



Defence Research and  
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# **The relationship between perceived organizational and cultural support and soldiers' post-deployment symptoms**

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**Defence R&D Canada – Toronto**

Technical Report

DRDC Toronto TR 2006-053

April 2006

**Canada**



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## Abstract

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The first few months after returning home, soldiers are adjusting to being back with their family, in garrison, and in their home country. Are factors such as perceptions of a supportive organization or society able to make this transition a little easier? This research sought to address this issue by assessing the impact of perceived organizational support (i.e., unit, Canadian Forces, Canadian Government) and perceived cultural support (i.e., Canadian society) on post-deployment symptomatology. Two main hypotheses were assessed in this research. The first was whether greater amounts of perceived support (both organizational and cultural) were related to lower levels of post-deployment symptoms, irrespective of the amount of stress experienced (i.e., the Main-Effect Hypothesis). The second, alternative hypothesis was that greater amounts of perceived organizational and cultural support would reduce reports of symptoms, but only at higher levels of stress (i.e., the Stress-Buffering Hypothesis). Soldiers completed a questionnaire package within two months after returning from a deployment in Bosnia. Neither the main effect, nor the stress-buffering effect was supported. However, greater amounts of perceived work stress and combat stress were associated with the experience of higher levels of post-deployment symptoms in this sample.

## Résumé

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Les premiers mois après leur retour, les soldats s'adaptent à la vie avec leur famille, à la vie en garnison et dans leur pays. Certains facteurs comme la perception du soutien apporté par l'organisation ou la société peuvent-ils faciliter cette transition? La présente recherche tente de répondre à cette question en évaluant l'impact sur la symptomatologie après un déploiement du soutien organisationnel perçu (apporté par l'unité, les Forces canadiennes, le gouvernement du Canada) et du soutien culturel perçu (apporté par la société canadienne). Deux principales hypothèses ont été évaluées dans la présente recherche. La première consiste à déterminer si un plus grand degré de soutien perçu (tant organisationnel que culturel) était lié à des niveaux plus faibles de symptômes après un déploiement, peu importe le degré de stress ressenti (Hypothèse de l'effet majeur). Selon la deuxième hypothèse (de recharge), la perception d'un plus grand soutien organisationnel et culturel réduirait les déclarations de symptômes, mais seulement lorsque les niveaux de stress étaient plus élevés (Hypothèse de l'atténuation du stress). Des soldats ont rempli une série de questionnaires dans les deux mois qui ont suivi leur retour d'un déploiement en Bosnie. Ni l'effet majeur, ni l'effet d'atténuation du stress n'ont été corroborés. Toutefois, la perception d'un degré plus élevé de stress professionnel et de stress au combat était associée dans cet échantillon à un plus grand nombre de symptômes après le déploiement.

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## Executive summary

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### **The relationship between perceived organizational and cultural support and soldiers' post-deployment symptoms**

Pickering, D.I.; DRDC Toronto TR 2006-053; Defence R&D Canada – Toronto; April 2006.

#### **Background**

The first few months after returning home, soldiers are adjusting to being back with their family, in garrison, and in their home country. Are factors such as perceptions of a supportive organization or society able to make this transition a little easier? More specifically, does perceived support from soldiers' units, the Canadian Forces (CF), the Canadian Government, and Canadian society in general impact on the amount of post-deployment symptoms they experience? To the extent that such a relationship exists, this study tests two conceptual models to determine the nature of the support-symptomatology relation in this sample. Specifically, do these social support sources affect symptoms in a manner that is consistent with the majority of the social support literature, that is, it is a factor regardless of the stress levels reported by these soldiers (termed the Main-Effect Model)? Or are the beneficial effects of support apparent only when the stress levels of these soldiers are high (termed the Stress-Buffering Model)?

Although the social support-health and well-being relation is well-established in the general literature [1; 2; 3; 4], to date, research exploring the impact of organizational and cultural support sources on soldier health and well-being has been quite limited. Of the work that does exist, research by Martin [5] found that perceived support from military unit leaders buffered the negative impact of traumatic events on psychological well-being in active duty U.S. Army soldiers. Other work has demonstrated the role that perceived organizational support has in enhancing other individual outcomes such as self-esteem and work attitudes, and in organizational outcomes including strain, job satisfaction, organizational commitment and retention [6; 7; 8].

There is also some initial evidence of the association between perceived governmental support and Post Traumatic Stress Disorder (PTSD) [9]. However, there is a lack of research focusing on less severe post-deployment outcomes. Concerning perceived cultural support (i.e., societal or community support), the few studies conducted suggest that perceived cultural support is related to post-deployment well-being. However, most of this research again has focused on more severe post-deployment outcomes such as PTSD [e.g., 10; 11]. While the study of PTSD is important, it is also important to focus on less severe psychological post-deployment outcomes since they are far more common than PTSD [e.g., see 12; 13]. Thus, we know little about soldiers' perceptions of cultural support on the full spectrum of the support-symptom relationship.

Based on the results of the few studies that do exist, the following five hypotheses were developed:

## **Organizational Support:**

Irrespective of the amount of military service stress experienced, soldiers who perceive their organization in general to be supportive (i.e., overall level of perceived support from soldier's unit, CF, and Canadian Government), will report fewer post-deployment symptoms than soldiers who do not.

This first hypothesis specifically assesses the relative contribution of perceived organizational support sources to soldiers' post-deployment symptoms. In contrast, the next three hypotheses assess the impact that each of the components of perceived organizational support individually have on soldiers' post-deployment symptoms.

Regardless of the amount of military service stress experienced, soldiers who perceive their unit to be supportive will experience fewer post-deployment symptoms than soldiers who do not.

Irrespective of the amount of military service stress experienced, soldiers who perceive the CF to be supportive will experience fewer post-deployment symptoms than soldiers who do not.

Regardless of the amount of military service stress experiences, soldiers who perceive the Canadian Government to be supportive will experience less post-deployment symptomatology.

## **Cultural Support:**

Irrespective of the amount of military service stress experienced, soldiers who perceive Canadian society to be supportive of them will report fewer post-deployment symptoms than soldiers who do not.

Although the literature does suggest that social support should have a direct effect on reported symptoms, supporting a Main-Effect Model, for completeness all regression analyses also include a test of the alternative, Stress-Buffering Model of the social support-symptom relation. This model would be supported by findings indicating that the beneficial effects of perceived social support are only apparent when soldiers are experiencing high stress levels.

## **Respondents and Procedure**

Two hundred and two CF soldiers who had recently returned from an overseas peacekeeping mission served as research participants in this study. Soldiers completed a large questionnaire package in a mass testing session within two months of returning from deployment.

## **Materials**

The questionnaire package included demographic questions, the Stress and Military Service Questionnaire (SMSQ) [14; 15], the Homecoming Issues measure that included questions assessing perceptions of social support from various sources, and the SIGNS, a measure of symptomatology based on the Hopkins Symptom Checklist [16; 17].



## Results

Preliminary analyses revealed that, overall, the reported family concerns and combat stress levels were low, with work and career/service stresses being moderate. Self-reported symptoms were also relatively low in this sample. Levels of perceived social support on organizational and cultural support indices were moderate.

A series of five regression analyses were conducted in order to assess the impact of perceived social support (organizational, unit, CF, Canadian Government, and Canadian society) and stress (work, career and service, family concerns, & combat) on symptomatology. These analyses enabled examination of the relative impact of stress and support variables as well as tests of the main and stress-buffering effects of perceived social support to be undertaken in the same regression equation. The only significant results to emerge across the five regression analyses indicated that greater amounts of work stress and combat stress were associated with more self-reported post-deployment symptomatology.

## Discussion

Consistent evidence emerged supporting the negative impact of military service-related stress on post-deployment well-being, that is, a main effect of stress on the self-reported symptoms for these soldiers. In particular, greater amounts of work stress and combat stress corresponded to increased levels of symptoms reported by soldiers post-deployment. Indeed, these variables accounted for between 10 % and 14% of the variance in the symptoms these soldiers reported.

No evidence was obtained for the Main-Effect Hypothesis, in which the presence of social support increases well-being, regardless of level of stress. Also, no support was obtained for the Stress-Buffering Hypothesis, in that social support did not mitigate the negative effects of high stress on post-deployment symptoms. The lack of consistency between the results of the current analyses and those of previous social support research may be due to at least three reasons. First, the lack of variability in military service stress scores (i.e., family-concerns stress and post-deployment symptoms) and post-deployment symptomatology obtained in this study may have contributed to some of the non-significant results obtained. Second, the current research focused on less severe post-deployment outcomes compared with much of the past research that assessed more severe outcomes such as PTSD. Finally, the current findings may also reflect limitations associated with the way in which social support was measured in the current study. These findings are discussed in terms of the body of research in this area and suggestions for future research are proposed.

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# Sommaire

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## The relationship between perceived organizational and cultural support and soldiers' post-deployment symptoms

Pickering, D.I.; DRDC Toronto TR 2006-053; R & D pour la défense Canada – Toronto; April 2006.

### Renseignements de base

Les premiers mois après leur retour, les soldats s'adaptent à la vie avec leur famille, à la vie en garnison et dans leur pays. Certains facteurs comme la perception du soutien apporté par l'organisation ou la société peuvent-ils faciliter cette transition? Plus précisément, la perception du soutien apporté par les unités des soldats, les Forces canadiennes (FC), le gouvernement canadien et la société canadienne en général a-t-elle un retentissement sur le nombre de symptômes ressentis après un déploiement? Dans l'éventualité où une telle relation existe, deux modèles conceptuels ont été analysés pour déterminer la nature de la relation soutien-symptomatologie dans cet échantillon. Ces sources de soutien social exercent-elles notamment un effet sur les symptômes qui concordent avec ce qui a été observé dans la majorité des publications sur le soutien social; autrement dit, ce facteur joue-t-il un rôle peu importe les niveaux de stress signalés par ces soldats (Modèle de l'effet majeur)? Ou les effets bénéfiques du soutien ne sont-ils apparents que lorsque les niveaux de stress des soldats sont élevés (Modèle de l'atténuation du stress)?

Bien que la relation soutien social-santé et bien-être soit bien établie dans les publications en général [1; 2; 3; 4], jusqu'à présent, les études portant sur l'impact des sources de soutien organisationnel et culturel sur la santé et le bien-être des soldats ont été assez limitées. Parmi les études qui existent, celle de Martin [5] a montré que la perception du soutien apporté par les chefs des unités militaires atténuait l'impact négatif d'événements traumatisants sur le bien-être psychologique des soldats de l'armée américaine en service actif. D'autres travaux ont fait ressortir que la perception du soutien organisationnel jouait un rôle en améliorant d'autres résultats individuels comme l'estime de soi et les attitudes devant le travail ainsi que les résultats organisationnels, notamment l'effort, la satisfaction au travail, le degré d'identification envers l'organisation et le maintien des effectifs [6; 7; 8].

Certaines données préliminaires indiquent également qu'il existe une association entre le soutien gouvernemental perçu et le syndrome de stress post-traumatique (SSPT) [9]. Rares sont les études, cependant, qui examinent en particulier les résultats moins graves après un déploiement. Les quelques études portant sur le soutien culturel ou perçu (soutien social ou communautaire) semblent indiquer que le soutien culturel perçu est lié au bien-être après le déploiement. Toutefois, la plupart de ces études ont surtout examiné les résultats plus graves après un déploiement, tels que le SSPT [p. ex. 10; 11]. Bien que l'étude du SSPT soit importante, il importe également de s'attarder aux effets psychologiques moins sévères après un déploiement vu qu'ils sont beaucoup plus courants que le SSPT [p. ex. voir 12; 13]. On sait ainsi peu de choses de la place du soutien culturel perçu par le soldat dans le continuum complet de la relation soutien-symptômes.

À la lumière des résultats des quelques études qui existent, les cinq hypothèses suivantes ont été avancées :

### **Soutien organisationnel :**

1. Peu importe le niveau de stress lié au service militaire ressenti, les soldats qui se sentent appuyés en général par leur organisation (perception du niveau général du soutien apporté par l'unité du soldat, les FC et le gouvernement canadien) se plaindront d'un moins grand nombre de symptômes après un déploiement que les autres soldats.

La première hypothèse évalue plus particulièrement la contribution relative des sources de soutien organisationnel perçu aux symptômes des soldats après un déploiement. Les trois hypothèses suivantes évaluent par contre l'impact de chaque élément du soutien organisationnel perçu sur les symptômes des soldats après leur déploiement.

Peu importe le degré de stress lié au service militaire ressenti, les soldats qui se sentent appuyés par leur unité éprouveront moins de symptômes après un déploiement que les autres soldats.

Peu importe le degré de stress lié au service militaire ressenti, les soldats qui se sentent appuyés par les FC éprouveront moins de symptômes après un déploiement que les autres soldats.

Peu importe le degré de stress lié au service militaire ressenti, les soldats qui se sentent appuyés par le gouvernement canadien éprouveront moins de symptômes après un déploiement.

### **Soutien culturel :**

Peu importe le degré de stress lié au service militaire ressenti, les soldats qui se sentent appuyés par la société canadienne feront état d'un moins grand nombre de symptômes après un déploiement que les autres soldats.

Les études publiées semblent indiquer que le soutien social devrait avoir un effet direct sur les symptômes signalés, ce qui corroborerait le Modèle de l'effet majeur, mais pour s'assurer que l'analyse était complète, nous avons également inclus dans toutes les analyses de régression une évaluation de l'hypothèse de rechange, le Modèle d'atténuation du stress pour la relation soutien social-symptômes. Ce modèle serait corroboré par des observations indiquant que les effets bénéfiques du soutien social perçu ne sont apparents que lorsque les soldats ressentent un degré élevé de stress.

## **Répondants et méthode**

Deux cent deux soldats des FC qui venaient de rentrer d'une mission de maintien de la paix à l'étranger ont participé à la recherche. Les soldats ont rempli une longue série de questionnaires lors de séances d'évaluation en grand groupe dans les deux mois qui ont suivi leur retour après leur déploiement.

## **Matériel**

La série de questionnaires comprenait des questions démographiques, le questionnaire sur le stress et le service militaire (QSSM) [14; 15], la mesure des problèmes liés au retour qui

comprenait des questions sur les perceptions du soutien social apporté par diverses sources et le SIGNS, une mesure de la symptomatologie basée sur la liste de contrôle des symptômes de Hopkins [16; 17].

## Résultats

Des analyses préliminaires ont révélé que, dans l'ensemble, les problèmes familiaux et les niveaux de stress au combat signalés étaient faibles et que le degré de stress professionnel et lié à la carrière ou au service militaire était modéré. Les symptômes auto-déclarés étaient également relativement faibles dans cet échantillon. Le degré de soutien social perçu dans les indices de soutien organisationnel et culturel était modéré.

Une série de cinq analyses de régression a été effectuée afin d'évaluer l'impact du soutien social perçu (de l'organisation, de l'unité, des FC, du gouvernement canadien et de la société canadienne) et du stress (travail, carrière et service, problèmes familiaux et combat) sur la symptomatologie. Ces analyses ont permis d'examiner l'impact relatif des variables liées au stress et au soutien et d'évaluer les effets majeurs et d'atténuation du stress associés au soutien social perçu dans la même équation de régression. Les seuls résultats significatifs qui sont ressortis des cinq analyses de régression étaient que des degrés plus élevés de stress professionnel et de stress au combat étaient associés à une augmentation du nombre de symptômes auto-déclarés après un déploiement.

## Analyse

Des données concordantes ont été recueillies à l'appui d'un impact négatif du stress lié au service militaire sur le bien-être après un déploiement; c'est-à-dire un effet majeur du stress sur les symptômes auto-déclarés chez ces soldats. En particulier, des degrés plus élevés de stress professionnel et de stress au combat correspondaient à une augmentation des symptômes déclarés par les soldats après le déploiement. En effet, ces variables étaient à l'origine de 10 à 14 % de la variance dans les symptômes signalés par ces soldats.

Aucune donnée probante n'a été obtenue pour l'Hypothèse de l'effet majeur, selon laquelle la présence d'un soutien social accroît le bien-être, peu importe le degré de stress. Nous n'avons pas non plus pu corroborer l'Hypothèse de l'atténuation du stress, le soutien social n'atténuant pas les effets négatifs d'un degré élevé de stress sur les symptômes après le déploiement. L'absence de concordance entre les résultats des analyses actuelles et des recherches antérieures sur le soutien social peut être due à au moins trois facteurs. Premièrement, l'absence de variabilité dans les scores de stress pour le service militaire (stress lié aux problèmes familiaux et symptômes après le déploiement), et la symptomatologie après le déploiement mesurée dans cette étude peut avoir contribué à certains des résultats non significatifs obtenus. Deuxièmement, la recherche actuelle portait sur des résultats moins graves après un déploiement alors qu'une bonne part des recherches antérieures évaluaient les résultats plus graves tels que le SSPT. Enfin, les données actuelles peuvent également témoigner des limites associées à la façon dont le soutien social était mesuré dans la présente étude. Ces observations sont analysées à la lumière du corpus de recherche dans ce domaine et des suggestions pour des recherches futures sont faites.

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## **Acknowledgements**

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I would like to thank Colonel Cheryl Lamerson and the Directorate of Human Resource Research and Evaluation (DHRRE) for allowing me access to data collected as part of the Human Dimensions of Operations Project.

Also, thanks to Megan Thompson for her feedback during previous drafts of this report.

# Introduction

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The first few months after returning home, soldiers are adjusting to being back with their family, in garrison, and in their home country [18]. Are factors such as perceptions of a supportive organization or society able to make this transition a little easier? More specifically, does perceived support from soldiers' unit, CF, Canadian Government, and Canadian society in general impact on the amount of post-deployment symptoms they experience? This research seeks to determine whether perceptions of support from these sources have their effect on soldiers' post-deployment symptomatology directly (i.e., main effect) or through their ability to mitigate stress (i.e., stress-buffering effect).

The focus on these particular sources of support was done for a variety of reasons. First, most prior research in the social support area has tended to focus on the role of more intimate relationships (e.g., spouse/partner, immediate family) on soldiers' post-deployment adjustment [e.g., see 19; 20; 21]. However, we know much less about those sources of support over which the CF has most control. Second, when research has considered other sources of support, such as organizational support, it has focused on issues such as the cohesiveness of a unit *or* the perceived supportiveness of the larger organization (i.e., the CF) on soldiers' well-being and organizational outcomes. However, this research does not consider the impact of each of these sources *relative to* the others. For instance, separately, each of these sources may play some role; however, when looked at in concert, it may be that only those organizational sources with which the soldier has the most frequent contact affect symptoms. Thus, the present research assesses the simultaneous (i.e., in one study) impact of the various levels of military support.

Third, although there has also been some research assessing the impact of perceived cultural support on soldiers' post-deployment well-being, most of what has been done has focused on more severe post-deployment outcomes such as Post Traumatic Stress Disorder (PTSD) [e.g., see 10; 11]. Thus, little has been done on the role of perceived cultural support in relation to less severe post-deployment symptomatology. Accordingly, it was deemed important to fill this void in the research.

## Supportive Relationships

Most of the interpersonal relationship research has focused on the supportiveness of various types of relationships. Supportive relationships are viewed as an external coping resource enhancing an individual's well-being [1; 2; 4]. These supportive relationships are theorized to enhance individuals' health and psychological well-being. Moreover, the social support-health & well-being relation is well-established empirically [1; 2; 3; 4]. The vast majority of this research substantiates the health enhancing role of social support. In particular, research suggests that individuals' perceptions of support may be more important with respect to health enhancement than the actual supportive acts themselves [22; 23; 24; 25].

## **Social Support Models**

Two models have been proposed to explain the impact of supportive social relationships on health and well-being. The first is the Main-Effect Model. It states that social support is beneficial to the health and well-being of individuals irrespective of the amount of stress they are experiencing. Thoits (1985) suggests that main effects of social support on well-being may be the by-products individuals obtain by simply carrying out their social roles [3]. These by-products include enhanced self-esteem and sense of belonging. The second model is the Stress-Buffering Model. This model differs from the previous one in that it states social support benefits individuals primarily during times of high stress. Stress may place undo strain on individuals' self-esteem and sense of belonging. Social support may be of benefit to individuals by bolstering and restoring their self-esteem and sense of belonging during times of stress.

There is more research supporting the Main-Effect Model than the Stress-Buffering Model in a military population. For example, one study compared the Main-Effect Model and the Stress-Buffering Model in U.S. Navy enlisted personnel. In general, results provided evidence for the Main-Effect Model, in that, irrespective of the amount of job stress experienced, co-worker and leader support were related to indicators of individual and organizational strain [7]. Similarly, higher levels of perceived organizational support have been found to be related to lower levels of strain and greater job satisfaction and organizational commitment in CF personnel [6].

## **Organizational Support**

The military research assessing the role of perceived organizational support has focused primarily on soldiers' units (i.e., the unit, unit leaders) and the military in general. Most of the research conducted supports the role perceived organizational support has in affecting individual and organizational outcomes. For instance, recall that perceived organizational support was directly related to strain, job satisfaction and organizational commitment in CF Regular Forces personnel [6]. Other previously cited research showed that perceived leader and co-worker support were also directly related to self-esteem, job satisfaction, and retention in U.S. Navy enlisted personnel [7]. Additional research also confirms the impact of organizational sources of social support. Perceived Army support for soldiers' families was directly related to soldiers' work attitudes including work and family conflict, job satisfaction and affective organizational commitment in a sample of married soldiers with children [8]. Finally, research by Martin (1999) found that perceived support from military unit leaders buffered the negative impact of traumatic events on psychological well-being in active duty U.S. Army soldiers [5].

Little research has addressed the impact of perceived governmental support, another form of organizational support, on the soldier. Despite this lack of research, perceived governmental support has the potential to impact on soldiers' well-being. For instance, research by Bryant (1998) studied the types of calls made to an after-hours crisis telephone service for Vietnam veterans with PTSD [9]. Five major categories of calls were received that required counseling. One of these categories consisted of anger directed towards the government. Whether soldiers with PTSD were angered over the government's treatment of them after their PTSD diagnosis or whether these negative perceptions of the government simply co-occurred with the development of their PTSD, due to a general negative emotional state, is not known. However, these findings suggest that further investigation into this issue may be useful.

## Research on Cultural Support

Perceived cultural support (i.e., societal or community support) is another form of support that has not been studied a great deal. However, it too may play an important role in soldiers' post-deployment well-being. For instance, research was conducted on soldiers deployed to Saudi Arabia during Operation Desert Shield. Most of these soldiers, when interviewed, indicated that they had concerns about the public supporting their mission [26]. Although only three studies have focused on the role of perceived community or society support in soldiers' post-deployment adjustment, this research suggests that it does, in fact, impact on soldiers' post-deployment well-being. The first study assessed the role of homecoming reception in relation to the risk of PTSD in U.S. military personnel who served as peacekeepers in Somalia [10]. However, unlike many other studies looking at homecoming reception, the impact of family and the community were assessed separately. Even after controlling for exposure to combat and other peacekeeping stress, the more supportive the soldiers' family and community were, the less post-deployment distress they experienced. Also, quite interestingly, the amount of impact (i.e., size of effect) that perceived family support and perceived community support had on post-deployment distress were comparable. This latter result is particularly intriguing in that it suggests that the impact of community support was as important to these soldiers as was support received from their families. Neither perceived family reception nor perceived community reception was affected by the level of combat exposure soldiers experienced. A second study assessed the risk factors affecting the course of PTSD over a 14-year period in soldiers who had served in Southeast Asia during the Vietnam War [11]. After controlling for initial levels of PTSD, the greatest PTSD risk factors were minority status and high combat exposure, followed by a host of other factors including perceived negative community attitudes (i.e., low perceived support). A third study assessed the impact of perceived family and perceived community support and feelings of loneliness on PTSD in Israeli soldiers who had fought on the front line during the Lebanon war [27]. Although perceived family support was found to be indirectly related to PTSD through its impact on feelings of loneliness, perceived community support was not related to PTSD either directly or indirectly. However, this non-significant finding may be the result of issues related to how societal support was measured. The measure of societal support used actually assessed perceived support from society and public institutions (e.g. the administration). Thus, although the literature in the area of the effects of cultural support is sparse, it does hint that cultural support may play a role in the support-health and well-being relation. Moreover, the evidence that does exist also suggests that these effects should be direct, supporting the Main-Effect Model.

## Current Research

The current research assesses the impact that perceived social support from various organizational and cultural sources has on post-deployment symptomatology in CF personnel. More specifically, soldiers' perceptions of the supportiveness of their unit, the CF, the Canadian Government, the organization as whole and Canadian society are assessed.

In light of past research findings, the following hypotheses were developed:

### **Organizational Support:**

1. Irrespective of the amount of military service stress experienced, soldiers who perceive each level of their organization (i.e., soldiers' unit, CF, and Canadian Government) to be supportive will report less post-deployment symptomatology.

This first hypothesis specifically assesses the relative contribution of perceived organizational support sources to soldiers' post-deployment symptoms. In contrast, the next three hypotheses assess the impact that each of the components of perceived organizational support individually have on soldiers' post-deployment symptoms.

2. Regardless of the amount of military service stress experienced, soldiers who perceive their unit to be supportive will experience fewer post-deployment symptoms than soldiers who do not.
3. Irrespective of the amount of military service stress experienced, soldiers who perceive the CF to be supportive will experience fewer post-deployment symptoms than soldiers who do not.
4. Regardless of the amount of military service stress experiences, soldiers who perceive the Canadian Government to be supportive will experience less post-deployment symptomatology than soldiers who do not.

### **Cultural Support:**

5. Irrespective of the amount of military service stress experienced, soldiers who perceive Canadian society to be supportive of them will report fewer post-deployment symptoms than soldiers who do not.

Although the literature does suggest that social support should have a direct effect on reported symptoms, supporting a Main-Effect Model, for completeness all regression analyses also include a test of the alternative, Stress-Buffering Model of the social support-symptom relation. This model would be supported by findings indicating that the beneficial effects of perceived social support are only apparent when soldiers are experiencing high stress levels.

## Method

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### Participants

Two hundred and two CF soldiers who had recently returned from an overseas peacekeeping mission served as research participants in this study. As Table 1 indicates, most participants were non-commissioned soldiers (N=157/202, 78% of the sample) between the ages of 22 and 36 years (N=188/202, 93%). Approximately three-quarters of respondents had at least five years of service. Of the sample, 62% were married or had a partner, 31% were single, and 7% were 'separated' or 'other'<sup>1</sup>. More than half (56%) of these soldiers had no dependents.

### Procedure

A large-scale survey of CF personnel was undertaken by the Human Dimensions of Operations (HDO) project headed by the Operational Effectiveness Section of the Directorate of Human Resources and Research Evaluation (DHRRE). This HDO project was designed to address various operational stress-related issues including the assessment of self-reported stress, and the impact of that stress on CF personnel across the deployment cycle. The current research uses data obtained after soldiers had returned from a deployment.

Soldiers completed a large questionnaire package (detailed below) in a mass testing session within two months of returning from deployment to Bosnia. The base personnel officer administered this survey and addressed any questions that arose.

### Materials

The questionnaire package included demographic questions, the Stress and Military Service Questionnaire (SMSQ) [14; 15], the Homecoming Issues measure, the SIGNS, a measure of symptomatology based on the Hopkins Symptom Checklist [16; 17] and other instruments that are not the focus of the current research.

The assessment of soldiers' self-reported degree of stress was obtained from the SMSQ [14; 15], a 35-item measure of stress related to military service. The scale consists of five subscales assessing work environment, external conditions, service and career issues, combat, and family-concerns stresses. Sample items for each of these five subscales are, "Degree of control over your work tasks", "Standard of living conditions in the field/on deployment (e.g., food, sleeping quarters)", "Career issues (e.g., promotion, postings)", "Seeing widespread suffering (e.g., starvation, forced migration, property destruction), and "Time spent away from your family due to service", respectively. Respondents are asked to indicate, on a 5-point scale ranging from "no trouble or concern" to "very much trouble or concern," the extent that each item has caused them trouble or concern over the last month.

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<sup>1</sup> Soldiers were provided with four response categories with respect to their marital/partner status. If they did not classify themselves as being married/partner, single, separated, they then were classified as 'other.'

One item from the Homecoming Issues Scale assesses soldiers' perceptions of the quality of social support they received from a variety of sources. Respondents are asked to indicate the level of post-deployment support they received from thirteen sources: mother, father, children, siblings, partner, other family, friends, deployed and non-deployed work mates, their unit, the CF, Canadian Government, and the Canadian public. The response alternatives for this item ranged from "very unsupportive" to "very supportive".

The Psychological and Physical Symptoms Questionnaire is a 36-item measure assessing psychological symptomatology (SIGNS) [16, also see 18; 17; 29]. The SIGNS is based on the Hopkins Symptom Checklist (HSCL) [17], one of the most widely used self-report measures of health and well-being. Respondents are asked to indicate the frequency with which they have experienced a number of symptoms during the past month using a 4-point scale ranging from "never" to "very often". Questions address a wide range of symptoms including depression and withdrawal (e.g., feeling depressed), hyper-alertness (e.g., being nervous or tense), generalized anxiety (e.g., taking medication to calm down or induce sleep), and somatic complaints (e.g., headaches). An overall symptom score is calculated by combining responses to all five of these symptom domains.



# Results

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## Overview

Items from the SMSQ [14; 15] were reviewed to determine their applicability to the post-deployment phase of the deployment cycle. Many of the external conditions subscale items did not appear to be relevant to post-deployment issues (e.g., concerns about end of mission date, conditions in the field). Accordingly, it was decided not to use this particular subscale in any further analyses.

Next, the remaining SMSQ items were compared to items from the measures of social support (i.e., items from the Homecoming Issues scale) and symptomatology (i.e., SIGNS) [16] to determine whether there was any overlap in item content. Any items from the SMSQ that appeared to reflect support or symptoms were eliminated, as their inclusion would artificially inflate the correlation between degree of support and stress level. One item from the service and career issues stress subscale was also eliminated as a result of this process (i.e., Administrative support).

Reliability analyses were conducted on the measures of family-concerns stress, work stress, service and career-issues stress, combat stress (SMSQ) [14; 15], and symptomatology (SIGNS) [16]<sup>2</sup>. These analyses provided evidence of each measure's internal consistency, i.e., the degree to which each item on the scale is associated with other items on the scale. In general, the higher an instrument's internal consistency, the better, i.e., the scale items are highly associated with each other [30]. Internal consistency is an important indication that the measure is psychometrically sound [31].

Preliminary data analysis was also conducted to determine the factor structure of the perceived post-deployment support that soldiers obtained from various social-network sources. This type of analysis is used for data reduction purposes in that it allows a larger number of items to be reduced to a smaller number of more general factors [32], for instance, organizational (e.g., unit, CF, Canadian Government) versus family support (e.g., mother, father, siblings). The items that are grouped together in a factor analysis share a similar theme or underlying dimension [33]. Accordingly, items can be combined to create scales that are used in further analyses. For instance, in the present case, this analysis groups individual sources of support (e.g., parents & siblings) into larger dimensions of support (e.g., familial support). An exploratory factor analytic procedure was used since no a-priori predictions were made regarding the factor structure of social-network sources.

Pearson correlations were then calculated for the variables being used in the subsequent regression analyses (i.e., stress, social support, and symptomatology). This type of analysis assesses the degree of association between two variables [33].

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<sup>2</sup> Data from one research participant was not included in further analyses as a result of extreme responses. Logarithmic transformations were applied to the SIGNS and the SMSQ data since they were significantly skewed. This normalized their distributions which is a pre-requisite of many statistical analyses (SPSS Inc, 1997).

Following this, hierarchical multiple-regression analyses were performed to assess the impact of multiple predictors (stress and social support) on a single criterion or outcome variable (in the present case, symptomatology) [32]. Moreover, the use of hierarchical regression analysis allows predictor variables to be included in the analyses sequentially in what are termed “blocks.” This means that the impact of variables included in a previous block of the analysis on the criterion variable is assessed prior to the impact of other variables included in subsequent blocks. This procedure is important in the current analyses because it allows the impact of demographic variables (i.e., years of service, rank, age, partner status, and number of medical visits) to be accounted for prior to the impact of any other variables being considered. It also permits the impact of main-effect variables (i.e., perceived social support and stress variables) on the criterion variable to be tested prior to two-way interactions. These two-way interactions tested whether stress and support levels had an interactive effect on symptomatology, thereby assessing the viability of the Stress-Buffering Model. Thus, these regression analyses allow the Main-Effect Model and the Stress-Buffering Model to be tested and to be directly compared in each regression analysis.

## Scale Reliabilities

The internal consistencies for the subscales of the SMSQ were all excellent: .87 for the work environment subscale, .86 for the combat stress subscale, and .82 for the family concerns subscale. Only the reliability for the career/service issues subscale was slightly lower, but still acceptable, at .77. The reliability for the measure of perceived organizational support (i.e., unit, CF, and Canadian Government) was excellent at .91. The reliability of the SIGNS, a measure of symptomatology, was also excellent at .93.

## Factor Analysis of Perceived Social Support

Factor analytic findings provided evidence for a three-factor solution. Perceived support from the Canadian Government, the CF, the soldiers’ unit, and Canadian society loaded onto factor one. With the exception of perceived societal support, this factor seemed to represent perceived organizational support.<sup>3</sup> Approximately 77.52% of the variance was explained by this three factor solution.

In spite of these findings, including perceived support from Canadian society in the first factor, the results did not appear to make conceptual sense. First, other studies that have focused on organizational and societal factors have conceptualized these factors as separate entities [e.g., see 34; 35; 36; 37]. This conceptual distinction is also reflected in the current context in that the factor loading for the perceived societal support item was smaller than any of the other items (i.e., perceived support from soldiers’ unit, the CF, and the Canadian Government).

Accordingly, another factor analysis was performed excluding perceived support from Canadian society. These results were virtually identical to those obtained for the previous analysis. A three-factor solution was obtained with the same factor structure as before. Approximately 81.76% of

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<sup>3</sup> Perceived support from soldiers’ mother, father, and siblings loaded onto factor two. Items that loaded onto the third factor were perceived support from deployed mates, non-deployed mates, and friends. This last factor appears to represent perceived friend support.

the variance was explained by these three factors. Only results pertaining to the perceived organizational factor and the perceived societal support scale item were retained for further analyses since the focus of the current research is on the effect of perceived organizational support and perceived societal support on soldiers' post-deployment well-being. A perceived organizational support scale was created for each soldier. This scale was composed of perceived Canadian Government support, perceived CF support, and perceived unit support scale items.

## Descriptive Statistics

The means and standard deviations for the organizational- and societal-social support, stress, and symptomatology variables are presented in Table 2. Of the stress variables, the greatest amount of stress reported at post-deployment was for work stress ( $M = 22.72$ , range: 1 to 45), with the soldiers in this sample reporting moderately high levels of work related stress. The amount of family concerns stress ( $M = 7.89$ , range: 1 to 20) and combat stress ( $M = 8.49$ , range: 1 to 25) at post-deployment were below the scale mid-point and were significantly lower than work stress and service and career stress ( $M = 13.53$ , range: 1 to 20).<sup>4</sup> Perceived unit support was rated significantly higher than perceived support from other support sources ( $M = 2.55$  vs.  $M = 2.40$  for CF support,  $M = 2.23$  for Canadian Government support, and  $M = 2.33$  for Canadian Society support, with the possible range of responses for all scales is from 1 to 4).<sup>5</sup>

## Intercorrelations

The inter-correlations among organizational and societal sources of social support, stress, and symptomatology are also listed in Table 2. All of the subscales of the SMSQ, the measure of stress in the military, were significantly inter-correlated as were all of the sources of perceived social support ( $r$ 's ranged from .22 to .67 for stress measures, and from .41 to .95 for the perceived support measures). Thus, reporting higher levels of stress in one area was associated with higher reported stress in other areas. Similarly, higher reports of social support from one source were associated with higher levels of support from other areas.

Additionally, Table 2 shows higher levels of perceived social support were significantly correlated with lower levels of work stress and career and service-issues stress ( $r$ 's ranged from -0.16 to -0.39), but not combat- and family-concerns stress ( $r$ 's ranged from 0.00 to -0.10). Higher levels of military stress were significantly correlated with greater reports of post-deployment symptoms ( $r$ 's ranged from .26 to .42). With the exception of perceived support from the Canadian society, perceptions of support were significantly and negatively correlated with symptoms reported ( $r$ 's ranged from -0.07 to -0.27).

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<sup>4</sup> Differences between means reported are obtained from a repeated measures ANOVA,  $F(3,194) = 219.82$ ,  $p < 0.001$ .

<sup>5</sup> Differences between means reported are obtained from a repeated measures ANOVA,  $F(3,160) = 15.01$ ,  $p < 0.001$ . The means reported in this analysis differ slightly from those reported in Table 2 due to the way in which missing data is handled in these analyses.

## Hierarchical Multiple Regression Analyses

A series of five regression analyses was conducted in order to assess the impact of perceived social support and stress on soldiers' post-deployment symptomatology, and to test whether the present data provided evidence of the Main-Effect Model or the Stress-Buffering Model. An initial regression analysis was conducted using an overall indicator of perceived organizational support consisting of perceived support from soldier's unit, the CF, and the Canadian Government. The next three regression analyses assessed whether the separate perceived organizational support sources (i.e., unit, CF, and Canadian government) would be related to post-deployment symptomatology. These analyses allowed the impact of the individual components of organizational support to be assessed. Conducting these four analyses allowed these two approaches to be assessed, i.e., using an overall indicator of perceived organizational support as opposed to focusing on its separate components. The final regression analysis focused on the impact of perceived societal support, an indicator of cultural social support, on post-deployment symptoms.

Since five regression analyses were performed the point at which an effect was considered significant (i.e., the alpha level) was made more conservative. An alpha of 0.01 was used instead of the traditional 0.05. This technique is used to reduce the number of false positives (i.e., an effect is found to be significant but in reality it is not) that can occur when a number of effects are tested in regression analyses.

### 1. The Impact of a Composite Measure of Organizational Support on Symptoms

In the first multiple-regression analysis, the composite measure of perceived organizational support (i.e., perceived support from unit, the CF, and the Canadian Government) was used as the social support indicator (see Table 3). The overall regression model was significant [ $F(14, 134) = 4.29, p < .001$ ], accounting for 31% of the variance in symptomatology. None of the demographic indicators (i.e., age, years of service, rank, partner status, and number of medical visits) entered in the first block of the regression equation proved to be significant, and they only accounted for six percent of the variance in symptomatology.

Two of the four stress main effects (i.e., work and combat), entered in the second block, were significantly and positively related to post-deployment symptoms. More specifically, the greater the amount of work and combat stress soldiers reported post-deployment, the more symptoms they experienced. The main effects for family-concerns stress, and service- and career-issues stress were not significant. The main effect for perceived organizational support, which was also included in the second block, was not significantly related to the symptoms reported. This second block of main-effect variables explained 23% of the variance in post-deployment symptoms reported.

The third block of this regression, testing the Stress-Buffering Model, revealed that none of the two-way interactions between the various types of military-related stress and perceived organizational support proved to be significant and accounted for only two percent of the variance in symptoms reported. In this case, only soldiers' self-reported work and combat stress levels were associated with their post-deployment symptoms. Perceptions of organizational support

from soldiers' unit, the CF, and the Canadian Government were not associated with post-deployment symptoms. Further, results from the interaction terms of the regression equation indicated there that was no evidence that organizational support reduced post-deployment symptoms for soldiers experiencing higher levels of stress. Thus, in this sample there was no support for either the main effect or stress-buffering effects of organizational support on post-deployment symptoms.

## **2. The Impact of Unit Support on Symptoms**

In the second multiple-regression analysis, perceived unit support was used as the social support indicator (see Table 4). The overall regression model was significant [ $F(14, 148) = 4.89, p < .001$ ], accounting for 32% of the variance in symptomatology. Similar to the previous regression results, none of the demographic variables entered in the first block proved to be significant and accounted for only seven percent of the variance in symptoms reported. Of the variables entered in the second block, testing the main effects of stress on symptoms, only work stress and combat stress were positively and significantly related to symptomatology. The nature of these main effects is as follows: the more work stress and combat stress experienced by soldiers, the more symptoms they reported. No main effects were obtained for family-concerns stress and career- and service-issues stress. Importantly, perceived unit support was not significantly related to symptomatology (i.e., there is no main effect for social support). This second block of variables accounted for 24% of the variance in post-deployment symptoms reported. No support was obtained for the Stress-Buffering Model, as none of the four two-way interactions between stress and perceived unit support were significant. Indeed, this third regression block accounted for only one percent of variance in symptoms reported. That is, perceived unit support did not reduce the negative impact of greater amounts of military service stresses (i.e., combat, family concerns, work, and service and career issues) on soldiers' well-being.

## **3. The Impact of Canadian Forces Support on Symptoms**

The third regression analysis used perceived supportiveness of the CF as an indicator of perceived organizational support (see Table 5). The final regression model was significant [ $F(14, 140) = 5.03, p < .001$ ], accounting for 34% of the variance in symptomatology. None of the demographics variables entered in the first block of the regression equation were statistically significant, accounting for only seven percent of the variance in reported symptomatology. Two of the four types of stress were significantly and positively related to symptoms, i.e., more work stress and combat stress are again associated with greater symptoms reported. The main effects for family-concerns stress and service- and career-issues stress were not statistically significant. The main effect for perceived CF support was also non-significant. This second block of variables accounted for 24% of the variance in symptoms reported. None of the four two-way interactions between the various types of military services stress and perceived support from the CF entered in the third block of variables were statistically significant. Thus, perceived support from the CF was not found to have a main effect or stress-buffering effect. However, in this case greater amounts of work stress and combat stress were related to increased post-deployment symptomatology.

#### **4. The Impact of Canadian Government Support on Symptoms**

The fourth regression analysis focused on perceived support from the Canadian Government (see Table 6). The overall regression model was significant [ $F(14, 136) = 4.47, p < .001$ ] explaining 32% of the variance in post-deployment symptoms. None of the variables in the first regression block, the demographic block, were statistically significant explaining only six percent of reported symptoms. The second block of variables explained almost a quarter of the variance in post-deployment symptoms (i.e., 23%), however this effect was again explained by soldiers' reported stress. Specifically, two of the four stress variables in the second block of this regression were statistically significant, i.e., work stress and combat stress. The main effects for family-concerns stress and service- and career-issues stress were not significant. There was also a lack of evidence for the main effect of perceived support from the Canadian Government on the health symptoms of these soldiers. The third regression block consisted of all possible two-way interactions between stress and perceived support. This block of variables was non-significant, accounting for only two percent of the variance in symptomatology. Thus, no evidence was obtained for the main or stress-buffering effects of perceived support from the Canadian Government. However, greater amounts of work and combat stresses were associated with more post-deployment symptoms.

#### **5. The Impact of Canadian Society Support on Symptoms**

The final regression analysis focused on an indicator of cultural-level social support, i.e., the perceived supportiveness of the Canadian society (see Table 7). The final regression model was significant [ $F(14, 138) = 5.10, p < .001$ ], accounting for 34% of the variance in symptomatology. The main effects for the demographic block of variables were all non-significant and explained only seven percent of the variance in post-deployment symptomatology. As was the case in the previous regression analyses, the main effects of work and combat stresses were the only statistically significant variables in the second block. This block of variables accounted for 24% of the post-deployment symptoms reported. None of the four two-way interactions between the various types of military services stress and perceived support from Canadian society in the third regression block were significant. In total, this final block of variables explained only two percent of variance in reported symptoms. Overall, a lack of evidence was obtained for the main and stress-buffering effects of perceived support from Canadian society; however, greater amounts of work and combat stresses were related to increases in post-deployment symptomatology.

# Discussion

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## Overview

This research sought to assess whether perceived support from the soldiers' unit, CF, the Canadian Government, and Canadian society is related to their self-reported post-deployment symptomatology. Moreover, it sought to test two models assessing how these sources of support might affect reported symptoms. Specifically, does perceived support have a positive effect on symptoms irrespective of the amount of stress experienced (i.e., a main effect) or does perceived support have a positive effect on symptoms only when soldiers are experiencing higher levels of stress (i.e., a stress-buffering effect)? Based on the majority of past research findings, it was hypothesized that perceived support would benefit soldiers' well-being (i.e., less post-deployment symptomatology) irrespective of the amount of stress they experienced, supporting a main effect of social support. However, for completeness, the alternative stress buffering model of social support that suggests that the beneficial effects of social support will be most evident when stress is high was tested. In order to fully address the main research question, other analyses concerning the nature of the social support sources in this sample of CF personnel were also initially undertaken.

## Perceptions of Organizational and Cultural Support

Initial factor analyses revealed that soldiers perceived organizational support was distinct from that of societal support. Moreover, descriptive analyses revealed that soldiers perceived their units to be more supportive than other organizational levels (i.e., the CF and the Canadian Government) and Canadian society. There are a few possible ways in which this finding can be explained. First, perhaps soldiers' units are perceived as being more supportive than sources of perceived organizational and cultural support because they have more day-to-day contact with their units allowing more opportunity for supportive behaviours to be observed. Second, perhaps the sustained contact and familiarity soldiers have with their units enhances their feelings of emotional closeness towards their unit. This, in turn, may enhance soldiers' perceptions of their units' supportiveness. Alternatively, there could be a perceptual bias: support sources with which soldiers are most familiar are simply perceived to be more positive, irrespective of whether they are or are not.<sup>6</sup>

## Post-Deployment Stress

Soldiers in this sample reported experiencing low levels of combat stress and family-concerns stress post-deployment. It is important to remember that soldiers completed the questionnaire within two months of post-deployment. These results could suggest that the post-deployment 'honeymoon' period is still ongoing beyond this stage. Alternatively, it is just as possible that any 'post-deployment' difficulties that soldiers may have experienced have been resolved. This ambiguity in interpreting these results reflects a more general lack of understanding of the

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<sup>6</sup> This trend of viewing closer social support sources as more supportive than more distant sources is also observable when familial support and friend support are considered in the current sample.

temporal course of reintegration, an area that is deserving of greater future research. Moreover, it is unclear if any family or counseling services were used by these soldiers, services which may have reduced or dispelled any stresses these soldiers were experiencing.

Concerning the low levels of combat stress reported by these soldiers, it is also important to note that some of the items encompassed in this subscale are not relevant during post-deployment. For instance, issues such as 'risk of contracting a serious disease' or 'the impact of a different culture' would likely be much less of a concern to soldiers when they are no longer in theatre, thereby lowering their reports of combat stress as assessed by the measure used in the current research. Also, the relatively low levels of combat stress might also reflect the nature of the deployment of soldiers participating in the current research. These soldiers had returned from a deployment to Bosnia in the late 1990s, a relatively calm period in the Balkans. Higher levels of combat stress might well be reported by soldiers who had returned from more intense deployments than the current one.

These soldiers, however, did report moderate amounts of career- and service-issues stress, and work-environment stress two months after their return. In fact, of all types of stress, soldiers reported experiencing the greatest amount of work-related stress (e.g., boredom, control over work, leadership concerns, CF policies that impact on work), and this stress was significantly higher than that associated with other forms of stress (i.e., combat, family concerns, and career and service issues). Also, career- and service-issues stress (e.g., pay, training, postings) were reported as being more of a concern than were other types of stress post-deployment, with the exception of work stress. After returning home and being back in garrison, soldiers are dealing with a change in their work environment. Indeed, compared to the other types of stress, work-environment stress represents more general, work-related concerns that are relevant to individuals in a variety of professions. However, for soldiers having recently returned from a tour, getting re-adjusted to the boredom of a desk job or working with new co-workers may be even more stressful than in other professions because of a dramatic shift from being on tour to being in garrison. In summary, it is not surprising that soldiers report experiencing moderate amounts of these types of work-related hassles, i.e., day-to-day stresses, while having to readjust to garrison life. However, it is important to note that there were strong and consistent relationships between experiencing these stresses and an increase in symptoms for these soldiers. This suggests that these daily hassles do have a significant impact on soldier well-being, which, if left unaddressed, may lead to absenteeism and a lowering of effectiveness and operational readiness. Thus, it may be important for military leaders to consider the issues that consistently cause the greatest stress for their personnel, and work to address and reduce these stresses wherever possible. This may be particularly important in the transition period back to garrison life. This latter issue is also a fruitful area for future research.

## **Stress associated with Military Service and Post-Deployment Symptoms**

Hierarchical regression analyses provided consistent evidence concerning the negative impact of military service-related stress on post-deployment well-being. In particular, greater amounts of work stress corresponded to increased levels of symptoms reported by these soldiers two months after returning from a deployment. Work stress accounted for 5% to 8% of the variance in reported post-deployment symptoms. These findings are not surprising and corroborate past



research indicating that work-related stress (i.e., occupational-role stress) is related to psychological strain in military personnel [16; 38].

Higher levels of combat stress were also related to more post-deployment symptomatology in all the analyses, in spite of the fact that, on average, soldiers in this study only reported experiencing relatively low levels of combat stress post-deployment. Combat stress accounted for 5% to 6% of the variance in report post-deployment symptoms. These findings are important because they suggest that combat stress, even at relatively low levels, has the potential to have some negative consequences for soldiers' post-deployment well-being.

Neither family-concerns stress or service- and career-issues stress were related to post-deployment symptoms in this sample of soldiers. Although these results may simply reflect that these two types of military service stress are not associated with the experience of post-deployment symptoms they may also be a consequence of two statistical issues. First, soldiers in this study reported relatively low to moderate levels of stress, thus restricting the range of stress scores. This was clearly evident in the case of family-concerns stress. Second, most soldiers also reported relatively low to moderate levels of post-deployment symptoms, thus restricting the range of symptom scores. In combination, these restriction of range issues may have resulted in an attenuation of the relationships observed between military service stress, in particular, family-concerns stress, and post-deployment symptoms [39].

## **Main-Effect Hypothesis**

A lack of support was obtained for the Main-Effect Hypothesis. More specifically, increased perceptions of organizational (i.e., unit, CF, Canadian Government) and Canadian society support were not related to fewer post-deployment symptoms in soldiers. These findings are not consistent with past research suggesting that perceived organizational support (i.e., leadership, unit and military support) is related to soldiers' well-being and with organizational outcomes including organizational satisfaction and commitment. In fact, in all analyses conducted, the effectiveness of perceived social support seemed to be overshadowed by the consistent effects of military-related stress.

There are a few possible reasons for the lack of support for the Main-Effect Hypothesis in the current study. First, much of the previous research has focused on more severe post-deployment outcomes such as PTSD [e.g., see 9; 10; 11] as opposed the less severe outcomes such as the health and well-being symptoms that were focus of the current research. Moreover, on average, only moderate amounts of post-deployment symptoms were reported by soldiers in this sample. Thus, this sample represented a largely healthy group, at least as indicated by these self-reports. Perhaps, perceived organizational and cultural support are important resources for soldiers who are experiencing more severe symptoms such as PTSD as opposed to milder post-deployments symptomatology which were the focus of this study.

Second, the null Main-Effect Hypothesis results may have to do with the fact that the sources of military service stress and support may have been the same. Experiencing support and conflict from the same organizational source may have undermined the potential benefits of perceived organizational social support on soldiers' well-being. This reason for the null findings for the Main-Effect Hypothesis is equally applicable to the Stress-Buffering Hypothesis.

Finally, the way in which perceived social support was measured in the current study was problematic. Recall that participants were asked to rate the extent to which various social support sources were perceived as being supportive using a rating scale from “very unsupportive” to “very supportive.” The use of such a rating scale confounds supportiveness with unsupportiveness, which are two different constructs. Past research clearly differentiates these two constructs [e.g., see 40; 41; 42; 43]. In fact, it suggests that although individuals perceived as being supportive are a coping resource, individuals perceived as being unsupportive are actually a source of stress [44]. Thus, the null findings obtained for perceived social support in the current study may well have to do with the way in which perceived social support was measured.

## **Stress-Buffering Hypothesis**

There was also a lack of evidence for the Stress-Buffering Hypothesis, in that none of the 20 statistical interactions assessing the stress-buffering effects of perceived organizational support and perceived societal support proved to be significant. Neither perceived organizational support nor perceived societal support was able to lessen the negative impact of higher levels of work stress, service- and career-issues stress, combat stress, or family-concerns stress on post-deployment symptoms. Although these findings suggest that perceived social support from organizational and cultural sources do not mitigate the negative effects of high levels of military services stress on post-deployment symptoms, they must be interpreted with caution.

It is questionable whether the current study fully permitted the stress-buffering role of perceived social support to be adequately tested. The Stress-Buffering Model states that at high levels of stress, social support will lessen the negative impact that stress has on health and well-being (i.e., fewer symptoms will be reported). However, on average, soldiers reported relatively low levels of combat and family-concerns stress and, moderate levels of work and service- and career-issues stress. Thus, the pre-requisite of higher stress levels necessary to test this hypothesis was not met. Although perhaps unfortunate from a model testing point of view, overall it is very good news that these soldiers were reporting only low to moderate levels of work and service- and career-issues stress.

## **Limitations of the Current Study**

There are three main limitations to the current research. The first has to do with the cross-sectional nature of the data. More specifically, all of the data were collected at one time, thus making it impossible to determine causality, i.e., that the occurrence of one event is caused by another. For example, although the stress associated with military service may have a negative impact on soldiers’ post-deployment psychological well-being (i.e., more symptoms); it may also be the case that soldiers with poorer psychological well-being (i.e., more symptoms) may have perceived their experiences associated with military service in a more negative light than soldiers with greater psychological well-being. To alleviate this problem, future research needs to use a prospective research design wherein data are collected at two time points so that causality can be more adequately assessed.

The second limitation pertains to the fact that the data collected for this study were completed in a group setting. This may have created concern on the part of soldiers completing the questionnaire package with respect to the anonymity and confidentiality of their responses. Ideally,

questionnaires should be completed on an individual basis and not in a group setting; however, in many instances this is not possible. These issues are of importance because they may affect the way in which someone responds to the questions being asked. For example, soldiers may not admit that they are experiencing as high levels of post-deployment symptoms for fear of negative responses from others and/or because they think it may have a negative impact on their career development.

The third limitation, as previously discussed, pertains to the way in which perceived social support was measured in the current research. The current research consisted of secondary data analyses performed on an existing data set. Unfortunately, the measure of perceived social support used was less than desirable because it was actually measuring two distinct constructs, perceived supportiveness and perceived unsupportiveness [40]. This problem may have contributed to the non-significant findings obtained for perceived social support.

## **Future Research**

The current research suggests that even low levels of stress, in particular, combat stress, can be associated with the experience of post-deployment symptoms. Given this finding, more research needs to be done assessing various factors, not just perceived social support, that may be able to mitigate the negative effects of stress in soldiers. Along with this, complimentary research focusing on stress prevention needs to occur.

The current research asked soldiers about their perceptions of the supportiveness of various organizational sources. On average, many soldiers perceived various organizational sources to be supportive, however, some did not. Although not directly addressed in this research, one possible explanation for these results is that some organizational sources may be perceived as being supportive or not based on whether they adequately met soldiers' needs. More specifically, some researchers suggest that in order for perceived social support to lessen the negative impact of stress on well-being, it must match the needs elicited by the stressful event [1; 2]. Future research could specifically examine the areas in which soldiers' needs are met and the areas where they are not. For example, do married or partnered soldiers perceive that current CF policies adequately meet their needs for material support, i.e., financial, child care, housing, etc. Also, are the support needs of single soldiers being met by the military? This is an important issue to address in light of suggestions that recruits may lack support (Whitehead, September, 10<sup>th</sup>, 2003, personal communication). At this time, it is not known whether CF recruits are entering the military without adequate levels of support or whether this occurs as a consequence of being in the military, e.g., moving around a lot so they are unable to maintain longer term relationships, or some combination of these explanations. Information obtained regarding the needs of soldiers that are not adequately met could be used to tailor programs and services geared to meet these needs. For example, perhaps peer support programs could be developed to help alleviate a lack of support recruits may experience. This type of research is important because it would provide more information on factors affecting soldiers' perceptions of organizational support, which is the first step towards determining possible ways of directly enhancing these perceptions, and, thus, indirectly enhancing organizational commitment.

## **Conclusions**

Overall, there was a lack of support for the Main-Effect Model and for the Stress-Buffering Model. Strong and consistent support was obtained for the negative impact of military stress, in particular, work and combat stress, on soldiers' self-reported post-deployment symptomatology. Nonetheless, further research exploring the role of perceived organizational support and perceived societal support during various phases of the deployment cycle and on a wider range of positive and negative outcomes related to personal and operational effectiveness is recommended.

*Table 1. Demographic Breakdown of Soldiers Participating in Research*

<b>Variable</b>	<b>Category</b>	<b>N</b>	<b>%</b>
Sex (n=202)	Males	198	98
	Female	2	1
	Not reported	2	1
Age (n=202)	17 – 21 yrs	4	2
	22 – 26 yrs	80	40
	27 – 31 yrs	65	32
	32 – 36 yrs	43	21
	37 yrs and older	7	3.5
	Not reported	3	1.5
Marital status (n =202)	Married/partner	125	62
	Single	62	31
	Separated	7	3.5
	Other	7	3.5
	Not reported	1	0.0
Number of dependents (n =202)	None	113	56
	1 dependent	40	20
	2 dependent	31	15
	3 dependent	10	5
	4 dependent	3	1.5
	Not reported	5	2.5
Rank (n =202)	Privates	43	21
	Junior NCM	157	78
	Not reported	2	1
Years of Military Service (n =202)	4 yrs or less	51	25
	5 - 9 yrs	84	42
	10 – 14 yrs	40	20
	15 yrs or more	20	10
	Not reported	7	3

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**Table 2. Descriptive Information for Stress, Support, and Symptom Variables**

	1	2	3	4	5	6	7	8	9	10
Family Concerns Stress (1)	1.00									
Work Stress (2)	.33***	1.00								
Service/ Career Stress (3)	.23**	.67***	1.00							
Combat Stress (4)	.31***	.22**	.27***	1.00						
Organizational Support (5)	-.04	-.39***	-.27***	-.02	1.00					
Unit Support (6)	-.10	-.32***	-.16*	-.06	.90***	1.00				
CF Support (7)	-.06	-.37***	-.28***	-.02	.95***	.80***	1.00			
Cdn. Gov't Support (8)	-.01	-.37***	-.29***	-.02	.91***	.68***	.82***	1.00		
Canadian Society (9)	-.03	-.32**	-.31**	0.00	.56***	.41***	.52***	.60***	1.00	
Symptoms (10)	.36***	.42***	.26***	.36***	-.21**	-.27***	-.15*	-.17*	-.07	1.00
Mean	7.89	22.72	13.53	8.49	7.19	2.58	2.40	2.22	2.32	52.16
SD	3.89	8.50	5.51	4.09	2.16	0.73	0.81	0.81	0.72	13.19
<p><u>Notes:</u> Cdn. Gov't Support = Canadian Government support            *p&lt;.05; ** p&lt;.01; *** p&lt;.001</p>										

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*Table 3. Summary of Hierarchical Regression Analysis Assessing the Impact of Organizational Support and Stress on Symptomatology*

<b>Block</b>	<b>Variable</b>	<b>Beta</b>	<b>T</b>	<b>P</b>	<b>R<sup>2</sup> Change By Block</b>
1	Age	-0.03	-0.30	N.S.	
	Years of Service	0.14	1.09	N.S.	
	Number of Medical Visits	0.10	1.33	N.S.	
	Rank	-0.08	-0.85	N.S.	
	Partner Status	0.11	1.44	N.S.	0.06
2	Family-Concerns stress (A)	0.16	1.92	N.S.	
	Work Stress (B)	0.39	3.67	<0.001	
	Service/Career-Issues Stress (C)	-0.22	-2.20	N.S.	
	Combat Stress (D)	0.25	3.23	<0.01	
	Organizational Support (E)	-0.06	-0.77	N.S.	0.23
3	A x E	0.09	1.11	N.S.	
	B x E	-0.04	-0.38	N.S.	
	C x E	0.03	0.30	N.S.	
	D x E	-0.15	-1.87	N.S.	0.02
Total Model: $F(14,134) = 4.29, p < 0.001$ ; Total $R^2 = 0.31$					

Table 4. Summary of Hierarchical Regression Analysis Assessing the Impact of Unit Support and Stress on Symptomatology

Block	Variable	Beta	T	P	R <sup>2</sup> Change By Block
1	Age	0.02	0.13	N.S.	
	Years of Service	0.08	0.65	N.S.	
	Number of Medical Visits	0.10	1.46	N.S.	
	Rank	-0.06	-0.66	N.S.	
	Partner Status	0.09	1.12	N.S.	0.07
2	Family-Concerns Stress (A)	0.16	2.00	N.S.	
	Work Stress (B)	0.34	3.42	<0.01	
	Service/Career-Issues Stress (C)	-0.20	-2.03	N.S.	
	Combat Stress (D)	0.24	3.29	<0.01	
	Unit Support (E)	-0.10	-1.30	N.S.	0.24
	A x E	0.12	1.46	N.S.	
	B x E	-0.09	-0.86	N.S.	
	C x E	-0.00	-0.01	N.S.	
	D x E	-0.07	-0.84	N.S.	0.01
Total Model: F(14,148) = 4.89, p<0.001; Total R <sup>2</sup> = 0.32					

Table 5. Summary of Hierarchical Regression Analysis Assessing the Impact of Support from the Canadian Forces and Stress on Symptomatology

Block	Variable	Beta	T	P	R <sup>2</sup> Change By Block
1	Age	-0.02	-0.16	N.S.	
	Years of Service	0.14	1.08	N.S.	
	Number of Medical Visits	0.11	1.55	N.S.	
	Rank	-0.7	-0.86	N.S.	
	Partner Status	0.12	1.57	N.S.	0.07
2	Family-Concerns Stress (A)	0.18	2.27	N.S.	
	Work Stress (B)	0.41	4.08	<0.001	
	Service/Career-Issues Stress (C)	-0.21	-2.15	N.S.	
	Combat Stress (D)	0.25	3.37	<0.001	
	Canadian Forces Support (E)	-0.02	-0.32	N.S.	0.24
	A x E	0.10	1.23	N.S.	
	B x E	0.03	0.35	N.S.	
	C x E	0.01	0.08	N.S.	
	D x E	-0.16	-2.06	N.S.	0.03
Total Model: F(14,140) = 5.03, p<0.001; Total R <sup>2</sup> = 0.34					

Table 6. Summary of Hierarchical Regression Analysis Assessing the Impact of Support from the Canadian Government and Stress on Symptomatology

Block	Variable	Beta	T	P	R <sup>2</sup> Change By Block
1	Age	-0.04	-0.36	N.S.	
	Years of Service	0.16	1.25	N.S.	
	Number of Medical Visits	0.10	1.35	N.S.	
	Rank	-0.08	-0.96	N.S.	
	Partner Status	0.13	1.62	N.S.	0.06
2	Family-Concerns Stress (A)	0.16	1.98	N.S.	
	Work Stress (B)	0.40	3.97	<0.001	
	Service/Career-Issues Stress (C)	-0.20	-1.98	N.S.	
	Combat Stress (D)	0.24	3.22	<0.01	
	Canadian Government Support (E)	-0.07	-0.99	N.S.	0.23
	A x E	0.04	0.49	N.S.	
	B x E	-0.04	-0.37	N.S.	
	C x E	0.08	0.83	N.S.	
	D x E	-0.17	-2.26	N.S.	0.03
Total Model: $F(14,136) = 4.47, p < 0.001$ ; Total $R^2 = 0.32$					

Table 7. Summary of Hierarchical Regression Analysis Assessing the Impact of Support from Canadian Society and Stress on Symptomatology

Block	Variable	Beta	T	P	R <sup>2</sup> Change By Block
1	Age	-0.01	-0.10	N.S.	
	Years of Service	0.13	1.03	N.S.	
	Number of Medical Visits	0.11	1.48	N.S.	
	Rank	-0.08	-0.94	N.S.	
	Partner Status	0.13	1.66	N.S.	0.07
2	Family-Concerns stress (A)	0.15	1.84	N.S.	
	Work Stress (B)	0.43	4.22	<0.001	
	Service/Career-Issues Stress (C)	-0.21	-2.05	N.S.	
	Combat Stress (D)	0.28	3.66	<0.001	
	Canadian Society Support (E)	0.06	0.80	N.S.	0.24
	A x E	0.04	0.52	N.S.	
	B x E	-0.06	-0.59	N.S.	
	C x E	0.11	1.05	N.S.	
	D x E	-0.17	-2.23	N.S.	0.02
Total Model: F(14,138) = 5.10, p<0.001; Total R <sup>2</sup> = 0.34					

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(U) The first few months after returning home, soldiers are adjusting to being back with their family, in garrison, and in their home country. Are factors such as perceptions of a supportive organization or society able to make this transition a little easier? This research sought to address this issue by assessing the impact of perceived organizational support (i.e., unit, Canadian Forces, Canadian government) and perceived cultural support (i.e., Canadian society) on post-deployment symptomatology. Two main hypotheses were assessed in this research. The first was whether greater amounts of perceived support (both organizational and cultural) were related to lower levels of post-deployment symptoms, irrespective of the amount of stress experienced (i.e., the Main-Effect Hypothesis). The second, alternative hypothesis was that greater amounts of perceived organizational and cultural support would reduce reports of symptoms, but only at higher levels of stress (i.e., the Stress-Buffering Hypothesis). Soldiers completed a questionnaire package within two months after returning from a deployment in Bosnia. Neither the main effect, nor the stress-buffering effect was supported. However, greater amounts of perceived work stress and combat stress were associated with the experience of higher levels of post-deployment symptoms in this sample.

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(U) stress, social support, symptoms

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