



Promoting Occupational Safety, Health, and Well-Being in Emergency Medical Services

Susanna Mattila¹, Ismo Kinnari¹, Sari Tappura¹(✉), and Mervi Lehto²

¹ Tampere University, 33014 Tampere, Finland

{susanna.mattila, ismo.kinnari, sari.tappura}@tuni.fi

² Oriveden Sairasautopalvelu Ky, 35100 Orivesi, Finland

mervi.lehto@ensihoidoorivesi.com

Abstract. The work of emergency medical service (EMS) workers is physically and mentally stressful. EMS workers sustain more occupational injuries than the general working population. At the same time, small and medium-sized enterprises (SMEs) typically suffer from a lack of time and competence in managing occupational safety, health, and well-being (SHW). The aim of this study was to investigate and promote the SHW of EMS workers in a small Finnish company. Data were collected through interviews, a survey, and a workshop. The results showed that SHW stress factors were mainly related to work ergonomics, physical workload, and the threat of violence. During the workshop, measures to promote SHW were suggested, and a related action plan was devised. This study provides knowledge regarding SHW risks, resources, and stress factors in EMS work and suggests measures for promoting SHW. The results can be used in EMS and other health-care organizations.

Keywords: Occupational safety, health and well-being · Emergency medical services · Small and medium-sized enterprises · Risk assessment

1 Introduction

When promoting safety in health-care and emergency medical services (EMS), the focus has traditionally been on patient safety [1]. However, the work in EMS is physically and mentally stressful and may negatively affect the occupational safety, health, and well-being (SHW) of employees [1–3]. According to a British study [4], the mental health and well-being of EMS personnel appear to be compromised.

EMS workers have higher levels of occupational injuries than the general working population in the private sector [5]. They also face risks of physical overexertion from patient handling, dangers from roadway incidents, verbal abuse and physical violence by patient, the threat of violence, and possible symptoms of post-traumatic stress disorder [2, 6–9]. The psychological burden of EMS professionals is particularly high, as they are exposed to situations that involve high emotional stress levels [3]. This may negatively affect not only their own SHW but also patient safety [3].

At the same time, small and medium-sized enterprises (SMEs) are characterized by a higher injury frequency than larger companies, especially when considering fatal

accidents [10]. The traumatic fatality rate in small businesses is significantly higher than in larger ones [11]. According to a Danish empirical study, the physical work environment is more hazardous in small enterprises, and the quality of occupational health and safety (OHS) management systems and workplace assessment are worse in small than in large enterprises [12]. Small enterprises typically suffer from a lack of resources, time and competence in managing occupational safety and health [13].

According to OHS regulations in Finland [14], employers must identify hazards caused by work, working hours, work environments, and working conditions. They must also assess the risks to employees' health and safety if the hazards cannot be eliminated. Moreover, they are obligated to analyze workload factors that endanger employees' health and eliminate or reduce the risks. They must also organize adequate orientation for the employees.

Based on a Finnish study [1], employers should provide proper personal safety equipment for all employees and take workers' well-being into account in governance. Immediate supervisors' positive attitude toward safety affects employees' working methods. It suggests to study safety in EMS further, for example the role of employer, supervisors and employees in promoting safety. There is still a need to promote SHW in EMS and in SMEs. The aim of this study was to investigate and promote the SHW of EMS workers in a small Finnish company.

2 Materials and Methods

The case company of this study was a small Finnish private EMS company that is willing to promote its employees' SHW. The company has 22 employees and two employer representatives, all of whom participated in the study. Two temporary employees also participated. The orientation process of this company has an occupational safety component, which includes the threat of violence. Moreover, there are clear procedures for violent situations, which are regularly reviewed.

The researchers coordinated the development process of SHW action plan and data collection. Data were collected through an e-survey, interviews, and a workshop during November and December 2020. Participants were informed ethics of the study and they signed the consent for participation.

A descriptive analysis of the gathered data was performed. The aim of the survey and interviews was to identify areas that needed to be discussed and developed in the workshop.

The questionnaire used for the survey was based on the Risk Assessment in Workplaces Workbook [15]. It consisted of 25 SHW risk items, including physical work environment and working conditions, chemical and biological hazards, and physical and psychosocial loads. Each item was rated on a three-point scale, where 1 represented *risk exists and needs to be managed*, 2 represented *risk is under control*, and 3 represented *no risk*. The questionnaire was distributed to all employees and to two employer representatives, and 26 completed questionnaires were returned. One of the questionnaires was completed in group work with the participation of the employer and occupational safety and health representatives.

Three group interviews were conducted with employee representatives ($n = 8$) and one with the employer. They were semi-structured interviews based on a theoretical

framework of concepts of structural empowerment (opportunity, information, support, resources, formal power, and informal power) and psychological empowerment (meaning, confidence, autonomy, and impact). The concept of empowerment was based on Laschinger et al. [16], who showed that empowerment directly affects job strain and job satisfaction. The interviews concerned SHW resources and stress factors originating from work, the work community, and the worker.

A remote workshop was organized in collaboration with the employees and the employer with 24 participants to discuss the results of the survey and the interviews and co-creatively develop an action plan to promote SHW. After the workshop, feedback questionnaires were sent to the participants.

3 Results

3.1 Interviews

The results of the three group interviews showed that a sense of work community and a good work atmosphere were considered key job resources. A low worker turnover and the relatively small size of this work community contributed to the emergence of a team spirit and open dialogue. The interviewees also emphasized that they treated each other fairly and equally irrespective of education, work role, or form of employment. Some interviewees likened the work community to a family where even difficult issues could be openly discussed. The value of positive verbal feedback and the desire to have more in the work community was another pattern emerging from the interviews. Participants also noted that work shifts were arranged with people who knew and understood each other well. Moreover, interviewees positively noted that wishes concerning days off were taken into consideration and managed flexibly.

Physical stressors at work that were highlighted in the interviews included lifting and carrying patients without proper lifting equipment and in difficult environments, work ergonomics, irregular working hours, long shifts, and prolonged sitting during work shifts. There was also a feeling of haste in the work, while others reported feeling burdened by remaining idle for long periods.

Potentially violent situations caused mental strain. Many interviewees reported that they discussed situations that they encountered with their work partners and other colleagues while still on the shift. It was also possible to request a defusing discussion based on a defusing method, for which there were trained instructors in the work community. Good atmosphere and receiving social support were strongly emphasized as important for a harmonious work community.

Interviewees considered the development of work-related skills important and reported that the employer promoted it efficiently. In addition to personal study, the work community organized training sessions and encouraged the acquisition of new professional qualifications. Interviewees described a culture of open discussion that fostered learning, new ideas, and opportunities for development, although some felt that their ideas and suggestions for development were not always heeded.

3.2 Survey

Respondents felt that risk management needed to be improved in several areas, including the threat of violence, harassment and other inappropriate behavior, awkward work postures, manual handling and moving of objects or patients, insecure job contracts, possibility to breaks during work shift and work pace, social and ethical load (work includes demanding human relations or difficult value judgment), and the risk of infection. The numbers of respondents rating each item as 1 (*risk exists and needs to be managed*) are shown in Fig. 1.

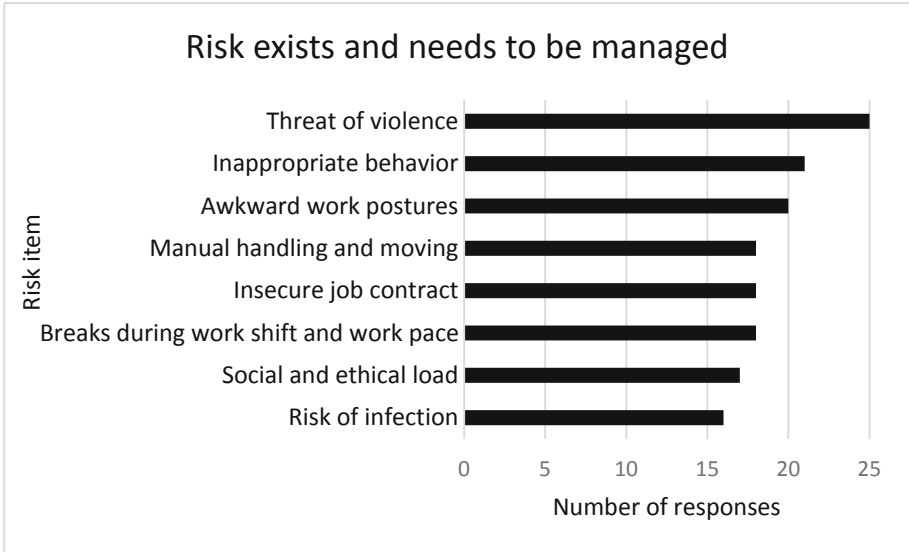


Fig. 1. Risks that needed to be managed according to most respondents.

3.3 Workshop

The interview and survey results were presented in a workshop and discussed in small groups. The main themes of the discussions were 1) work environment and tools, 2) contents of the work and work arrangements, and 3) work community. The participants suggested several development actions pertinent to each theme and finally selected the most relevant for further development. Based on the discussions, the following actions were decided, and responsible persons or teams were assigned:

- Assuming responsibility: clearer definition of work roles and responsibilities
- Communication: improvement of the communication process (what, when, and to whom to communicate) and feedback system
- Durability of tools: purchase of durable tools

- Orientation/introduction to equipment and tools: improvement of the orientation process
- Self-directed review of instructions: development of rules for regular self-directed reviews

It was decided that the development actions would be evaluated in the near future. Based on the feedback, the participants perceived the workshop and group discussions as pleasant and interactive even though they were conducted remotely. Moreover, they felt that they were able to participate in the suggestions and decisions on the development actions.

4 Discussion

This study was conducted to investigate and promote the SHW of the EMS personnel of a Finnish company. There are both physical and psychological risks involved in EMS work [1–9]. According to OHS regulations [14], employers must conduct risk assessments and take actions to minimize the risks to employees' safety and health, as well as providing orientation. With regard to ergonomics, employers must provide appropriate devices and guidance to employees to minimize the risk of physical overexertion. On their part, employees must follow the employers' instructions and ensure their fitness for work.

The results of the survey showed that almost all respondents felt that their work involved risks related to the threat of violence, inappropriate behavior, and awkward work postures that needed to be managed. The employees believed that risks could be managed through training and developing procedures for such situations. The questionnaire thus functioned as a risk assessment tool for the company [14]. The fact that the entire personnel participated in the survey offered a comprehensive picture of the risks in the company.

The results of the interviews also showed that SHW stress factors were mainly related to work ergonomics, physical workload, and violence or the threat of violence. The most valuable SHW resources were a sense of community, a good work atmosphere, and social support from coworkers and managers. This is in line with a Finnish study on EMS that reported that most respondents were content with their work shifts and related planning and with the workplace atmosphere [1]. According to the same study, most respondents had encountered violence or the threat of violence, and almost half of them had sustained injuries due to lifting or moving during the previous 12 months.

The SHW development actions were co-created with the employees in a workshop based on the group interview and survey results. An action plan was collectively devised based on the most relevant development actions. The selected actions were related to responsibilities, communication, tools and equipment, and regular reviewing of instructions. All actions will be promoted by the teams responsible for ensuring the realization of the development plan. The development actions differed from the development needs that emerged from the survey and interviews. This may indicate that the employees consider them occupational safety and health issues and therefore the responsibility of the employer. Issues related to well-being might be perceived as easier to tackle through collaboration in the workplace. Moreover, the theoretical framework of the interviews

was based on the theory of organizational and psychological empowerment [16]. In contrast, despite discussing several themes related to empowerment in the interviews, the workshop focused more closely on practicalities rather than organizational changes in general.

The development actions devised in the workshop had some differences to an earlier Finnish study [1]. The earlier study emphasize training but in our study the development action considered independent reviewing of instructions. Most respondents in that larger study [1] had received adequate equipment orientation, but orientation to equipment and tools was one of the development actions in our study.

This study has some limitations. First, it involved only one SME. Although the entire personnel responded to the questionnaire and participated in the workshop, the number of participants was still low and the results cannot be generalized to all EMS organizations. Moreover, the development period was quite short, and the development has not yet been evaluated. The realization of the development actions will be evaluated by the company in the near future. However, this is beyond the scope of this study.

Despite its limitations, this study provides valuable knowledge regarding SHW risks, resources, and stress factors in EMS work and suggests measures for promoting SHW. The results can be used by EMS organizations and SMEs and may also be useful for other health-care organizations.

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