e.g., Fleishman, 1973; Halpin & Winter, 1957):

Consideration refers to the degree to which a leader acts in a warm and supportive manner and shows concern and respect for his subordinates. Initiating Structure refers to the degree to which a leader defines and structures his own role and those of his subordinates toward goal attainment (p. 415).

Argyle (1972) elaborated further on the definitions of consideration and initiating structure by proposing the following:

Consideration is the degree to which a leader shows trust and attention to the needs of subordinates, establishes a warm and friendly supportive relationship with them,

is understanding about mistakes, is ready to explain actions and listens to subordinates, and deals with interpersonal problems in the group.

Initiating structure refers to planning and scheduling the work to be done; instructing and training subordinates in how to do their work; checking and correcting the work that has been done; giving subordinates feedback on how well they are doing; and motivating them to work effectively.

Yukl (1971) added a third dimension of leadership behavior to the ones described above – decision-centralization, which is rooted in Lewin's (1944) theoretical typology of democratic, autocratic and laissez-faire leaders. This dimension refers to the relative degree of leader and subordinate influence over the group's decision and reflects the average degree of participation of subordinates in the decision making (Yukl, 1971).

The leader's behavior may be perceived as an intermediate link in the relationship between occupational role stress and valuable organizational outcomes such as job satisfaction and organizational commitment. Tetrick (1992) suggested that the leader functions to facilitate the accomplishment of one's role in the organization by providing necessary information and resources. The author further indicated that, the more the leader is perceived as facilitating by providing the necessary information, the more uncertainty in the environment will be reduced and the less one will perceive role stress in the work environment. Consequently, the well-being of the employees will be stimulated by the successful accomplishment of their roles in the organization.

The present study measured respondents' perceptions of the degree to which their supervisors define and structure their role and those of their subordinates, i.e. initiating structure. It also measured military members' perceptions of the degree to which their supervisors act in a warm and supportive manner and show concern and respect for their subordinates, i.e. consideration.

Perceived organizational support. Eisenberger, Huntington, Hutchison and Sowa (1986) developed the concept of perceived organizational support to explain the development of employees' commitment to the organization within the framework of social exchange and organizational support theory. Unlike the traditional measurement of organizational commitment, which involves answering a one-sided question about the employees' attitudes toward the employer, the measurement of perceived organizational support reflects the social exchange view that employees' commitment to the organization is strongly influenced by their perception of the organization's commitment to them. Organizational support theory assumes that employees form general beliefs concerning how much the organization values their contributions and cares about their well-being (Eisenberger, Armeli, Rexwinkel, Lynch, & Rhoades, 2001). According to organizational support theory, perceived organizational support "meets socio-emotional needs, provides assurances that aid will be available when needed, and indicates an organization's readiness to re-compensate efforts made on its behalf" (Eisenberger et al., 2001, p. 42).

Eisenberger, Fasolo and Davis-LaMastro (1990) indicated that perceived organizational support is assumed to increase the employees' affective attachment to the organization and their expectancy that greater effort toward meeting the organizational goals will be rewarded. The authors also argued that perceived organizational support enhances the employees' calculative involvement in the organization. Eisenberger et al. (2001) noted that positive relationships that have been found between perceived organizational support and affective commitment and performance have been ascribed to felt obligation owing to the reciprocity norm. Perceptions of being valued and cared about by an organization stimulate employees' belief that the organization will fulfill its reciprocal obligations of recognizing and rewarding desired attitudes and behaviors both informally (e.g., praise, mentoring) and formally (promotions, salary increases) (Wayne, Shore & Liden, 1997).

Jones et al. (1995) argued that perceived organizational support is conceptually different from social support. According to these authors, social support refers to the operation of networks within the organization that are interposed between the stress-producing aspects of the organization and the individual, while perceived organizational support refers to the general nature of cultural transactions of the organization as an entity.

Jones et al. (1995) argued that perceived organizational support scale might be seen as evaluating both surface and deep aspects of organizational culture. According to

the organizational culture theorists (e.g., Schein, 1992), organizational culture may be perceived as having a "surface" level, the readily observable features of organizational behavior, and a "deep" level, the values and assumptions which justify the observable behavior (Jones, Berwald, Catano, & Hackett, 1996). High values of perceived organizational support imply congruence between the goals and values of the individual and those of the organization which may be conducive to increased productivity, job satisfaction and commitment (Jones et al., 1995; 1996).

Studies have shown that perceived organizational support is distinct from perceived supervisor support, organizational politics and organizational commitment (Wayne et al., 1997). Wayne et al. (1997) indicated that the relationship between perceived organizational support and organizational climate has not been addressed in the literature and suggested that, even though both constructs concern work environment issues, they are conceptually distinct: perceived organizational support represents employee's perception of the extent to which the employer is committed to him or her as an individual, while organizational climate reflects individual's interpretations of a work environment that he or she shares with others.

It has been shown that perceived organizational support is associated with important organizational outcomes. Eisenberger et al. (1986; 1990; 2001) found that perceived organizational support reduces absenteeism, that it is positively related to affective attachment and calculative involvement in the organization as well as to

employee innovation. Jones et al. (1996) suggested that perceived organizational support, construed as the attitude of the employer, is an excellent predictor of productivity.

Wayne et al. (1997) found that perceived organizational support is positively related to organizational citizenship behavior and to affective commitment of the employees to the organization and negatively related to intentions to quit.

Perceived organizational support has been studied in relation to occupational stress. Jones et al. (1995) explored whether perceived organizational support plays a similar role to social support in mediating the organizational consequences of work stress. The authors examined the causal links between three sets of variables: occupational role stress, perceived organizational support, and the outcomes in job satisfaction and organizational commitment. They found that perceived organizational support was strongly related to work stress and that it mediated the effects of role stress (particularly conflict and ambiguity) on job satisfaction and affective commitment of the employees. These findings are in congruence with the results of Netemeyer et al. (1990) that conflict and ambiguity have mediated effects on significant organizational outcomes as well as the results of Scheck et al. (1995) indicating the existence of both short-term and long-term mediation effects in the relationship between stress and one's positive sense of well-being.

Perceived organizational support seems to be related to leader's behavior. Consistent with the findings of Wayne et al. (1997), immediate superiors may be seen as

conduits of organizational resources, especially in hierarchically structured organizations in which superiors are often instrumental in determining bonuses, in providing career advice, task and training opportunities, emotional support, and information. Jones et al. (1995) speculated that the supervisor might be seen as the immediate representative of the organization transmitting the values of organizational culture. The authors argued that the supervisor's response to appropriate effort on the part of the subordinates, as well as his or her behavior in response to their needs and problems, may be perceived as the response of the organization.

A measure of perceived organizational support was included in the present study.

Occupational stress in military organizations

Studies on workplace stress have been conducted in various occupational environments. However, published studies that explore occupational stress in the military appear rare (e.g., Bliese & Halverson, 1996) when compared with the large body of literature on work stress in the police (Brown, Cooper, & Kirkcaldy, 1996; Davidson & Veno, 1980; Hurrell, Pate, & Kliesmet, 1984; Kirkcaldy, Cooper & Ruffalo, 1995; Violanti & Aron, 1993). It is interesting that, in the studies of occupational stress in the police, references are made to the military as an organization similar to the police. For example, when discussing occupational stress in the police, Violanti and Aron (1994) described the police organization as paramilitary in structure, Hurrell, Pate and Kliesmet (1984) depicted the police forces as quazi-military in their nature, and Brown, Cooper and

Kirkcaldy (1996) suggested that the police were organized in tiers within a military model.

In addition to the fact that it is unsatisfactory to have to extrapolate from studies of the police to the military, the military is important in its own right and its unique structure necessitates that a study like this be done. Moreover, research into the operational stress experienced by the Canadian Forces personnel deployed on military missions in the late 1990s indicated that stressors of an occupational nature were among those most frequently experienced in the theatre of operations (e.g., Dobрева-Martinova, 1998).

While many references to studies of military personnel or war veterans can be found in the public domain, most are studies of post-traumatic stress disorder and combat stress reaction which relate to operational deployment and its aftermath (Beal, 1995; Long, Wine, Penk, Keane et al., 1989; Rosenheck, Leda & Gallup, 1992; Rundell, Ursano, Holloway, & Jones, 1990; Shalom, Benbenishty, & Solomon, 1995; Solomon & Blumenfeld, 1995; Southwick, Morgan, Nagy, Bremner, et al., 1993). Nevertheless, the apparent scarcity of research on occupational stress in the military could be misleading. Such research may exist (e.g., Fullerton, 1984; Godwin, 1986; Kelloway & Barling, 1994; Rachman & McMillan, 1986) but may be proprietary rather than found in the public domain.

The research on occupational stress in the armed forces explores mostly environmental stressors specific to the military and their impact on soldiers' health and performance (MacDonough, 1991; Manning & Fullerton, 1988). It appears that little formal inquiry has been made into the association of work-related stress in the military with such outcomes as job satisfaction and work commitment, or into the social psychological resources, such as leadership and perceived organizational support, that could moderate the relationship of work stress with both the individual and the organization.

Purpose, conceptual framework and hypotheses of the study

The purposes of this study were fourfold: 1) to identify the extent of occupational role stress in the Canadian Forces; 2) to determine the association between occupational role stress and service members' health, job satisfaction and organizational commitment; 3) to examine individual coping strategies, workplace leadership and perceived organizational support as resources that could moderate the relationship of work stress with individual and organizational well-being; 4) to examine individual differences in terms of rank and gender, which could provide additional valuable information on the occupational role stress experienced in the military.

The framework of the study is presented in a simple interactive model containing the constructs of interest and the hypothesized relations among them (Figure 1).

This model embodies our view of occupational stress as a complex aspect of organizational life rather than a weakness of the individual and reflects the dynamic interplay of personal and organizational factors. Consistent with the majority of occupational stress models that recognize the stress-buffering influence of various psychological resources, the model in the present study emphasizes the role of moderating factors (individual and social psychological variables) that could potentially alter the perceptions of the stressors or their association with individual and organizational well-being. The response to a stressful event depends on both the characteristics of the individual involved and the specific demands of the situation. The outcome of a stressful event is seen as dependent upon the subjective construal of the situation, defined by Ross and Nisbett (1991) as the personal and subjective meaning that the individual attaches to the situation, which may affect the perception of the role stressors. When the military members perceive their organization as supportive or their supervisors as competent and understanding, they may be able to perform the various tasks defined by their work roles while experiencing lower levels of stress, or they may be able to tolerate higher levels of work stress without detrimental consequences for their well-being and for organizational effectiveness.

Figure 1. Proposed Model of Occupational Role Stress, Psychological Resources and Individual and Organizational Well-being.

Within the framework presented in the model, it was hypothesized that

- (1) occupational role stress, particularly conflict and ambiguity, should be associated with reduced individual well-being. That is, greater role conflict and ambiguity should be associated with greater strain. Occupational role stress should also be negatively associated with indicators of organizational well-being, including job satisfaction and affective commitment, and positively associated with continuance commitment.
- (2) The moderating effects of resources were expected to be most evident when the resource matched the level of outcome. Thus, individual coping skills were expected to moderate the relationship of occupational role stress with the strain level experienced by the military members, such that those with more coping skills would report lower strain. Similarly, workplace leadership was expected to moderate the relationship between occupational role stress and organizational well-being, such that positive leadership practices would be associated with higher organizational well-being. However, consistent with Jones et al. (1995), perceived organizational support was hypothesized to moderate the relationship between occupational role stress and both individual (lack of strain) and organizational (job satisfaction and affective commitment) well-being in a manner similar to the other moderators.

(3) It was expected that the occupational role stress experienced by military personnel would differ at different levels of the chain of command. Role insufficiency was expected to differentiate service members of lower ranks and service members of higher ranks, such that lower ranks would experience higher role insufficiency than higher ranks. Members of higher rank, particularly Senior Officers, were expected to experience higher role overload and role responsibility for others than service members of lower rank, particularly Junior Non-Commissioned Members. One might reasonably expect such differences in the occupational stress experienced at different rank levels in the military. Interestingly, there is no research in this area and therefore, this hypothesis is intuitive.

(4) Finally, given the historical and general “male” culture of the military, occupational role stress (particularly role conflict and role overload) was expected to be higher for female rather than for male members of the Canadian Forces.

Method

Participants

A sample of 2000 Regular Force military members was sent a survey questionnaire battery which constituted part of an Omnibus Survey of the Canadian Forces. The survey sample was derived by a random stratified sampling procedure intended to accurately reflect particular demographic characteristics of the Canadian Forces (CF), including gender, rank, and first language. The female military members were over-sampled in order to ensure their representation in the surveyed sample and to enable inter-group comparisons.

Procedures and measures

Questionnaires were mailed to different bases of the Canadian Forces across the country, to the service members who had been randomly selected to participate in the survey. The participants were asked to complete the questionnaire battery and to mail it to the Director Human Resource Research and Evaluation of the Canadian Forces (for general instructions provided to the survey participants see Appendix A, pp. 150-151). Return envelopes and postage were provided by the research unit. Participation in the survey was voluntary. Respondents were assured of the anonymity and confidentiality of their responses to the survey questionnaires. Questionnaires were provided in both official languages. 1068 completed questionnaires were returned yielding a response rate of 53%.

All measures, employed in the survey and described below, are self-reports of perceptions of the previously described predictor, outcome and moderator variables as recorded on questionnaires.

Occupational role stress. The nature and frequency of occupational role stress experienced by the CF members was measured using the 50-item Occupational Environment Scale (OES) - Form E2 (Osipow & Spokane, 1983). (See Appendix A, p. 152). This instrument measures six different aspects of work stress: role ambiguity, role conflict, role overload, role insufficiency, role responsibility for others and physical environment. Every aspect is represented by a subscale of ten items with the total number of 60 items in the OES. In this study, the first five aspects of role stress were assessed. The physical environment subscale was omitted, because the environment differs considerably from one location of the CF bases to another and because previous research has shown that it is not as good predictor as the other role stressors (e.g., Bhalla, 1989). Respondents rated the 50 Likert-type items along five response categories labeled "most of the time", "usually", "often", "occasionally", and "rarely". All the subscales have theoretical ranges of 10 to 50.

The OES was chosen based on its relevance and comprehensiveness and its psychometric properties - internal consistency for the total scale (Cronbach's $\alpha = .89$) and for the subscales (α from .71 to .90), two-week test-retest reliability ($r = .90$), and discriminant validity (Osipow & Spokane, 1983). In addition to these properties,

Spielberger and Reheiser (1995) indicated in their review of the occupational stress measures that Osipow and Spokane's OES is "a promising generic measure to assess person-environment fit variables such as role overload, role ambiguity, and psychological strains across different occupational levels and work environments" (p.57).

Strain. The level of strain perceived by the survey participants was assessed with a 20-item Symptoms Checklist, composed by Bartone, Ursano, Wright and Ingraham (1989), as displayed in Appendix A (p. 161). Eleven items in the Bartone et al.'s (1989) Symptoms Checklist are drawn from the psychosomatic complaints scale developed by Stouffer, Guttman and Suchman (1950). Bartone et al. (1989) referred to evidence for the validity and reliability of the Stouffer et al. (1950) scale coming from large-scale studies of American soldiers during World War II. The test was 89 % effective in identifying hospitalized psychoneurotic patients (N=563) and showed 1-week test-retest reliability of .90 in that sample, and .93 in a control sample (N=3501). The remaining 9 items are drawn from the Hopkins Symptoms Checklist (Derogatis, Lipman, & Rickels, 1974) and represent complaints frequently seen in studies of traumatic stress, such as trouble sleeping and depressed mood.

Bartone et al.'s (1989) 20-item composite scale measures the frequency with which symptoms are experienced. Principal Component Analysis (PCA), conducted by Bartone et al. (1989) in their study of military disaster assistance workers helping families of soldiers killed in an airplane crash in Gander, Newfoundland, showed four factors,

accounting for 48 % of the variance: depression/withdrawal, hyper-alertness, generalized anxiety, and somatic complaints. The authors reported reliability (Cronbach's alpha) for the full 20-item scale of .90 at time 1, and .93 at time 2.

The Symptom Checklist is used in surveys of Canadian Forces personnel deployed on peacekeeping missions. Following this use of the checklist, the item "Lack of appetite/loss of weight" from Bartone et al.'s (1989) scale was split into two items: "Lack of appetite" and "Loss of weight". A rationale behind this decision was the consideration of the environment in some operational deployments where the weight loss is frequently due to the climate (e.g., heat, humidity) in which the peacekeeping mission takes place rather than to the loss of appetite. Therefore Bartone et al.'s (1989) Symptom Checklist, as used in the Canadian Forces, is a 21-item scale with four response categories labeled (1) never, (2) sometimes, (3) often and (4) very often. The theoretical ranges of the checklist are from 21 to 84.

Job satisfaction. Job satisfaction was measured using the "Satisfaction with Work" subscale of the Job Descriptive Index, or JDI (Smith, Kendall, & Hulin, 1969), as presented in Appendix A (p. 157). This scale is one of the most frequently employed measures of job satisfaction (O'Leary-Kelly & Griffin, 1995). It employs 17 adjectives using three response categories: (1) yes, (2) no, (3) ? (cannot decide). An index of job satisfaction was calculated for every participant in the survey. Smith et al. (1969)

reported reliability (random split-halves) of .84 for the "Satisfaction with Work" subscale of the JDI and provided evidence for the scale's convergent and discriminant validity.

The total score range for the Job Description Index is from 0 to 34.

Organizational commitment. The organizational commitment was assessed with Allen and Meyer's (1990) Affective and Continuous Commitment Scales (Appendix A, p. 159). Each scale consists of 8 Likert-type items with seven response categories: (1) strongly disagree, (2) disagree, (3) mildly disagree, (4) neither agree nor disagree, (5) mildly agree, (6) agree, (7) strongly agree. Total scores for each scale may range from 8 to 56. The higher the score on Affective Commitment Scale the more attached the respondents will be to the organization of the CF. The higher the score on Continuous Commitment Scale the higher the individual's recognition of the "costs" associated with leaving the organization. Allen and Meyer (1990) reported reliability (Cronbach's alpha) for Affective Commitment Scale of .87 and for Continuance Commitment Scale of .75.

Coping strategies. The COPE Scale developed by Carver et al. (1989) was used to assess the coping strategies employed by the respondents (Appendix A, p. 155). The scale incorporates 14 conceptually distinct subscales: (1) active coping, (2) planning, (3) suppression of competing activities, (4) restraint coping, (5) seeking social support for instrumental reasons, (6) seeking social support for emotional reasons, (7) positive reinterpretation and growth, (8) acceptance, (9) turning to religion, (10) focus on &

venting of emotions, (11) denial, (12) behavioral disengagement, (13) mental disengagement, and (14) alcohol-drug disengagement. Each subscale consists of 4 items. Only the alcohol-drug disengagement subscale in Carver et al.'s COPE scale has only one item. Three additional items were generated and agreed upon by military researchers from the Canadian Forces, in order to expand the alcohol and drug use from a single item to a coping subscale. The 14 coping strategies were grouped into three major coping strategies, as suggested by Carver et al: (1) problem-focused coping; (2) emotion-focused coping; and (3) less useful or avoidance coping. The COPE scale has 56 items and four response categories that measured the frequency with which each coping strategy was used by the respondents: (1) "I usually don't do this at all", (2) "I usually do this a little bit", (3) "I usually do this a medium amount", and (4) "I usually do this a lot". Cronbach's alpha reliability coefficients for COPE subscales, reported by Carver et al. (1989), are acceptably high, most of them falling within the .70 to .90 range.

Schwarzer and Schwarzer (1996) noted that the COPE scale is a more fine-grained dispositional measure of individual differences in coping than most of the previously developed coping instruments, and that the scale reflects a balanced view about the disposition versus situation issue. As well, the authors indicated that the COPE scale has satisfactory psychometric properties, and that evidence for validity of the COPE scale is provided by Carver and his associates (Carver & Scheier, 1993; Carver, Scheier, & Pozo, 1992).

Workplace leadership. Perceived leadership behavior is explored with the help of Consideration and Initiating Structure Subscales of the Leader Behavior Description Questionnaire (LBDQ) – Form XII Stogdill (1963), as presented in Appendix A (p. 158). Each subscale consists of 10 items. The respondents rated the frequency with which their supervisors set structure and provide consideration along the following five response categories: (1) never, (2) seldom, (3) occasionally, (4) often, and (5) always. The score on each subscale may range from 10 to 50. The Consideration and Initiating Structure Subscales of the Leader Behaviour Description Questionnaire (LBDQ) are often used in organizational research.

Perceived organizational support. The short version of the Survey of Perceived Organizational Support (Eisenberger et al., 1986, 1990; see Appendix A, p. 159) was used to measure employee perceptions of being appreciated and cared for by their employer. The short Survey of Perceived Organizational Support Scale has 16 Likert-type items and potential range of 16-112. The respondents indicated their degree of agreement with the statements in these items on seven-point scales ranging from (1) strongly disagree to (7) strongly agree. Eisenberger et al. (1986, 1990) reported reliability coefficients (Cronbach's alpha) of .97 for the scale, with item-total correlations ranging from .42 to .83. The mean and median item-total correlations were reported .67 and .66 respectively.

Results

Data screening

Prior to analyzing the survey data, data screening procedures were employed in order to identify out-of-range values, estimate plausible means and standard deviations, test for missing data, and estimate other factors such as skewness and kurtosis, nonlinearity, and multicollinearity and singularity. Details of the data screening procedures are presented in Appendix B (p. 162).

Initial analysis

Representativeness of sample. Chi-squared tests showed no significant differences between the observed and expected representation of English and French-speaking military members in the survey and between the observed and expected frequencies (based on actual profiles in the Forces) for “environmental uniform” (land, sea, and air). However, a Chi-squared test revealed significant differences between the observed and expected frequencies for rank ($\chi^2 = 112.90$ (3), $p < .001$), which appeared due mostly to considerable under-representation of the Junior Non-Commissioned Members and over-representation of the Junior Officers in the sample (see Table 1).

Table 1.

Chi-Squared Test for Rank*

Rank	Observed N	Expected N	Residual
Junior Non-Commissioned Members (including Privates)	439	582	-143
Senior Non-Commissioned Officers	240	226	14
Junior Officers	240	148	92
Senior Officers	106	70	36
Total	1025		

* $\chi^2 = 112.90$ (3), $p < .001$

Demographic characteristics of the sample. The male to female ratio was about 3:1, in that 800 (77.8%) of the participants were men and 228 (22.2%) were women. The age of the survey participants ranged from 18 to 54 with a mean of 35.25 (SD=6.46). The rank of the survey participants was as follows: 2.2 % of the surveyed service members were Privates; 40.5 % were Junior Non-Commissioned Members; Senior Non-Commissioned Officers represented 19.5 % of the sample; Master Warrant Officers and Chief Warrant Officers were 3.9 % of the surveyed sample; Junior Officers were 23.3 %; Senior Officers of rank Major/Lieutenant Commander to Lieutenant Colonel/Commander represented 9.2 %; and finally Senior Officers of rank Colonel/Captain (Navy) to General Officers were 1.1 % of the surveyed sample.

The rank description of the sample showed that only 23 of the 1028 military members in the surveyed sample were privates. This frequency may be at first surprising. However, it seems to reflect the demographic situation in the population of the Canadian Forces at the present time. Volunteers who are recruited for the Canadian Forces, join the military with a rank of private. Since there had not been active recruitment in the eight to nine years prior to this study, there were very few of them that had not yet been promoted.

The eight ranks in the sample were combined into four rank categories in order to have more equally represented groups in the analyses. Privates and Junior Non-Commissioned Members were combined into Junior Non-Commissioned Members (Junior NCMs) rank category. Senior Non-Commissioned Officers were combined with Master Warrant Officers and Chief Warrant Officers into Senior Non-Commissioned Officers (Senior NCOs) rank category. Senior Officers of rank Major/Lieutenant Commander to Lieutenant Colonel/Commander were combined with Senior Officers of rank Colonel/Captain (Navy) to General Officers into Senior Officers rank category. These four rank categories are those typically used in behavioral science research conducted at the Director Human Resource Research and Evaluation at the National Defence Headquarters in Ottawa. Description of the sample in terms of the four rank categories is provided in Table 2.

Table 2.

Sample Description in Terms of Rank

Rank	N	Percent
Junior NCMs	439	42.80
Senior NCOs	240	23.40
Junior Officers	240	23.40
Senior Officers	106	10.30
Total	1025	100.00

Three types of military units were surveyed in this study: deployable operational units (47.4% of the sample), non-deployable operational units (19.6% of the sample) and non-operational units (33.0% of the sample). The sample also represented all the environmental uniforms in the Canadian military: land (46.3% of the sample), sea (11.8% of the sample) and air (42% of the sample). In terms of environmental command, the following six groups were studied: Marine Command, Land Force Command, Airforce Command, National Defence Headquarters, and Canadian Forces Recruitment, Education and Training Systems; the sixth group consisted of personnel from other than the preceding five commands.

The length of full time service with the Canadian Forces for the surveyed military personnel ranged from 1 to 35 years, with an average of 15 years. The length of part-time service with the organization of the Canadian Forces ranged from 1 to 20 years with an average of 4 years.

Reliability analysis. The reliability of the scales used in the survey was estimated by calculating Cronbach's alpha reliability coefficient, which is an estimate of the internal consistency of a scale. For the present study, a reliability alpha coefficient of at least .8 was accepted as a standard for the scales in the survey battery and an alpha coefficient of .7 was accepted for the subscales, as they generally contained fewer items. Table 3 presents the reliability alpha coefficients for the scales and subscales used in the present study.

Table 3.

Reliability Alpha Coefficients for the Scales and Subscales Used in the Survey

Scale	Subscale	Alpha Coefficient
Work Environment Scale		$\alpha = .84$
	Role Overload	$\alpha = .87$
	Role Insufficiency	$\alpha = .84$
	Role Ambiguity	$\alpha = .74$
	Role Conflict	$\alpha = .74$
	Role Responsibility for Other People	$\alpha = .71$
COPE Inventory		$\alpha = .86$
	Problem-Focused Coping	$\alpha = .86$
	Emotion-Focused Coping	$\alpha = .80$
	Avoidance Coping	$\alpha = .75$
Work Satisfaction Index		$\alpha = .92$
Workplace Leadership		$\alpha = .93$
	Initiating Structure	$\alpha = .87$
	Consideration	$\alpha = .91$
Perceived Organizational Support		$\alpha = .92$
Affective Commitment		$\alpha = .84$
Continuance Commitment		$\alpha = .82$
Symptom Checklist		$\alpha = .89$
	Depression/Withdrawal	$\alpha = .84$
	Hyper-Alertness	$\alpha = .73$
	Generalized Anxiety	$\alpha = .75$
	Somatic Complaints	$\alpha = .64$

As seen in Table 3, all the scales and subscales had acceptable levels (.7 or greater) of reliability except the Somatic Complaints subscale of the Symptom Checklist measuring strain. The Somatic Complaints subscale had an alpha coefficient of .64. However, it was decided to retain this subscale but to interpret associated results with caution. It was mentioned earlier (see Appendix B, p. 165) that the Generalized Anxiety subscale of the Symptom Checklist was excluded due to a lack of variability in the responses to its items, and therefore the retention of the Somatic Complaints subscale as an indicator of individual well-being was considered important.

Descriptive statistics. Table 4 presents the descriptive statistics (potential range, means, medians and standard deviations) for participants' scores on the conceptual variables in the study. Since the distributions of scores on the conceptual variables in this study were normal or approximating normal, the mean and median values for these variables only differed slightly. However, median scores are reported because the norms on the role stress variables, offered by the authors of the occupational role stress scale used in the survey, Osipow and Spokane (1983), are reported in median scores. The median scores for role overload, role insufficiency, role ambiguity, role conflict and role responsibility for other people from Osipow and Spokane's (1985) normative sample, representative of many different white collar occupations in the United States, a sample of employees of a large Canadian federal government department (Bhalla, 1989) and the sample from the present study are presented in Appendix C (p. 166).

In this study, as seen in Table 4, the mean value for role insufficiency ($M=26.41$, $SD=7.93$) was the highest among the role stressors, followed by role overload ($M=26.30$, $SD=8.05$) and role responsibility ($M=25.58$, $SD=6.69$), while role ambiguity ($M=20.96$, $SD=5.89$) had the lowest mean value ($p's < .001$). As well, as seen in the table, the occupational role stress experienced by the respondents was in the moderate range.

Table 4.
Descriptive Statistics for the Conceptual Variables in the Study

Variable	Potential Range	<u>M</u>	Median	<u>SD</u>
Predictor Variables				
Role Stressors:				
Role Ambiguity	10-50	20.96	20.00	5.89
Role Conflict	10-50	22.45	22.00	6.88
Role Overload	10-50	26.30	25.00	8.05
Role Insufficiency	10-50	26.41	26.00	7.93
Role Responsibility for People	10-50	25.58	26.00	6.69
Moderator Variables				
Problem-Focused Coping	20-80	59.02	59.00	8.35
Emotion-Focused Coping	20-80	43.81	43.00	7.79
Avoidance Coping	16-64	20.54	20.00	4.96
Perceived Organizational Support	16-112	61.53	62.00	16.14
Initiating Structure	10-50	36.04	37.00	6.54
Consideration	10-50	34.10	35.00	7.68
Outcome Variables				
Strain Cumulative	21-84	31.05	29.00	7.99
Depression/Withdrawal	5-20	8.39	8.00	3.10
Hyper-Alertness	6-24	8.11	7.00	2.38
Somatic Complaints	5-20	8.65	8.00	2.48
Job Satisfaction	0-34	26.13	29.00	8.26
Affective Commitment	8-56	34.63	35.00	9.51
Continuance Commitment	8-56	34.73	35.00	9.49

Table 4 also shows that scores on strain ($\underline{M}=31.05$, $SD=7.99$) and the strain domains of depression/withdrawal ($\underline{M}=8.39$, $SD=3.10$), hyper-alertness ($\underline{M}=8.11$, $SD=2.38$) and somatic complaints ($\underline{M}=8.65$, $SD=2.48$) were in the moderate range, thus raising no concerns for the sample as a whole ($p < .001$). With regard to job satisfaction and organizational commitment, participants clearly scored above the midpoint on each of these variables. While participants' scores on job satisfaction and affective commitment suggested that participants were relatively content with the facets of their work explored in this study, their scores on continuance commitment suggested that, on average they were also experiencing a cost-based stay with the Canadian Forces to a considerable extent ($p < .001$).

In terms of coping mechanisms, participants scored, on average, well above the midpoint on problem-focused ($\underline{M}=59.02$, $SD=8.35$) and emotion-focused ($\underline{M}=43.81$, $SD=7.79$) coping and somewhat below the midpoint on avoidance coping ($\underline{M}=20.54$, $SD=4.96$) ($p < .001$).

On average, survey participants scored above the midpoint on perceived organizational support ($\underline{M}=61.53$, $SD=16.14$). It is worth noting that perceived organizational support was characterized with the highest variability in the scores when compared to the other conceptual variables in this study. Participants scored on average well above the midpoint on the Initiating Structure ($\underline{M}=36.04$, $SD=6.54$) and

Consideration ($M=34.10$, $SD=7.68$) domains that represented workplace leadership in this study ($p < .001$).

Descriptive statistics on the conceptual variables by rank and by gender are presented in Appendix D (p. 167).

Correlational analyses. Before conducting the main analyses, the Pearson product-moment correlations for the conceptual variables in the study were calculated and explored². Based on the theoretical rationale outlined in the Introduction, the conceptual variables were categorized as predictors, moderators and outcomes of occupational stress. The correlations among the predictor and moderator variables are presented in Table 5. Of particular note are the high correlations among the role stressor indices of ambiguity, conflict, and insufficiency. These three dimensions were also highly negatively related to

² The assumptions underlying correlational analysis were tested prior to conducting the analysis. The assumptions of related pairs and scale of measurement are a matter of research design and therefore have been accounted for when constructing the present study. The assumption of normality was tested by examining the normal probability plots and the statistics for skewness and kurtosis for the conceptual variables in the study. Job satisfaction was found to deviate from normality: the distribution of participants' scores in the job satisfaction scale was negatively skewed. However, since job satisfaction has been negatively skewed in most samples, it was retained in the analysis. The assumptions of linearity and homoscedasticity were tested by examining the scatterplots of the conceptual variables in this study.

organizational resources, including workplace leadership and perceived organizational support. The correlations of predictor (role stressors) and moderator (coping strategies, workplace leadership and perceived organizational support) variables with the outcome (strain, job satisfaction, and organizational commitment) variables are presented further with the results of the main analyses.

Table 5

Intercorrelations Among Predictor and Moderator Variables (N=1028)

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Role Overload											
2. Role Insufficiency	-.12***										
3. Role Ambiguity	.06	.43***									
4. Role Conflict	.07*	.60***	.57***								
5. Role Responsibility	.22***	-.19***	-.01	.02							
6. Problem-Focused Coping	.12***	-.14***	-.24***	-.13***	.23***						
7. Emotion-Focused Coping	.06	-.06	-.10***	-.03	.06	.43***					
8. Avoidance Coping	.04	.23***	.21***	.36***	.02	-.09***	.31***				
9. Initiating Structure	-.02	-.29***	-.49***	-.39***	-.08*	.22***	.09***	-.13***			
10. Consideration	-.07*	-.30***	-.45***	-.43***	-.14***	.09***	.04	-.18***	.67***		
11. Perceived Organizational Support	-.07*	-.44***	-.34***	-.52***	-.06	.02	.04	-.27***	.33***	.39***	

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

Main analyses

The hypotheses for this study were explored through standard regression analyses, hierarchical regression analyses, discriminant analysis and analysis of variance (ANOVA). Since the large sample size resulted in substantial power in these analyses, effect sizes were explored and used in the interpretation of results. Effect sizes (R^2 in regression and η^2 in ANOVA) indicate the proportion of variance accounted for in the outcome variable by a specific predictor. Only findings with effect sizes that yielded a value greater than .05 were explored and interpreted.

Hypothesis 1:

Occupational role stress, individual and organizational well-being. Several series of standard regression analyses were performed to explore the association of occupational role stress with individual and organizational well-being. The assumptions underlying regression analysis were tested and were satisfied³.

Individual well-being. The first series of regression analyses explored whether occupational role stress, represented by role overload, role insufficiency, role ambiguity, role conflict and role responsibility for other people was significantly associated with

³ The assumption of the ratio of cases to independent variables relates to research design and was satisfied through the large sample size used in the study. As was pointed out above, univariate outliers were explored during data screening. Multivariate outliers were explored using Mahalanobis distance and residual scatterplots. The assumption of multicollinearity and singularity was tested through examining the correlations among the predictor variables and the results of the tests of tolerance and inflation of variance. Finally, the assumptions of normality, linearity, homoscedasticity and independence of residuals were assessed through examination of residual scatterplots.

individual well-being. As hypothesized, role stress domains were a significant predictor of the strain level of the surveyed CF members, $R^2_{\text{adjusted}} = .13$, $F(5, 930) = 29.38$, $p < .001$.

Table 6 shows the contribution of each role stressor to the explanation of the variance in strain. An examination of the standardized regression coefficients (β s) in the table, the squared semi-partial correlations⁴ and the significance levels attached to them indicated that, although all of the role stress dimensions were positively associated with strain, only role conflict, role responsibility for others, and role ambiguity predicted unique variance, such that higher levels of each predicted greater strain.

Table 6.

Standard Regression Analysis of Strain on Occupational Role Stress

Predictor	r	b	β	Semi-Partial Correlation ²
Role Overload	.09**	.05	.06	.003
Role Insufficiency	.23***	.06	.06	.003
Role Ambiguity	.25***	.08*	.08*	.01*
Role Conflict	.34***	.25***	.26***	.03***
Role Responsibility	.10**	.09**	.10**	.01**

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

⁴ Semi-partial correlation in regression measures the relationship between a predictor and the outcome, controlling for the relationship between that predictor and any others already in the regression model. It therefore measures the unique contribution of a predictor to explaining the variance of the outcome.

Role stress domains were also a significant predictor of depression/withdrawal symptoms, $R^2_{\text{adjusted}} = .14$, $F(5, 936) = 30.54$, $p < .001$. An examination of the standardized regression coefficients (β s), the squared semi-partial correlations and the significance levels attached to them, presented in Table 7, shows that all of the role stress variables explained unique variance in depression/withdrawal, such that in all cases greater role stress was associated with greater symptoms of depression/withdrawal.

Table 7.

Standard Regression Analysis of Depression/Withdrawal on Occupational Role Stress

Predictor	r	b	β	Semi-Partial Correlation ²
Role Overload	.10**	.06*	.07*	.004*
Role Insufficiency	.24***	.09*	.09*	.01*
Role Ambiguity	.26***	.09*	.09*	.01*
Role Conflict	.34***	.22*	.22***	.03***
Role Responsibility	.11**	.11**	.11**	.01**

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

The standard regression on hyper-alertness was also significant, $R^2_{\text{adjusted}} = .08$, $F(5, 934) = 17.44$, $p < .001$. An examination of the correlation coefficients (rs), the standardized regression coefficients (β s) and the squared semi-partial correlations presented in Table 8 indicates that, while all role stress dimensions were correlated with hyper-alertness, role conflict and role responsibility for other people predicted unique variance, such that higher levels of each were associated with greater hyper-alertness.

Table 8.

Standard Regression Analysis of Hyper-Alertness on Occupational Role Stress

Predictor	r	b	β	Semi-Partial Correlation ²
Role Overload	.09**	.05	.05	.003
Role Insufficiency	.12***	-.02	-.02	.0004
Role Ambiguity	.18***	.06	.06	.003
Role Conflict	.26***	.24***	.24***	.03***
Role Responsibility	.12***	.10**	.10**	.01**

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

Finally, a regression on somatic complaints was significant, $R^2_{\text{adjusted}} = .07$, $F(5, 933) = 14.13$, $p < .001$. As seen in Table 9, the same pattern of results was evident in that, while all role stressors were significantly correlated with somatic complaints, only role

conflict and role responsibility for other people predicted unique variance, such that higher levels were associated with greater somatic complaints.

Table 9.

Standard Regression Analysis of Somatic Complaints on Occupational Role Stress

Predictor	<u>r</u>	<u>b</u>	<u>β</u>	Semi-Partial Correlation ²
Role Overload	.06*	.04	.04	.002
Role Insufficiency	.16***	.03	.03	.001
Role Ambiguity	.17***	.04	.04	.001
Role Conflict	.25***	.20***	.21***	.02***
Role Responsibility	.07*	.06*	.07*	.004*

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

Consistent with the expectations, occupational role stress was significantly associated with strain and symptoms of depression-withdrawal, hyper-alertness and somatic complaints in that higher levels of occupational role stress were associated with higher levels of strain and higher manifestation of depression/withdrawal, hyper-alertness and somatic symptoms. As well, role conflict was the occupational role stress variable that had the most consistent association with strain and with symptoms of depression/withdrawal, hyper-alertness and somatic complaints. Among the individual strain domains, occupational role stress explained the highest amount of variance in depression/withdrawal where all the role stress variables were predictive.

Organizational well-being. The next series of standard regression analyses explored the association of occupational role stress with organizational well-being (i.e., job satisfaction, affective commitment and continuance commitment). A regression analysis on job satisfaction indicated a strong association between occupational role stress and job satisfaction, $R^2_{\text{adjusted}} = .44$, $F(5, 917) = 143.97$, $p < .001$, where occupational role stress accounted for almost half of the variance in job satisfaction. An examination of the standardized regression coefficients (β s), the squared semi-partial correlations presented in Table 10 and the significance levels associated with them shows that role conflict, role insufficiency and role responsibility for others predicted unique variance in job satisfaction, such that higher levels of each were associated with lower job satisfaction.

Table 10.

Standard Regression Analysis of Job Satisfaction on Occupational Role Stress

Predictor	r	b	β	Semi-Partial Correlation ²
Role Overload	-.03	-.01	-.01	.0001
Role Insufficiency	-.54***	-.29***	-.29***	.05***
Role Ambiguity	-.39***	-.02	-.02	.0004
Role Conflict	-.62***	-.44***	-.44***	.10***
Role Responsibility	-.04	-.09**	-.09**	.01**

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

Occupational role stress was also a significant predictor of affective commitment, $R^2_{\text{adjusted}} = .23$, $F(5, 933) = 57.58$, $p < .001$. An examination of the correlation coefficients (r s), standardized regression coefficients (β s) and squared semi-partial correlations presented in Table 11 indicated that, although all of the role stress dimensions were significantly correlated with affective commitment, only role conflict, role insufficiency and role overload predicted unique variance, such that higher levels of these variables were associated with lower affective commitment.

Table 11.

Standard Regression Analysis of Affective Commitment on Occupational Role Stress

Predictor	r	b	β	Semi-Partial Correlation ²
Role Overload	.07*	.07*	.07*	.005*
Role Insufficiency	-.36***	-.11**	-.11**	.01**
Role Ambiguity	-.23***	.06	.06	.003
Role Conflict	-.46***	-.44***	-.44***	.10***
Role Responsibility	.08**	.05	.05	.003

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

Finally, a regression on continuance commitment was significant, $R^2_{\text{adjusted}} = .02$, $F(5, 922) = 5.41$, $p < .001$. As can be seen in Table 12, although all role stress variables

were correlated with continuance commitment, only role responsibility for others predicted unique variance, such that higher responsibility for other people was associated with lower cost-based stay with the Canadian military. However, the amount of the explained variance in continuance commitment was less than .05, the adopted criterion for meaningfulness of effect size. Again, this criterion was adopted because of the substantial power associated with the large sample size in this study.

Table 12.

Standard Regression Analysis of Continuance Commitment on Occupational Role Stress

Predictor	r	b	β	Semi-Partial Correlation ²
Role Overload	-.08*	-.05	-.05	.003
Role Insufficiency	.13***	.07	.07	.003
Role Ambiguity	.07*	.03	.003	.000004
Role Conflict	.10**	.06	.06	.002
Role Responsibility	-.11***	-.09**	-.09**	.01**

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

As hypothesized, occupational role stress was associated with lower levels of organizational well-being represented by job satisfaction and affective commitment. As with individual well-being, role conflict was also the most consistent predictor of organizational well-being. As well, organizational well-being, namely job satisfaction

and affective commitment, had stronger association with occupational role stress than individual well-being. Furthermore, while role overload, role ambiguity and role responsibility for others were significantly associated with individual level of well-being (i.e., lack of strain, depression/withdrawal, hyper-alertness and somatic symptoms) and the organizational well-being of the immediate work environment (job satisfaction), role conflict and role insufficiency were significantly related to the organizational well-being (affective commitment) by triggering questions about one's association with the organization. It is interesting to note the lack of a meaningfully significant association of occupational role stress with continuance commitment.

Hypothesis 2:

In accordance with the proposed Model of Occupational Role Stress, presented in Figure 1 (p. 33) and Hypothesis 2 stating that the moderating effects of resources (i.e., moderating notion being the potential of resources to change the direction and/or strength of the relationship between a predictor and an outcome) were expected to be most evident when the resource matched the level of outcome, series of hierarchical regression analyses were performed to test: 1) the moderating effect of coping skills on individual well-being represented by the strain level of the military members and by the depression/withdrawal, hyper-alertness and somatic symptoms that they experienced; 2) the moderating effect of workplace leadership on organizational well-being represented

by job satisfaction, affective and continuance commitment; and 3) the moderating effect of perceived organizational support on both individual and organizational well-being.

Due to the considerable number of variables and series of hierarchical regression analyses conducted to test for the moderating effects outlined in Hypothesis 2, the results from these hierarchical regressions are presented in summary tables (e.g., Table 13 on p. 72, Table 14 on p. 76, or Table 15 on p. 78) that include the results of all analyses for each outcome variable.

Moderating effect of coping strategies on individual well-being. A series of hierarchical regression analyses⁵ was performed to assess whether coping strategies moderated the relationship between each occupational role stressor and individual well-being. Standardized scores on the role stressor and coping variables were created, and the cross-products computed to assess the interactive effects. For each outcome variable, the role stressor was entered on the first step, followed by the coping strategies, followed by the relevant interaction terms. The proposed moderator model, as conceptualized by Baron and Kenny (1986), for coping strategies is presented in Figure 2. A moderating

⁵ The following assumptions were tested and satisfied for those analyses: ratio of cases to independent variables was satisfied through the large sample size (N=1028) used in this study. Univariate outliers were tested through examination of the boxplots for predictor, moderator and outcome variables and through the casewise diagnostics in regression. Multivariate outliers were explored using Mahalanobis distance and residual scatterplots. The assumption of multicollinearity and singularity was tested through examining the correlation matrix of the predictor variables as well as the tolerance and inflation of variance tests in regression. The assumptions of normality, linearity, homoscedasticity and independence of residuals were assessed through examination of the residual scatterplots.

effect of coping strategies would be indicated by a significant effect size (explained variance in the outcome variable) for the predictors at Step 3 of the moderator model.

Figure 2. Proposed Moderator Model for Coping Strategies

As seen in Table 13, none of the interaction terms assessing the moderating effects of coping strategies (R^2 Change for Step 3 in each hierarchical regression in the table) were significant beyond the adopted .05 criterion for meaningfulness of effect size. While these moderators did not appear to alter the relationship between role stressors and strain, they did have an additive effect. As seen in Table 13 (R^2 Change for Step 2, size and significance of standardized regression coefficients [β s] and squared semi-partial correlations for predictor variables at Step 2 of each hierarchical regression), coping strategies and in particular avoidance coping strategies, were predictive, in that the greater the use of avoidance coping strategies the higher the strain experienced.

A similar pattern of results was obtained when a subsequent set of hierarchical regressions was conducted to test whether coping strategies moderated the effect of occupational role stress on depression/withdrawal, hyper-alertness and somatic complaints. Again, none of the interaction terms assessing the moderating effects of coping strategies were significant. While coping strategies did not appear to alter the relationship between role stressors and depression/withdrawal, hyper-alertness and somatic symptoms, they did have an additive effect such that the use of avoidance coping was associated with greater depression/withdrawal, hyper-alertness and somatic complaints.

Table 13. Hierarchical Regression Analyses of Strain on Occupational Role Stress and Coping

Predictor	r	β	Semi-part Corr ²	R ² Change
<u>Hierarchical Regression 1</u>				
Step 1 Role Overload	.09**	.09**	.01**	.01**
Step 2 Problem-Focused Coping	-.05	-.03	.001	.17***
Emotion-Focused Coping	.12***	.001	.00	
Avoidance Coping	.42***	.41***	.15***	
Step 3 Role Overload x Prob-Foc/d	.05	-.16	.0003	.001
Role Overload x Emo-Foc/d	.12***	.03	.00001	
Role Overload x Avoidance	-.31***	-.15	.001	
<u>Hierarchical Regression 2</u>				
Step 1 Role Insufficiency	.22***	.22***	.05***	.05***
Step 2 Problem-Focused Coping	-.06*	-.03	.001	.16***
Emotion-Focused Coping	.13***	.03	.001	
Avoidance Coping	.43***	.39***	.12***	
Step 3 Role Insuff/y x Problem-Foc.	.18***	-.59*	.004*	.02***
Role Insuff/y x Emot-Foc.	.27***	.94***	.01***	
Role Insuff/y x Avoidance	.40***	-.04	.00004	
<u>Hierarchical Regression 3</u>				
Step 1 Role Ambiguity	.26***	.26***	.07***	.07***
Step 2 Problem-Focused Coping	-.06*	.01	.00004	.15***
Emotion-Focused Coping	.12***	.02	.0003	
Avoidance Coping	.43***	.39***	.12***	
Step 3 Role Ambig/y x Problem-Foc.	.22***	-.26	.001	.01
Role Ambig/y x Emotion-Foc.	.30***	.38	.002	
Role Ambiguity x Avoidance	.44***	.21	.001	
<u>Hierarchical Regression 4</u>				
Step 1 Role Conflict	.33***	.33***	.11***	.11***
Step 2 Problem-Focused Coping	-.05	-.004	.00002	.11***
Emotion-Focused Coping	.12***	.02	.0003	
Avoidance Coping	.42***	.34***	.09***	
Step 3 Role Confl x Prob-Foc.	.30***	-.15	.0003	.01
Role Confl x Emo-Foc	.36***	.53*	.01*	
Role Confl x Avoidance	.45***	-.05	.0001	
<u>Hierarchical Regression 5</u>				
Step 1 Role Responsibility	.11***	.11**	.01**	.01**
Step 2 Problem-Focused Coping	-.05	-.05	.002	.18***
Emotion-Focused Coping	.13***	.02	.0002	
Avoidance Coping	.42***	.41***	.14***	
Step 3 Role Responsibility x Prob-Foc.	.07*	.11	.0001	.00
Role Responsibility x Emo-Foc.	.16***	-.02	.000004	
Role Responsibility x Avoidance	.36***	.07	.0001	

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

Moderating effect of workplace leadership on organizational well-being. To assess whether the initiating structure and consideration domains of workplace leadership moderated the effect of each occupational role stressor on organizational well-being, represented by job satisfaction, affective and continuance commitment, a series of hierarchical regression analyses was conducted⁶. Again, standardized scores on the role stressors and workplace leadership variables were created, and the cross-products computed to assess the interactive effects. For each outcome variable, the role stressor was entered on the first step, followed by the workplace leadership dimensions of initiating structure and consideration, and by the relevant interaction terms. The proposed moderator model (as conceptualized by Baron & Kenny, 1986) for workplace leadership is presented in Figure 3. A moderating effect for the workplace leadership domains of initiating structure and consideration would be indicated by a significant amount of variance predicted at Step 3 in the regression equations. However, in none of the regressions was the interaction between role stressor and workplace leadership significant beyond the adopted criterion of .05 for meaningfulness of effect size, suggesting that workplace leadership did not moderate the effects of role stress on job satisfaction,

⁶ The following assumptions were tested and satisfied for these analyses: ratio of cases to independent variables was satisfied through the large sample size (N=1028) used in this study. Univariate outliers were tested through examination of the boxplots for predictor, moderator and outcome variables and through the casewise diagnostics in regression. Multivariate outliers were explored using Mahalanobis distance and residual scatter plots. The assumption of multicollinearity and singularity was tested through examining the correlations among the predictor variables and the results of the tests of tolerance and inflation of variance. Finally, the assumptions of normality, linearity, homoscedasticity and independence of residuals were assessed through examination of residual scatterplots.

affective and continuance commitment.

Figure 3. Proposed Moderator Model for Workplace Leadership

Job satisfaction. The workplace leadership dimensions of initiating structure and consideration did not appear to alter the relationship between role stressors and job satisfaction. As seen in Table 14, all effect sizes for the interactions between each role stressor and workplace leadership dimensions of initiating structure and consideration (R^2 Change for Step 3 in each hierarchical regression in the table) were less than the adopted .05 criterion for meaningfulness of effect size. Again, this criterion was adopted in addition to the significance level due to the substantial power associated with the large sample size in this study. While workplace leadership therefore did not appear to alter the relationship between role stressors and job satisfaction, it had an additive effect. As seen in Table 14 (R^2 Change for Step 2, size and significance level of standardized regression coefficients [β s] and squared semi-partial correlations for the predictor variables at Step 2 of each hierarchical regression), initiating structure and consideration, particularly consideration, were directly predictive, in that greater consideration shown by the immediate supervisor was associated with higher job satisfaction, except when role conflict was controlled for (Regression 4, Table 14).

Table 14.
Hierarchical Regression Analyses of Job Satisfaction on Occupational Role Stress and Workplace Leadership

Predictor	r	β	Semi-part Corr ²	R ² Change
<u>Hierarchical Regression 1</u>				
Step 1 Role Overload	-.03	-.03	.001	.001
Step 2 Initiating Structure	.29***	.04	.001	.15***
Consideration	.39***	.36***	.07***	
Step 3 Role Ov/d x Init. Structure	.12***	-.17	.0004	.00
Role Ov/d x Consideration	.21***	.06	.0001	
<u>Hierarchical Regression 2</u>				
Step 1 Role Insufficiency	-.53***	-.53***	.28***	.28***
Step 2 Initiating Structure	.28***	-.04	.001	.06***
Consideration	.39***	.28***	.04***	
Step 3 Role Insuf.x Init. Structure	-.33***	.03	.00002	.004
Role Insuf.x Consideration	.18***	.27	.002	
<u>Hierarchical Regression 3</u>				
Step 1 Role Ambiguity	-.37***	-.37***	.14***	.14***
Step 2 Initiating Structure	.29***	-.04	.001	.07***
Consideration	.39***	.31***	.05***	
Step 3 Role Am/y x Init.Structure	-.18***	.08	.0001	.01*
Role Am/y x Consider/n	-.02	.27	.002	
<u>Hierarchical Regression 4</u>				
Step 1 Role Conflict	-.61***	-.61***	.37***	.38***
Step 2 Initiating Structure	.29***	-.04	.001	.02***
Consideration	.39***	.18***	.02***	
Step 3 Role Confl. x Init. Struct.	-.43***	.11	.0003	.002
Role Conflict x Consider/n	-.29***	.09	.0002	
<u>Hierarchical Regression 5</u>				
Step 1 Role Responsibility	-.04	-.04	.002	.002
Step 2 Initiating Structure	.29***	.05	.001	.15***
Consideration	.39***	.36***	.07***	
Step3 Role Resp/y x Init. Structure	.13***	-.38	.002	.002
Role Resp/y x Consideration	.24***	.14	.0004	

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

Affective commitment. Workplace leadership dimensions of initiating structure and consideration did not appear to moderate the relationship between role stressors and affective commitment. As seen in Table 15, none of the interaction terms assessing the moderating effects of initiating structure and consideration were significant (R^2 Change at Step 3 of each hierarchical regression in the table). As well, these dimensions did not have an additive effect beyond the adopted criterion for meaningfulness of effect size of .05 (R^2 Change at Step 2 of each hierarchical regression in Table 15). As was already mentioned, the criterion for meaningfulness of effect size was adopted in addition to significance level because of the substantial power associated with the large sample size in this study.

Table 15.

Hierarchical Regression Analyses of Affective Commitment on Occupational Role Stress and Workplace Leadership

Predictor	r	β	Semi-part Corr ²	R ² Change
<u>Hierarchical Regression 1</u>				
Step 1 Role Overload	.08**	.08*	.01*	.01*
Step 2 Initiating Structure	.18***	.12**	.01**	.04***
Consideration	.17***	.10*	.01*	
Step 3 Role Ov/d x Init. Structure	.16***	-.35	.002	.003
Role Ov/d x Consideration	.17***	.37	.003	
<u>Hierarchical Regression 2</u>				
Step 1 Role Insufficiency	-.36***	-.36***	.13***	.13***
Step 2 Initiating Structure	.18***	.07	.003	.01*
Consideration	.17***	.02	.0003	
Step 3 Role Insuf. x Init. Structure	-.24***	-.25	.001	.001
Role Insuf. x Consideration	-.20***	.08	.0002	
<u>Hierarchical Regression 3</u>				
Step 1 Role Ambiguity	-.22***	-.22***	.05***	.05***
Step 2 Initiating Structure	.19***	.07	.002	.01**
Consideration	.18***	.06	.002	
Step 3 Role Amb. x Init. Structure	-.11***	-.29	.002	.003
Role Amb. x Consideration	-.07*	.08	.0002	
<u>Hierarchical Regression 4</u>				
Step 1 Role Conflict	-.45***	-.45***	.20***	.21***
Step 2 Initiating Structure	.19***	.06	.002	.003
Consideration	.17***	-.07	.003	
Step 3 Role Confl. x Init. Structure	-.35***	-.26	.002	.002
Role Confl. x Consideration	-.31***	.18	.001	
<u>Hierarchical Regression 5</u>				
Step 1 Role Responsibility	.07*	.07*	.01*	.01*
Step 2 Initiating Structure	.19***	.13**	.01**	.04***
Consideration	.17***	.10*	.01*	
Step 3 Role Resp. x Init. Structure	.18***	-.24	.001	.01
Role Resp. x Consideration	.19***	.47*	.004*	

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

Continuance commitment. None of the interaction terms assessing the moderating effect of workplace leadership on the relationship of role stressors with continuance commitment were significant beyond the adopted criterion for meaningfulness of effect size of .05. As well, in none of the hierarchical regressions performed to test the moderating effect of workplace leadership dimensions of initiating structure and consideration on the relationship of role stress with continuance commitment, were initiating structure and consideration meaningfully predictive. Table 16 summarizes the effect sizes for each step of the regression equation in the hierarchical regressions conducted to test the moderating effects of initiating structure and consideration on the relationship of role stress with continuance commitment.

Table 16.

Hierarchical Regression Analyses of Continuance Commitment on Occupational Role Stress and Workplace Leadership

Predictor	R ² Change
Step 1	
Regression 1: Role Overload	.01**
Regression 2: Role Insufficiency	.01***
Regression 3: Role Ambiguity	.01*
Regression 4: Role Conflict	.01**
Regression 5: Role Responsibility	.01**
Step 2	
Regression 1: Initiation of Structure, Consideration	.01
Regression 2: Initiation of Structure, Consideration	.002
Regression 3: Initiation of Structure, Consideration	.002
Regression 4: Initiation of Structure, Consideration	.001
Regression 5: Initiation of Structure, Consideration	.01*
Step 3	
Regression 1	.002
Role Overload x Initiation of Structure	
Role Overload x Consideration	
Regression 2	.01*
Role Insufficiency x Initiation of Structure	
Role Insufficiency x Consideration	
Regression 3	.00
Role Ambiguity x Initiation of Structure	
Role Ambiguity x Consideration	
Regression 4	.01
Role Conflict x Initiation of Structure	
Role Conflict x Consideration	
Regression 5	.001
Role Responsibility x Initiation of Structure	
Role Responsibility x Consideration	

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

Moderating effect of perceived organizational support on individual and organizational well-being. To assess whether perceived organizational support (POS) moderated the relationship of each role stressor with both individual (lack of strain and depression/withdrawal, hyper-alertness and somatic symptoms) and organizational (job satisfaction and organizational commitment) well-being, a series of hierarchical regression analyses were conducted⁷. Again, standardized scores on the role stress and perceived organizational support variables were created, and the cross-products computed to assess the interactive effects. For each outcome variable, the role stressor was entered on the first step, followed by perceived organizational support, and by the relevant interaction term. The proposed moderator model (as conceptualized by Baron and Kenny, 1986) for perceived organizational support is presented in Figure 4. A moderating effect of perceived organizational support would be indicated by a meaningfully significant interaction between occupational role stress and perceived organizational support. However, in none of the regressions was the interaction between role stressor and perceived organizational support significant beyond the adopted .05 criterion for meaningfulness of effect size, suggesting that perceived organizational

⁷ The following assumptions were tested and satisfied for these analyses: ratio of cases to independent variables was satisfied through the large sample size (N=1028) used in this study. Univariate outliers were tested through examination of the boxplots for predictor, moderator and outcome variables and through the casewise diagnostics in regression. Multivariate outliers were explored using Mahalanobis distance and residual scatter plots. The assumption of multicollinearity and singularity was tested through examining the correlations among the predictor variables and the results of the tests of tolerance and inflation of variance. Finally, the assumptions of normality, linearity, homoscedasticity and independence of residuals were assessed through examination of residual scatterplots.

support did not moderate the association of role stress with individual (lack of strain, depression/withdrawal, hyper-alertness and somatic complaints) or organizational (job satisfaction, affective and continuance commitment) well-being. As was already mentioned, the criterion for meaningfulness of effect size was introduced because of the power associated with the large sample size in this study. While perceived organizational support did not moderate the relationship of role stress with individual and organizational well-being, it had an additive effect. Perceived lack of support from the Canadian Forces was associated with greater strain, depression/withdrawal, hyper-alertness and somatic symptoms as well as lesser job satisfaction and affective commitment.

Figure 4. Proposed Moderator Model for Perceived Organizational Support

Individual well-being. Perceived organizational support did not appear to alter the relationship between role stressors and strain, and between role stressors and symptoms of depression/withdrawal, hyper-alertness and somatic complaints. As seen in Table 17, none of the interaction terms assessing the moderating effect of perceived organizational support on strain (R^2 Change for Step 3 of each hierarchical regression in the table) were significant. Nevertheless, perceived organizational support was predictive (as indicated by the size and significance level of the standardized regression coefficients [β s] and squared semi-partial correlations for Step 2 of each hierarchical regression in Table 17), in that perceived lack of support from the Canadian military was associated with greater strain, except when role conflict was controlled for (Table 17, Hierarchical Regression 4). Perceived organizational support also predicted unique variance in depression/withdrawal, hyper-alertness and somatic complaints in that the perception of the Canadian military as supportive and valuing the contribution of its members was associated with less depression/withdrawal, hyper-alertness and somatic symptoms.

Table 17.

Hierarchical Regression Analyses of Strain on Occupational Role Stress and Perceived Organizational Support (POS)

Predictor	r	β	Semi-part Corr ²	R ² Change
<u>Hierarchical Regression 1</u>				
Step 1 Role Overload	.09**	.09**	.01**	.01**
Step 2 POS	-.31***	-.31***	.09***	.09***
Step 3 Role Overload x POS	-.14***	.03	.0001	.00
<u>Hierarchical Regression 2</u>				
Step 1 Role Insufficiency	.22***	.22***	.05***	.05***
Step 2 POS	-.31***	-.26***	.06***	.06***
Step 3 Role Insufficiency x POS	-.07*	-.17	.004	.002
<u>Hierarchical Regression 3</u>				
Step 1 Role Ambiguity	.26***	.26***	.07***	.07***
Step 2 POS	-.31***	-.24***	.05***	.05***
Step 3 Role Ambiguity x POS	-.03	-.08	.0003	.00
<u>Hierarchical Regression 4</u>				
Step 1 Role Conflict	.35***	.35***	.12***	.12***
Step 2 POS	-.30***	-.17***	.02***	.02***
Step 3 Role Conflict x POS	.06*	-.17	.003	.003
<u>Hierarchical Regression 5</u>				
Step 1 Role Responsibility	.10**	.10**	.01**	.01**
Step 2 POS	-.31***	-.31***	.09***	.09***
Step 3 Role Responsibility x POS	-.17***	-.15	.001	.001

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

Organizational well-being. As with individual well-being, none of the interactive terms assessing the moderating effect of perceived organizational support on the relationship of role stressors with organizational well-being were significant. Therefore, perceived organizational support did not alter the relationship of each role stressor with job satisfaction, and of each role stressor with affective and continuance commitment. However, as with individual well-being, perceived organizational support was predictive in that perceived lack of support and appreciation from the Canadian military was associated with reduced job satisfaction and affective commitment.

Job satisfaction. As seen in Table 18, the interaction terms assessing the moderating effect of perceived organizational support (R^2 Change for Step 3 in each hierarchical regression in the table) were not significant beyond the adopted criterion of .05 for meaningfulness of effect size. Again, this criterion was adopted in addition to significance level because of the power associated with the large sample size in this study. Nevertheless, as seen in Table 18 (R^2 Change for Step 2, size and significance level of standardized regression coefficients [β s] and squared semi-partial correlations), perceived organizational support was predictive in that perceived support from the organization of the Canadian Forces was associated with higher job satisfaction.

Table 18.

Hierarchical Regression Analyses of Job Satisfaction on Occupational Role Stress and Perceived Organizational Support (POS)

Predictor	r	β	Semi-part Corr ²	R ² Change
<u>Hierarchical Regression 1</u>				
Step 1 Role Overload	-.03	-.03	.001	.001
Step 2 POS	.51***	.51***	.25***	.25***
Step 3 Role Overload x POS	.31***	.09	.0004	.00
<u>Hierarchical Regression 2</u>				
Step 1 Role Insufficiency	-.53***	-.53***	.28***	.29***
Step 2 POS	.51***	.34***	.09***	.09***
Step 3 Role Insufficiency x POS	-.03	.42***	.01***	.01***
<u>Hierarchical Regression 3</u>				
Step 1 Role Ambiguity	-.38***	-.38***	.15***	.15***
Step 2 POS	.50***	.42***	.16***	.16***
Step 3 Role Ambiguity x POS	.11***	.44***	.01***	.01***
<u>Hierarchical Regression 4</u>				
Step 1 Role Conflict	-.61***	-.61***	.37***	.37**
Step 2 POS	.50***	.25***	.05***	.05***
Step 3 Role Conflict x POS	-.12***	.41***	.01***	.02***
<u>Hierarchical Regression 5</u>				
Step 1 Role Responsibility	-.05	-.05	.002	.002
Step 2 POS	.51***	.51***	.26***	.26***
Step3 Role Responsibility x POS	.34***	-.17	.001	.001

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

Affective commitment. As with job satisfaction, perceived organizational support did not alter the relationship of role stress with affective commitment. As seen in Table 19, none of the interaction terms assessing the moderating effect of perceived organizational support (R^2 Change at Step 3 of each hierarchical regression in the table) were significant. Nevertheless, as indicated by the effect size (R^2 Change) for Step 2 of each hierarchical regression in Table 19 and by the size and significance level of the standardized regression coefficient (β) and squared-semi-partial correlation at Step 2 of each regression, perceived organizational support was predictive, in that perceptions of support from the military organization were associated with greater affective commitment to the military.

Table 19.

Hierarchical Regression Analyses of Affective Commitment on Occupational Role Stress and Perceived Organizational Support (POS)

Predictor	r	β	Semi-part Corr ²	R ² Change
<u>Hierarchical Regression 1</u>				
Step 1 Role Overload	.08**	.08*	.01*	.01*
Step 2 POS	.52***	.53***	.28***	.28***
Step 3 Role Overload x POS	.39***	-.13	.001	.001
<u>Hierarchical Regression 2</u>				
Step 1 Role Insufficiency	-.35***	-.35***	.12***	.13***
Step 2 POS	.52***	.46***	.17***	.17***
Step 3 Role Insufficiency x POS	.12***	-.003	.000001	.00
<u>Hierarchical Regression 3</u>				
Step 1 Role Ambiguity	-.22***	-.22***	.05***	.05***
Step 2 POS	.53***	.51***	.23***	.23***
Step 3 Role Ambiguity x POS	.24***	-.02	.00003	.00
<u>Hierarchical Regression 4</u>				
Step 1 Role Conflict	-.45***	-.45***	.20***	.20***
Step 2 POS	.52***	.39***	.11***	.11***
Step 3 Role Conflict x POS	.02	.05	.0003	.00
<u>Hierarchical Regression 5</u>				
Step 1 Role Responsibility	.08**	.08*	.01*	.01*
Step 2 POS	.52***	.53***	.28***	.28***
Step 3 Role Responsibility x POS	.44***	.02	.00001	.00

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

Continuance commitment. None of the interaction terms assessing the moderating effect of perceived organizational support on the relationship of role stress with continuance commitment were significant. As well, perceived organizational support did not have an additive effect. In the hierarchical regressions performed to test the moderating effect of perceived organizational support on the relationship of occupational role stress with continuance commitment, perceived organizational support was not predictive beyond the adopted criterion of .05 for meaningfulness of effect size. As seen in Table 20, summarizing the effect sizes for each step of the regression equations, no main effect or interaction was significant beyond the adopted .05 criterion for meaningfulness of effect size.

Table 20.

Hierarchical Regression Analyses of Continuance Commitment on Occupational Role Stress and Perceived Organizational Support (POS)

Predictor	R ² Change
Step 1	
Regression 1: Role Overload	.01**
Regression 2: Role Insufficiency	.01**
Regression 3: Role Ambiguity	.004*
Regression 4: Role Conflict	.01**
Regression 5: Role Responsibility	.01**
Step 2	
Regression 1: POS	.03***
Regression 2: POS	.02***
Regression 3: POS	.02***
Regression 4: POS	.02***
Regression 5: POS	.02***
Step 3	
Regression 1	
Role Overload x POS	.00
Regression 2	
Role Insufficiency x POS	.002
Regression 3	
Role Ambiguity x POS	.00
Regression 4	
Role Conflict x POS	.001
Regression 5	
Role Responsibility x POS	.001

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

Hypothesis 3:

Occupational role stress experienced at different rank levels. Discriminant analysis was used to test which role stress variables best discriminated between the different rank categories⁸. An examination of the obtained canonical discriminant functions indicated three main discriminant functions. The χ^2 value of 203.20 for Functions 1 (Responsibility/Insufficiency) through 3 (Ambiguity/Conflict) were highly significant ($p < .001$) indicating that the three functions together discriminated between the rank categories very well. However, the χ^2 value of 14.84 for Functions 2 (Overload) through 3 was much lower and non-significant, and was even lower for Function 3 alone ($\chi^2 = 3.35$, *ns*), indicating that Function 1 was the most efficient in differentiating among the four rank categories. The eigenvalue, percentage of variance explained and canonical correlation for each function are presented in Table 21. As seen in the table, the first discriminant function (Responsibility/Insufficiency) accounted for 93.3 % of the total

⁸ Despite the fact that discriminant analysis is generally robust with respect to violations of assumptions, especially if sample sizes are relatively large (Coakes & Steed, 1999), which is the case in the present study, the underlying assumptions were tested before conducting the analysis and were satisfied. With regard to sample size, the number of participants for each rank category was sufficient. The number of subjects in each category was greater than Tabachnick and Fidell's (2001) recommended 20 cases in the smallest group and thus robustness of the test was guaranteed. Univariate outliers were tested through the exploration of the distributions of scores for the five role stress variables and multivariate outliers were tested through the exploration of Mahalanobis distances generated in multiple regression. Linearity was examined by using scatterplots of pairs of predictor variables. Box M statistics, generated in the discriminant analysis, were used to test the homogeneity of variance-covariance matrices assumption. Finally, the within-group correlation matrix, generated in the discriminant analysis, was used to test the assumption of multicollinearity.

variance. The canonical correlation, which measures the association between the discriminant scores and rank and provides information about the relative efficacy of each discriminant function, was high for Function 1, again indicating that the function explained much of the variation.

Table 21.

Eigenvalues, Percentage of Variance Explained and Canonical Correlations for the Discriminant Functions

Function	Eigenvalue	% of Variance	Cumulative % of Variance	Canonical Correlation
1 Responsibility/ Insufficiency	.22	95.3	93.3	.43
2 Overload	.01	5.2	98.5	.11
3 Ambiguity/ Conflict	.004	1.5	100.0	.06

The structure matrix presented in Table 22 shows the correlation of each role stress variable with each discriminant function. As seen in the table, Function 1, the best discriminant function, was comprised of role insufficiency and role responsibility for other people. An examination of the group centroids (joint means based on the linear combinations of predictor variables) at Function 1 revealed that Junior Non-Commissioned Members differed from the other three rank categories and these

differences were most salient with the Senior Officers. The functions at group centroids for Function 1 were the following: Junior Non-Commissioned Members: -.49; Senior Non-Commissioned Officers: .34; Junior Officers: .12; and Senior Officers: .91 suggesting that role insufficiency characterized the group of the Junior Non-Commissioned Members while role responsibility for others characterized Senior Officers.

Table 22.

Structure Matrix

Predictor Variables	Discriminant Function		
	1	2	3
Role Responsibility	.672*	-.128	.522
Role Insufficiency	-.632*	.418	.562
Role Overload	.379	.790*	-.301
Role Ambiguity	-.055	.501	.647*
Role Conflict	-.436	.323	.545*

* Denotes largest absolute correlation between each variable and any discriminant function

The classification results from the discriminant analysis are presented in Table 23. The overall correct classification of cases was 47.2%. As seen in the table, the most correct classification was for Junior Non-Commissioned Members that were 85 % correctly classified on the basis of the role stressors that they experienced. The correct classification in the other three rank categories was considerably lower (e.g., 29.8% for

Senior Non-Commissioned Members, 11.4% for Junior Officers and 18.4% for Senior Officers).

Table 23.
Classification Results*

Rank	<u>Predicted Group Membership</u>				Total
	Junior NCMs	Senior NCOs	Junior Officers	Senior Officers	
Junior NCMs	85.0%	8.4%	5.9%	.8%	100.0%
Senior NCOs	53.0%	29.8%	11.6%	5.6%	100.0%
Junior Officers	60.5%	20.6%	11.4%	7.5%	100.0%
Senior Officers	30.1%	36.9%	14.6%	18.4%	100.0%
Ungrouped cases	33.3%	33.3%	.0%	33.3%	100.0%

* 47.2% of original grouped cases correctly classified.

However, an examination of the misclassified cases was instructive, in that 53% of the Senior Non-Commissioned Officers were misclassified as Junior Non-Commissioned Members, 60.5% of the Junior Officers were misclassified as Junior Non-Commissioned Members, and 30.1% of the Senior Officers were misclassified as Junior Non-Commissioned Members meaning that a large portion of military members seemed to experience role insufficiency.

Hypothesis 4:

Gender differences in occupational role stress. Gender differences in the occupational role stress experienced by male and female military members were examined through multivariate analysis of variance (MANOVA)⁹. Significant gender differences in occupational stress were found, Pillai's Trace = .02, $F(5, 936) = 3.55$, $p < .01$. However, as seen in Table 24, despite the significant differences, the effect sizes (η^2) were less than .05 suggesting that these differences were not meaningful.

Gender differences in coping. Whether significant differences existed in the coping strategies used by the male and female military members was tested through MANOVA¹⁰. Significant gender differences in the coping strategies were found, Pillai's

⁹ The assumptions underlying MANOVA were tested before conducting the analysis and were satisfied. The assumption of cell sizes was satisfied since there were many more subjects in each cell than the number of dependent variables. The assumption of univariate normality was tested through examination of the normal probability plots for the role stress variables for each gender group. Multivariate normality was tested through examination of the Mahalanobis distances for each dependent variable obtained in regression analysis. The assumption of linearity was tested through examination of the within-cell scatterplots for all pairs of dependent variables. The assumption of homogeneity of variance-covariance matrices was tested through examination of the Bartlett-Box F test, which was not significant and therefore homogeneity of variance was assumed. Finally, multicollinearity and singularity assumption was tested through examining the correlations among the dependent variables.

¹⁰ The assumptions underlying MANOVA were tested before conducting the analysis. The assumption of cell sizes was satisfied since there were many more subjects in each cell than the number of dependent variables. The assumption of univariate normality was tested through examination of the normal probability plots for the coping variables for each gender group. Multivariate normality was tested through examination of the Mahalanobis distances for each dependent variable obtained in regression analysis. The assumption of linearity was tested through examination of the within-cell scatterplots for all pairs of dependent variables. The assumption of homogeneity of variance-covariance matrices was tested through examination of the Bartlett-Box F test, which was significant at .05 level ($\text{sig.} = .04$) suggesting a lack of homogeneity of variance. Nevertheless, it was decided to proceed with the analysis. Finally, multicollinearity and singularity assumption was tested through examining the correlations among the dependent variables and was satisfied.

Trace = .04, $F(3, 957) = 12.17$, $p < .001$. However, as seen in Table 24, despite the significant differences, the effect sizes (η^2) were less than .05 suggesting that these differences were not meaningful.

Table 24.

MANOVA Results on Occupational Role Stress and on Coping Strategies with Gender as a Predictor Variable

Dependent Variable	<u>F</u>	<u>df</u>	<u>η^2</u>
MANOVA 1			
Role Overload	.004	1, 940	.00
Role Insufficiency	7.10**	1, 940	.01
Role Ambiguity	.03	1, 940	.00
Role Conflict	.77	1, 940	.001
Role Responsibility for People	10.46**	1, 940	.01
MANOVA 2			
Problem-Focused Coping	.81	1, 959	.001
Emotion-Focused Coping	17.30***	1, 959	.02
Avoidance Coping	22.53***	1, 959	.02

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

Ad hoc analysis

After no moderating effects were found, an ad hoc analysis of a mediating hypothesis was conducted for the variables for which moderating hypotheses were tested

(see Figure 3 on p. 74 and Figure 4 on p. 83 for the hypothesized moderating relationships). For the purposes of this analysis, mediators were conceptualized in accordance with Baron and Kenny's (1986) definition presented in the Introduction section of the present work, i.e. a variable functions as a mediator when it accounts for the relation between the predictor and the criterion. Mediating hypotheses were tested for workplace leadership and perceived organizational support. Consistent with the findings in the literature, no mediating analysis was attempted for coping strategies.

As has already been shown, workplace leadership and perceived organizational support did not moderate the relationship of occupational role stress with individual and organizational well-being. Nevertheless, it has also been shown that these variables, and particularly perceived organizational support, were related to both occupational role stress and individual and organizational well-being, i.e., lack of strain, job satisfaction and affective commitment. Therefore a mediating model was tested for workplace leadership and perceived organizational support following the statistical procedures for testing mediating effects outlined by Baron and Kenny (1986). Baron and Kenny's definition and differentiation between moderator and mediator variables was noted in the Introduction section of the present work. Within their mediation model, a mediating effect is believed to occur when the following three conditions are present: (1) the predictor variable affects the mediator; (2) the predictor variable affects the outcome variable, and (3) the mediator affects the outcome variable when the outcome variable is

regressed on both the predictor and the mediator.

Workplace leadership. It was hypothesized that a lack of initiating structure and consideration manifested by one's immediate supervisor would exacerbate occupational role stress, which in turn would lead to decreased organizational well-being.

The proposed mediating hypothesis (as conceptualized by Baron and Kenny, 1986) for workplace leadership dimensions of initiating structure and consideration is outlined in Figure 5.

Figure 5. Proposed Mediation Model for Workplace Leadership

A series of regression analyses¹¹ were performed, as suggested by Baron and Kenny (1986), to test this hypothesis. The following three regression equations were estimated: (1) regressing the mediator on the predictor variable; (2) regressing the outcome variable on the predictor variable, and (3) regressing the outcome variable on both the predictor variable and the mediator (Baron & Kenny, 1986).

As noted by Baron and Kenny, a significant association of predictor and mediator variables is the first necessary condition for a mediating relationship. Therefore, standard regression analyses were performed to test the significance of association between initiating structure and consideration (predictors) and each role stressor (mediators). Table 25 summarizes the results of these analyses. As indicated by the accounted variance (Adjusted R²) in the table, initiating structure and consideration were significantly and meaningfully associated with role insufficiency, role ambiguity and role conflict in that high levels of initiating structure and consideration were associated with low levels of role insufficiency, role ambiguity and role conflict. As well, as seen in Table 25, the amount of variance (Adjusted R²) accounted for by initiating structure and consideration in role overload and role responsibility for others was below the adopted

¹¹ The following assumptions were tested and satisfied for these analyses: ratio of cases to independent variables was satisfied through the large sample size used in the study. Univariate outliers were explored through the casewise diagnostic in regression. Multivariate outliers were explored using Mahalanobis distance and residual scatterplots. The assumption of multicollinearity and singularity was tested through examining the correlations among the predictor variables as well as the results of the tests of tolerance and inflation of variance in regression. Finally, the assumption of normality, linearity, homoscedasticity and independence of residuals were assessed through examination of residual scatterplots.

criterion for meaningfulness of effect size of .05 or greater. Again, this criterion for meaningfulness was adopted because of the power associated with the large sample size in this study.

Table 25.

Standard Regression Analyses of Occupational Role Stress on Workplace Leadership

Predictor	r	β	Semi-part Corr ²	R ² Adjusted
Regression 1 (Outcome Variable: Role Overload)				.01*
Initiating Structure	-.02	.06	.002	
Consideration	-.07*	-.11*	.01*	
Regression 2 (Outcome Variable: Role Insufficiency)				.10***
Initiating Structure	-.29***	-.15***	.01***	
Consideration	-.30***	-.20***	.02***	
Regression 3 (Outcome Variable: Role Ambiguity)				.26***
Initiating Structure	-.49***	-.33***	.06***	
Consideration	-.45***	-.23***	.03***	
Regression 4 (Outcome Variable: Role Conflict)				.20***
Initiating Structure	-.38***	-.17***	.02***	
Consideration	-.43***	-.32***	.05***	
Regression 5 (Outcome Variable: Role Responsibility for Others)				.02***
Initiating Structure	-.08**	.04	.001	
Consideration	-.15***	-.17***	.02***	

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

At the next step, standard regression analyses were performed to test the significance of association between initiating structure and consideration (predictor variables) and job satisfaction and affective commitment (outcome variables). Baron and Kenny (1986) indicated that, for a mediating model, the predictor variable should be significantly associated with the outcome variable in this regression equation. As indicated by the explained variance in the outcome variable (Adjusted R^2) in Table 26, initiating structure and consideration were significantly associated with job satisfaction, in that high initiating structure and consideration manifested by one's immediate supervisor were associated with high job satisfaction. The association of workplace leadership with affective commitment was below the adopted .05 criterion for meaningfulness of effect size.

Table 26.

Standard Regression Analyses of Organizational Well-being on Workplace Leadership

Predictor	r	β	Semi-part Corr ²	R ² Adjusted
Regression 1 (Outcome Variable: Job Satisfaction)				.15***
Initiating Structure	.29***	.05	.001	
Consideration	.39***	.36***	.07***	
Regression 2 (Outcome Variable: Affective Commitment)				.04***
Initiating Structure	.18***	.13**	.01**	
Consideration	.17***	.09*	.004*	

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

Finally, job satisfaction (outcome variable) was regressed on both initiating structure and consideration (predictors) and role insufficiency, role ambiguity and role conflict (mediating variables). According to Baron and Kenny, the mediator must be significantly associated with the outcome variable in this final regression equation. Furthermore, according to the authors, the effect of the predictor on the outcome variable must be less when explored together with the mediating variable than alone and both the significance and the absolute sizes of the regression coefficients should be examined. Table 27 summarizes the results of the standard regressions performed to test the association of both predictor (initiating structure and consideration) and mediator (role insufficiency, role ambiguity and role conflict) variables with the outcome variable (job satisfaction). As indicated by the size and significance level of standardized regression coefficients and squared semi-partial correlations, seen in Table 27, the mediating variable was significantly associated with the outcome variable in each regression.

Table 27.

Standard Regression Analyses of Job Satisfaction on Workplace Leadership and Occupational Role Stress

Predictor	r	β	Semi-part Corr ²	R ² Adjusted
Regression 1				.34***
Initiating Structure	.28***	-.04	.001	
Consideration	.39***	.28***	.04***	
Role Insufficiency (Mediator)	-.53***	-.46***	.19***	
Regression 2				.20***
Initiating Structure	.29***	-.04	.001	
Consideration	.39***	.31***	.05***	
Role Ambiguity (Mediator)	-.37	-.25***	.05***	
Regression 3				.39***
Initiating Structure	.29***	-.04	.001	
Consideration	.39***	.18***	.02***	
Role Conflict (Mediator)	-.61***	-.55***	.24***	

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

An exploration of the regression coefficients for initiating structure and consideration alone (Table 26, Regression 1) and in the presence of a mediating variable (Table 27) indicated a considerable reduction in the size of the regression coefficient for consideration when role conflict was included as a mediating variable (Table 27, Regression 3), suggesting a mediating effect for role conflict on the relationship of consideration with job satisfaction. No mediating effect was observed in the relationship of initiating structure with job satisfaction. As well, the reduction in the size of the

regression coefficient for consideration when the effects of role insufficiency and role ambiguity were included as mediating variables was minimal, suggesting no mediating effect of role insufficiency and role ambiguity on the relationship of workplace leadership with job satisfaction.

Perceived organizational support. It was hypothesized that a perceived lack of organizational support from the military would exacerbate occupational role stress, which in turn would lead to strain, job dissatisfaction and reduced affective commitment to the Canadian Forces. The proposed mediating hypothesis (as conceptualized by Baron and Kenny, 1986) for perceived organizational support (POS) is presented in Figure 6.

Figure 6. Proposed Mediation Model for Perceived Organizational Support

Again, a series of standard regression analyses¹² was performed, as suggested by Baron and Kenny (1986), to test whether occupational role stress mediated the relationship of perceived organizational support with individual and organizational well-being.

Standard regression analyses were performed to test first whether perceived organizational support (POS) was significantly associated with each occupational role stressor. As seen in Table 28, perceived organizational support predicted unique variance (Adjusted R²) in role insufficiency, role ambiguity and role conflict in that a perception of the Canadian military as supportive and caring for its members was associated with low role insufficiency, low role ambiguity and low role conflict. The association between perceived organizational support and role overload and role responsibility for others was below the adopted criterion of .05 for meaningfulness of effect size. Again, this criterion was adopted because of the power associated with the large sample size in this study.

¹² The following assumptions were tested and satisfied for these analyses: ratio of cases to independent variables was satisfied through the large sample size used in the study. Univariate outliers were explored through the casewise diagnostic in regression. Multivariate outliers were explored using Mahalanobis distance and residual scatterplots. The assumption of multicollinearity and singularity was tested through examining the correlations among the predictor variables as well as the results of the tests of tolerance and inflation of variance in regression. Finally, the assumption of normality, linearity, homoscedasticity and independence of residuals were assessed through examination of residual scatterplots.

Table 28.

Standard Regression Analyses of Occupational Role Stress on Perceived Organizational Support (POS)

Predictor	r	β	Semi-part Corr ²	R ² Adjusted
Regression 1 (Outcome Variable: Role Overload)				.004*
POS	-.07*	-.07*	.005	
Regression 2 (Outcome Variable: Role Insufficiency)				.19***
POS	-.44***	-.44***	.19***	
Regression 3 (Outcome Variable: Role Ambiguity)				.12***
POS	-.34***	-.34***	.12***	
Regression 4 (Outcome Variable: Role Conflict)				.27***
POS	-.52***	-.52***	.27***	
Regression 5 (Outcome Variable: Role Responsibility for Others)				.003
POS	-.06*	-.06	.004	

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

Next, the association of perceived organizational support (predictor) with strain, job satisfaction and affective commitment (outcome variables) was explored. As seen in the amount of variance accounted for by perceived organizational support (Adjusted R²), shown in Table 29, the perceived support from the Canadian military was significantly associated with lack of strain such that high levels of perceived organizational support were associated with low levels of strain. As well, as seen in the table, perceived organizational support was associated with high job satisfaction and high affective commitment to the organization of the Canadian Forces.

Table 29.

Standard Regression Analyses of Individual and Organizational Well-being on Perceived Organizational Support (POS)

Predictor	r	β	Semi-part Corr ²	R ² Adjusted
Regression 1 (Outcome Variable: Strain)				.09***
POS	-.31***	-.31***	.09***	
Regression 2 (Outcome Variable: Job Satisfaction)				.25***
POS	.51***	.51***	.26***	
Regression 3 (Outcome Variable: Affective Commitment)				.27***
POS	.52***	.52***	.28***	

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

Strain, job satisfaction and affective commitment (outcome variables) were afterwards regressed on both perceived organizational support (predictor) and role insufficiency, role ambiguity and role conflict (mediating variables). Table 30 summarizes the results of the standard regression analyses performed to test the association of both predictor (perceived organizational support) and mediating variables (role insufficiency, role ambiguity and role conflict) with the outcome variables (strain, job satisfaction and affective commitment). As seen in the table, the mediating variables (role insufficiency, role ambiguity and role conflict) were significantly associated with strain such that high levels of these role stressors were associated with high strain. As

well, role insufficiency, role ambiguity and role conflict predicted unique variance in job satisfaction such that high levels of insufficiency, ambiguity and conflict were associated with low job satisfaction. Finally, role insufficiency and role conflict were significantly associated with affective commitment such that the higher the insufficiency and conflict in one's work roles the lower his/her affective commitment to the military.

Table 30.
Standard Regression Analyses of Individual and Organizational Well-being on Perceived Organizational Support and Occupational Role Stress

Predictor	r	β	Semi-part Corr ²	R ² Adjusted
(Outcome Variable: Strain)				
Regression 1				.10***
POS	-.31***	-.26***	.06***	
Role Insufficiency (Mediator)	.22***	.11**	.01**	
Regression 2				.12***
POS	-.31***	-.24***	.05***	
Role Ambiguity (Mediator)	.26***	.18***	.03***	
Regression 3				.14***
POS	-.30***	-.17***	.02***	
Role Conflict (Mediator)	.35***	.26***	.05***	
(Outcome Variable: Job satisfaction)				
Regression 4				.38***
POS	.51***	.34***	.09***	
Role Insufficiency (Mediator)	-.53***	-.39***	.12***	
Regression 5				.30***
POS	.50***	.42***	.16***	
Role Ambiguity (Mediator)	-.38***	-.24***	.05***	
Regression 6				.42***
POS	.50***	.25***	.05***	
Role Conflict (Mediator)	-.61***	-.48***	.17***	
(Outcome Variable: Affective Commitment)				
Regression 7				.29***
POS	.52***	.46***	.17***	
Role Insufficiency (Mediator)	-.35***	-.15***	.02***	
Regression 8				.28***
POS	.53***	.51***	.23***	
Role Ambiguity (Mediator)	-.22***	-.04	.002	
Regression 9				.31***
POS	.52***	.39***	.11***	
Role Conflict (Mediator)	-.45***	-.25***	.04***	
p<.05, ** p<.01, *** p<.001				

An exploration of the regression coefficients for perceived organizational support alone (Table 29) and in the presence of a mediating variable (Table 30), indicated a considerable reduction in the size of the regression coefficients for perceived organizational support when role conflict was included as a mediating variable (Table 30, Regressions 3, 6 and 9), suggesting a mediating effect for role conflict on the relationship of perceived organizational support with both individual (lack of strain) and organizational (job satisfaction and affective commitment) well-being. As seen in Table 30, no mediating effect was observed for role insufficiency and role ambiguity in the relationship of perceived organizational support with strain and the relationship of perceived organizational support with affective commitment, since the reduction in the regression coefficients for perceived organizational support in the presence of these mediating variables was minimal. Finally, an exploration of the reduction in the regression coefficients for perceived organizational support in the presence of role insufficiency and role ambiguity as mediating variables and job satisfaction as an outcome variable, suggested a mediating effect for role insufficiency on the relationship of perceived organizational support with job satisfaction such that a perceived lack of support from the Canadian Forces was associated with a lack of opportunities to use one's skills, which in turn was associated with reduced job satisfaction.

Summary of results. The standard regression analyses conducted to test the relationship of occupational role stress with individual and organizational well-being

indicated a positive association between occupational role stress experienced by the serving members and their level of strain as well as depression/withdrawal, hyper-alertness and somatic symptoms that they experienced. As well, occupational role stress was negatively associated with job satisfaction and affective commitment while continuance commitment was not meaningfully associated with occupational role stress. Among the role stressors, role conflict had the most consistent association with both individual (lack of strain) and organizational (job satisfaction and affective commitment) well-being.

No moderating effects were found for coping strategies, workplace leadership or perceived organizational support, although these factors had direct relationships with both individual and organizational well-being. Among the coping strategies, it was avoidance coping that was predictive of strain and symptoms of depression/withdrawal, hyper-alertness and somatic complaints. As well, the consideration dimension of workplace leadership, and not initiating structure, predicted unique variance in job satisfaction. Perceived organizational support was significantly associated with both individual and organizational well-being, the latter represented by job satisfaction and affective commitment.

A test of mediating hypothesis for workplace leadership and perceived organizational support suggested a mediating effect of role conflict on the relationship of workplace leadership, its consideration dimension in particular, with job satisfaction.

Role conflict also mediated the relationship of perceived organizational support with both individual (lack of strain) and organizational (job satisfaction and affective commitment) well-being.

While no meaningful gender differences in the experience of role stress and the coping strategies used by the survey participants were found, role insufficiency and role responsibility for other people were found to differentiate among serving members of different rank.

Discussion

The aim of the present study was to explore occupational role stress in the Canadian Forces, an organization relatively unique in its structure and functions, and in so doing to contribute further to the burgeoning literature in the field of workplace stress. Social role theory was selected as a conceptual framework for the study. This theory, as a social-psychological model of work stress, takes into account both the objective conditions of the individual's circumstances at work and his or her subjective perceptions of events (Jones et al., 1995) through an analysis of the dynamic interaction of the internal and external systems of organizational behaviour reflected in the workplace roles. Social role theory provided a conceptual framework connecting service members' perceptions of their work roles, tasks and functions with their impact on health, job satisfaction and organizational commitment.

Occupational role stress, individual and organizational well-being

Past research has consistently documented an association between occupational role stressors and well-being (e.g., Bhalla et al., 1991; Tetrick, 1992); this is a finding supported by the present study. Here, it was found that occupational role stress was significantly associated with decreased individual well-being represented by strain and symptoms of depression/withdrawal, hyper-alertness and somatic complaints. The

association of occupational role stress with organizational well-being (represented by job satisfaction and affective commitment) was even stronger.

Of particular interest in the present study was the strong and consistent association between role conflict relative to the other role stressors and both individual (lack of strain) and organizational (job satisfaction and affective commitment) well-being. An examination of the items in the Role Conflict Subscale (Appendix A, p. 153) reveals that, unlike the other role stressors, role conflict items asked questions and triggered thoughts that go beyond the immediate structure and nature of the work roles and tasks, into a deeper intra-personal questioning about one's values, loyalties and pride. For example, items like "I feel conflict between what my employer expects of me and what I think is right", "I am proud of what I do for living", and "I have divided loyalties at work" might have raised not only doubts about one's job but also about one's association with the organization. Resolving role conflict may require changes beyond the immediate schedules and tasks of the job, e.g., those involving greater consideration of the match between the organization and the individual's values and belief system.

The extent to which role conflict is a reflection of conflicts centering on personal values or whether it is rooted in the military organization itself may be important for intervention purposes. Exploring the roots of role conflict experienced by the military members may prove most enlightening for the Canadian Forces. Deeper understanding of role conflict could determine the attempts of the organization to resolve it: for example, at

a surface level, by sending clear messages and setting out clear expectations and, at a deeper level, by efforts toward making the organization more considerate and more attractive to its members.

It is noteworthy that there was a stronger association between occupational role stress and organizational well-being, as compared to individual well-being. This may be related to the possibility that role stress is an inevitable consequence of playing various roles and having various tasks that comprise one's job within an organization. Therefore, it is not unreasonable to expect that the impact of role stress would be the strongest on outcomes that reflect one's attitudes and feelings about his/her job and the organization. A stronger relationship between work stress and organizational well-being was also found in a police sample (Kirkcaldy, Cooper, & Ruffalo, 1995), an organization similar in its hierarchical structure to the military. As well, research findings reported in other organizational settings (e.g., Bedeian, Armenakis & Curran, 1981, Humphrys & O'Brien, 1986; O'Driscoll & Cooper, 1996) have indicated a negative relationship between occupational role stress, particularly conflict and insufficiency, and organizational well-being. Such a relationship in the present study indicates that the military, although unique in some ways, shares similarities with other organizations in terms of how occupational stress affects valued organizational outcomes.

A finding that was unexpected was the lack of a meaningful association between occupational role stress and continuance commitment. The two-factor (satisfaction

versus dissatisfaction) framework proposed by Herzberg, Mausner and Synderman (1959) might provide a ground for understanding such a finding. Herzberg et al. (1959) noted that, in order to be satisfying, one's job should provide opportunities for achievement, recognition, responsibility and advancement, as well as for stimulation and interest. These authors further indicated that, to prevent dissatisfaction, compensation and other material benefits and working conditions must be favourable. Within Herzberg et al.'s two-factor framework, it may be that occupational role stress dimensions predicted satisfaction factors describing service members' attraction to their work and toward the military organization, represented in this study by job satisfaction and affective commitment. At the same time, role stress variables did not predict dissatisfaction factors such as the cost-based stay with the military, as measured by continuance commitment. More appropriate predictors for dissatisfaction factors like continuance commitment might be conditions of service such as pay, leave, pension plan or benefit package.

Such a differential impact might be informative for the organization of the Canadian Forces for intervention purposes. For example, an increase in the use of skills or a decrease in role conflict may stimulate attachment to the organization and job satisfaction but not necessarily decrease the continuance-based commitment to the military. And vice versa, an increase in external factors like pay or leave may reduce the dissatisfaction of military personnel, but not necessarily increase their satisfaction with their work or their emotional attachment to the organization.

Moderating effects of psychological resources

Contrary to what was hypothesized, no moderating effects were found for coping, workplace leadership, or perceived organizational support on the relationships between occupational role stress and either individual or organizational well-being. While some past research has identified moderating effects for problem-focused and emotion-focused coping strategies (e.g., Bhagat, Allie, & Ford, 1995; Pearlin & Schooler, 1978), supervisory support (Kirmeyer & Dougherty, 1988; Wong, Cheuk, & Rosen, 2000) and perceived organizational support (Jones et al., 1995), other studies have found no such moderating effects (e.g., Bhalla, 1989; Scheck, Kinicki, & Davy, et al., 1995). The lack of moderating effects in the present study, and perhaps in others, may be due to the only moderate levels of occupational stress and well-being experienced by the respondents. In effect, because extremely high levels of stress were not found, the effect of resources would be relatively similar for all personnel.

Nevertheless, coping was a significant independent predictor of strain, even when examined in addition to occupational role stress. Among the coping strategies, the more avoidance coping was employed the higher the level of strain manifested. The use of avoidance coping clearly has negative implications for individual well-being. One way of addressing the use of non-adaptive coping strategies would be to provide counseling aimed at teaching more effective means of coping.

Unlike findings of gender differences in coping previously reported (e.g., Carver et al., 1989; Folkman & Lazarus, 1980), no meaningful differences were found here in the use of coping strategies. The lack of gender differences in coping may point to the influence of imitation, social interaction and organizational culture on the use of coping strategies. It may be speculated that women as a minority may use the prevailing coping strategies as a way of seeking approval in a male dominated environment or that the environment may only permit these coping strategies used by the majority of serving members.

Consistent with findings in previous research (e.g., Argyle, 1972; Brewer, 1995), workplace leadership, and consideration in particular, was a significant independent predictor of job satisfaction. The association of consideration, and not initiating structure, with job satisfaction may be due to the affective content of the constructs, in that consideration demonstrates care and therefore it should relate to how service members feel about their jobs.

Similarly, perceived organizational support was a significant independent predictor of strain, job satisfaction and affective commitment, even when occupational role stress was already taken into account. The perception of the organization as supportive, respectful and caring about its members clearly had a significant association with both individual and organizational well-being.

Cascading of resources

Consistent with expectations, the predictive effect of coping strategies on strain, and of leadership on the immediate work environment represented by one's satisfaction with his/her job suggest the necessity of examining resources and outcomes at comparable levels of analysis, in terms of the individual versus the organization.

A resource such as perceived organizational support operates at organizational level. Therefore, it may be associated with outcomes at organizational level such as affective commitment to the organization. Nevertheless, much as a waterfall may hit several levels on the way to its pool, perceived organizational support may also "cascade" to more specific or individual levels of analysis. For example, perceived organizational support may be associated with the attitudes of the serving members that stem from their immediate work environment (job satisfaction), and also with their individual well-being (lack of strain).

Similarly, role conflict reflects a combination of individual and organizational values, and thus seemed to cascade across outcomes, in that it was the most consistent role stressor predictive of both individual and organizational well-being. The consideration of level of analysis and the potential "cascading phenomenon" has important implications for organizational change and the processes through which interventions may be expected to translate throughout the organization. If a change is

desired at a certain organizational level, the intervention should be aimed at the same or a higher level.

Further support for the differential impact of resources comes from the examination of mediating hypotheses for workplace leadership and perceived organizational support. Role conflict mediated the relationship of workplace leadership with job satisfaction and not with organizational commitment, suggesting that, by showing consideration, the immediate supervisor could be instrumental in reducing the role conflict experienced by his/her subordinates, which in turn stimulates their satisfaction with their work and immediate work environment. Role conflict was also the mediating variable in the relationship of perceived organizational support with both individual and organizational well-being. This finding suggests that the perceptions of being supported and appreciated by the military organization reduce the role conflict experienced by service members, which in turn reduces their strain level and stimulates their satisfaction with their work and their emotional attachment to the Canadian Forces.

Occupational role stress and rank

Of particular interest in the present study was the classification and misclassification of military members of different ranks according to the role stressors that they experienced, which indicated that a large proportion of military members seemed to experience role insufficiency. This finding may suggest a perception of person-environment misfit across the ranks, in that service members of different ranks

may perceive a lack of fit between their abilities and training and the requirements of their jobs. The lack of fit may have resulted in a perception of a lack of opportunities to use one's acquired skills and to develop potential abilities, or a perception that the work tasks lacked challenge.

The Canadian Forces human resources career policies may provide insight for understanding such misfit. In order to advance in their careers, service members with specific sets of skills are expected to work in jobs that are not immediately related to their primary training. Nevertheless, the work that they do may be a necessary step in their career progression. It is possible that such career policies within an organization may create conditions of person-environment deficiency, and the corresponding feelings of role insufficiency. Or it may be that the tasks and duties in garrison may have lower intensity and challenge than the tasks and duties on a military mission. An exploration of occupational role stress in the course of a military mission would allow testing such speculation.

Occupational role stress and gender

The absence of gender differences in occupational role stress supports our view of occupational stress as a complex aspect of organizational life rather than a weakness of the individual. It suggests that subjective construal (Ross & Nisbett, 1991; see also p. 37 above) of the situation at work may reflect the structure and the culture of the organization. Gender differences seem to follow rank differences in occupational stress.

Rank is the major determinant of function in the military and therefore being a male or female may not be a good predictor of occupational role stress in such an environment.

Occupational role stress in military and civilian organizations

For purposes of offering a convenient comparison, Appendix C of this work (p. 166) presents the median scores for occupational role stress variables in two civilian samples and the present military sample. The first civilian sample is Osipow and Spokane's (1985) normative sample, representative of many different white-collar occupations in the United States. The second civilian sample comes from a large Canadian federal government department (Bhalla, 1989). A comparison between the occupational role stress experienced by the respondents in the three samples suggested that higher role responsibility for others and lower role ambiguity differentiated the military from the civilian respondents, particularly men. However, since all the data on the civilian samples were not available, it was not possible to test the differences with the present sample for significance. Therefore, these differences were explored by simply comparing the descriptive results reported in the respective studies.

If role ambiguity, represented in items like "My supervisor provides me with useful feedback about my performance" or "The priorities of my work are clear to me", was indeed lower in the military, such a difference would not be surprising because of the hierarchical structure of the organization and its clear chain of command. If role responsibility for others, represented in items like "I am responsible for the welfare of

subordinates”, “People at work look to me for leadership”, or “If I make a mistake in my work the consequences for others can be serious”, was indeed higher in the military, it may be related to the unique organizational structure and to the duties of the military members stemming from the functions of the organization. For example, the notion of accountability and chain of command is openly present in a military organization, which highlights the concept of responsibility for others. As well, military personnel at all levels are trained to regard highly the social notion of taking care of people, the notion of being responsible for one’s peers and subordinates, whether in combat or in garrison. Therefore, there might be two dimensions behind role responsibility for other people in the military: (1) a task dimension, which brings up the question of duty: soldiers may go to war and may be killed; (2) a training dimension, especially for Senior Non-Commissioned Officers and Officers: superiors take care of and are responsible for their subordinates. In terms of work tasks and roles, responsibility for others increases with rank and therefore it is not surprising that role responsibility for other people was the highest for senior officers.

When the women from the two civilian samples were compared with the women in the present military sample on their experience of role stressors, it seemed that women in the military experienced higher role overload than their civilian counterparts. Role overload is represented in responses to items like the following: “I have to work excessive hours”, “I have the resources to get my work done” or “My job requires me to

work on several equally important tasks at once". Women in the military also scored higher on role responsibility for others and lower on role insufficiency than their Canadian female civilian counterparts. Role insufficiency is represented in responses to items like the following: "My career is progressing about as I had hoped", "My work fits my interests and skills", or "I have to perform tasks that are beneath my ability". All this, plus the lack of significant gender differences in the occupational role stress experienced in the military, may suggest that the tasks and duties in the military may be more standardized for men and women in that there are no "female" occupations in the military.

Immediate implications for the military

Although limits posed by the correlational nature of this study must be acknowledged, it is possible that the findings may have important implications for the military, particularly in relation to dealing with attrition and with service members' quality of life. In an attempt to reduce attrition, efforts on the part of the organization to show care and respect for its members and to recognize their contribution could stimulate members' emotional attachment to the organization, boost their job satisfaction and reduce their strain level. Perceived support from the organization is represented in responses to items like the following: "The CF values my contribution to its performance", "The CF does not appreciate any extra effort from me", or "Even if I did the best possible job, the organization would fail to notice". When the efforts of the

organization to show care and respect for its members and to recognize their contribution are accompanied by attempts at improving the immediate work environment as well as supervisors' consideration behavior, both the attrition level and the quality of the work environment might be improved.

In addition to these efforts, reducing role conflict and providing service members with challenges and opportunities to use their skills (reducing role insufficiency) might stimulate members' affective commitment to the military. Affective commitment is represented in responses to items like "I feel a strong sense of belonging to the CF", "I do not feel like 'part of the family' in the CF", or "I would be very happy to spend the rest of my working life in the military". Reducing role conflict and role insufficiency might also stimulate military members' attitudes and feelings about their jobs by allowing them to satisfy higher level needs such as achievement, self-actualization, recognition, realization of potential, and advancement (Herzberg, et al., 1959; Maslow, 1970). This may lead to a desire to stay with the organization and to feelings that one is satisfied with the job and the work environment.

Implications for social role theory

The present study expands the relevance of social role theory as an approach useful for exploring occupational stress, to the military, an organization relatively unique in its functions and work environment.

The finding of a strong and consistent association of role conflict, relative to the other role stressors, with both individual and organizational well-being, as well as its potential to “cascade” across outcomes throughout the organization suggests the potential of social role theory to serve as a dynamic framework for understanding occupational stress and developing interventions tailored at specific organizational levels and outcomes.

The stronger association of role stress with organizational rather than individual well-being supports the notion advanced by Bill Jones (e.g., Jones et al., 1995) that workplace roles reflect the dynamic interaction of the internal and external systems of organizational behaviour that should be explored within the context of organizational culture. This notion and the differential effect of role stress, found in the present study, raises further the question of defining and studying the role stressors based on their impact. For example, is the occupational stress related to the day-to-day tasks and functions, or is it related to questioning one’s values, pride, sense of achievement or association with the organization? We believe these notions have implications for the social role theory as a framework for studying occupational role stress.

Revisiting the Model

In light of our findings, perhaps we may speculate that the Model of Occupational Role Stress, Psychological Resources and Individual and Organizational Well-being, proposed in the Introduction section of this work (see Figure 1, p. 38), would be better represented in the following figure:

Figure 7. Revised Model of Occupational Role Stress, Psychological Resources and Individual and Organizational Well-being.

The revised model reflects the relationships among the conceptual variables in this study established in the analyses and discussed above. Of particular note in the revised model is the lack of moderating effects for the psychological resources explored in the present study. As was already noted, because extremely high levels of occupational stress were not found, the effect of psychological resources would be relatively similar for all personnel. Nevertheless, as shown in the revised model, the psychological resources were significantly related to the indicators of individual and organizational well-being explored in this study.

Suggestions for further research

The moderator model of occupational role stress used as trial framework for conducting this study was not supported by the results of the conducted survey. Further research could be directed toward developing and testing a mediator model of occupational role stress in the military. The ad hoc analysis conducted in the present study comes in support for such endeavor. Potential mediated effects of workplace leadership and perceived organizational support could be explored using a structural equation framework where all relevant paths among the variables are directly examined. Such analysis may contribute to better understand the existent and latent relationships among the variables in a mediator model and their effect on the organization of the Canadian Forces.

Longitudinal research employing measurements at several points in time, both in garrison and in deployment, would contribute to the understanding of the relationship between occupational role stress and valued individual and organizational outcomes as well as the role of resources in a moderated or mediated model of occupational role stress. In this way, effects and relationships that are either mission- or situation- specific, or that are generalizable across situations in which the military functions and works, could be established. As well, the causal relationship among occupational role stress, individual and organizational well-being and resources could be determined. The establishment of such causal relationships would be a valuable contribution to research and to the establishment of organizational implications and development of interventions for the benefit of the Canadian Forces and its members.

A limitation of the present study was its reliance on self-report measures and thus studying the perceptions of the respondents of the predictor, moderator and outcome variables in this study. Further research could be directed toward integrating objective measures of role stress, individual and organizational well-being. For example, physiological measures of individual well-being, performance measures or supervisory ratings as indicators of organizational well-being, or indicators of leadership performance as an objective measure of workplace leadership. Integrating objective and subjective measures of occupational role stress, well-being and resources is believed to contribute

further to the understanding of these constructs, their interrelationships and implications for the military organization.

As well, structured interviews with a smaller sample of respondents might be conducted as a subsequent stage to the present study, to explore further the hypotheses and the findings of the study. Such in-depth interviews would be important, especially if interventions are to be developed. Furthermore, the interviewees' consent might be sought for using objective measures (e.g., physiological correlates of individual well-being or performance evaluations as a measure of organizational well-being), which could lead to the development of specific recommendations.

Conclusion

This study highlights the occupational role stress experienced by the members of the Canadian Forces and its relationship with individual and organizational well-being and thus contributes to the rich literature in the field of workplace stress. The study also expands the relevance of social role theory as a conceptual framework for studying occupational role stress to the military, an organization unique in its structure and functions.

The stronger association of role stress with organizational rather than individual well-being we believe is important for intervention purposes. The notion of the potential of resources and role stress to "cascade" across organizational levels may be important to

the organization in terms of allocating resources, implementing change and developing interventions for the benefit of the serving members as well as the Canadian military as an organization.

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Appendix A

Occupational Role Stress in the Canadian Forces

Survey Battery Used in This Study

Introduction

The CF Personnel Survey has been designed by Director Human Resource Research and Evaluation to gather data in support of CF personnel programmes.

You have been selected, as part of a random sample of service members, to participate in this survey. Completed questionnaires are analyzed by Director Human Resource Research and Evaluation (DHRRE) researchers and the results of these analyses will be made available to NDHQ and the Commands.

This is an anonymous survey: you are assured of complete confidentiality. To ensure your anonymity, please do not write your name, service number, or make any identifying marks anywhere on the questionnaire.

Participation in the survey is voluntary. However, the results of this survey are valuable and are used in the development of policies and programmes that benefit the CF, its members, and their families. For this reason, we ask you to take the time to complete the survey and return it to us. Thank you in advance for your cooperation.

General Instructions

Please note that this survey is not a test. There are no right or wrong answers. It is important, however, that your answers reflect your experiences and opinions as accurately as possible.

Read each question. Where several responses are provided, read all of the choices before selecting your answer.

Record your answer with a standard HB lead pencil. Circle the appropriate letter, number or word. Write directly on the survey, but please don't make any unnecessary marks.

Should you wish to change your answer, erase it completely before making your new response.

Do not return to earlier portions of the survey to change your answers once you have finished.

Once you have completed your survey, please seal it in the envelope provided with your questionnaire and place it in your unit's internal mail.

Should the envelope be missing, please seal your questionnaire in a standard 8" by 11" envelope and address it to:

**Director Human Resource Research and Evaluation
National Defence Headquarters
MGen George R. Pearkes Building
Ottawa, Ontario
K1A 0K2**

**Attention:
Personnel Support Survey Coordinator**

Occupational Environment Scale

Instructions: The following statements are designed to measure the kinds of stress that people experience in their work. Read each statement and circle the answer which seems to best fit your circumstances according to the given scale.

	1	2	3	4	5
	Rarely or never	Occasionally	Often	Usually	Most of the time
1. At work I am expected to do too many different tasks in too little time.	1	2	3	4	5
2. My responsibilities at work are increasing.	1	2	3	4	5
3. I am expected to perform work tasks for which I have never been trained.	1	2	3	4	5
4. I have to work excessive hours.	1	2	3	4	5
5. I have the resources to get my work done.	1	2	3	4	5
6. I am competent in what I do.	1	2	3	4	5
7. I work under tight deadlines.	1	2	3	4	5
8. I wish that I had more help to deal with the demands placed upon me at work.	1	2	3	4	5
9. My job requires me to work on several equally important tasks at once.	1	2	3	4	5
10. I am expected to do more work than is reasonable.	1	2	3	4	5
11. My career is progressing about as I had hoped.	1	2	3	4	5
12. My work fits my interests and skills.	1	2	3	4	5
13. I am bored with my work.	1	2	3	4	5
14. I have enough responsibility in my work.	1	2	3	4	5
15. My talents are being used in my work.	1	2	3	4	5
16. My job has a good future.	1	2	3	4	5
17. I am able to satisfy my needs for success and recognition in my work.	1	2	3	4	5
18. I am overqualified for my work.	1	2	3	4	5
19. I learn new skills in my work.	1	2	3	4	5
20. I have to perform tasks that are beneath my ability.	1	2	3	4	5

21. My supervisor provides me with useful feedback about my performance.	1	2	3	4	5
22. It is clear to me what I have to do to get ahead in my career.	1	2	3	4	5
23. I am uncertain about what I am supposed to accomplish in my work.	1	2	3	4	5
24. When faced with several tasks at once I know which should be done first.	1	2	3	4	5
25. I know where to begin a new task when it is assigned to me.	1	2	3	4	5
26. My supervisor asks for one thing but really wants another.	1	2	3	4	5
27. I understand what is acceptable personal behaviour on the job (for example, dress, language.)	1	2	3	4	5
28. The priorities of my work are clear to me.	1	2	3	4	5
29. I have a clear understanding of how my supervisor wants me to spend my time.	1	2	3	4	5
30. I understand how my work performance is evaluated.	1	2	3	4	5
31. I feel conflict between what my employer expects of me and what I think is right.	1	2	3	4	5
32. I feel caught between different groups at work.	1	2	3	4	5
33. I have more than one person telling me what to do.	1	2	3	4	5
34. I have a stake in the success of the CF.	1	2	3	4	5
35. I feel good about the work I do.	1	2	3	4	5
36. My supervisors have conflicting ideas about what I should be doing.	1	2	3	4	5
37. I am proud of what I do for a living.	1	2	3	4	5
38. It is clear who really runs things where I work.	1	2	3	4	5
39. I have divided loyalties at work.	1	2	3	4	5
40. The work I do has as much payoff for me as for the CF.	1	2	3	4	5
41. I deal with more people during the day than I prefer.	1	2	3	4	5
42. I spend time dealing with the problems others bring to me.	1	2	3	4	5
43. I am responsible for the welfare of subordinates.	1	2	3	4	5
44. People at work look to me for leadership.	1	2	3	4	5

45. I have on-the-job responsibility for the activities of others.	1	2	3	4	5
46. I worry about whether the people who work with me will get things done properly.	1	2	3	4	5
47. People who work with me are hard to deal with.	1	2	3	4	5
48. If I make a mistake in my work the consequences for others can be serious.	1	2	3	4	5
49. My work demands that I handle an angry public.	1	2	3	4	5
50. I like the people I work with.	1	2	3	4	5

COPE Scale

Instructions: This section considers how you have attempted to deal with the various problems and difficult situations that arise during service life, be they personality clashes, operational demands or lack of communication. There are many ways in which service personnel deal with these situations. Different events will bring out different responses, so think about the many ways you have tended to react when faced with difficulties. Please indicate what **you** generally have done and how **you** have generally responded when faced with difficult and trying events. Use the given scale to indicate your responses.

	1 I usually don't do this at all	2 I usually do this a little bit	3 I usually do this a medium amount	4 I usually do this a lot
1.				
2.				
3.				
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32.				

33.	I talk to someone to find out more about the situation.	1	2	3	4
34.	I discuss how I feel with someone.	1	2	3	4
35.	I try to learn something from negative experiences.	1	2	3	4
36.	I get used to the idea that negative events do happen.	1	2	3	4
37.	I try to find comfort in my religion.	1	2	3	4
38.	I find myself venting my stress a lot.	1	2	3	4
39.	I act as though negative events haven't really happened.	1	2	3	4
40.	I admit to myself that I can't deal with my concerns, and quit trying.	1	2	3	4
41.	I daydream about things other than my difficulties.	1	2	3	4
42.	I go on a drinking binge when I can.	1	2	3	4
43.	I take direct action to resolve problems.	1	2	3	4
44.	I think about how I might best handle my problems.	1	2	3	4
45.	I try hard to prevent other things from interfering with my efforts to deal with my main problems.	1	2	3	4
46.	I restrain myself from doing anything too quickly.	1	2	3	4
47.	I talk to someone who could do something concrete about my situation.	1	2	3	4
48.	I seek understanding from someone.	1	2	3	4
49.	I try to develop as a person as a result of my experience.	1	2	3	4
50.	I accept the reality of the fact that these things have happened.	1	2	3	4
51.	I pray more than usual.	1	2	3	4
52.	I get upset, and am really aware of how upset I am.	1	2	3	4
53.	I say to myself: "This isn't real."	1	2	3	4
54.	I reduce the amount of effort I put into solving my problems.	1	2	3	4
55.	I sleep more than usual.	1	2	3	4
56.	I take non-prescribed drugs in order to think about my concerns less.	1	2	3	4

Work Satisfaction

Instructions: Think about your work. What is it like most of the time? For the words listed below, please circle Y for "Yes" if the word describes your work, circle N for "No" if it does **not** describe your work, or circle ? if you cannot decide.

1.	Pleasant	Y	N	?
2.	Bad	Y	N	?
3.	Ideal	Y	N	?
4.	Waste of effort	Y	N	?
5.	Good	Y	N	?
6.	Undesirable	Y	N	?
7.	Worthwhile	Y	N	?
8.	Acceptable	Y	N	?
9.	Like to leave	Y	N	?
10.	Better than most	Y	N	?
11.	Disagreeable	Y	N	?
12.	Makes me content	Y	N	?
13.	Inadequate	Y	N	?
14.	Excellent	Y	N	?
15.	Rotten	Y	N	?
16.	Enjoyable	Y	N	?
17.	Poor	Y	N	?

Workplace Leadership

Instructions: The following statements allow you to assess the degree of leadership given by your supervisor. Please indicate how your supervisor behaves by circling the answer which seems to fit the best according to the following scale.

	1 Never	2 Seldom	3 Occasionally	4 Often	5 Always
1. Lets group members know what is expected of them.	1	2	3	4	5
2. Is friendly and approachable.	1	2	3	4	5
3. Encourages the use of standard procedures.	1	2	3	4	5
4. Does little things to make it pleasant to be a member of the group.	1	2	3	4	5
5. Tries out his or her ideas on the group.	1	2	3	4	5
6. Puts suggestions made by group members into operation.	1	2	3	4	5
7. Makes his or her attitudes clear to the group.	1	2	3	4	5
8. Treats all group members as his or her equals.	1	2	3	4	5
9. Decides what shall be done and how it shall be done.	1	2	3	4	5
10. Gives advance notice of changes.	1	2	3	4	5
11. Assigns group members to particular tasks.	1	2	3	4	5
12. Keeps to himself or herself	1	2	3	4	5
13. Makes sure that his or her role in the group is well understood by the group members.	1	2	3	4	5
14. Looks out for the personal welfare of group members.	1	2	3	4	5
15. Schedules in advance the work to be done.	1	2	3	4	5
16. Is willing to make changes.	1	2	3	4	5
17. Maintains definite standards of performance.	1	2	3	4	5
18. Refuses to explain his or her actions.	1	2	3	4	5
19. Asks that group members follow standard rules and procedures.	1	2	3	4	5
20. Acts without consulting the group.	1	2	3	4	5

Organizational Support & Commitment

Instructions: Below are a number of statements about the Canadian Forces (CF), each of which you may agree or disagree with depending on your own judgment. Please indicate the degree of your agreement or disagreement with each statement by circling a number from 1 to 7 according to the given scale.

1 Strongly Disagree	2 Disagree	3 Mildly Disagree	4 Neither Agree nor Disagree	5 Mildly Agree	6 Agree	7 Strongly Agree
1. The CF values my contribution to its performance.	1	2	3	4	5	6 7
2. If the organization could hire someone to replace me at a lower salary it would.	1	2	3	4	5	6 7
3. The CF does not appreciate any extra effort from me.	1	2	3	4	5	6 7
4. The CF strongly considers my goals and values.	1	2	3	4	5	6 7
5. The CF would ignore any complaint from me.	1	2	3	4	5	6 7
6. The organization disregards my best interests when it makes decisions which affect me.	1	2	3	4	5	6 7
7. Help is available from within the military when I have a problem.	1	2	3	4	5	6 7
8. The military organization really cares about my well-being.	1	2	3	4	5	6 7
9. Even if I did the best possible job, the organization would fail to notice.	1	2	3	4	5	6 7
10. The CF is willing to help when I need a special favor.	1	2	3	4	5	6 7
11. The organization cares about my general satisfaction at work.	1	2	3	4	5	6 7
12. If given the opportunity the military would take advantage of me.	1	2	3	4	5	6 7
13. The CF shows very little concern for me.	1	2	3	4	5	6 7
14. The organization cares about my opinions.	1	2	3	4	5	6 7
15. The CF takes pride in my accomplishments at work.	1	2	3	4	5	6 7
16. The military tries to make my job as interesting as possible.	1	2	3	4	5	6 7
17. I feel a strong sense of belonging to the CF.	1	2	3	4	5	6 7
18. I do not feel emotionally attached to the CF.	1	2	3	4	5	6 7

19. The CF has a great deal of personal meaning for me.	1	2	3	4	5	6	7
20. I do not feel like "part of the family" in the CF.	1	2	3	4	5	6	7
21. I would be very happy to spend the rest of my working life in the military.	1	2	3	4	5	6	7
22. I enjoy discussing the CF with people outside it.	1	2	3	4	5	6	7
23. I really feel as if the problems of the CF are my own.	1	2	3	4	5	6	7
24. I think I could easily become as attached to another organization as I am to this one.	1	2	3	4	5	6	7
25. Right now, staying with the CF is as much a matter of necessity as of desire.	1	2	3	4	5	6	7
26. One of the major reasons I continue to stay with this organization is that leaving would require considerable personal sacrifice - another organization may not match the overall benefits I have.	1	2	3	4	5	6	7
27. I have too few options to consider leaving the military.	1	2	3	4	5	6	7
28. One of the few negative consequences of leaving the military would be the scarcity of available alternatives.	1	2	3	4	5	6	7
29. It would be hard for me to leave the CF right now, even if I wanted to.	1	2	3	4	5	6	7
30. Too much of my life would be disrupted if I decided to leave the military now.	1	2	3	4	5	6	7
31. It wouldn't be too costly for me to leave the CF in the near future.	1	2	3	4	5	6	7
32. I'm not afraid of what might happen if I quit without having another job lined up.	1	2	3	4	5	6	7

Strain

Instructions: Here is a list of troubles or complaints people sometimes have. Using the given scale, please indicate how often have you experienced each of these over the last few weeks.

	1 Never	2 Sometimes	3 Often	4 Very Often
1. Common cold or flu.				1 2 3 4
2. Dizziness or faintness.				1 2 3 4
3. General aches or pains.				1 2 3 4
4. Sweating hands, feeling wet and clammy.				1 2 3 4
5. Headaches.				1 2 3 4
6. Muscle twitching or trembling.				1 2 3 4
7. Nervousness or tenseness.				1 2 3 4
8. Rapid heartbeat (while not exercising or working hard).				1 2 3 4
9. Shortness of breath (while not exercising or working hard).				1 2 3 4
10. Skin rashes or itching.				1 2 3 4
11. Upset stomach.				1 2 3 4
12. Trouble sleeping.				1 2 3 4
13. Feeling down or blue or depressed.				1 2 3 4
14. Difficulty concentrating.				1 2 3 4
15. Crying.				1 2 3 4
16. Lack of appetite.				1 2 3 4
17. Loss of weight.				1 2 3 4
18. Taking medication to sleep or calm down.				1 2 3 4
19. Overly tired / lack of energy				1 2 3 4
20. Loss of interest in things, such as TV, news and friends.				1 2 3 4
21. Feeling life is pointless.				1 2 3 4

Appendix B

Data screening procedures

Data screening procedures were conducted prior to analyzing the survey data in order to assess the accuracy of data entry, identify out-of range values, estimate plausible means and standard deviations, test for missing data, and estimate other factors such as skewness and kurtosis, nonlinearity, and multicollinearity and singularity

Two out-of-range values were discovered for the age variable and were treated as missing values. The responses of 39 respondents from the sample revealed large portions of missing data (more than half of the responses to a single questionnaire or to several questionnaires). The missing data were distributed throughout the data set in a random pattern. Nevertheless, further data screening procedures were performed to ensure that deletion of the participants with many missing data in their responses would not bias any further analysis. Differences in means, medians, standard deviations and variances were explored in the survey sample with the missing data included and with the missing data excluded from the analysis for the five role stressors in all rank categories. Role stress variables were selected for this descriptive analysis since they were believed to be the critical variables to the hypotheses of the present study. No differences or minimal differences in the values of the means or medians, in the standard deviations or the variances were found. As well, only minimal differences were found in the ANOVA

estimates for the role stressors by rank (e.g., sum of squares, mean square, F, level of significance) and in the measures of association (e.g., R, R^2 , η , η^2), when the analysis was performed with and without the missing data, with no changes in the levels of significance.

A similar analysis was performed for the role stressors by gender variables. The differences in the above statistics were even less notable. Therefore, it was concluded that the deletion of the respondents with many missing data to one or more of the survey scales would not bias the analyses. Consequently, 39 subjects were removed from the sample for a total sample size of 1028.

Several demographic variables (e.g., age, rank, family status, years of full-time service) were screened for normality. Since the sample was large, the shapes of the distributions were explored for assessing normality through the use of frequency histograms to assess skewness, kurtosis, standard errors and fit with the normal distribution curve. The sample was normally distributed for age, family status and years of full time service. The distribution of rank was to some extent positively skewed (Statistic .53, Std. Error .76) and was characterized by kurtosis (Statistic -1.02, Std. Error .15). However, the population of the Canadian Forces is similarly not normally distributed in terms of rank. Rank, an integral factor in military hierarchy, is distributed in a pyramid shape. In the Canadian Forces, rank divides into two main groups: Non Commissioned Officers and Officers. Within each of these rank groups there are further

ordinal rank divisions, which are in turn distributed in a pyramid shape. The higher the ranks, the fewer are the service members within the rank.

Next the assumption of linearity was tested, since linearity is fundamental to multivariate statistics in which solutions are based on the general linear model (Tabachnick & Fidell, 1989). Because of the large number of variables used in the present study, the statistics on skewness and kurtosis were used to screen pairs of variables that were likely to depart from linearity. The screening of all the predictor, outcome, moderator and demographic variables revealed that only six variables had values for skewness and kurtosis that did not fall within -1 to $+1$ range. Nevertheless, no extreme cases of skewness or kurtosis were found for five of the six variables. The two variables that might be considered as revealing extreme cases of kurtosis were Alcohol/Drug Disengagement Coping Strategy (Statistic 28.65; Std Error .15) and Generalized Anxiety Subscale from the Symptom Checklist (Statistics 15.13; Std Error .15). Alcohol/drug disengagement had also the highest value for skewness (Statistic 4.8; Std Error .08). The bivariate scatterplot between alcohol/drug disengagement (an intermediate variable in the earlier presented model of occupational role stress) and job satisfaction (an outcome variable in the model, which had a value of -1.45 for skewness and 1.5 for kurtosis) as well as the bivariate scatterplot between alcohol/drug disengagement and strain (an outcome variable in the model of occupational role stress, which also had values for skewness and kurtosis exceeding 1) were explored. The overall

shape of both scatter plots was not oval but the plots were also not indicative of any curvilinear relationship between these variables. Therefore, the alcohol/drug disengagement was retained in the data set. Transformation procedures were not used to deal with potential non-linearity of the alcohol/drug disengagement variable because it was not a major variable in the present study. As well, research conducted with Canadian Forces personnel in a peacekeeping environment has suggested that alcohol and drug disengagement may not represent ways of coping used by deployed CF members (Dobrev-Martinova, 1999).

Regarding generalized anxiety, the second variable revealing extreme case of kurtosis, it was decided to exclude the variable from the present study. This decision was reached after exploring the distribution of the responses to the items representing this variable, which revealed minimal variability (80% of the sample falling within the same response category).

Data used in the present study were also screened for multicollinearity and singularity through the exploration of bivariate correlations among predictor, moderator, outcome and demographic variables. No correlations of values exceeding .90 were found.

As well, the assumptions underlying any of the statistical procedures employed in data analyses were tested and reported when discussing the results of those analyses.

Appendix C

Comparison of Median Scores from the Present Study with Normative Sample and a Sample of Canadian Federal Government

Employees

<u>Occupational Role Stress</u>	Osiopow & Spokane (1985) (Medians)		Bhalla (1989) (Medians)		Present Study (Medians)	
	Males	Females	Males	Females	Males	Females
Role Overload	25	23	26	25	25	26
Role Insufficiency	28	27	28	29	26	27
Role Ambiguity	23	19	24	23	20	20.5
Role Conflict	24	22	24	23	22	22
Role Responsibility for Others	22	24	24	22	26	24

Appendix D

Table D1

Descriptive Statistics by Gender of Survey Participants

Variable	Potential Range	<u>M</u>		Median		<u>SD</u>	
		Men	Women	Men	Women	Men	Women
<u>Predictor Variables</u>							
Role Ambiguity	10-50	20.99	20.85	20.00	20.50	5.98	5.60
Role Conflict	10-50	22.41	22.61	22.00	22.00	6.89	6.87
Role Overload	10-50	26.33	26.19	25.00	26.00	8.04	8.09
Role Insufficiency	10-50	26.08	27.59	26.00	27.00	7.84	8.15
Role Responsibility for Other People	10-50	26.02	24.01	26.00	24.00	6.56	6.92
<u>Moderator Variables</u>							
Problem-Focused Coping	20-80	59.18	58.45	59.00	59.00	8.20	8.85
Emotion-Focused Coping	20-80	43.27	45.65	42.00	45.00	7.84	7.34
Avoidance Coping	16-64	20.14	21.93	20.00	21.00	4.96	4.75
Perceived Organizational Support	16-112	61.68	61.00	62.00	61.00	16.01	16.61
Initiating Structure	10-50	36.12	35.75	37.00	36.00	6.58	6.41
Consideration	10-50	34.08	34.17	35.00	36.00	7.56	8.09
<u>Outcome Variables</u>							
Strain	21-84	30.87	31.67	29.00	30.00	7.82	8.54
Depression/Withdrawal	5-20	8.33	8.61	8.00	8.00	3.11	3.06
Hyper-Alertness	6-24	8.16	7.96	7.00	7.00	2.39	2.37
Somatic Complaints	5-20	8.63	8.74	8.00	8.00	2.46	2.56
Job Satisfaction	0-34	26.06	26.36	29.00	29.00	8.35	7.97
Affective Commitment	8-56	34.82	34.00	35.00	35.00	9.52	9.46
Continuance Commitment	8-56	34.63	35.09	35.00	35.00	9.32	10.06

Table D2

Descriptive Statistics by Rank of Survey Participants

Variable	Potential Range	<u>M</u>				Median				<u>SD</u>			
<u>Predictor Variables</u>		1	2	3	4	1	2	3	4	1	2	3	4
Role Ambiguity	10-50	20.97	20.46	21.60	20.52	20.00	19.00	21.00	20.00	5.74	5.95	6.05	6.02
Role Conflict	10-50	23.78	21.18	22.60	19.73	23.00	20.00	22.00	18.50	6.88	6.53	6.66	6.93
Role Overload	10-50	24.78	26.33	27.44	29.82	24.00	25.00	27.00	29.00	7.73	7.86	7.94	8.44
Role Insufficiency	10-50	28.71	24.21	26.54	21.91	28.00	24.00	26.00	21.00	7.58	7.11	8.21	7.20
Role Responsibility for Other People	10-50	23.36	27.41	26.23	29.10	23.00	28.00	27.00	29.00	6.49	6.39	6.42	5.70
<u>Moderator Variables</u>													
Problem-Focused Coping	20-80	57.68	58.94	60.14	61.89	58.00	59.00	60.00	62.50	8.69	8.63	7.51	6.91
Emotion-Focused Coping	20-80	44.13	43.54	43.56	43.60	43.00	43.00	43.50	43.00	8.10	7.76	6.88	8.60
Avoidance Coping	16-64	21.46	19.29	20.70	19.16	21.00	19.00	20.00	19.00	5.25	4.49	4.81	4.28
Perceived Organizational Support	16-112	58.65	63.07	62.47	68.40	60.00	63.00	62.00	68.00	15.53	16.04	16.28	15.95
Initiating Structure	10-50	36.01	35.51	36.42	36.57	36.00	36.00	38.00	37.00	6.53	6.66	6.45	6.51
Consideration	10-50	33.76	34.17	34.56	34.36	35.00	34.00	36.00	36.00	8.10	7.29	7.44	7.39
<u>Outcome Variables</u>													
Strain	21-84	32.09	30.30	30.27	30.20	30.00	29.00	28.00	29.00	8.70	7.32	7.60	6.79
Depression/Withdrawal	5-20	8.56	8.16	8.33	8.35	8.00	8.00	8.00	8.00	3.25	2.85	3.19	2.84
Hyper-Alertness	6-24	8.33	8.01	7.85	8.05	8.00	7.00	7.00	7.50	2.57	2.24	2.26	2.15
Somatic Complaints	5-20	9.02	8.45	8.33	8.30	9.00	8.00	8.00	8.00	2.66	2.39	2.27	2.17
Job Satisfaction	0-34	25.75	26.49	25.55	28.10	28.00	30.00	28.00	30.00	8.38	8.14	8.61	6.99
Affective Commitment	8-56	32.82	35.08	35.58	39.09	33.00	36.00	36.00	39.00	9.27	9.20	10.09	8.03
Continuance Commitment	8-56	36.60	34.95	32.90	30.64	37.00	35.00	33.00	30.00	9.44	8.94	9.23	9.46

1- Junior Non Commissioned Members; 2 - Senior Non Commissioned Officers;
3 – Junior Officers; 4 - Senior Officers.