Psychosocial factor exposures in the workplace: differences between immigrants and Spaniards

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Background: The purpose of this study was to analyse psychosocial factor exposures in the workplace for immigrant workers in Spain and identify differences in exposure at work between immigrants and Spaniards. Methods: A multi-stage sample was taken by conglomerates (final sample size: 7555 workers). The information was obtained in 2004 and 2005 using a standardized questionnaire administered by interviewing participants in their homes. The analysis focused on eight psychosocial factors. For quantitative demands and insecurity, the exposure was defined according to the higher third, and for the others, the exposure was defined according to the lower third. The prevalence ratio (PR) and confidence interval (CI) for unfavourable psychosocial factor, both crude and adjusted, were calculated using log binomial models. Results: Those with highest prevalence of unfavourable psychosocial factor were immigrant manual workers, particularly in low possibilities for development (PR = 2.87; 95% CI 2.44–3.73), and immigrant women, particularly in low control over working times (PR = 2.19; 95% CI 1.73–2.78). Conclusions: Immigrant workers with manual jobs and immigrant women are the groups most exposed to psychosocial factor. In efforts to prevent these exposures, these inequalities should be taken into account.

Introduction

Psychosocial factors are those characteristics of the organization of work which are related to various health problems, including cardiovascular illnesses,1,2 musculoskeletal disorders3 and minor psychological disorders.1,4

One of the main characteristics of the labour market is the segregation of the working and salaried population, based on social class, sex and age,5,7 which creates an objective basis for social inequalities in working conditions in general8,9 and in exposure to psychosocial factors in particular,10,11 in terms of inequalities in exposure that translate into inequalities in health.12,13 In recent decades, the growth of the immigrant working population has given rise to immigration as a factor of social segregation in the workplace, leading to a complex network of interactions with other forms of segregation.14,15

Over the past 10 years, Spain has experienced major growth in its foreign-born population. In 2008, almost 13% of the economically active population was of foreign nationality, of which 85% was from outside the EU.16 These immigrant workers are exposed to strenuous workloads and physically hazardous and precarious jobs, which are known to influence their health.17,19 Given this situation, and in line

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with what little evidence is available, immigrant workers may be expected to be more exposed to these factors than native workers.

The purpose of this study is to analyse the psychosocial factors in the workplace for immigrant workers in Spain and to identify differences between Spaniards and immigrants in exposure at work, taking other segregation factors into account such as occupational category, sex and age.

Material and methods

The cross-sectional study was based on data from the Psychosocial Factors Survey carried out by Union Institute of Work Environment and Health [Instituto Sindical de Trabajo, Ambiente y Salud (ISTAS)] in 2004 and 2005. The sample characteristics for the survey are published elsewhere. This is a representative sample of the salaried population (15–65 years of age) resident in Spain (except for Ceuta and Melilla). The sampling was carried out in multiple stages and by conglomerates. The sample size was 7612 persons, with a response rate (before replacements) of 60%.

In the study sample, workers whose country of origin was unknown (N = 57) were excluded, leaving a final study population of 7555 workers: 6868 Spanish workers, and 687 (9.1%) immigrant workers, defined as people with a country of origin other than Spain, including developed (N = 53) and developing (N = 634) countries.

The occupational category, which was used as an indicator of social class, was divided into non-manual workers (which included managers, professionals, associated professionals and supervisors) and manual workers (qualified, semi-qualified and unqualified), and age was divided into three categories: up to 29 years old, 30–45 years and ≥46 years.

The data were gathered from a standardized questionnaire on psychosocial factors, administered by an interviewer at the participant’s home, using the 21 scales (73 Likert items in five answer categories) of the medium-length COPSOQ questionnaire, which has been adapted, or is in the process of being adapted, to many different languages. Nevertheless, for this study the questionnaire was only available in Spanish (ISTAS21). Definitions for all the dimensions that the ISTAS 21 COPSOQ can be found in the questionnaire reference manual. Standardized scores of all 21 psychosocial scales were computed (score range 0–100).

For this study, eight of these 21 dimensions were selected (quantitative demands, influence, control over working times, possibilities for development, social support from colleagues, social support from supervisors, insecurity and esteem), as these are the central dimensions included in the Demand–Control–Support psychosocial factor models of Karasek, Theorell and Johnson and the Effort–Reward model of Siegrist. Quantitative demands and insecurity are negative dimensions, so high scores indicate poor health and well-being. All the other exposures were positive, so higher scores indicate better wellbeing. We set up of these eight dimensions with three categories, corresponding to the thirds of the original distribution. For quantitative demands and insecurity, the exposure was defined according to higher third, and for all the others, the exposure was defined according to lower third.

In the analysis, we calculated the prevalence of exposure to the different psychosocial dimensions by origin (Spaniard or foreign), by occupational category, sex and age. The prevalence was calculated for each psychosocial factor dividing, for example, the Spaniards exposed to a specific psychosocial factor by the total number of Spaniards. Differences in prevalence of exposure were tested using chi-squared test. Secondly, prevalence ratio (PR) by occupational category (adjusting for sex and age), sex (adjusting for occupational category and age), and age (adjusting for job category and sex) and confidence intervals (95% CI) were estimated using log binomial models. Finally, on one hand, we compared Spanish non-manual workers, immigrant non-manual workers, Spanish manual workers and immigrant manual workers, using Spanish non-manual as a reference point; and, on the other hand, we compared Spanish men, immigrant men, Spanish women and immigrant women, using Spanish men as a reference point, in relation to psychosocial factor exposure, both adjusted for age.

Results

Among the immigrants in the sample, there were more males, young people (42.6% were ≤30 years of age, compared with 28.6% of the Spaniards), and manual workers (88.9% compared with 80.8% of Spaniards) (table 1).

Table 1 Distribution of the study population (n=7555) according to the variables of labour market segregation for Spanish or immigrant workers

<table>
<thead>
<tr>
<th>Occupational category</th>
<th>Total N (%)</th>
<th>Immigrants N (%)</th>
<th>Spaniards N (%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-manual workers</td>
<td>1381 (18.5)</td>
<td>75 (11.1)</td>
<td>1306 (19.2)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Male</td>
<td>3696 (49.1)</td>
<td>309 (45.2)</td>
<td>3387 (49.5)</td>
<td>0.032</td>
</tr>
<tr>
<td>Manual workers</td>
<td>3835 (50.9)</td>
<td>375 (54.8)</td>
<td>3460 (50.5)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Female</td>
<td>3670 (48.7)</td>
<td>323 (47.1)</td>
<td>3347 (48.8)</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 Prevalence of exposure to psychosocial factors (using the ‘more unfavourable for health’ category as a reference point) in a representative sample (n=7555) of the salaried population in Spain, according to the their country of origin, occupational category, sex and age

<table>
<thead>
<tr>
<th>Country of origin</th>
<th>High quantitative demands</th>
<th>Low influence</th>
<th>Low control over working times</th>
<th>Low possibilities for development</th>
<th>Low social support from colleagues</th>
<th>Low social support from superiors</th>
<th>High insecurity</th>
<th>Low esteem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spaniards (n=6868)</td>
<td>30.3</td>
<td>37.7</td>
<td>35.8</td>
<td>33.6</td>
<td>34.9</td>
<td>34.0</td>
<td>33.4</td>
<td>34.5</td>
</tr>
<tr>
<td>Immigrants (n=687)</td>
<td>40.6**</td>
<td>47.0***</td>
<td>47.0***</td>
<td>38.5**</td>
<td>45.9***</td>
<td>38.4**</td>
<td>36.1*</td>
<td>49.1***</td>
</tr>
<tr>
<td>Occupational category</td>
<td>Non-manual workers (n=1381)</td>
<td>31.2</td>
<td>18.2</td>
<td>27.4</td>
<td>14.3</td>
<td>27.7</td>
<td>23.1</td>
<td>30.4</td>
</tr>
<tr>
<td>Male (n=3835)</td>
<td>33.5</td>
<td>37.2</td>
<td>33.0</td>
<td>30.8</td>
<td>35.0</td>
<td>32.3</td>
<td>32.8</td>
<td>35.9</td>
</tr>
<tr>
<td>Female (n=3966)</td>
<td>28.8***</td>
<td>40.1***</td>
<td>40.9***</td>
<td>37.4***</td>
<td>36.8</td>
<td>38.7***</td>
<td>34.4*</td>
<td>35.7</td>
</tr>
</tbody>
</table>

Chi-squared test: P-value: ***P < 0.001; **P < 0.01; *P < 0.05.
### Table 4
Prevalence exposure ratio (PR) of exposure to psychosocial factors according to occupational category and country of origin (using Spanish non-manual workers as reference point) and sex (adjusted according to occupational category and age) and by age (adjusted according to occupational category and sex) using log binomial models in a sample of salaried workers in Spain ($n = 7,555$)

<table>
<thead>
<tr>
<th>Country of origin and occupational category</th>
<th>High quantitative demands</th>
<th>Low influence</th>
<th>Low control over working times</th>
<th>Low possibilities for development</th>
<th>Low social support from colleagues</th>
<th>Low social support from superiors</th>
<th>High insecurity</th>
<th>Low esteem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish non-manual workers ($n = 1306$)</td>
<td>PR (95% CI)</td>
<td>PR (95% CI)</td>
<td>PR (95% CI)</td>
<td>PR (95% CI)</td>
<td>PR (95% CI)</td>
<td>PR (95% CI)</td>
<td>PR (95% CI)</td>
<td>PR (95% CI)</td>
</tr>
<tr>
<td>Immigrant non-manual workers ($n = 75$)</td>
<td>1.12 (0.82–1.55)</td>
<td>0.71 (0.39–1.27)</td>
<td>0.99 (0.68–1.46)</td>
<td>0.55 (0.25–1.21)</td>
<td>1.22 (0.87–1.71)</td>
<td>1.07 (0.71–1.62)</td>
<td>0.79 (0.52–1.19)</td>
<td>1.38 (0.97–1.96)</td>
</tr>
<tr>
<td>Spanish manual workers ($n = 5483$)</td>
<td>0.98 (0.89–1.07)</td>
<td>2.24 (1.99–2.52)</td>
<td>1.34 (1.22–1.47)</td>
<td>2.56 (2.23–2.93)</td>
<td>1.34 (1.22–1.47)</td>
<td>1.58 (1.42–1.76)</td>
<td>1.10 (1.01–1.21)</td>
<td>1.63 (1.46–1.81)</td>
</tr>
<tr>
<td>Immigrant manual workers ($n = 600$)</td>
<td>1.33 (1.17–1.51)</td>
<td>2.58 (2.25–2.97)</td>
<td>1.72 (1.52–1.94)</td>
<td>2.87 (2.44–3.73)</td>
<td>1.79 (1.58–2.02)</td>
<td>1.76 (1.53–2.03)</td>
<td>1.22 (1.07–1.39)</td>
<td>2.24 (1.97–2.54)</td>
</tr>
<tr>
<td>Country of origin and sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish men ($n = 1306$)</td>
<td>1.40 (1.24–1.58)</td>
<td>1.15 (1.02–1.30)</td>
<td>1.09 (0.95–1.26)</td>
<td>1.04 (0.89–1.22)</td>
<td>1.10 (0.96–1.26)</td>
<td>0.98 (0.84–1.15)</td>
<td>0.99 (0.85–1.16)</td>
<td>1.28 (1.13–1.44)</td>
</tr>
<tr>
<td>Spanish women ($n = 3387$)</td>
<td>0.87 (0.81–0.94)</td>
<td>1.04 (0.98–1.11)</td>
<td>1.18 (1.11–1.26)</td>
<td>1.19 (1.11–1.27)</td>
<td>1.01 (0.95–1.08)</td>
<td>1.11 (1.03–1.18)</td>
<td>1.03 (0.96–1.01)</td>
<td>0.97 (0.91–1.04)</td>
</tr>
<tr>
<td>Immigrant women ($n = 309$)</td>
<td>1.07 (0.91–1.26)</td>
<td>1.28 (1.14–1.44)</td>
<td>1.72 (1.55–1.91)</td>
<td>1.49 (1.31–1.70)</td>
<td>1.63 (1.46–1.82)</td>
<td>1.43 (1.26–1.63)</td>
<td>1.22 (1.06–1.41)</td>
<td>1.51 (1.37–1.69)</td>
</tr>
</tbody>
</table>

a: Adjusted for age.
The highest prevalences of exposure were significant for foreigners in all the dimensions, compared with Spaniards (table 2). The greatest differences were found in esteem (49% of the immigrants have low esteem, compared with 34.5% of the Spaniards), control over working times (47% of the immigrants compared with 36% of the Spaniards) and social support from colleagues (46% of immigrants compared with 35% of Spaniards). A higher prevalence of psychosocial factors was reported among manual workers, women and younger people.

The psychosocial factors with a higher prevalence (table 3) among immigrants were low esteem (PR = 1.26; 95% CI 1.17–1.36) and lack of social support from colleagues (PR = 1.20; 95% CI 1.12–1.29). By stratifying this comparison according to occupational category, it was found that the differences disappeared between non-manual workers, but not between manual workers. Low esteem (PR = 1.47; 95% CI 1.26–1.49), greater quantitative demands (PR = 1.35; 95% CI 1.21–1.50) and little social support from colleagues (PR = 1.34; 95% CI 1.22–1.46) among immigrant manual workers were some of the more significant results.

The unfavourable psychosocial factors for immigrants compared with Spaniards were higher among women compared with men, except in the category of high quantitative demands. Immigrant women were at a greater risk of being in a more unfavourable situation than Spanish women were in all the dimensions studied, particularly with regard to social support from colleagues (PR = 1.56; 95% CI 1.40–1.74), low esteem (PR = 1.53; 95% CI 1.37–1.71) and low control over working times (PR = 1.43; 95% CI 1.29–1.59). By age, differences were found among workers >30 years of age, especially in high quantitative demands among 30–45 years (PR = 1.52; 95% CI 1.33–1.74) and low social support from colleagues among those >45 years of age (PR = 1.51; 95% CI 1.21–1.90).

Whereas there was very little difference between Spanish and immigrant non-manual workers, manual workers (both Spaniards and immigrants) had high risks of exposure compared with Spanish non-manual workers (table 4). However, this risk was higher among immigrant manual workers, particularly those with few possibilities for development (PR = 2.87; 95% CI 2.44–3.73) and little influence (PR = 2.58; 95% CI 2.25–2.97).

Except for quantitative demands, the workers most at risk for a more unfavourable situation for health were immigrant women, particularly those with low control over working times (PR = 1.72; 95% CI 1.55–1.91) and a low level of social support from colleagues (PR = 1.63; 95% CI 1.46–1.82). Immigrant men were more at risk than Spanish men, mainly in terms of high quantitative demands (PR = 1.40; 95% CI 1.24–1.58) and low esteem (PR = 1.28; 95% CI 1.13–1.44).

Discussion

Immigration is a complex social phenomenon that must be observed within the context of a segmented labour market. In this study, it can be observed that immigrants have a higher probability of being in a more unfavourable situation for each of the considered psychosocial risk factors at work. These results are in line with other publications that show greater job precariousness for immigrants.

That said, not all immigrants form a homogenous group. On the one hand, the results of the analysis by occupational category showed that only manual workers have increased exposure to unfavourable psychosocial factors. Thus, occupational segregation is highly important in explaining the differences observed in exposure to unfavourable psychosocial factor between immigrants and Spaniards. The greatest differences in exposure to psychosocial factors seem not to depend on the place of birth, therefore, but rather where each person stands in relation to the job market. The relevance of this finding is in line with other studies on psychosocial factors and inequalities that show that manual workers are at most risk of having low levels of control, little social support and little reward, and workers in more qualified jobs are subject to greater demands. Taking into account that most immigrants in Spain are from countries with low incomes and who, despite having studies, are employed in low-ranking positions, this could mean that there is a greater proportion of immigrant workers affected by exposure to psychosocial risks.

In general, the differences in exposure to psychosocial factors between immigrants and Spaniards were greater in women than men. These results suggest that sex is another important factor that must be taken into account in analysis of the differences in the exposure of psychosocial factors between immigrants and Spaniards, in accordance with other studies on sex.

Regarding age, the results were not conclusive and lacked a clearly defined pattern. In accordance with other studies on job segmentation that indicate age as a factor of segregation, we expected that the youngest would be in the most unfavourable situations. The larger differences between immigrants and Spaniards among workers in the 30–45 years of age bracket (and not among the younger group) could be due to the fact that whereas for the Spaniards, levels of exposure to precarious work may decline as one gains experience in the labour market, for immigrants exposure to precarious work may remain the same over the years. In addition, given that migration to Spain is a recent phenomenon, it may be that immigrants have not had sufficient time in the labour force to transcend precarious working conditions.

Finally, analysis of the interactions suggests that immigrant manual workers and immigrant women are in more unfavourable occupational situations. These results coincide with studies of immigration from a sex and class perspective, where it is shown that immigrants are more likely to be discriminated against when they are women and manual workers.

There are several limitations of the study that should be taken into account here. Immigrants were defined as ‘anyone living in Spain that was from any other country’, without differentiating between those from developing countries and those from developed countries. The labour conditions of immigrants from developed countries is very similar to Spaniards, and very different to that of immigrants from less developed countries, so the differences between immigrants and Spaniards may have been greater if they had not been taken into account in the study.

Two important variables to consider when analysing immigrants’ labour market integration (including working conditions and, as such, the exposure to psychosocial risks) are the length of time spent in Spain and knowledge of the Spanish language. On the one hand, as the number of years living in Spain increases, the probability of working in better-qualified jobs increases, and it would therefore seem reasonable to expect there to be changes in the exposure to psychosocial factors, which is closely linked to the job held. Furthermore, as the length of time in the country increases, so does the knowledge of the language, which is vital for good integration, both socially and in terms of work. As such, future studies should take into account the variable ‘year of arrival in Spain’, which was not available in this study.

Another limitation was that the questionnaire was only available in the Spanish language and the understanding of the language may involve some bias. Nevertheless, our sample include more Spanish-speaking (66.9%) than non-Spanish speaking immigrants (33.1%).

Another important variable to consider is education level. Among the general population, those people with higher levels of education have better employment and working conditions. Immigrants are often employed in non-qualified jobs despite the fact that they may be relatively more educated than a portion of the native population. Many immigrants are doing work at lower level than their education or training and their professional expectations would warrant. When possible the variable ‘education’ should be included in futures studies.
On the other hand, immigrants that have an irregular administrative situation or are undocumented and work in the informal economy may experience working conditions that are even more precarious,\textsuperscript{17,18} and could therefore be expected to be even more exposed to unfavourable psychosocial factors. For this reason, any future studies should ensure this variable can be analysed.

**Conclusion**

In summary, this study shows that immigrants are at a greater risk of exposure to unfavourable psychosocial factors at work, particularly if they have a manual job or are female, than native Spaniards. These results correspond to the situation in Spain, where the job market is highly segmented by class, sex and country of origin.\textsuperscript{6}

**Acknowledgements**

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**Conflicts of interest:** None declared.

**Key points**

- The labour market is segregated based social class, gender, age and country of origin.
- This creates and objective basis for social inequalities in exposure to psychosocial factors.
- Immigrants are at greater risk of exposure to psychosocial factors at work than the Spaniard working population.
- Immigrant manual workers and Immigrant women are subject to more unfavourable occupational situations.
- The assessment of psychosocial factors at work should take into account inequalities in social class, gender and immigrant status.

**References**

Effectiveness of the European Union text-only cigarette health warnings: findings from four countries

Sara C. Hitchman1, Ute Mons2, Gera E. Nagelhout3,4, Romain Guignard5, Ann Mcneill6, Marc C. Willemsen3,4, Pete Driezen7, Jean-Louis Wilquin5, François Beck3,8, Enguerrand Du-Roscoët5, Martina Pötschke-Langer2, David Hammond9, Geoffrey T. Fong1,10

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Background: The European Commission requires tobacco products sold in the European Union to display standardized text health warnings. This article examines the effectiveness of the text health warnings among daily cigarette smokers in four Member States. Methods: Data were drawn from nationally representative samples of smokers from the International Tobacco Control Policy Evaluation Project surveys in France (2007), Germany (2007), the Netherlands (2008) and the UK (2006). We examined: (i) smokers’ ratings of the health warnings on warning salience, thoughts of harm and quitting and forgoing of cigarettes; (ii) impact of the warnings using a Labels Impact Index (LII), with higher scores signifying greater impact; and (iii) differences on the LII by demographic characteristics and smoking behaviour. Results: Scores on the LII differed significantly across countries. Scores were highest in France, lower in the UK, and lowest in Germany and the Netherlands. Across all countries, scores were significantly higher among low-income smokers, smokers who had made a quit attempt in the past year and smokers who smoked fewer cigarettes per day. Conclusion: The impact of the health warnings varies greatly across countries. Impact tended to be highest in countries with more comprehensive tobacco control programmes. Because the impact of the warnings was highest among smokers with the lowest socioeconomic status (SES), this research suggests that health warnings could be more effective among smokers from lower SES groups. Differences in warning label impact by SES should be further investigated.

Introduction

Tobacco use is the leading cause of preventable death in the European Union (EU). Approximately 507,000 males and 148,000 females died from smoking attributable causes in the EU25 in the year 2000, representing 23% of total male deaths and 7% of total female deaths.1

Health warning labels are recommended by the World Health Organization (WHO) as a measure to reduce the demand for tobacco and are required under Article 11 by parties to the WHO Framework Convention on Tobacco Control (FCTC).2 Studies show that large, prominent health warnings are effective for informing smokers and non-smokers about the risks of smoking, motivating smokers to quit and promoting quit-related behaviours.3–12

In 2003, Directive 2001/37/EC came into effect requiring that all tobacco products sold in the European Union to display standardized text health warnings. The European Commission requires tobacco products sold in the European Union to display standardized text health warnings. This article examines the effectiveness of the text health warnings among daily cigarette smokers in four Member States.

Effectiveness of the European Union text-only cigarette health warnings: findings from four countries

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Tobacco use is the leading cause of preventable death in the European Union (EU). Approximately 507,000 males and 148,000 females died from smoking attributable causes in the EU25 in the year 2000, representing 23% of total male deaths and 7% of total female deaths.1

Health warning labels are recommended by the World Health Organization (WHO) as a measure to reduce the demand for tobacco and are required under Article 11 by parties to the WHO Framework Convention on Tobacco Control (FCTC).2 Studies show that large, prominent health warnings are effective for informing smokers and non-smokers about the risks of smoking, motivating smokers to quit and promoting quit-related behaviours.3–12

In 2003, Directive 2001/37/EC came into effect requiring that all cigarettes sold in the EU carry health warnings13 that: (i) cover 30% of the front of the package and 40% of the back; (ii) are printed in standardized black text with a white background and black border; and (iii) carry one of two main warnings on the front of the pack (‘smoking kills’ or ‘smoking seriously harms you and others around you’) and one of 14 warnings on the back of the pack, to be rotated on a regular basis (supplementary figures 1 and 2). One distinction is that the warning, ‘smoking kills’, reads ‘smoking can kill’, in some countries, e.g.