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## Experiences of critical incidents among female and male firefighters



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## ABSTRACT

**Background:** A critical incident is defined as an event stressful enough to overwhelm the usually effective coping skills of an individual. Firefighters are frequently exposed to critical incidents that might have consequences for individuals and their performance in organization.

**Aim:** The aim of this study was to describe experiences of critical incidents among female and male Swedish firefighters.

**Method:** In all 180 participants (16 women, 164 men) who had been involved in up to 25 critical incidents during the last year responded to a survey describing critical incidents experienced in the past year. A qualitative content analysis identified several areas for improvement in firefighters' working conditions.

**Results:** Female firefighters were terse in describing their experiences, while the men described their experiences of critical events more vividly. The critical incidents described by the firefighters concerned such overwhelming situations as traffic accidents, huge fires, and other fatal incidents such as drownings and suicides. Risk of delay due to lack of equipment training and lack of medical education was mentioned. Lack of resources and organizational problems was mentioned as causing risks of failure. Several firefighters expressed frustration over being assaulted and threatened, or exposed to other kinds of violence. Not knowing how close, physically or mentally, one can get to people during ongoing rescue can lead to unsuccessful operations.

**Conclusions:** Gender patterns should always be taken into account, making it possible for all firefighters to express and reflect on existentially tough experiences. Education needs to focus more on medical and mental health issues. Firefighters were sometimes exposed to the difficult challenge of violence and assault during rescue operations. The complexity of this problem needs to be highlighted, not only in firefighter organizations, but also in society in general.

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## 1. Introduction

Because firefighters are frequently exposed to critical incidents (Beaton et al., 1999) that might have consequences for them as individuals and for their performance in the organization, they are of interest in highlighting experiences of incidents described as severe or critical. This study will give special attention to experiences of critical incidents among Swedish firefighters.

The profession of firefighting is gendered; in Sweden and many other countries it has traditionally been an arena for white working-class men to attain significant social status without completing higher education (Baigent, 2001; Chetkovich, 2004; Ericson, 2004; Glans and Rother, 2007). Recent efforts to recruit women and culturally diverse personnel aim to make the work more egalitarian

(Ministry of Industry, 2005, Proposition 2005/06:155). In their daily work, Swedish firefighters are expected to rescue people, property, and animals in various situations, to give first aid to patients at the site of accidents, to perform conventional fire extinction, and sometimes to be exposed to smoke and heat (Glans and Rother, 2007). Physical exercise, equipment checks, and team training are common in their daily work, and they are increasingly engaged in fire prevention work in cooperation with others (Swedish Parliament, 2003, p. 778). New demands for diversity among operational staff, such as employing more women and people with various ethnic backgrounds, have been met with resistance and suspicion among many firefighters (Ericson, 2004; Häyrén Weinstäl et al., 2011). Repeated and varied attempts to meet these new demands and requirements have not produced lasting results and progress has been slow (Ericson, 2004; Glans and Rother, 2007). The demands for increased diversity among fire personnel and other changes call for individual as well as team development in operating rescue teams and departments, which may result in increased uncertainty and

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stress in addition to the daily stress firefighters experience from critical incidents in rescue situations.

A critical incident can be defined as an abrupt and powerful event that falls outside the range of ordinary human experiences and is stressful enough to overwhelm the usually effective coping skills of an individual (Mitchell, 1986; Mitchell and Everly, 1993). Critical incidents in emergency services are defined as personal loss or injury, traumatic stimuli, mission failure, or human error, and often imply contact with dead or severely injured children (Harris et al., 2002). Critical incidents faced by firefighters include motor vehicle accidents, burned bodies, chemical hazards, life-threatening situations, suicides, failed rescue efforts, dangerous fire suppression scenarios, knowing the victim, and witnessing the death of a co-worker (Beaton et al., 1999; Lim et al., 2000).

Critical incidents are stressful, and people involved in such situations may need support to minimize the risk of burnout. These events can have a strong emotional impact on even the most experienced rescue personnel (Bryant and Harvey, 1995; Burns and Rosenberg, 2001; Lim et al., 2000). Posttraumatic stress and psychological dissociation have frequently been reported among rescue personnel. Post-traumatic stress disorder (PTSD) is an emotional illness classified as an anxiety disorder involving intense fear, helplessness, or horror that usually develops as a result of a terribly frightening, life-threatening, or otherwise highly unsafe experience (American Psychiatric Association, 2000). A study of 358 rescue workers from California reported that younger people and those who reported greater exposure to critical incidence stress and felt greater threat were at higher risk for peritraumatic dissociation and post-traumatic stress disorders. They also scored lower on adjustment, identity, ambition, and prudence on a personality inventory. External locus of control, greater feelings of perceived threat, and use of avoidant coping strategies were more significantly associated with dissociation than age and exposure to stress (Marmar et al., 1996).

Critical incidents are common and stressful in firefighting and increase health risks such as PTSD among emergency personnel. To improve efficiency in critical situations, education is mainly focused on team training, and little attention has been paid to individual and gendered experiences prior to, during, and after incidents. In order to improve the preparation of firefighters, we need more knowledge about women's and men's experiences of critical incidents. The aim of this study was to describe experiences of critical incidents among female and male Swedish firefighters.

## 2. Method

### 2.1. Setting

The Swedish Civil Contingencies Agency is responsible for organizing the Swedish fire and rescue sector and for developing both individuals' and society's abilities to prevent and deal with emergencies and crises. Firefighters work in full-time, part-time, and volunteer positions. Full-time firefighters have two years of post-secondary training. In Sweden about 2% of firefighters are women, and firefighters from ethnic minority groups are too few to be measurable as a percentage.

### 2.2. Sample

This study is part of a larger survey focused on the health and work environment of firefighters in Sweden. A total of 882 randomly selected Swedish male firefighters working full time and all women working full time as firefighters in Sweden ( $n = 60$ ) were invited by letter to answer a questionnaire. The participants were identified through trade association records and through direct contact with those rescue stations not represented in the registry. Of those invited, 476 firefighters (54%; 418 men, 58 women) re-

sponded after four reminders. Mean age for the total group 40.9, sd 12.8 and the length of employment was 11.6 years, sd 10.2. For the purpose of this study, respondents were asked to answer an open question about their experiences of critical incidents in the past year. In all, 180 participants (44%; 164 men, 16 women) answered the question and estimated that they had been involved in critical incidents 1–25 times during the previous year. The mean age was 40.7 years, sd 10.2 and the length of employment was 12.8 years, sd 10.4 ( $n = 119$ ). Notably the dropout rate when calculating mean age is 34% ( $n = 61$ ) due to missing data regarding age and length of employment.

### 2.3. Procedure

Data collection began in January 2010 and ended in June 2011. A package including an invitation letter, information about the study, and the self-administered questionnaire was sent to 882 firefighters in Sweden. Participants sent the questionnaire back to the authors in a prepaid envelope. The study was approved by the Regional Ethics Review Board in Umeå, Sweden (No 08-186M). Participants were told about confidentiality, and informed consent was obtained from each of them. This study was part of a comprehensive research project (Nordic Safety and Security) concerning emergency personnel's work environment throughout the European Union. The study was supported by grants from the European Union (Dno: 41 952).

### 2.4. Data collection

In the overall study, the participants were asked to complete a set of well-evaluated scales, consisting of established and tested instruments regarding mental health and psychosocial work environment. For the purpose of this study we included one open question asking participants to describe in detail critical incidents experienced during the previous year. The question had two parts:

- How many times during this past year have you in your profession experienced situations that you characterize as critical incidents?
- Could you please describe such situations?

### 2.5. Analysis

The answers to the latter part of this particular question were analyzed using qualitative content analysis (Graneheim and Lundman, 2004; Krippendorff, 2004). Qualitative content analysis moves back and forth from data to analysis, as researchers compare, discuss, and come to agreement about the findings in a process intended to strengthen the credibility of the analysis. We conducted an initial, thorough reading of the written answers and then divided the text into domains based on the sex of the participants. We identified meaning units responding to the aim, condensed them while retaining the core content, labeled them with a code describing the content, and organized the codes into categories based on their similarities and differences. To ensure trustworthiness, we discussed findings and interpretations through all steps in the process.

## 3. Results

The results are presented first with an overall introduction of the gender patterns in the answers. The contexts of various critical incidents are then described and labeled according to the codes and categories shown in Table 1.

Overall, we found that male firefighters generally expressed a more private and existential experience of critical incidents, while women gave a somewhat more distanced, descriptive, and ab-

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