

Psychosocial Risks Associated with the Profession of Train Driver

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Abstract. Excellent competencies as well as a good physical and mental health are required in train drivers' profession. Despite the changes in the structure of employment the train drivers above 46 years and job tenure longer than 30 years are the largest group. The generation gap is becoming more pronounced, and its fulfilment will not be easy. It is related not only to training of new personnel but also promotion of healthy work environment focus on reducing occupational stress. The aim of study was twofold. Firstly, identification of psychosocial risks and sources of occupational stress in relation to health of employees will be performed. Secondly, the methods of reducing with occupational stress in train drivers' profession will be indicated. In study presented here the qualitative method was applied. We have conducted the focused group interview among train drivers and instructors. The results have shown that more important source of occupational stress were the failure of the material factor, workload, role conflict, working time and care of trainees. Results of our previous study based on the individual reviews have indicated that traumatic stress associated with fatal incidents and people under train were significant occupational risk in train drivers' profession. Organizational resources such as competencies and knowledge of experience train drivers can be helpful in health promotion and development of methods reducing occupational risk. Safety climate, risk assessment, and the acquisition of new personnel require new actions and improvement. Management style more focused on the human factor should be preferred.

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Introduction

The train driver's job requires a high degree of professional competence and good physical and mental health. Despite changes in the structure of employment, the largest group of employees remain those who are over 46 years of age and have over 30 years of professional experience. A generation gap that simply cannot be filled is more and more evident. It is associated not only with the training of new personnel, but also the promotion of a healthy working environment, with a focus on reducing psychosocial risks. The purpose of this article is twofold. Firstly, it will endeavour to identify sources of psychosocial risk, including sources of occupational stress, related to the health of drivers. Secondly, it will advise on ways in which the psychosocial risk in the group of professional train drivers can be limited.

Occupational psychosocial risks

Jobs contain many psychosocial aspects that can be a source of risk to employees. These form one of the major challenges in the contemporary management of work and in ensuring its safety. Psychosocial risks arising in the workplace are different from the risks associated with physical, chemical and biological factors. They largely relate to the relationship between the worker and the work itself

and participants in the work process. Psychosocial risks associated with the work involve the probability of risks arising from the content of the work and its social and organisational context. Their effect may give rise to psychological trauma or a deterioration of physical and psychosocial well-being.¹

Psychosocial risks can be associated with both the content and conditions of work and its organisation.^{2,3} Psychosocial risks related to the content of jobs are directly dependent on the professional tasks undertaken. The job description associated with these tasks may be vague or poorly defined. Furthermore, the work may not provide sufficient job satisfaction; its lack of diversity, fragmented nature and lack of purpose give rise to an environment where the workers do not feel responsible and are not interested in the results achieved. Another risk may arise from the monotony of the work, especially when repeated over short cycles or carried out at an imposed rate. Excessive duties, such that staff members are under strain, are a fairly common phenomenon affecting the contemporary labour market. Work overload is closely related to the pace of its implementation. There are a great number of tasks to be performed in a short time and to a deadline. Additionally, the risk may be increased by material factors, including outdated and poorly maintained equipment. A time-related work framework is also a source of psychosocial risks. Here, the following can be mentioned: shift work and night work, working overtime, extended shifts and working anti-social hours interfering with private life. In summary, psychosocial risks related to the content of work relate primarily to occupational requirements, temporal issues and material factors.

Other types of risk are related to the organisation of work. These include all aspects of work management arising from planning, organising, supervising and motivating. Therefore, the organisational culture is of importance, the effect of which should result in defined goals and objectives, strategy and the mission of the organisation. Organisational culture creates an umbrella for the coherent functioning of the organisation and engagement of its participants. Risks resulting from organisational roles are most of all: role overload (an excess of tasks and responsibilities), role conflict and role ambiguity. Another consequence of organisational culture is interpersonal and social relationships. These not only include relationships with superiors and colleagues but also relationships with customers and people from other organisations. These relationships can lead to difficulties in communication and interpersonal conflicts. A very important organisational resource is social support at work. Psychosocial risks connected with the running of the organisation concern the promotion of this employment, which in turn is related to salary, opportunities for advancement, job prestige and job security. Overall, the risks arising from the organisation of work are a derivative of the efficiency of business management.

¹ Leka S, Griffiths A, Cox T, Work organisation and stress: systematic problem approaches for employers, managers and trade union representatives. Protecting workers' health series, No. 3. Nottingham: Institute of Work & Health Organisation, University of Nottingham, 2003.

² Leka S, *et al.*, *op.cit.*

³ WHO, Zarządzanie ryzykiem psychospołecznym — ramowe podejście europejskie. Wskazania dla pracodawców i reprezentantów pracowników. Warsaw: Centralny Instytut Ochrony Pracy, 2009.



The job of the train driver — individual and organisational conditions

The job of a train driver requires high professional competence and good state of mental and physical health. These allow the driver to deal effectively with the risks arising from the requirements of the work environment (for example, the monotony of the environment and work responsibilities, vibration and noise) and psychological requirements (involvement in traumatic accidents).^{4,5} In order to work as a train driver one has to acquire the necessary skills confirmed by obtaining a license. To maintain the validity of a driver's license and thus continue to work in this profession, the employee must submit to periodic medical fitness assessments.⁶ According to research by the Central Institute for Labour Protection,⁷ particularly unfavourable changes affecting the rapid loss of ability to work with the age concern professions characterised by shift work, working overtime, exposure to noise and vibration, and a high level of stress. Due to the age and experience level in the railway companies, managing the human factor is important because the cost of finding and training a new employee can greatly exceed the costs associated with improving working conditions and retaining experienced personnel.

In previous years, employment in the railway companies fell steadily.⁸ Recently, the PKP Group has improved the structure of employment in respect of qualifications and age. More and more candidates are young and have higher education. However, the largest group of employees remain those over 46 years of age and having work experience of over 30 years. On the one hand, the professional experience of drivers is increasing but, on the other hand, their age can be connected with a deterioration of their health, both mental and physical. As a result, the problem of the aging of train drivers as a professional group can cause difficulties in the organisation of work. The fact that the percentage of young people is small means that, over time, there will be fewer people able to work as a train driver. This may result in a generation gap which will not be easy to bridge. For this reason, knowing that in this occupational group the effect of the generation gap will be most apparent, PKP Cargo is running a large-scale training programme for train drivers.⁹

⁴ Mehnert A, Nanninga I, Fauth M, Schäfer I, Course and predictors of posttraumatic stress among male train drivers after the experience of 'person under the train' incidents. *Journal of Psychosomatic Research*, 2012, Vol. 73, No. 3, pp. 191–196.

⁵ Theorell T, Leymann H, Jodko M, Konarski K, Norbeck, H.E, "Person under train" incidents from the subway driver's point of view — a prospective 1-year follow-up study: the design, and medical and psychiatric data. *Social Science & Medicine*, 1994, Vol. 38, No. 3, pp. 471–475.

⁶ Rozporządzenie Ministra Infrastruktury z dnia 18 lutego 2011 roku w sprawie licencji maszynisty. Dz.U. [Official Journal of Laws] No. 66 item 346 of 2011-03-29, pp. 4194–4210.

⁷ Bugajska J, Makowiec-Dąbrowska T, Konarska M, Zapobieganie wcześniejszej niezdolności do pracy: założenia merytoryczne. Warsaw: Centralny Instytut Ochrony Pracy, 2008.

⁸ Grupa PKP, Raport roczny 2013. *Electronic source*: http://pkpsa.pl/grupa-pkp/raporty/raport_roczny_grupa_pkp_2013-web.pdf, accessed: 10.05.2016.

⁹ PKP Cargo, Skonsolidowany raport roczny grupy kapitałowej PKP Cargo za rok 2014. Warsaw, 12 March 2015.



Psychosocial risks arising from accidents involving persons

In the history of Polish railways there have been many tragic accidents. The greatest catastrophes are considered those that resulted in large numbers of dead and injured victims, as well as considerable material damage. As is clear from the reports of the State Commission for the Investigation of Railway Accidents¹⁰, railway disasters happen much more often in Poland than in other EU countries. To a large extent this is the result of negligence in the field of safety and deterioration of infrastructure, equipment malfunctions and the age of rolling stock. The report of the Office for Railway Transport¹¹ shows that the largest numbers of accidents are those caused by vehicles in motion, involving the participation of third parties and at level crossings. The injured include both persons unauthorised to enter the locality of the railway and railway workers. These accidents account for the majority of fatalities and injured persons. Special cases include those involving people who attempt suicide. Despite technical and technological progress railway accidents involving people cannot be avoided. Participation in railway accidents and dealing with their consequences is a feature of the profession of a train driver.¹²

In the Polish literature so far, research on psychosocial hazards and their effects on train drivers has not been presented. The issue of train drivers' mental strain and weariness has been discussed.¹³

Individual interviews conducted by the Authors among experienced train drivers¹⁴ showed that half of them had more than one accident involving people. The most stressful moment for the train drivers involved actions taken immediately at the location of the accident (being interviewed by the police, establishing the cause of the accident, being breathalysed for alcohol, the need to continue driving after the accident). After the completion of the post-accident proceedings the conclusions included in the report aroused little interest on the part of the train drivers. Among the psychological symptoms of traumatic stress which occurs after incidents of this type, the symptoms of flashback, arousal and avoidance dominate but which later subside. Support from colleagues was important and appreciated, whereas support from superiors was assessed as insufficient. The subject of occupational stress among train drivers is not usually touched on. However, train drivers expect that, due to the occupational stress, their health will deteriorate after they retire from the job.

¹⁰ Sitarz M, Chrużik K, Wachnik R, Bezpieczeństwo w transporcie kolejowym Unii Europejskiej. Raport 2012, Technika Transportu Szynowego, 2012, Vol. 5–6, pp. 62–69.

¹¹ Urząd Transportu Kolejowego, Wstępna ocena funkcjonowania rynku transportu kolejowego oraz bezpieczeństwa ruchu kolejowego w Polsce za 2008 rok, 6 marca 2009. *Electronic source*: <http://www.utk.gov.pl/pl/aktualnosci/422,Wstepna-ocena-funkcjonowania-rynku-transportu-kolejowego-oraz-bezpieczenstwa-ruc.html?search=26421>, accessed: 10.05.2016.

¹² Theorell T, *et al.*, *op.cit.*

¹³ Koterba J, Paluch R, Obciążenie fizyczne i psychiczne maszynistów elektrowozów, [in:] Marek T, Ogińska H, Pokorski J (Eds), *Ergonomia transportu*. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego, 2001, pp. 147–158.

¹⁴ Basińska B.A, Reczek O, The aftermath of „person under train” incident: drivers' perspective on post-event procedures, distress, and support. Manuscript submitted, 2015.



Lack of such research means that the steps taken to promote health at work among train drivers are inadequate and therefore do not meet the criteria for efficient management.

Method

In order to identify sources of psychosocial risks, including occupational stress, a focus group interview on the general conditions, content and organisation of work of drivers of rail vehicles was conducted.¹⁵ This method of qualitative research is conducted according to a prepared scenario. The theme is presented by a moderator who leads the interview, and facilitates interaction between participants.

The discussion, in the form of one session, was conducted with a group of invited drivers and instructors, selected according to the criteria resulting from the objectives of the research (at least 5 years professional experience as a rail vehicle driver). The meeting, organised with the active assistance of the trade unions, was held in one of the companies of PKP S.A. (*translator's note: Polish State Railways Joint Stock Company*). The discussion group consisted of 10 participants, including 8 drivers and 2 instructors. Each of them had more than 10 years of seniority in the job of a train driver. The meeting lasted all day, and the discussion itself over 4 hours (using extended interview). The discussion was recorded in writing¹⁶, allowing the authentic statements of the participants to be quoted.

Findings

The issue that was raised most frequently was the lack of the modern equipment which is used in the European Union. This minimises the possibility of human error and thus increases the level of safety. The following examples were given:

"Probably the cause of the accident was a burned out light bulb, which meant that the driver did not slow down from 120 to 40 kph. An ETCS system would cause automatic deceleration of the vehicle in spite of a faulty signal and the accident would not have happened."

"Modern locomotives are equipped with GPS systems, but this is not a standard fitment either, and the driver in the cabin does not see, for example, whether there is an obstacle on the track."

Another important issue in the course of the discussion was the defect rate in the infrastructure and rolling stock. The age of the machines and the quality of the tracks also do not help in the work of a train driver.

The changes and upgrades gradually introduced resulted in disproportionate growth, in relation to previous years, in the number of works on the tracks. This made it necessary to introduce special written instructions relating to restrictions on

¹⁵ Bryman A, Social research methods. Oxford: Oxford University Press, 2012.

¹⁶ Reczek O, Projekt zarządzania stresem traumatycznym na stanowisku maszynisty pojazdu trakcyjnego. MSc thesis. Gdańsk: Politechnika Gdańska Wydział Zarządzania i Ekonomii, 2012.



the route. The participants pointed to the length of these instructions and the lack of time to read them.

“The problem is that they are printed for the train driver just before each journey, they amount to a large number of pages, so it is not possible to read them before driving. During the journey the train driver must keep an eye on departure and arrival times, check at which station he stops, observe the track and signalling, receive instructions from the dispatcher and, on top of this, read the lists of restrictions. With that amount of information it is easy to make a mistake.”

Attention was drawn to the issue that, for financial reasons, train drivers prefer to drive on their own. However, for reasons of safety, among others, it would be better to work in teams of two. This is especially the case with night work, when the feeling of weariness increases and attention span decreases.

“The wish of train drivers would be to get wages at a level that would compensate for the huge responsibility and the increasing number of duties. An important issue in this case is the introduction of an allowance for one-person operation, which for passenger trains is 30%, but in the case of cargo trains as much as 70% of base rate.”

In this context, there is a problem concerning the training of new employees. If a train driver gets paid more for one-person operation, then he is not properly motivated to work together with an assistant driver. This limits the opportunities for new employees to gain the necessary experience.

Qualifications of candidates for train drivers are particularly relevant in the context of lack of railway education and training. Instructors spoke negatively about the skills of candidates for this position:

“These people are not prepared for this profession from the beginning, but they are train enthusiasts who think that one can prepare to work on the locomotive by reading about railways on the Internet. There is no adequate recruitment and incentives for young people to work on the railways; if there were more candidates, then it would be possible to select the appropriate ones from among a larger number of people.”

During the discussion the job of a train driver was compared to the job of a professional motor vehicle driver. Participants pointed to the discrepancy in respect of working time between these jobs:

“The train driver works up to 12 hours without a break, while drivers have requirements that do not allow uninterrupted driving for so many hours. Apart from this, there is a matter that no one speaks about: irregular working hours which can cause digestive disorders, and yet in the train driver’s cab there is no bathroom and no option for stopping. Small things like these also cause discomfort.”

One of the companies has introduced the possibility of taking a two-week medical rehabilitation holiday:

“Each train driver can take it once in every three years. It is funded by the employer, but the days are taken off the holiday leave that those working 12 hour shifts are entitled to, that is an additional 12 days a year. But it is not an obligatory programme and was not the employer’s initiative but a matter of a corporate collective labour agreement won by the trade unions, so it is only present in one company”.



The discussion touched upon organisational changes in the PKP which led to the emergence of a number of companies, each responsible for a different aspect of railway traffic.

“This creates serious problems even in the course of the investigation into the cause of the accident, because it does not lead to establishing what had happened but shifting the blame for it from one company to another, which ultimately has to pay compensation. This shows once again the way the driver is neglected, because he is always the first one to blame.”

The discussion also addressed the issue of periodic medical check, particularly in the area of mental health. Train drivers unanimously stated that it was extremely stressful for them. Psychologists professionally connected with the railway occupational health care are expected to perform to high ethical standards, so as to command the confidence of train drivers.

Along with the topics addressed during the discussions that aroused negative attitudes and feelings, drivers also spoke about the positive sides of the job. First of all mention was made of the friendly atmosphere that prevails between the train drivers. Despite the time spent together at work, they gladly meet outside of work as well. Train drivers said in some ways it is their method of dealing with stress and relieving emotions.

Discussion

The results obtained in the group discussion showed that the most serious psychosocial risks in the train driver's job include unreliable infrastructure, work overload and excessive responsibilities, role conflict, working time and training of new personnel. In a previous study, based on individual interviews, it was shown that the symptoms of post-traumatic stress related to accidents involving people are an important occupational hazard in the work of train drivers.

Basically the problem of occupational stress is simply not acknowledged, and this is due to the fact that it is not talked about. Current priorities of managers and insufficient resources mean that the issues of psychosocial risk management are sidelined. This will have to change, because soon there will not be enough competent and experienced staff. In seeking new employees the company can provide them with better working conditions in order to increase its attractiveness on the labour market.

Psychosocial risk management

Psychosocial risks and the hazards that they bring with them can be translated into individual, organisational and social effects. Therefore the management of psychosocial risks is very important for the functioning of the organisation. This is particularly the case in respect of occupations associated with high psychosocial risk, or in those occupations where these risks are widespread, intense and therefore the resulting negative consequences are highly probable. The proposed model of social risk management¹⁷ is based on a cyclical course of action: risk assessment,

¹⁷ WHO, *op. cit.*



planning activities, implementation of interventions, monitoring and evaluation of the changes, and gaining organisational skills through making beneficial changes.

Occupational risk assessment, the basic element of risk management, is not limited to the identification of threats, but it also aims to clearly define the potential impact and losses, as well as methods of prevention. Three courses of action can be taken in the management of psychosocial risks: elimination of the risk from the working environment, application of preventive measures (prevention) and the use of protective measures against their effects (prevention and treatment).

Managing the specific psychosocial risks related to accidents involving people should be taken into account. Based on the results of the Authors' previous studies the effects of participation in such events for the health of train drivers and the quality of the performance of their duties have been shown. Consequently, a wider range of preventive measures should be undertaken. This applies above all to education in respect of traumatic stress and its consequences. Train drivers must have a knowledge of the symptoms of stress and how to deal with them. They should also know what professional help involves and when to use it. It is also worth broadening in a professional way the knowledge of the management staff and those responsible for health and safety in this area. Also, occupational health services activities should clearly take into account the psychosocial factors present in the work of train drivers. Here the practice applied in other countries may be a good example.

Directions for change

Based on the studies conducted among train drivers, three areas that need improvement have been identified. These are the management, health and safety and staff.

Inadequate action in the area of management concerns the building of safe working environment by treating safety as a value in itself, and a management style that, in its focus, is inadequately balanced between the job responsibilities and the human factor. The actions on the part of employers are mainly focused on job responsibilities, and not on the capabilities of employees.

The second area is directly related to occupational health and safety and, above all, occupational risk management. A modified occupational risk assessment form should include new information such as the risk associated with participation in cases involving human beings, the effect of which may be symptoms of traumatic stress, and psychosocial risks arising from daily responsibilities. Besides, changes are needed in post-accident procedures designed to protect the mental health of train drivers. Furthermore, it is important to more thoroughly familiarise train drivers with the risk assessment charts associated with their positions, as well as with the changes introduced. Also, it is important that such issues as stress, as well as the risks resulting from it and how it can be prevented, are discussed during training, along with the possibilities of resorting to specialist help and support.

The third area, which is related to human resources, is primarily the need for more intensive measures aimed at promoting the job of a train driver and recruitment of new personnel.



Conclusions

In summary, the results of the focused interviews conducted with a group of train drivers showed that the most serious sources of occupational stress are unreliability of the infrastructure, excessive responsibilities, role conflict, working time and training new personnel. The previous study, based on individual interviews, showed that post-traumatic stress related with accidents involving people is an important occupational risk in the train drivers' job. Improvement is required in respect of activities aimed at creating a safe working environment, focus on human resources management, occupational risk assessment and the recruitment of new personnel. Competences and knowledge of experienced train drivers are important resources in the development of the organisation, which can be used to promote health and reduce occupational risks.

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Streszczenie. W zawodzie maszynisty wymagane są wysokie kompetencje zawodowe oraz dobry stan zdrowia fizycznego i psychicznego. Pomimo zmian w strukturze zatrudnienia, w dalszym ciągu najliczniejszą grupą są pracownicy wieku powyżej 46 lat oraz ze stażem zawodowym ponad 30 lat. Coraz bardziej widoczna jest luka pokoleniowa, która w prosty sposób nie będzie



możliwe do wypełnienia. Jest to związane nie tylko z kształceniem nowych kadr, ale również promocją zdrowego środowiska pracy, z ukierunkowaniem na redukcję stresu zawodowego. Cel artykułu jest dwojaki: zostanie przeprowadzona identyfikacja psychospołecznych ryzyk, w tym źródeł stresu zawodowego mających związek ze zdrowiem maszynistów, oraz zostaną wskazane kierunki ograniczania ryzyka psychospołecznego. W badaniu przyjęto metodę jakościową. Do identyfikacji ryzyka psychospołecznego oraz źródeł stresu zawodowego przeprowadzono zogniskowany wywiad w grupie maszynistów i instruktorów. Uzyskane wyniki pokazały, że najpoważniejszymi ryzykami psychospołecznymi były zawodność czynnika materialnego, przeciążenie pracą i nadmiar obowiązków, konflikt ról, czas pracy i kształcenie nowych kadr. W poprzednim badaniu, opartym na wywiadach indywidualnych, wykazano, że objawy stresu pourazowego związanego z wypadkami z udziałem ludzi jest istotnym ryzykiem zawodowym w pracy maszynistów. Zasoby organizacyjne jakimi są kompetencje i wiedza doświadczonych maszynistów oraz instruktorów może być wykorzystywana w promocji zdrowia oraz sposobach redukcji ryzyka zawodowego. Doskonalenia wymagają działania w zakresie budowania klimatu bezpieczeństwa pracy, oceny ryzyka zawodowego oraz pozyskiwania nowych kadr. Styl zarządzania ukierunkowany na zasoby osobowe powinien być preferowany.

Резюме. В профессии машиниста требуются высокие профессиональные навыки и отличное здоровье как физическое, так и психическое. Кроме изменений, произошедших в структуре занятости, самую большую возрастную группу все еще составляют работники старше 46 лет со стажем более 30 лет. Все более заметным становится разрыв поколений, который непросто будет преодолеть. Это связано не только с обучением новых кадров, но также с активным продвижением здоровой атмосферы на рабочем месте, особенно с уменьшением уровня стресса. Цель статьи двойная: идентифицировать психо-социологический риск, включая источники профессионального стресса, который связан со здоровьем машинистов, а также представить направления ограничения психо-социологического риска. В данном исследовании применен качественный метод. Для идентификации психо-социологического риска и источников профессионального стресса проведен направленный опрос в группе машинистов и инструкторов. Полученные результаты показали, что самыми серьезными источниками психо-социологического риска являются проблемы с материальным оснащением, рабочие перегрузки и переизбыток обязанностей, конфликт ролей, продолжительное время работы и подготовка новых кадров. Предыдущее исследование, основанное на индивидуальных опросах, продемонстрировало, что симптомы посттравматического стресса, связанного с несчастными случаями с участием людей, являются важным профессиональным риском в работе машинистов. Организационные ресурсы, которыми являются навыки и знания опытных машинистов и инструкторов, могут быть использованы для укрепления здоровья и уменьшения профессионального риска. Совершенствование требует действий в сфере создания климата рабочей безопасности, оценки профессионального риска и привлечения новых кадров. Самым предпочтительным является стиль управления, при котором во главу угла ставится человеческий ресурс.



