

Cláudia Vale
Matilde A. Rodrigues¹
Rui Azevedo
Delfina Ramos
Isabel Loureiro

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EMPLOYEES' VIEWS ABOUT THE IMPACT OF THE ECONOMIC CRISIS ON OCCUPATIONAL SAFETY AND QUALITY OF LIFE: A PILOT STUDY IN THE NORTH OF PORTUGAL

Abstract: The European Union faced an economic crisis with a significant expression in Portugal. The financial unsustainability of this country led to austerity measures with negative impacts on organizations and families.

The paper aims to analyse the views of the employed population about the influence of crisis on occupational safety, and workers' quality of life.

A self-completed questionnaire named External Environment Questionnaire (EEQ) was applied in 2013. A total of 510 questionnaires were filled by Portuguese employees of eight cities from the North of Portugal.

The results indicate that the crisis has an important impact in the financial conditions of the workers and an important effect in the job security. Moreover, companies were seen by workers to compromise their safety performance in a crisis period.

A strategy to manage safety issues in a crisis context as well as improve the quality of life of workers is needed.

Keywords: Economic Crisis, Safety, Occupational Risks, Organizations, Workers, Quality of life

1. Introduction

Europe faced an important economic crisis as a result of a turmoil that affected capital markets in 2007/08 and that was intensified in 2010 (Alexandre, Gandra, Andrade, Castro & Bação, 2009; Ali, 2012). Its impact was more violent on the peripheral Eurozone countries, such as Portugal. These countries were required to undertake heavy austerity measures and structural reforms to reduce the budget deficits and the public debt, including a public expenditure reform, lowering social spending, raising rates, freezing careers and hiring, restructuring jobs and reducing wages of employees and pensions (Argyrou & Tsoukalas, 2001; Costa, 2012; Karamikolos

et al., 2013; Sigursteinsdóttir & Rafinsdttiró, 2015). Furthermore, unemployment and underemployment have increased significantly (Leahy, Healy, & Murphy, 2012) with an obvious decrease of workers quality of life.

In a context of crisis and austerity, challenges were also created for many Portuguese organizations. Although all sectors of activity have been affected, including private and public organizations, small- and medium-sized enterprises (SMEs) are considered particularly vulnerable to economic recessions when compared to large enterprises, facing major threats to their financial performance and survival (Vargo & Seville, 2011). They are particularly

¹ Corresponding author: Matilde A. Rodrigues
Email: mar@estsp.ipp.pt

susceptible to financial fluctuations, once most of SMEs lack the necessary resources and skills to, in the midst of a crisis, develop strategies to survive and to drive resilience (Pal Torstensson & Mattila, 2015; Vargo & Seville, 2011). This can be particularly critical for occupational safety. To face the crisis and dealing with fewer resources, companies need to make decisions about the investments, in a context where survival is the priority. Their efforts may be directed to other critical areas, disregarding risk prevention and control. Therefore, due to a lack of investment in safety issues, poorest working conditions can be expected, and consequently, an increased risk for workers' safety (ILO, 2009).

Furthermore, according to Markovits, Boer and van Dick (2014), economic crisis is a threatening contextual circumstance that influences individuals' approaches in the quality of life and work-related attitudes. Such assumption is important in a context where a disinvestment in occupational safety may be observed and employees can subject themselves to more precarious working conditions, or an increase in unsafe behaviors and attitudes can be observed.

Taking this in consideration, this study aims to analyze the views of employed population of the North of Portugal about the influence of crisis on occupational safety. The way as acceptance of precarious work conditions may be related to effects of the crisis on workers' job security, or even the perceptions of employed population about those issues were also brought to discussion.

1.1. Consequences of crisis in Portugal: family finances and job security

The impact of international economic crisis was higher for Portugal, making it unable to finance its debt obligations. According to Carneiro, Portugal and Varejão (2014), the Portuguese economy was already facing severe macroeconomic imbalances, being considered as one of the OECD countries less prepared to face the effects of the current

economic crisis.

In 2011 Portugal's economic condition was untenable, and it was requested international assistance to help it cope with its budget deficit. A rescue plan was agreed in May 2011 between the Portuguese government and the "Troika" that comprises the European Union, the European Central Bank, and the International Monetary Fund (IMF) on condition of sweeping spending cuts. At that time, the government announced the country's biggest spending cuts in 50 years that included reforms in labour, goods, services and housing (Caritas Europa, 2014; Sakellarides, Castelo-branco, Barbosa & Azevedo, 2014). Several reductions were made in unemployment assistance, on the numbers of public service workers and wages, as well as in spending on health care and education. On the other hand, tax and VAT were increased. At the end of 2013 the government approves further spending cuts, mainly affecting public-sector employees' wages, conditions and pensions.

The implementation of an austerity plan led to a recession on Portuguese economy, generating catastrophic rates regarding job destruction, unemployment, massive long-term unemployment and emigration (Carneiro et al., 2014; Sakellarides et al., 2014). Beyond public services, also private companies were responsible for those rates. In fact, companies were faced with a complicated situation in terms of resources management and work organization. Several job places were destroyed by firms that continue in operation and firms that shutdown (Carneiro et al., 2014). This scenario imposed a negative impact in workers' quality of life, for example, the unemployment rate peaked 16,4% in 2013, being the most affected females and people aged between 15 and 24 years old (Eurostat, 2016). Furthermore, the average of unemployment period has increased, reaching in 2011/12 the highest value of all-time (17.5 months) (Carneiro et al., 2014). By the end of 2015, the decrease of the official unemployment rate reached 11,8% indicating a recovery tendency.

Several other strategies were adopted by enterprises, including increasing proportion of employees that are paid at the legal minimum wage or freeze the nominal wages, as well as increasing the number of temporary employees and human resources turnover, even for skilled positions (Carneiro et al., 2014).

As a consequence of reduced employment opportunities, reduced wages and pensions and the increasing burdens on families, the living conditions of the Portuguese families has dramatically worsened in the crisis period, particularly the ones that fall in the middle and low social classes (Callan et al., 2012). According to a report of Caritas Europa (2014), 25.3% of Portuguese population, in 2012, were in risk-of-poverty or social inclusion, which is just above the EU28 average rate. This number was mainly associated to a significant increase of the number of people in households with very low work intensity. The report also emphasizes that almost 10% of people who worked do not earn enough to protect themselves from poverty. Furthermore, poverty rate for older people in Portugal was seen to be higher in relation to EU average levels and approximately 30% of Portuguese people were experiencing financial distress. Research has also pointed that peoples' health could also be affected in a crisis period (Karanikolos et al., 2013), even for those who still have a job (Sigursteinsdóttir & Rafnsdóttir, 2015).

1.2. Impact of the economic crisis on organizations' safety and quality of life.

External factors are seen to influence enterprises' occupational safety performance and employees' safety behaviors (Hasle & Limborg, 2006). Economic recessions are one of these factors, being expected worse working conditions and an increase in accidents and fatalities (ILO, 2009).

As previously pointed, during the crisis period enterprises had to reduce their labor costs in order to remain afloat. Also public

organizations were forced to reduce their financial charges with labor force, increasing organizational downsizing and extending the working schedule of the remaining employees. Regardless of whether downsizing be considered an effective business strategy, it has been associated with consequences for employees' health and safety (Kivimäki, Vahtera, Pentti & Ferrie, 2000). In fact, several studies involving public services have noticed an increase in the sickness and absenteeism when the staff numbers are reduced (Bryngelson, Mittendorfer-Rutz, Fritzell, Asberg, & Nygren, 2011; Røed & Fevang, 2007; Sigursteinsdóttir & Rafnsdóttir, 2015). Changes in work characteristics, such as increases in workload, job insecurity and reductions in job control, were reported as important consequences of downsizing with effect on employees' absenteeism (Kivimäki et al., 2000; Sigursteinsdóttir & Rafnsdóttir, 2015). Economic crisis also potentiated other important organizational changes that have influence on occupational accidents, such as inconsistent schedules and worker flexibility (ILO, 2009; Kompier, 2006; McNamara, Bohle & Quinlan, 2011; Papadopoulos, Giorgiadou, Paoazoglou & Michaliou, 2010). Precarious working conditions have also increased due to the replacement of permanent employment by temporary work, and other informal arrangements characterized by decreased job security and lower pay (ILO, 2009). These facts bring important consequences for organizations' safety. Several studies have pointed out that temporary workers are related to a poorest safety performance due to economic pressures or reward systems, inadequate training or due to undermine regulatory systems (Aronsson Gustafsson & Dallner, 2002; Quinlan Mayhew & Bohle, 2001; Virtanen et al., 2005). This makes these "contingent" workers, i.e. those without a permanent employment position or contract, to be considered as a particular risk group in relation to safety (Quinlan et al., 2001; ILO; 2013). In fact, workers engaged in insecure

and flexible contracts with unpredictable hours and volumes of work are more likely to suffer injuries (Quinlan et al., 2001).

Additionally, decisions about enterprises' financial resources may be focused in management strategies directed to productive process, being often dissociated from safety and quality issues. In this case, workforce is directly affected and it is possible to observe a reduction in quality of working conditions. Lower levels of safety culture are expected due to a lower commitment of managers and workers with occupational safety (Cooper & Phillips, 2004; Fernández-Muniz, Montes-Péon & Vázquez-Ordás, 2009; Markovits et al., 2014; Rodrigues, Arezes & Leão, 2015a) and higher accident rates can be observed (Nielsen Rassmussen, Glasscock & Spangenberg, 2008; Tharaldsen, Olsen & Rundmo, 2008;). Indeed, despite the reduction in occupational injuries rates observed during the crisis period (Fuente, López, González, Alcántara & Ritzel, 2014), several authors have indicated that workers tended to underreport minor and moderate injuries during a recession, not connecting these numbers with greater safety levels (Boone, van Ours, Wuellrich & Zweimüller, 2011; Boone & van Ours, 2006;). That is, if employees feel fear and job insecurity, they are less likely to report minor and moderate occupational accidents. According to Boone et al. (2011), reporting an accident affects workers' reputation and raises the probability to be fired later on.

Due to these impacts, it is expected that citizens feel that their working conditions have been undermined. To perform the analysis of the European citizens' perceptions about this issue, a pan-European opinion poll on Occupational Safety & Health (OSH) was carried out in June 2009 by European Agency

for Safety and Health at Work (EU-OCHA, 2009). This study shows that 77% of the inquired Portuguese people believed that safety and health conditions at work would get worse.

2. Methodology

2.1 Sample

This study included a total of 600 participants of the working population of eight cities from the North of Portugal of which 510 have been considered to be valid. In order to be considered in this study, each participant should be part of the working population, which comprised the fulfillment of the following criteria: (1) Being more than sixteen years old, which is the minimum age for working according to the Portuguese legislation; (2) Not being unemployed; (3) Being Portuguese.

Nearly half of the inquired workers were male (45.7%) and, on average, they had 38.4 yr ($SD = 11.4$; interval range 17 -76 yr). A vast majority of them were between 21 and 65 yr (88.3%). Regarding the background educational, most of the inquired workers were undergraduate (71.4%), from which 32.8% completed the secondary school. About 23.3% were graduated, 4.0% had a master degree and 0.3% had a doctors' degree. Only 1.0% of them received an unspecified type of qualification. According to Portuguese classification of economic activities (INE, 2007), 16.9% developed their activities in the public administration and defense, 15.9% worked in the accommodation catering and similar sector; 13.3% were working in the manufacturing industry and 12.4% in the education sector (Figure 1).

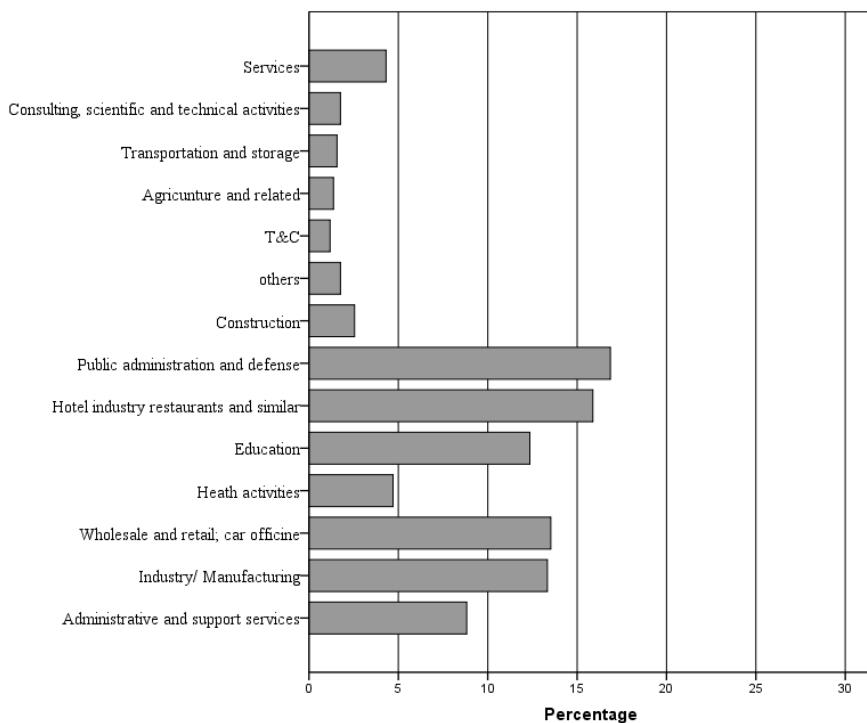


Figure 1. Distribution of the respondents by activity sector

Most of the respondents, 57.3%, were dependent workers in private companies, 31.4% were public workers, 1.4% were freelancers, 0.2% were cooperatives' active members, and 9.7% had other jobs. In relation to the type of employment contact, 67.8% of the respondents were permanent workers, 19.4% were temporary and 12.5% referred other type of contract.

2.2 Procedure and instrument

The External Environment Questionnaire (EEQ), fully described on Loureiro, Vale, Rodrigues, and Azevedo (2014), was used to analyze the employees' views about the effects of economic crisis on occupational safety. Taking into consideration the objectives of the present study, five groups of questions were selected from data:

(1) Respondents were asked about the likelihood of occurrence of three different scenarios, in order to analyze the impact of

crisis on employees' job security and their quality of life: Scenario 1-lose the current position in a short period of time; Scenario 2-be willing to accept a job with a lower wage; Scenario 3-be willing to emigrate (Likert scale: 1- Very unlikely; 5- Very likely).

(2) The question "The extent to which current policies measures, based on the recommendations of the Troika, affect your financial situation?" was used to understand the crisis impact on employees' financial conditions and quality of life (Likert scale: 1- Not affected; 5- Strongly affected). Respondents were also requested to assess the likelihood of the economic crisis to increase their fixed costs (Likert scale: 1- Very unlikely; 5- Very likely).

(3) The level of propensity for acceptance of certain risky scenarios related to occupational activity was also analyzed. For that purpose, five different scenarios were rated according to the question "In order not to lose your job, indicate whether you would be willing to

accept each of the following situations": do overtime; willing perform tasks with higher risk; perform higher risk tasks without prior training; withdraw the protections of the machines in order to increase productivity; not comply with some safety rules to increase productivity (Likert scale: 1- Never; 5- Always).

(4) To analyze the impact of crisis in management's safety commitment, respondents were inquired about the following situations: decrease the investment in safety training; decrease the investment in personnel protective equipment (PPE); decrease investment in protection equipment (PE); give priority to production in relation to safety (Likert scale: 1- Completely disagree; 5- Completely agree).

(5) To understand the employees' perceptions about the impact of crisis on the level of risk exposure, the respondents were asked about certain scenarios, such as: being obliged to perform risky tasks without training; being obliged to disregard the safety procedures by their supervisors; being obliged to work without safety protections in machines in order to increase productivity; being obliged to do overtime; not have properly PPE (Likert scale: 1- not affected to 5- strongly affect).

The survey was conducted from 14th June to 11th July of 2013, when the crisis was more pronounced in Portugal. Researchers were placed in areas with a great flow of persons like train stations, shopping malls, the questionnaires were delivered by hand and fulfilled in loco.

2.3. Data analysis

The data gathered by closed-ended questions (e.g., Likert-type scales) were analyzed using relative frequency distributions. Contingency tables were used to analyze the relation between the job security scenarios and individual variables, such as sector of activity and type of contact. The chi-squared test (χ^2) was applied to analyze the independence between variables, being considered expected

frequencies greater than 5. An analysis on the standardized residuals from the chi-square application allowed the decision about which category contributed to the statistic. Bivariate correlation analyses were performed with Spearman's rank correlation coefficient to investigate the strength and direction of the statistical relationship between job security and risk acceptance scenarios. Differences between groups were also tested. Were analyzed the differences in relation to job security for different age categories. Differences in the perception of the impact of the crisis on respondents' finances and in the level of risk acceptance were analyzed in relation to age categories, gender and sector of activity. To analyze the influence of individual variables in perceptions about the impact of crisis on the level of risk exposure, data were first splitted by sector of activity. Then, differences in the risk level were analyzed according the type of contract, age, gender and background educational for each sector of activity. Only significant results are presented. As variables under analysis were discrete, non-parametric procedures were used: Kruskal-Wallis test and Mann-Whitney test.

The significance level was considered as $\alpha = 5\%$. All statistical analyses were conducted using statistical software package IBM SPSS Statistics version 20.

3. Results

Table 1 presents the perceived impact of crisis on respondents' job security. The majority of the respondents felt that due to the crisis they were likely to accept a job with a lower wage (28.8=Likely; 27.8=Very likely). This scenario was found to be related to the sector of activity [$\chi^2 (5) = 12.040$, $p < .05$], where those who work in the Education sector were the ones that felt as more likely to accept a job with a lower wage. A significant part of respondents (42%) also assessed as likely to lose the current position in a short period of time. Data showed that this scenario is significantly related to the type of contract

that the respondents have $\chi^2 (4) = 10.882$, $p < .05$. As expected, those who had a temporary contract were the ones that felt more the possibility of losing the current position in a short period of time. Further,

close to a half of respondents (46.7%) considered the possibility of to emigrate. The analysis of differences among groups showed that young workers felt more likely to emigrate [$H (5) = 26.358$, $p < .05$].

Table 1. Perceived impact of the crisis on job security

Scenario	1	2	3	4	5
(1) Lose the current position in a short period of time	11.7	15.2	31.2	20.9	21.1
(2) Be willing to accept a job with a lower wage	9.7	11.3	22.4	28.8	27.8
(3) Be willing to emigrate	18.7	13.4	21.2	20.1	26.6

1="Very unlikely"; 2="Unlikely"; 3="Neither unlikely nor likely"; 4="Likely"; 5="Very likely".

A vast majority of respondents stated that the crisis had impact on their financial conditions (81.8%). Men and women were equally affected [$U = 32192.000$, $Z = -0.079$, $p > 0.05$], but differences were found in relation to age [$H (5) = 45.138$, $p < .001$], where the oldest workers were the ones who resent more. No differences were found between sectors of activity [$H (5) = 7.348$, $p > 0.05$] Further, 47.3% of the respondents felt that it is likely to have an increase in their fixed costs due to the crisis.

Table 2 presents the respondents' views about the propensity to accept the presented scenarios in order not to lose their jobs. Data showed that the majority of respondents were willing to do overtime (24.4% "Frequently"; 38.8% "Always"). Furthermore, several respondents also reported that they were

willing to perform tasks with higher risk (21.0% "Frequently"; 15.1% "Always"). Less respondents were willing to accept frequently to perform higher risk tasks without prior training (13.36% "Frequently"; 5.5% "Always"), to withdraw the protections of the machines in order to increase productivity (8.1% "Frequently"; 3.1% "Always") or to not comply with some safety rules to increase productivity (9.3% "Frequently"; 4.9% "Always"). The older workers are the ones who accepted the most to perform higher risk tasks without prior training [$H (5) = 12.416$, $p < .05$], to withdraw the protections of the machines [$H (5) = 12.650$, $p < .05$] and or to not comply with some safety rules [$H (5) = 13.387$, $p < .05$]. However, the younger were more willing to do overtime [$H (5) = 15.870$, $p < .05$].

Table 2. Level of propensity for risk scenarios acceptance (%)

Scenario	1	2	3	4	5
(1) Do overtime	7.5	5.8	25.5	24.4	38.8
(2) Willing to perform tasks with higher risk	18.3	18.7	26.9	21.0	15.1
(3) Perform higher risk tasks without prior training	43.6	17.7	19.8	13.4	5.5
(4) Withdraw the protections of the machines to increase productivity	57.9	19.5	11.4	8.1	3.1
(5) Not comply with some safety rules to increase productivity	35.4	24.6	25.9	9.3	4.9

1="Never"; 2="Rarely"; 3="Sometimes"; 4="Frequently"; 5="Always".

It was performed an analysis of the relationship between job security and risk acceptance scenarios, being the results presented on Table 3. Data showed a significant and positive correlation between all the scenarios. Workers who see in a

negative way their job safety, i.e., the ones that see longer possible to lose their current position or to accept a job with a lower wage or the possibility to emigrate, are more willing to accept work in worse conditions in order to not lose their current jobs.

Table 3. Correlation between job security and risk acceptance scenarios

	Job security scenarios		
Risk Acceptance scenarios	1	2	3
(1) Do overtime	0,200**	0.229**	0.115*
(2) Willing perform tasks with higher risk	0.156**	0.166**	0.220**
(3) Perform higher risk tasks without prior training	0.162**	0.172**	0.173**
(4) Withdraw the protections of the machines to increase productivity	0.133**	0.147**	0.182**
(5) Not comply with some safety rules to increase productivity	0.178**	0.190**	0.117*

1- Lose the current position in a short period of time; 2- Be willing to accept a job with a lower wage; 3 – Be willing to emigrate

**p<0.01; *p<0.05

In terms of consequences of the financial crisis in the management's safety and quality commitment, data from Table 4 show that the majority of respondents reported an expectation that will occur a reduction of the investment in training actions in the safety field (38.4% "Agree"; 41.6% "Strongly

agree"), in PPE (38.0% "Agree"; 39.6% "Strongly agree") and in PE (36.8% "Agree"; 40.4% "Strongly agree"). Further, it is expected that managers will give priority to production in relation to safety (34.3% "Agree"; 40.6% "Strongly agree").

Table 4. Level of concordance of the crisis impact in the level of management safety commitment (%)

Scenario	1	2	3	4	5
Decrease the investment in safety training	9.1	5.7	5.1	38.4	41.6
Decrease the investment in PPE	8.5	5.9	7.9	38.0	39.6
Decrease the investment in PE	8.5	6.7	7.5	36.8	40.4
Give priority to production in relation to safety	7.5	8.1	9.5	34.3	40.6

1=" Strongly Disagree"; 2="Disagree"; 3="Undecided"; 4="Agree"; 5="Strongly agree".

Table 5 describes how respondents feel to be affected by the crisis in what refers to its impact on risk exposure. Data show that the

majority feels an important effect of the crisis in the occurrence of the different risky scenarios presented.

Table 5. Level of the perceived impact of the crisis in risk scenarios (%)

Scenario	1	2	3	4	5
(1) Being obliged to perform risky tasks without training	5.1	7.7	18.4	27.9	40.9
(2) Being obliged to disregard the safety procedures by their supervisors	5.9	6.3	18.9	28.0	40.9
(3) Being obliged to work without safety protections in machines to increase productivity	9.0	6.5	12.8	27.7	44.0
(4) Being obliged to overtime	7.2	5.8	24.2	33.2	29.6
(5) Do not have personnel protective equipment to perform the task	7.4	4.8	13.7	29.9	44.2

1="Not affected"; 2="Slightly affected"; 3="Neutral"; 4="Affected"; 5="Strongly affected".

Data was splitted by sector, and differences in relation to the type of contract, age, gender and background educational were tested. Significant results were found for education sector. In this sector, women felt more affected in what refers to work overtime than men [$U = 176.00$, $p < .05$, $Z = -2.36$, $r = -2.35$]. A significant association was found between the respondents' age and the situation "Be required to perform risky tasks in the company without prior training" [$H(4) = 4.004$, $p < .05$]. The oldest respondents were the ones that feel significantly affected by this scenario (mean rank= 52.5).

4. Discussion

In this study an analysis of the influence of crisis on occupational safety, and workers' quality of life was performed. Because the economic crisis and the austerity measures of governments affect workers' quality of life specially what concerns with wage levels, families' income and have influence on job security notions (Carneiro et al., 2014; Markovits et al., 2014), in a first stage, an analysis of the impact of the crisis on workers' job security and workers' finances was performed.

Job insecurity was identified to be high. A significant number of respondents felt that they could lose the current position in a short period of time, particularly those who had a temporary contract. This can be related not only with the increase of the unemployment rates (Eurostat, 2016) that can have an important influence on job security perceptions, but also with the strategies adopted by the companies to face the economic crisis, which included an increase of temporary workers and human resources turnover (Carneiro et al., 2014). Workers with temporary contracts can feel more affected, since they can be conscious that their contract will be expired and that other type of contract can be difficult to get. Most of respondents also stated be possible to accept a job with a lower wage. Previous studies had already stated that the fear to lose the job leads

workers to accept lower remunerations or even not to be paid by overtime (Schrijvers, Van de Mheen, Stronks & Mackenbach, 1998; Vahtera, Virtanen, Kivimäki & Penti 1999). Curiously, in the present study, professionals who work in the educational sector were found to be more willing to accept a job with lower wage. This can be explained by the higher number of workers in this area and the reduction of students, and consequently, of job opportunities. All the years a high number of professors stay without a school position; but, even the ones that find a job in the educational system (both in public and private schools), can be willing to accept work for a lower wage or at part-time. Wages were frozen and job opportunities are dwindling (Caritas Europa, 2014; Costa, 2012). In relation to the willingness to emigrate, it was observed that almost 50 per cent of the respondents reported to believe in this possibility in a near future, particularly the youngest ones. This phenomenon was also previously noticed by Malheiros (2011), where the author points out that emigration is more predominant within young generation. In fact, due to the high unemployment rate (Eurostat, 2016) or to the precarious work arrangements frequent among young people, the Portuguese people, particularly the youth ones, has been pushed to consider emigration. According to the International Labour Organization (2014) almost 20 per cent of the Portuguese population would like to move abroad permanently if the opportunity arises.

Employed people also felt to be financially affected by the crisis, i.e., the policy measures imposed by the Troika are seen as having an important negative impact on their income and quality of life. In fact, according to the Statistical Yearbook of Portugal 2013 (INE, 2013), the families' incomes have been lowered and unevenly distributed since 2010. In addition, there are still significant differences when considering different population groups. In this study, older workers were found particularly affected and this effect can be due to the cuts or freezes in

the nominal wages felt particularly in such group (Carneiro et al., 2014; INE, 2013; ILO, 2013). In addition, workers believe that the fixed expenses will increase due to the taxes policy implemented and changes in the policies imposed by the government. Consequently, workers will have more difficulty in meeting housing and living cost.

In general, the results for job security and workers' finances are worrying, and also may have an indirect effect on workers' occupational safety. The fear and insecurity generated by the anticipation of unemployment or financial constraints may force workers to accept less desirable work conditions, not only in what regards to job arrangements (e.g., part-time and temporary contract work), but also in what concerns to OSH conditions. Job insecurity might limit workers' bargaining power, forcing them to accept less desirable employment conditions. In fact, this study indicated that workers that feel higher levels of job insecurity are more willing to accept risk scenarios, i.e. do overtime, perform tasks with higher risks and violate some safety rules or safety protections in order to not lose the current position. These results were expected. Due to the crisis some employees may be requested to work extra hard and longer hours to compensate for the lack of human and financial resources by the organizations, which can result in physical and mental workload and fatigue (ILO, 2009). Economic crisis has also potentiated other important organizational changes that have influence on occupational accidents, such as inconsistent schedules and the increase of the workers' flexibility (Kivimäki et al., 2000; Kompier, 2006; ILO, 2009; McNamara et al., 2011; Papadopoulos et al., 2010; Sigursteinsdóttir & Rafnsdóttir, 2015). Workers may be requested to perform new tasks, some of them with an increased risk. A disinvestment in safety issues can be also expected, such as on training and safety protections (ILO, 2009). In view of this, workers can see these scenarios as possible and do not find other options than accept such working conditions not to lose their jobs and

maintain their quality of life.

Most noticeable was the availability of the respondents to do overtime or to perform tasks with higher risk. Although less prominent, some of them especially the oldest, are willing to perform higher risk tasks without prior training and few of them to withdraw protections of machines in order to increase production. Older workers operating without machine protections is not a new issue, and it is reported as a common behaviour of workers in the Portuguese furniture sector (Rodrigues, Arezes & Leão, 2015b). This behaviour among older workers can be explained by the self-confidence, experience and judgments of these workers that can lead them to ignore safety measures (Fung & Tam, 2013; Yechiam, Erev & Barron 2006). In a crisis scenario, this kind of behaviour is supposed to increase, being more common that workers compromise their safety state, particularly by withdrawing protections from the machines (Hagel, Pakwa, Dosman & Pickett, 2013). However, this will increase their risk exposure levels to different hazards (Gershon et al., 2000) and the number of accidents can increase in the oldest workers. In fact, Fuente et al. (2014) in a study with Spanish workers, despite they have found a reduction in the number of accidents in time of crisis, they observed that the mean age of the injured workers increased. In opposite, this kind of behaviour was not found to be frequently accepted by young workers, maybe because they have a superior knowledge of risk assessment and control strategies and OSH legislation, making them conscious about the risk that they are willing to accept (Mayhew & Quinlan, 2002). Regarding the development of dangerous tasks without prior training, despite the possibility to accept this was only pointed by some of respondents, the results were also worrying. Once the training opportunities tend to decrease, it will be more likely to have workers performing dangerous tasks without previous training. This scenario is potentiated by the tendency of the replacement of permanent employment by

precarious ones, temporary work or other informal arrangements, that do not give workers the opportunity to access to safety training (Aronsson *et al.*, 2002; Quinlan *et al.*, 2001; Virtanen *et al.*, 2005).

Results of this study also suggested that management's safety commitment tends to be reduced due to the crisis. Respondents reported a possible unavailability of suitable PPE to use in a short period of time due to lack of investment by the organization. Respondents also pointed that companies are expected to reduce the investment in training actions in the safety field and in PE due to the crisis. Further, it is expected that companies start to give more priority to production instead of safety. In view of this, safety issues will be compromised and the workers risk exposure will increase, therefore, the organization may also lose competitiveness and weaken business performance (Rebelo *et al.*, 2017). In fact, results also showed that workers believe that the crisis has a negative impact in risk exposure. This is not surprising. Once managers are leading with scarce resources, their decisions may be focused on other organizational problems, being often dissociated from safety issues. This is particularly critical when managers' decisions and perceptions are seen to have influence on safety issues, such as training, risk communication, safety resources, risk acceptability and risk assessment and risk control (Parker *et al.*, 2007). It prejudices Social Responsibility and also the principles of a successful risk and safety management system, the which must be adapted to the expectative of stakeholders as well as the internal and external context in order to achieve their objectives (Rebelo, Silva & Santos 2017; Santos, Bravi & Murmura, 2018; Ribeiro *et al.*, 2017).

Results also pointed that most of respondents feel that they may be obliged to disregard the safety procedure by their supervisors, be obliged to do overtime, work without machines' PE and without PPE. As previously noticed, these situations are expected due to the need to increase the

companies' production. Once more intense economic/output pressures are expected, conditions conduced to working intensification and hazardous behaviour are predictable (Mayhew & Quinlan, 2002). If these scenarios are materialized, the workers' level of risk exposure will increase. The results also showed that women of the education sector are the ones who feel more affected by the need to work overtime. Due to the current scenario in the education sector, employees saw an increase in their number of working hours and tasks to be done. This led in most of the cases that tasks out from normal working time, like meetings with parents, stopped being covered by formal tasks distribution. Results also indicated that the oldest workers believe to be obliged to execute risky tasks without training. This is another issue that will increase their level of risk exposure, since adequate knowledge about the risks, rules and procedures, as well as PE and PPE may not exist and consequently, workers will not be protected correctly from these situations.

5. Conclusions

Results from this study indicate that the crisis has an important impact in the quality of life of workers, namely in the financial conditions, job security and in their perspectives about safety, particularly in what regards to risk acceptance, risk exposure level and management's safety commitment.

This study points out the importance that workers give to the preservation of their job during an economic crisis scenario. In fact, we can conclude that workers are able to jeopardize their safety in order to maintain their current job. This is a subject of major concern. Once workers feel that their job is not secure and they are dealing with limited financial resources, an increase in their willingness to accept risk scenarios is expected. As a consequence, organizations should encourage workers to perform their activities safely, especially during major economic crisis scenarios. However,

companies may also be compromising their safety performance due to the fear of the crisis consequences to them, making the improvement of safety a challenging task. Faced to the achieved results, a strategy of the authorities and of the companies to manage safety issues in a crisis context is need, avoiding risky behaviors and promoting employment stability.

This study presents an important limitation.

No comparison was performed with a pre-crisis scenario, due to a lack of data. Accordingly, this study should be seen as a first attempt to analyze the impact of the crisis in safety issues in Portugal, alerting the stakeholders for this problem. Future researches will be performed, including internal environment of the companies and other safety indicators.

References

- Alexandre, F., Gandra, I., Andrade, J., Castro, P., & Baçao, P. (2009). *A Crise Financeira Internacional*, 1st ed. Coimbra: Imprensa da Universidade de Coimbra.
- Ali, T. M. (2012). The Impact of the Sovereign Debt Crisis on the Eurozone Countries. *Procedia - Social and Behavioral Sciences*, 62, 424-430.
- Argyrou, M. G., & Tsoukalas, J. D. (2011). The Greek debt crisis: Likely causes, mechanisms, and outcomes. *The World Economy*, 34, 173-191.
- Aronsson, G., Gustafsson, K., & Dallner, M. (2002). Work environment and health in different types of temporary jobs. *European Journal of Work and Organizational Psychology*, 11(2), 151-175.
- Boone, J. & van Ours, J.C. (2006). Are recessions good for workplace safety? *Journal of Health Economics*, 25, 1069-1093.
- Boone, J., van Ours, J.C., Wuellrich, J.-P., & Zweimüller, J. (2011). Recessions are bad for workplace safety. *Journal of Health Economics*, 30, 764-773.
- Bryngelson, A., Mittendorfer-Rutz, E., Fritzell, J., Asberg, M., & Nygren, A. (2011). Reduction in personnel and long-term sickness absence for psychiatric disorders among employees in Swedish county councils: an ecological population-based study. *Journal of Occupational and Environmental Medicine*, 53(6), 658-662.
- Callan, T., Leventi, C., Levy, H., Matsaganis, M., Paulus, A., & Sutherland, H. (2012). *The distributional effects of austerity measures: a comparison of six EU countries*. EUROMOD Working Paper EM6/11. Colchester: ISER, University of Essex.
- Caritas Europa (2014). The European crisis and its human cost: A call for fair alternatives and solutions. *Crisis Monitoring Report 2014*. Brussels: Caritas Europa.
- Carneiro, A., Portugal, P., & Varejão, J. (2014). Catastrophic job Destruction during the Portuguese Economic Crisis. *Journal of Macroeconomics*, 39, 444-457.
- Cooper, M. D., & Phillips, R. A. (2004). Exploratory analysis of the safety climate and safety behavior relationship. *Journal of Safety Research*, 35, 497-512.
- Costa, H. A., (2012). From Europe as a model to Europe as austerity: impact of the crisis on Portuguese trade unions. *Transfer – European Review of Labour and Research*, 18(4), 397-410.
- European Agency for Safety and Health at Work (EU-OSHA). (2009). *Pan-European opinion poll on occupational safety and health*. Retreived from, http://osha.europa.eu/en/safety-health-in-figures/eu-poll-slides-2009/Package_EU27.pdf

- European Agency for Safety and Health at Work (EU-OSHA). (2013). *Priorities for occupational safety and health research in Europe*. Luxembourg, EU-OSHA.
- European Agency for Safety and Health at Work (EU-OSHA). (2014). *Scoping study for a foresight on new and emerging occupational safety and health (OSH) risks and challenges*. Luxembourg, EU-OSHA.
- Eurostat (2016). Unemployment statistics. Retrieved from http://ec.europa.eu/eurostat/statistics-explained/index.php/Unemployment_statistics
- Fernández-Muñiz, B., Montes-Peón, J. M., & Vázquez-Ordás, C. J. (2009). Relation between occupational safety management and firm performance. *Safety Science*, 47, 980-991.
- Fuente, V. S., López, M. A. C., González, I.F., Alcántara, O. J. G., & Ritzel, D. O. (2014). The impact of the economic crisis on occupational injuries. *Journal of Safety Research*, 48, 77-85.
- Fung, I. W. H., & Tam, V. W. Y. (2013). Occupational health and safety of older construction workers (aged 55 or above): Their difficulties, need, behaviour and suitability. *International Journal of Construction Management*, 13, 15-34.
- Gershon, R. R. M., Karkashian, C. D., Grosch, J. W., Murphy, L. R., Escamilla-Cejudo, A., Flanagan, ... Martin, L. (2000). Hospital safety climate and its relationship with safe work practices and workplace exposure incidents. *American Journal of Infection Control*, 28(3), 211-221.
- Hagel, L., Pahwa, P., Dosman, J. A., & Pickett, W. (2013). Economic worry and the presence of safety hazards on farms. *Accident Analysis & Prevention*, 53, 156-60.
- Hasle, P., & Limborg, H. J., (2006). A review of the literature on preventive occupational health and safety activities in small enterprises. *Industrial Health*, 44(1), 6-12.
- Instituto Nacional de Estatística (INE). (2007). *Classificação Portuguesa das Actividades Económicas Rev.3*. Lisboa, Portugal: Instituto Nacional de Estatística, IP.
- Instituto Nacional de Estatística (INE). (2013). *Statistical Yearbook of Portugal 2013*. Lisboa, Portugal: Instituto Nacional de Estatística, IP.
- International Labour Office (ILO). (2013). *Protecting Workplace Safety and Health in Difficult Economic Times – The Effect of the Financial Crisis and Economic Recession on Occupational Safety and Health*. Geneva: ILO.
- International Labour Organization (ILO). (2009). *Health and life at work: a fundamental human right*. Geneva: ILO.
- Karanikolos, M., Mladovsky, P., Cylus, J., Thomson, S., Basu, S., Stuckler, D., Mackenbach, J. P., & McKee, M. (2013). Financial crisis, austerity, and health in Europe. *Lancet*, 381, 1323-1331.
- Kivimäki, M., Vahtera, J., Pentti, J., & Ferrie, J. E. (2000). Factors underlying the effect of organisational downsizing on health of employees: longitudinal cohort study. *British Medical Journal*, 320, 971-975.
- Kompier, M. (2006). New systems of work organisation and workers' health. *Scandinavian Journal of Work, Environment & Health*, 32, 421-430.
- Leahy, A., Healy, S., & Murphy, M. (2012). *Study of the impact of the crises and austerity on people with special focus on Greece, Ireland, Italy, Portugal and Spain*. Caritas Europa Report.

- Loureiro, I. F., Vale, C., Rodrigues, M., & Azevedo, R. (2014). Can the external environment affect the occupational safety conditions and unsafety behaviours? In Baptista, J.S., Barroso, M., Carneiro, P. Cordeiro, P. Costa, N., Melo, R., Miguel A. S. Perestrelo (eds.), *Occupacional Safety And Hygiene II* (pp 423-427). London: CRC Press, Taylor and Francis.
- Malheiros, J. (2011). Portugal 2010: O regresso do país de emigração? – Notas e reflexões. *Janus.net-E-Journal of International Relations*, 2, 133-142.
- Markovits, Y., Boer, D., & van Dick, R. (2014). Economic crisis and the employee: The effects of economic crisis on employee job satisfaction, commitment, and self-regulation. *European Management Journal*, 32, 413-422.
- Mayhew, C., & Quinlan, M. (2002). Fordism in the fast food industry: pervasive management control and occupational health and safety risks for young temporary workers. *Sociology of Health & Illness*, 24(3), 261-284.
- McNamara, M., Bohle, P., & Quinlan, M. (2011). Precarious employment, working hours, work-life conflict and health in hotel work. *Applied Ergonomics*, 42, 225-232.
- Nielsen, K. J., Rasmussen, K., Glasscock, D., & Spangenberg, S. (2008). Changes in safety climate and accidents at two identical manufacturing plants. *Safety Science*, 46(3), 440-9.
- Pal, R., Torstensson, H., & Mattila, H. (2015). Antecedents of organizational resilience in economic crises – an empirical study of Swedish textile and clothing SMEs. *International Journal of Production Economics*, 147, 410-428.
- Papadopoulos, G., Georgiadou, P., Papazoglou, C., & Michaliou, K. (2010). Occupational and public health and safety in a changing work environment: An integrated approach for risk assessment and prevention. *Safety Science*, 48, 943-949.
- Parker, D., Brosseau, L., Samant, Y., Pan, W., Xi, M., & Haugan, D. (2007). A comparison of the perceptions and beliefs of workers and owners with regard to workplace safety in small metal fabrication businesses. *American Journal of Industrial Medicine*, 50, 999-1009.
- Quinlan, M., Mayhew, C., & Bohle, P. (2001). The Global Expansion of Precarious Employment, Work Disorganization, and Consequences for Occupational Health: A Review of Recent Research. *International Journal of Health Services*, 31, 335-414.
- Rebelo, M. F., Silva, R., & Santos, G. (2017). The integration of standardized management systems: managing business risk. *International Journal of Quality & Reliability Management*, 34(3), 395-405.
- Ribeiro, F., Santos, G., Rebelo, M., & Silva, R. (2017). Integrated management systems: trends for Portugal in the 2025 horizon. *Procedia Manufacturing*, 13, 1191-1198.
- Rodrigues, M. A., Arezes, P., & Leão, C. P. (2015a). Risk acceptance in the furniture sector: analysis of acceptance level and relevant influence factors. *Human and Ecological Risk Assessment*, 21, 1361-1378.
- Rodrigues, M. A., Arezes, P., & Leão, C. P. (2015b). Safety climate and its relationship with furniture companies' safety performance and workers' risk acceptance. *Theoretical Issues in Ergonomics Science*, 16(4), 412-428.
- Røed, K., & Fevang, E. (2007). Organizational change, absenteeism and welfare dependency. *J. Hum. Resour*, 42, 156-193.
- Sakellarides, C., Castelo-Branco, L. Barbosa, P., & Azevedo, H. (2014). *The Impact of the Financial Crisis on the Health System and Health in Portugal*. Denmark: World Health Organization

- Santos, G., Bravi, L., & Murmura, F. (2018). SA 8000 as a tool for a Sustainable development strategy. *Corporate Social Responsibility and Environmental Management*, 25, 95-105.
- Schrijvers, C., Van de Mheen, H., Stronks, K., & Mackenbach, J. (1998). Socioeconomic inequalities in health in the working population: the contribution of working conditions. *International Journal of Epidemiology*, 27, 1011-1018.
- Sigursteinsdóttir, H., & Rafnsdttiró, G. L. (2015). Sickness and sickness absence of remaining employees in a time of economic crisis: A study among employees of municipalities in Iceland. *Social Science & Medicine*, 132, 95-102.
- Stiglitz, J. (2009). The Global crisis, social protection and jobs. *International Labour Review*, 148, 1-10.
- Tharaldsen, J. E., Olsen & E., Rundmo, T. (2008). A longitudinal study of safety climate on the Norwegian continental shelf. *Safety Science*, 46(3), 427-39.
- Vahtera, J., Virtanen, P., Kivimäki, M., & Penti, J. (1999). Workplace as an origin of health inequalities. *Journal of Epidemiology & Community Health*, 53, 399-407.
- Vargo, J., & Seville, E. (2011). Crisis strategic planning for SMEs: finding the silver lining. *International Journal of Production Research*, 49, 5619-5635.
- Virtanen, M., Kivimäki, M., Joensuu, M., Virtanen, P., Elovainio, M., & Vahtera, J. (2005). O emprego temporário e saúde: uma revisão. *International Journal of Epidemiology*, 34, 610-622.
- Yechiam, E., Erev, I., & Barron, G. (2006). The effect of experience on using a safety device. *Safety Science*, 44(6), 515-522.

Cláudia Vale

Department of
Environmental Health,
Research Centre on Health
and Environment, School of
Allied Health Technology of
Polytechnic Institute of
Porto,
Vila Nova de Gaia,
Portugal
vale.claudia@hotmail.com

Matilde A. Rodrigues

Department of
Environmental Health,
Research Centre on Health
and Environment, School of
Allied Health Technology of
Polytechnic Institute of
Porto,
Vila Nova de Gaia,
Portugal
mar@estsp.ipp.pt

Rui Azevedo

University Institute of Maia
Avenida Carlos Oliveira
Campos 4475-690 Avioso S.
Pedro, Portugal and Centre
ALGORITMI. School of
Engineering of the University
of Minho.
Campus de Azurém, 4800-
058 Guimarães,
Portugal
razevedo@maieutica.ismai.pt

Delfina Ramos

Technology School,
Polytechnic Institute of
Cávado and Ave, Campus do
IPCA, Vila Frescainha S.
Martinho, 4750-810
Barcelos, Portugal and
Centre ALGORITMI. School
of Engineering of the
University of Minho.
Campus de Azurém, 4800-
058 Guimarães, Portugal
gramos@ipca.pt

Isabel Loureiro

Centre ALGORITMI. School
of Engineering of the
University of Minho.
Campus de Azurém, 4800-
058 Guimarães, Portugal
iloureiro@dps.uminho.pt