Tailoring Psychosocial Risk Assessment in the Oil and Gas Industry by Exploring Specific and Common Psychosocial Risks

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Abstract

Background: Psychosocial risk management [Psychosocial Risk Management Approach (PRIMA)] has, through the years, been applied in several organizations in various industries and countries globally. PRIMA principles have also been translated into international frameworks, such as PRIMA-EF (European framework) and the World Health Organization Healthy Workplace Framework. Over the past 10 years, an oil and gas company has put efforts into adopting and implementing international frameworks and standards for psychosocial risk management. More specifically, the company uses a PRIMA.

Methods: This study explores available quantitative and qualitative risk data collected through the PRIMA method over the past 8 years in order to explore specific and common psychosocial risks in the petroleum industry.

Results: The analyses showed a significant correlation between job resources and symptoms of work-related stress, there was a significant correlation between job demands and symptoms of work-related stress, and there were differences in psychosocial risk factors and symptoms of work-related stress onshore and offshore. The study also offers recommendations on how the results can further be utilized in building a robust system for managing psychosocial risks in the industry.

Conclusion: The results from the analyses have provided meaningful and important information about the company-specific psychosocial risk factors and their impact on health and well-being.

1. Introduction

Many of the changes that have surfaced in recent years in relation to the organization of work have been associated with the emergence of psychosocial risks. The World Health Organization (WHO) and the European Agency for Health and Safety at Work (EU-OSHA) reported that psychosocial hazards are linked to the experience of work-related stress, being the second most prevalent work-related health problem, affecting 22% of workers in the European Union (EU) [1–3].

A poor psychosocial work environment can also be related to the development of ill health due to long-term exposure to poor working conditions. An extensive number of articles have been published on psychosocial factors and how they correlate with psychological and physiological outcomes [3–5]. Psychosocial risks in the oil and gas industry can have a significant impact on health and safety outcomes and must be handled in the same way as other operational risks. Investigations and research related to occupational accidents in recent years have shown them to be associated with underlying factors related to the organization, design, and management of work (also called psychosocial risks) [2,3,6–23].

These results show that psychosocial risks affect not only the health and safety of individuals, but also the health of the organization. The work context differs in the oil and gas industry depending on whether it is onshore or offshore. As such, the risks and its impact on health and well-being are also different; e.g., offshore work is

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physically demanding, employees are exposed to hazards such as noise, vibrations, shift work, long working days, and chemical exposure [24]. A study conducted by Bjørkan [25] showed that offshore workers perceived significantly more hazards associated with the work and experienced less control over the work pace compared to onshore workers. Onshore workers experienced significantly more pressure at work and view their work tasks as more repetitive. Differences in health perceptions were identified in terms of job type in the onshore and offshore groups, respectively [25].

In addition, the management and development of employees are now recognized as one of the main success criteria for organizational performance. A successful organization identifies the importance of investing in human resources [26]. An important contributor to this knowledge is the increasing amount of research exploring the link between job engagement and potential positive consequences on health, productivity, quality, and motivation. The Job Demands–Resources (JD-R) model was introduced as an alternative model of employee well-being to established models such as the job demand–control model and the effort–reward imbalance model [18]. In the JD-R model, working environment factors are divided into job resources and job demands [27]. Job demands refer to physical, psychological, mental, and/or psychological costs (e.g., work overload, job insecurity, and role ambiguity). Job resources refer to physical, psychological, social, or organizational features of a job that help achieve goals at work, reduce job demands, and stimulate employee growth and development [27].

Over the past 8 years, a multinational oil and gas company has put efforts into adopting and implementing international frameworks and standards in the area of psychosocial risk management. The company has implemented a psychosocial risk management system and adheres to good practice according to PAS1010, the first guidance standard on the management of psychosocial risks in the workplace [28, 29]. Since 2007, psychosocial risk assessment has been applied in different business areas in the company. Currently, the company is in the process of improving various parts of the management system and is looking at opportunities to simplify and streamline the risk assessment for the psychosocial work environment. In order to ensure organizational learning and improve the way risk assessments are conducted, available qualitative and quantitative risk data collected through psychosocial risk assessments were assessed.

The purpose of this study was to explore the available risk data collected through the psychosocial risk management process over the past 8 years in order to explore specific and common psychosocial risks to the oil and gas industry. Based on the JD-R theoretical model and empirical findings related to psychosocial factors, work-related stress and its impact on health [3], the following four hypotheses were formulated:

**Hypothesis 1.** There will be differences in the psychosocial risk factors experienced by onshore and offshore workers.

**Hypothesis 2.** There will be differences in the symptoms of work-related stress experienced by onshore and offshore workers.

**Hypothesis 3.** There will be a significant correlation between job resources and symptoms of work-related stress, so that increased job resources will be associated with decreased symptoms of work-related stress.

**Hypothesis 4.** There will be a significant correlation between job demands and symptoms of work-related stress, so that increased job demands will be associated with increased symptoms of work-related stress.

## 2. Methods

### 2.1. The company context

This study was carried out in a Norwegian oil and gas company, which included data from offshore and onshore environments. The largest activities for this company are located in Norway, with about 20,000 employees around the globe. It is a license holder in numerous oil and gas fields, and the onshore facilities are active within such areas as gas treatment, crude oil reception, refinement, and methanol production. The activities in this industry involve a range of health and safety risks including fires, falling objects, hydrocarbon leakages, explosions, and work-related illness. When errors are made in these workplaces, the consequences can be devastating [30]. Employees in the oil and gas industry are exposed to a number of physical and psychosocial stressors, including cramped physical environments, long work shifts, isolated location, noise, vessel motion, heavy physical work, hazardous work operations, and lack of privacy [31–34]. These rather challenging work environmental conditions have a potentially adverse influence on well-being and health. However, there are also several positive aspects at platforms offshore. Employees spend a lot of their time with other colleagues with whom they often build social relationships. Employees working offshore have long periods off work and when they are at work they have several benefits such as good-quality food, good fitness facilities, and movie theaters. Furthermore, the work can be perceived as meaningful as the personnel work at the sharp end, seeing the immediate connection between their effort and the result—obtaining the oil and gas from the reservoir. These aspects may positively influence well-being, engagement, and health among the workers [35]. In recent years, the company has worked systematically to integrate principles for managing psychosocial risk [36]. As such, the measures and data used in this study were part of a larger psychosocial risk assessment and follow-up.

The company’s psychosocial risk management framework is based on the principle of prevention in line with the control cycle, and it aims at risk reduction. It is a systematic process by which hazards are identified, risks analyzed and managed, and workers protected [28]. The risk assessments and follow-up are applied in order to obtain a more complete risk picture and enable the organization to implement improvement initiatives. The procedures used in the risk assessment are in line with the method originally described by Cox et al in 1983 [37]. The risk assessments assess psychosocial risk factors that may cause work-related stress and ill health. They use various tools, both tailor-made and standardized. A questionnaire survey provides quantifiable data on the antecedents and consequences of work stress. It contains both tailored measures of work organization and practices, and standardized measures of symptoms of general well-being. The risk assessment mainly covers two parts; (1) assesses the possible sources of work stress; (2) measures the possible consequences of a poor working environment, i.e., symptoms of work-related stress [38]. Based on the results from the risk assessment, mitigating actions are initiated and followed up in the respective units.

### 2.2. Sample

Data selection included 12 different samples from different risk assessments and different locations (offshore and onshore). The sample size varied in the different samples, ranging from 50 to 351 employees. From these 12 samples, there are five offshore (788 respondents) and seven onshore (1,024 respondents) datasets. In total, there are 1,812 respondents. The risk data have been stored in a company’s internal database over the past 8 years.
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