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An Occupational Profile of People Injured in Accidents at Work in the Polish Construction Industry

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Abstract

The construction industry in Poland and in the world is characterized by a high level of threat to the life and health of workers. In accident processes, a man exists in a triple role, namely: a decision maker, a perpetrator of an accident and a victim. Statistical data published by the Central Statistical Office regarding the causes of accidents indicates that human causes account for around 60% of all reported cases. Identification of the factors affecting the accident rate and also the direct causes of accidents is the first step in determining the directions of preventive action.

The aim of the research conducted by the authors of this article is to present the occupational characteristics of people injured in accidents at work in the Polish construction industry. The article presents the results obtained from the analysis of occupational accidents that occurred in the years 2008-2014 in five voivodships of Poland, namely: Kujawsko-Pomorskie, Slaskie, Lubelskie, Dolnoslaskie and Lubuskie. The paper identifies and examines the impact of the following characteristics: the employment status of a victim, occupation, age, length of service, preparation of the employee to perform duties at a workplace and the size of an enterprise in which the accident took place. 485 occupational accidents were analysed, 37% of which were fatal accidents, 61% were severe, and 2% were light.

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1. Introduction

In accident processes, a man can be seen in a triple role, namely: a decision maker, a perpetrator of an accident and a victim. Statistical data published by the Central Statistical Office on the causes of accidents indicate that human causes account for about 60% of all reported cases [1].

Haslam et al. [2], based on 100 individual construction accidents that occurred in the UK, found that the most common causes of accidents result from, among others, the incorrect organization of the work of an individual employee and working teams - 70%, as well as the improper equipment of employees and the non-use of protective equipment by employees - 56%.

The identification of factors that affect the accident rate in the construction industry, and also the direct causes of accidents, are analysed by many researchers. This problem was dealt with by, among others, Camino López et al. [3]. They conducted an analysis of 1 630 452 occupational accidents that occurred in the Spanish construction industry between 1990 and 2000. As a result of this analysis, 18 different factors were identified and analysed, such as: age, gender of an employee, type of contract signed with an employer, length of service, number of employees in an enterprise, type of activity, material factors related to an event, geographic location, etc. Similar research was described in works [4,5,6,7,8].

Research conducted by Smolarz [9] showed that the most frequently observed irregularities on construction sites in Poland were the lack of proper preparation of employees to perform work and the lack of medical certificates stating that there are no contraindications to work on a specified job post.

The analyses conducted by Drozd [10] concerned the importance of construction site characteristics and employee behaviour in defining the circumstances of occupational accidents. The author modelled factors that determine the behaviour of construction workers during the execution of works and also distinguished the factors that characterize the injured person, namely: the population of employees - age, length of service; preventive actions - trainings; and also the individual characteristics (behaviour) of employees - psychophysical state. Appropriate organization of the construction process and proper selection of subcontractors of construction works has a big impact for safe construction work [11,12,13].

The purpose of the research that was conducted by the authors of this article was to define a general professional profile of an employee who is most likely to have an accident in the Polish construction industry. Post accident protocols obtained from the archives of the National Labour Inspectorate were the source of information regarding injured people.

2. Research methodology

Post accident protocols prepared by labour inspectors contain extensive information about an accident, its circumstances, causes and also the injured person. The data for analysis was obtained from 461 post accident protocols. The analyzed cases occurred in the years 2008-2014 in five voivodships of Poland: Kujawsko-Pomorskie, Silesian, Lubelskie, Lower Silesian and Lubuskie. The total number of people injured in occupational accidents was equal to 485, of which 37% were fatal accidents, 61% were severe, and 2% were light.

On the basis of the analysis of post accident protocols, the occupational profile of the employee who has an accident at work in the construction industry was created. In the post accident protocols, to each person o_l ($l = 1, \dots, L$) that was injured in an occupational accident that occurred in the analysed time interval, the following individual characteristics were assigned:

- employment status according to law,
- occupation performed by an injured person,
- length of service,
- age of the victim,
- preparation of an employee to perform duties at a workplace.

The vector of the general characteristics of each employee can be presented as follows:

$$o_l = [f_l, z_l, s_l, w_l, p_l], l = 1, \dots, L, \quad (1)$$

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