



Impact on safety of a preventive intervention in metalworking micro-enterprises



Elena Farina ^{a,*}, Antonella Bena ^a, Andrea Dotti ^b

^a Department of Epidemiology – ASL To3, Grugliasco, Torino, Italy

^b Prevention and Workplace Safety Service – ASL To4, Settimo Torinese, Torino, Italy

ARTICLE INFO

Article history:

Received 23 April 2013

Received in revised form 22 May 2014

Accepted 30 May 2014

Available online 4 July 2014

Keywords:

Micro-enterprises

Metalworking

Safety intervention

Effectiveness evaluation

Check-list

ABSTRACT

Background: In Italy small and medium enterprises (SMEs) account for 99.9% of businesses and are constituted more than elsewhere by micro-enterprises. In 2008 an injury prevention project designed for metalworking micro-enterprises was initiated near Turin (Italy).

Aims: The aim of this paper is to describe the project and assess its effectiveness in improving the safety of machinery and quality of workplace environments.

Methods: The multi-component intervention included: baseline assessment visits by technicians without juridical power; free training sessions for company owners; post-intervention inspection of a sample of companies. Indices relating to the machinery and the environment were calculated and pre- post intervention differences were measured. Comparisons between specific groups of participant firms were made.

Results: 86.5% of the selected firms took part in at least some components of the intervention. There was a significant overall average improvement of more than 20% in the environment index, while for the machinery there were not statistically significant results. The group of firms which attended the sessions had greater improvements than the group which did not. The proportion of machinery complying with legislation increased, but only for some specific types of machines.

Conclusions: This is a good example of an intervention focusing on a target group of firms that are not usually involved in prevention projects. It is concluded that an intervention, based on visits to the companies and free information meetings, was effective in improving workplace environment safety in metalworking micro-enterprises.

© 2014 Elsevier Ltd. All rights reserved.

1. Introduction

It is generally agreed that risk of fatal and serious accidents in small firms is higher than in large ones, and that the number of lost work days due to injury is higher than in medium/large enterprises (Fabiano et al., 2004; McVittie et al., 1997). Small businesses are frequently engaged in activities where the risks are high (Hasle and Limborg, 2006; Sorensen et al., 2007), and are characterised by limited resources, both financially and managerially (Champoux and Brun, 2003; Hasle et al., 2009). They have difficulties in meeting legislative demands and they lack formalised safety management (Kines et al., 2013; Vickers et al., 2005; Olsen et al., 2012). Occupational health and safety (OHS) investments may be

unattractive to owners because the financial benefits of prevention are not obvious in the short term (Champoux and Brun, 2003; Hasle and Limborg, 2006; Lamm, 1997; MacEachen et al., 2010) and the risks are downplayed and addressing them is seen as threatening the financial survival of the enterprises (Eakin, 1992; MacEachen et al., 2010).

Small businesses play an important role in the global economy, as they constitute a large majority of all enterprises and account for a considerable share of all employees (Hasle et al., 2009). In Italy in 2009 small and medium enterprises (SMEs) accounted for a percentage (99.9%) close to the EU average (99.8%), but were constituted more than elsewhere by micro-enterprises, which represent 94.6% of the total (European Commission, 2009).

The literature reports only few studies regarding safety in small businesses, and those concerning micro-enterprises are almost non-existent. Furthermore, an adequate assessment of the effectiveness of interventions is rarely made: quantitative evaluations of the effects are difficult to carry out, and owners and employees'

* Corresponding author. Address: Department of Epidemiology – ASL TO3, Via Sabaudia, 164 – 10095 Grugliasco, Torino, Italy. Tel.: +39 0114018511; fax: +39 01140188201.

E-mail address: elena.farina@epi.piemonte.it (E. Farina).

perception of safety or the change in attitudes are often assessed instead (Torp, 2008). In their review of quantitative evaluations Breslin et al. (2010) found only five studies of medium or high quality and highlighted the fact that well-designed evaluations and better evidence are required to make recommendations.

In this paper we present the results of a safety intervention initiated in 2008 in the north-west of Italy in an area close to Turin. The project focused on firms in the metalworking sector with fewer than 10 employees – one of the sectors widely represented in the area and with the highest incidence of occupational accidents. The metal industry, together with woodworking, has the highest incidence of occupationally-related amputations (Munshi et al., 2005) and has overall inadequate machine guarding practices and safety programs (Samant et al., 2006). Using data from INAIL (Italian Workers' Compensation Authority) from 2009 the total injury rate in the metalworking sector is 39.31/1000 workers, and the serious injury rate is 8.85/1000 workers (serious injuries include deaths, injuries involving permanent disability or more than 30 days of absence from work).

The project was devised by the local Prevention and Workplace Safety Service (SPreSAL) based on a similar experience carried out in another Italian region (Piz, 1999) which was used as an example of good practice by the European Agency for Safety and Health at Work on the occasion of a European competition (EU-OSHA, 2001). The project was designed with consideration to the specific characteristics of these micro-enterprises, trying to establish contact with all the companies in the area, with the objective of changing owners' attitudes towards safety while also involving trade union associations.

The aim of this paper is to describe the interventions project and evaluate its effectiveness in terms of improving the safety of machinery and workplace environments.

2. Materials and methods

2.1. Recruitment criteria

The definition of micro-enterprise used in this project is that suggested by the European Union in 2003 (Commission Recommendation 2003/361/EC). The intervention was aimed at metalworking enterprises with a number of employees between 3 and 10, operating within the administrative area of the local SPreSAL. In order to identify these companies the INAIL archive for the year 2007 was used. The following industry codes were selected: 61 = metallurgy, 62 = manufacture of metal products, 63 = manufacture of machinery and equipment. After a manual check of the reliability of the information 293 companies were identified.

2.2. Phases of the project

The project consisted of four phases:

- (1) A self-assessment questionnaire for the companies to complete along with an invitation to participate in the project.
- (2) Visits to the companies conducted by technicians without juridical power (i.e. without legal authority under Italian legislation to impose sanctions), during which the technicians compiled a check-list regarding aspects of machinery and workplace environments, gave assistance for the completion of the self-assessment questionnaire, and invited the owners to the training sessions.
- (3) Free training and meetings to give information on current regulation and economic incentives available from INAIL, distribute specific material on machinery with proposals for solutions to problems, and announce the last phase of the project concerning the inspection visits.

- (4) Inspection of a sample of the selected firms during which the inspectors compiled the same check-list used in the initial visits.

Fig. 1 shows the project phases' flow chart.

In spring 2008 the project Coordination Committee was formed. It was composed by staff of SPreSAL (local Prevention and Workplace Safety Service), representatives of the federation of artisans and small and medium enterprises, representatives of trade unions and of INAIL. During the same period two working groups developed the check-list, the assessment tool that was used during the visits, and produced educational materials such as training booklets and CD-ROMs on the issue of safety.

In January 2009 a letter describing the project and a self-assessment questionnaire on safety were sent to the 293 firms identified through the INAIL database search. At the same time six technicians (without juridical power) were hired to conduct the second phase of the project. These technicians received specialised training on the main types of machine tools typical of the sector and their minimum safety requirements, as well as on the use and compilation of the check-list.

Between February and May 2009, the technicians visited in person each of the 293 companies and found that 53 had closed, 12 had moved out of the area and 35 had more than 10 employees. Of the remaining 193 companies, only 164 could be verified to meet the criteria for recruitment in the project (size and type of work) since 29 refused to allow the technician to carry out the baseline assessment visit, and it was therefore not possible to establish if they met the criteria. Training and information meetings were held until July 2009; these took place in the evening, lasted two hours and were carried out in six towns. 125 Companies attended the meetings, 122 of which had been visited initially and 3 had refused the visit.

Between May 2010 and May 2011, a group of 62 firms, extracted from the 193 on the basis of random sampling stratified by type of participation, were inspected.

The effectiveness evaluation focused on phases 2 and 3 of the project – the baseline visit and the meetings – which are the core of the intervention. Firms that were visited and attended the meetings were considered participants in the whole project (VP), while firms that took part in only one of the two were considered participants in part (VNP).

2.3. The check-list

The check-list which was used in both the visits and the inspections was adapted from the check-list developed for an earlier project (Piz, 1999). This tool started as a list for checking the requirements provided by Italian law concerning several aspects of safety (Presidential decree 547/55 for safety, Presidential decree 303/56 for occupational hygiene and Legislative Decree 626/94 regarding risk assessment, risk management and training). It was prepared by the inspectors in collaboration with employers' organisations and trade union associations.

The check-list consisted of five main sections, each divided into several subsections (Fig. 2). Each subsection covered a specific element of the work environment or a specific machine, and is in turn composed of numerous items.

The complete check-list was published online in Italian and made freely available to anyone interested in consulting it (http://www.dors.it/alleg/newfocus/201301/Check-list_progetto_microimprese.pdf).

Technicians and inspectors who visited the companies completed the entire check-list directly on site. Each section is considered to be in accordance with the law if all the items that compose it are up to standard.

Download English Version:

<https://daneshyari.com/en/article/10374335>

Download Persian Version:

<https://daneshyari.com/article/10374335>

[Daneshyari.com](https://daneshyari.com)