



## Methodology Article

# Impacts of Stress and Coping Strategies Among Firefighters in the City of Conakry in 2021

Habib Toure<sup>1,\*</sup>, Toure Cheik Amadou<sup>1</sup>, Bah Hassane<sup>1</sup>, Ndiaye Mor<sup>2</sup>

<sup>1</sup>Department of Occupational and Legal Medicine, University Gamal Abdel Nasser, Conakry, Guinea

<sup>2</sup>Department of Occupational and Legal Medicine, University Cheikh Anta Diop, Dakar, Senegal

### Email address:

habibidja2007@yahoo.fr (Habib Toure)

\*Corresponding author

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**Abstract:** Introduction: Firefighters are soldiers involved in the front line of the rescue chain in Conakry. They may face stressful situations during their mission. The objective of this study was to determine the repercussions of stress on firefighters and the way in which they preserved their psychic balance. Materials and methods: This was a cross-sectional, descriptive study conducted in the Conakry Fire and Rescue Company. The information collected from firefighters victims of stress were: socio-professional characteristics, repercussions of stress and the management strategy developed. Results: The study involved 38 stressed firefighters, all male. Age mean was 30.6 years. The majority were single (55.2%). Stress impacted negatively on their mental health (anxiety, insomnia), their social life (disruption of family homeostasis, drug and alcohol consumption) and companionship (absenteeism). The coping strategies developed by these professionals to manage their stress were social support (50%), emotion-focused coping (44.8%) and problem-focused coping (28.9%). Conclusion: Stress negatively impacts the mental health and operability of firefighters. Monitoring and regular psychological preparation are necessary as well as improving the working conditions of firefighters.

**Keywords:** Occupational Stress, Firefighters, Impacts, Coping, Social Support

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## 1. Introduction

Firefighting is one of the most physically and psychologically demanding professions in the world [1]. Several authors have identified the particularly difficult working conditions of this profession, which is often surrounded by dangerous elements (fire, electricity, chemicals, toxic fumes) [2, 3]. Indeed, firefighters are exposed to the risk of injury, burns and sometimes even near death. The dangerous nature of their profession makes them highly vulnerable to stress, the extreme manifestation of which is burnout syndrome. The latter is more likely to occur in professions with a high level of interpersonal and emotional involvement [4]. Occupational stress also has a negative impact on relational dynamics and worker performance [5]. In the face of these risks, firefighters develop a range of technical and psychological coping strategies. Among these strategies,

the strength of the work collective is one of the most widely used means of defense. It enables them to confront the dangerous reality of exposure by transforming it into a warlike context marked by challenge and group success [1]. The aim of this study was to determine the impact of stress on these firefighters and how they maintained their psychological equilibrium despite the risks.

## 2. Materials and Methods

Type and period of study: this was a cross-sectional, descriptive study conducted from April 03, 2021 to May 12, 2021.

- 1) Study setting: The study was carried out in the 62nd Fire and Rescue Company of the city of Conakry. The company's mission is to manage rescue services and protect people in distress throughout Conakry.

2) Study population: firefighters affected by stress constituted the study population.

*Inclusion criteria:* professionals present at the time of the survey and having agreed to participate were included.

*Non-inclusion criteria* Absent firefighters and those who did not wish to participate were not included.

Data collection: interviews were conducted using an anonymous questionnaire providing information on the socio-professional characteristics of firefighters affected by stress (age, gender, marital status, years of experience, rank), the impact of stress (psycho-physiological, social, professional) and the management strategy developed by these professionals (social support, emotion-focused coping, problem-focused coping). - Data processing The data collected were entered and processed on Excel version 2013. - Ethical considerations: this study was approved by the Groupement d'Incendie et de Secours staff.

Free and informed consent was obtained from participants. Anonymity and confidentiality were respected.

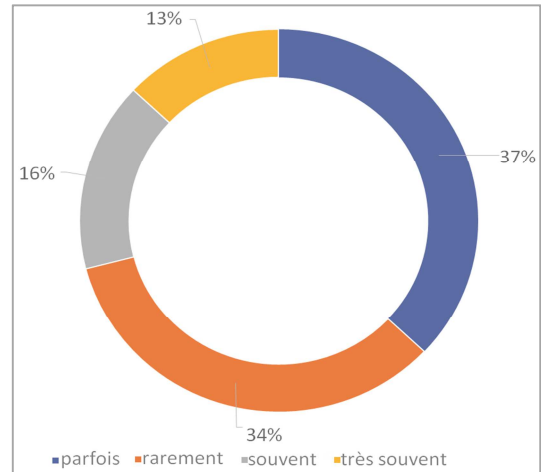
### 3. Results

Socio-professional characteristics: 38 male firefighters affected by stress were included in the study. The average age was 30.6 years. The majority were single, accounting for 55.2% (n=21). The married represented 44.8% (n=17). Average years of experience were 8.1 years. Men from the ranks were more numerous (76.3%).

**Table 1.** Distribution of firefighters affected by stress by rank.

Rank	numbers (n)	Percentages (%)
Non - commissioned	29	76,3
first class	20	52,7
Civill servants corporals	2	5,2
Corporals	2	5,2
Master corporals	5	13,2
Non -commissioned officers	9	23,7

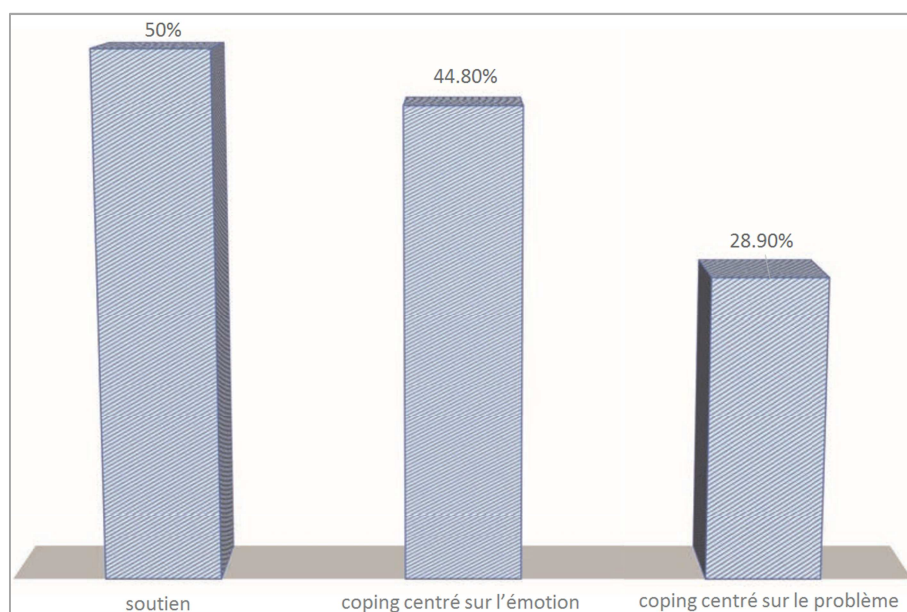
Rank	numbers (n)	Percentages (%)
Sergeants	5	13,1
Chief Sergeants	2	5,2
Warrant officier	1	2,7
Chief warrant officier	1	2,7
Total	38	100



**Figure 1.** Distribution of firefighters by degree of stress.

Stress affected these firefighters to varying degrees. Psycho-physiological, social and occupational repercussions were listed.

1. Psycho-physiological:
2. Anxiety affected 36% of professionals;
3. The prevalence of insomnia was 39%.
4. Socially, 16% of stressed firefighters were affected:
5. Ten percent (10%) listed family dysfunction,
6. Six percent (6%) of firefighters were alcohol and drug abusers.
7. On a professional level, the rate of stress-related absenteeism was 6%.



**Figure 2.** Stress management strategies developed by firefighters.

Most firefighters, 92.1% (n=35), had stress management strategies in place. These strategies were used regularly by 86.9% (n=33). They were used occasionally by 2.6% (n=1) and rarely by 2.6%.

Social support was the most widely adopted adjustment strategy (50%) (cfr figure 2).

## 4. Discussion

Our study population consisted exclusively of men, as there were no women in this company. This is still a very male-dominated profession, despite the gradual recruitment of women into the military ranks [6]. The recent feminization of military personnel in Guinea and the hostile ecological conditions explain this observation. The personnel were relatively young, with an average age of 30.6. In contrast, the average age of Guinean military personnel on mission in Darfur was 40 [7].

The proliferation of gold-panning sites has considerably increased the variety of risks. New threats linked to mining and the densification of road traffic make the assistance situation worrying. We are witnessing an increase in accidents, fires and people in distress. The constant state of alert in which these professionals find themselves is a permanent stress factor. Prolonged exposure to suffering, violence and the reality of death is a factor of vulnerability, and can generate psycho-emotional and/or psycho-behavioural manifestations [8]. Psycho-physiological disorders were the most common repercussions of stress in our survey (anxiety, insomnia). A similar finding was observed in France, during a survey carried out among firefighters. The results showed that 49% had difficulty falling asleep, and 37% had restless nights. Professional dreams were found in 22% of firefighters [9].

Another French study by Perrot highlighted the appearance of signs of anxiety in the pre-operational phase, and an increase in its intensity in the operational phase.

Added to this are the effects of sleep deprivation, associated with difficulty in getting back to sleep after 5 a.m. in the post-operational phase [10]. This profession exposes us to the risk of confrontation with exceptional situations, due to their emotional intensity and/or arduousness [11]. We also noted social dysfunction (10%) and a tendency to use drugs and alcohol (6%), which are thought to be linked to occupational stress. Indeed, this stress reinforces the deterioration of parental and marital responsibility, by reducing interaction between the professional and his or her family [12]. On a professional level, we have observed an absenteeism rate of 6%, which is correlated with stress. It has been shown that stress in the workplace has consequences for work organization [13]. A stressful work environment increases absenteeism and disrupts work organization. What's more, it increases the desire for structural transfers or even reconversion.

To cope with stress, firefighters patiently develop know-how and collective defense strategies. Seeking social

support from colleagues was the most elaborate adjustment strategy in our study. This strategy involved enlisting the sympathy and help of others. The primordial importance of peer support in firefighting explains the proportion of professionals who turned to colleagues for support in coping with stress (50%).

This is a profession where mutual support, mutual assistance and good social relations between colleagues are at the heart of their daily work. Colleague support is an essential aspect of this profession. Solidarity and team spirit are fundamental values in this profession. After a major intervention, firefighters have recourse to psychological debriefing, which is vital in managing post-intervention stress. Its aim is to reduce the onset of psychological disorders by fostering a better understanding of the traumatic event and the responders' reactions to develop adjustment strategies. Topics covered include team cohesion, the ability to verbalize emotions, and conflict management. This strategy seems to be an effective way of dealing with prolonged dysfunction after a traumatic crisis, provided the discussion is led by the right people at the right time [14].

In contrast, Lavullinière's study identified problem-focused coping as the response most frequently used by firefighters to cope with stress.

This type of coping is a management response oriented towards controlling the stressful situation. It aims to reduce the level of stress emanating from the event and/or to increase one's own coping resources. It involves taking action to resolve the problem. Studies indicate that problem-focused strategies are functional and associated with positive mental health indicators [15].

Emotion-focused coping came in 2nd place (44.8%). This adjustment strategy aims to manage emotional responses induced by the situation. Emotions can be regulated in a variety of ways (emotional, physiological, cognitive, behavioral). Firefighters adopting this strategy used alcohol and tobacco consumption, as well as distracting activities (physical exercise, television) to reduce fear and reinforce ardour. Sometimes, emotions were expressed through anger and anxiety. A coping strategy is effective if it enables the individual to control the stressful situation and/or reduce its impact on his or her physical and psychological well-being.

## 5. Conclusion

Stress has a negative impact on firefighters' mental health and operability. It also disrupts family homeostasis, particularly for couples. Firefighters develop a range of coping strategies. Medical services in charge of firefighters should include a psychological health assessment as part of their annual check-ups. Improving working conditions is also crucial to reducing psychological suffering.

## Conflicts of Interest

The authors declare no conflict of interest.

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## Biography

**Habib Toure:** Occupational physician assistant head of clinic at the Faculty of Medicine of Conakry, Chair of Legal Medicine, Occupational Health Ethics and Toxicology, Faculty of Medicine, Pharmacy and Odontology, Gamal Abdel Nasser University of Conakry, President of the company Guinean Occupational Health and Safety Professionals (SOGUIPROSST).