

Impact of social and occupational factors over job control

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SUMMARY

Background: Psychosocial risk factors, among which job control has proved to be a key dimension, can have a negative impact on the health of workers. Various research projects have found a relationship between low levels of free time at work and stress and job satisfaction indicators. **Objectives:** to assess to what extent certain social and employment variables influence "job control". **Methods:** A descriptive study was carried out on a sample of workers to analyse the influence of certain socio-demographic and work-related variables on job control, by means of an assessment survey on psychosocial risk and the general state of workers' health. The tools used in this study were the COPSQ-ISTAS 21 version 1.5 psychosocial risk assessment questionnaire and a specific survey on the perceived state of health. **Results:** Three hundred fourteen workers were asked to participate in the study. One hundred and ninety workers completed the questionnaire and were finally included. For the "job control" variable, 47.4% of workers described their situation as good. The results show that workers with a higher educational level (+78%), who have seniority in the job, have a good understanding of their situation at work (+15%), and are employed as white collars (34%), are more likely to show high job control and, therefore, could be less at risk from psychosocial factors. **Conclusions:** There are two parameters influencing "job control": social factors concerning educational level, and work situation factors, including seniority and being a white collar worker.

RIASSUNTO

«**Impatto di fattori sociali e lavorativi sul job control**». **Introduzione:** I fattori psicosociali, tra i quali il job control è una dimensione chiave, possono avere un impatto negativo sulla salute dei lavoratori. Diversi studi hanno identificato una correlazione tra bassi livelli di tempo libero durante il lavoro e indicatori di stress e job satisfaction. **Obiettivo:** Valutare in quale misura alcune variabili sociali e lavorative influenzino il job control. **Metodi:** Uno studio descrittivo è stato condotto su un campione di lavoratori per analizzare l'influenza di alcune variabili sociodemografiche e lavoro-correlate sul job control, attraverso un'indagine del rischio psicosociale e la valutazione dello stato di salute generale dei lavoratori. Gli strumenti usati per lo studio sono stati il questionario COPSQ-ISTAS 21 versione 1.5 e una indagine specifica sullo stato di salute percepito. **Risultati:** Trecentoquaranta lavoratori hanno ricevuto l'invito a partecipare allo studio. Di questi, 190 hanno completato il questionario e sono stati inclusi nello studio. Per la variabile "job control", il 47.4% dei lavoratori ha descritto la propria situazione come "buona".

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*I risultati dimostrano che i lavoratori che hanno un grado di istruzione più alto (+78%), una più lunga anzianità lavorativa, una buona comprensione della loro situazione lavorativa (+15%) o svolgono mansioni impiegatizie (+34%) hanno maggiori probabilità di mostrare un alto livello di job control e, di consanguenza, potrebbero essere meno esposti ai rischi psicosociali. **Conclusioni:** Due parametri influenzano il job control: fattori psicosociali relativi al livello di istruzione, e fattori legati alla situazione lavorativa che includono l'anzianità di servizio e lo svolgere una mansione impiegatizia.*

INTRODUCTION

Psychosocial risk factors are *those conditions relating to the design, content, organisation or planning of work that are harmful to the health of workers or the company* (20). They can promote work activities or be detrimental to them, by affecting health and well-being (7). Psychosocial risks include long working hours, heavy work, little control over the work, lack of equality in the workplace, irregular change of jobs, violence in the workplace, job insecurity, and reconciling work and family life (15).

Research into psychosocial risk is seen as a priority, since a high percentage of workers exhibit exposure to these risks in the workplace (21) $n=7,612$. The sampling was multi-stage by conglomerates. The information was obtained by the administration of a standardized questionnaire in the household during 2004–2005. All 21 scales were standardized and three punctuation levels were established and labelled as 'more favourable to health (or green. Psychosocial risk can be assessed by several tools, but one of the most commonly used is the Copenhagen Psychosocial Questionnaire (COPSOQ), which has been internationally validated and accepted (14). The method was validated in Spain through a representative sample of the wage-earning population, with reference values set for all its dimensions (21) $n=7,612$. The sampling was multi-stage by conglomerates. The information was obtained by the administration of a standardized questionnaire in the household during 2004–2005. All 21 scales were standardized and three punctuation levels were established and labelled as 'more favourable to health (or green. This questionnaire evaluates 5 dimensions related to the psychosocial risk that can be evaluated in an independent way. One of the dimensions evaluated by the COPSOQ is the concept of "job control", which is defined as

the capacity of acting autonomously when working with other people, with the possibility of applying and developing own abilities and knowledge (12). Job control can also be understood as the capacity to make decisions on the work load, its speed, etc. (15). "Job control" is directly related to the worker's participation in the decision-making process, the possibility of personal development and the level of complexity and variety of the tasks. Moreover, the correspondence between the worker's values and the content of the job is an influential factor for the perception of "job control" (12). The best-known consequences of having a good job control over the work environment are increased motivation and well-being (15). This dimension is beneficial to the conditions of work, as it allows deciding on when to take a break, or how to reconcile work and family life (3).

Various research projects have found a relationship between low levels of free time at work and stress and job satisfaction indicators (3, 16). Some authors have related lack of control at work to musculoskeletal disorders, although these findings were not statistically significant and were analysed on very specific populations, and in a particular production sector (5). The impacts that little "job control" can have on mental health are more evident. A systematic review relating the risk of depression to psychosocial factors found that a heavy work load together with a reduced capacity to make decisions led to a greater risk of depression, more often in men than in women (1). In addition, the study by Clay et al. (4) on a cohort of over 2800 workers showed that work-related stress increased the risk of depression, and was associated with lack of freedom to make decisions, which was found to be more significant in women. Likewise, studies carried out on farm workers, an environment where the type of work means that there is a very restricted capacity for decision-

making and “job control”, have proved a relationship between health levels, symptoms of depression and lack of control at work (8, 26).

Thus, the purpose of this study is to assess the extent that certain social and employment variables influence “job control”.

METHODS

A cross-sectional descriptive study was carried out, with prior approval from the Research Commission and managers of the health insurance company, where the data was collected. Personal data was always handled in accordance with the current regulations in Spain.

The study was carried out among workers in Spain who came in for health examinations. The workers mainly came from the service sector and were managers and supervisors (white collar workers) as well as operators (blue collar workers). Consecutive sampling was taken between June and August 2013 to obtain a final sample of 190 workers. Those with a medical diagnosis of and under treatment for depression, anxiety or stress, or classed as especially sensitive workers (those with a particular personal or biological sensitivity to their work’s occupational risks and so defined by Spanish law) (2), pregnant women, and any employed at the company for less than a year, were excluded.

The tools used in this study were the COPSOQ-ISTAS 21 version 1.5 psychosocial risk assessment questionnaire (21) $n=7,612$. The sampling was multi-stage by conglomerates. The information was obtained by the administration of a standardized questionnaire in the household during 2004-2005. All 21 scales were standardized and three punctuation levels were established and labelled as ‘more favourable to health (or green and a specific ad hoc survey on the perceived state of health.

The dimension of job control in COPSOQ-ISTAS 21 is composed by 10 items evaluated by a Likert scale with 5 answers ranging from 0 (never) to 4 (always). A score between 26 and 40 indicates a favorable situation; one from 19 to 25 shows an intermediate situation and the score between 0 and 18 denotes a unfavorable job situation (Cronbach’s alpha of 0,8310) (22).

The survey on the perceived state of health was developed and validated for this study. (Cronbach’s alpha 0,760). It included age, gender, job position, length of employment (in years), education level and 5 questions about how respondents perceived their health, physical activity, quality of sleep, learning difficulties, and assessment of their employment situation. Questions and possible answers are shown in the supplementary table 1.

A researcher administered both questionnaires to each worker who then answered all the questions.

The statistical analysis started with a descriptive analysis of the different variables. After, “job control” was taken as the ordinal dependent variable (Good, Neither good, Bad-poor) in the analysis of the psychosocial risk assessment questionnaire. Multivariable logistic regression models of partial proportional probabilities were used to evaluate how the independent variables affected the different evaluations of “job control” (Good, Neither good, Bad-poor) (19).

In the first place, given that the variable to be explained is ordinal, logistic univariate regressions were made on “job control” with each of the variables from the questionnaire, and taken as candidates to form part of the multivariate model of all the variables that the univariate analysis found to have a certain degree of relationship to “job control” ($p<0.10$). Secondly, ordinal partial proportional odds logistic regression models were built using the backward selection method, by controlling the confusion effect among the independent variables (17, 25).

The final explicative model was adjusted for sex and age, and validated by testing the partial proportional odds i.e. checking that the effect was the same for the explicative variables affecting the response variable, regardless of the response variable category, both individually and in the multivariate model. Lastly, the goodness-of-fit, or the ability to explain the response variable, was analysed in the models, which would be an approximation, as the goodness-of-fit of the model was assessed for each category of the response variable via the Hosmer-Lemeshow test.

The results are given using *OR* and confidence intervals of 95% (95% *CI*). The statistical analysis was done with STATA 14 software.

RESULTS

Three hundred and fourteen workers were asked to participate in the study. One hundred and ninety were finally included in the sample, while 124 were excluded. The main reason for exclusion was not completing the questionnaire.

The general characteristics of the sample are

shown in table 1. The majority were women, of similar age to the men, mainly working in the service sector, white-collar and working part time or a short working day. One in four said they had difficulty in making decisions and never felt good about themselves; also, one in five suffered constantly from fear, anxiety or depression and their work situation was never good.

Table 1. General characteristics of the sample

Socio-demographic characteristics:			Work characteristics:		
Average age (sd)	average(sd)	37.4(9.1)	Job	Blue collar	41.6%(79)
Sex	Female	52.1%(99)		White collar	58.4%(111)
	Male	47.9%(91)	Working day	Short	41.6%(79)
Partner	With partner	54.7%(104)		Part-time	44.2%(84)
	No partner	45.3%(86)	Shifts	14.2%(27)	
Education	Basic	7.9%(15)	Sector	Service	73.2%(139)
	Intermediate	23.2%(44)		Non-service	26.8%(51)
	University	68.9%(131)	Seniority	average(sd)	8.8%(87)
Perceived health characteristics					
Self-perception of health	Good	91.6%(174)	Changes in how health they feel about themselves	Never	32.1%(61)
	Not good	8.4%(16)		Only sometimes	41%(78)
Physical activity	Regular	41%(78)	Feels fear, anxiety or depression	Regular	26.9%(51)
	Sporadic	43.7%(83)		Never	38.9%(74)
	Never	15.3%(29)		Only sometimes	41.6%(79)
Refreshed by sleep	Yes	83.7%(159)	Becomes angry or annoyed	Regularly	19.5%(37)
	No	16.32%(31)		Never	11.6%(22)
Difficulty in making decisions	Never	37.9%(72)	Feels desperate, out of control	Only sometimes	47.9%(91)
	Only sometimes	37.4%(71)		Regularly	40.5%(77)
	Regularly	24.7%(47)	Situation at work is generally good	Never	50%(95)
	Never	61.0%(116)		Only sometimes	33.2%(63)
Learning difficulties	Only sometimes	29.5%(56)	Feels good about themselves	Regularly	16.8%(32)
	Regularly	9.5%(18)		Never	20.5%(39)
Feels good about themselves	Never	26.3%(50)	Only sometimes	46.3%(88)	
	Only sometimes	53.7%(102)	Regularly	33.2%(63)	
	Regularly	20.0%(38)			

For the “job control” variable, 47.4% said the situation was good, 33.7% that it was neither good nor bad, and 18.9% that it was poor.

A study of the factors associated with higher categories or scores (good-neither good nor bad versus poor or good versus neither good nor bad-poor) for “job control” (table 2) regardless of the reference category revealed that workers with higher job control have a university degree (78% more likely than basic education). Blue collar workers are 66% less likely to score higher than white collars. Further-

more, every year of job seniority increases of 6% the probability to score high job control. An odds ratio equal to 2.29 was observed in workers who declared sporadic physical activity (versus regular). In addition, workers who said their situation at work was “good”, were less likely (-85%) to get higher scores in “job control”.

Workers who said they often had difficulty learning their job were 92% less likely to claim good job control than neither good nor bad- Poor control. However, the difficulty in learning the work did not

Table 2. Ordinal partial proportional odds logistic multivariate regression model

Variables	Good-Neither good nor bad vs. Poor	
	OR	CI(95%)
Age	0.96	0.92 - 1.01
Sex (Male)		
Female	0.81	0.42 - 1.58
Education (University)		
Basic	0.22*	0.08 - 0.67
Intermediate	0.32*	0.15 - 0.68
Job (Blue collar)		
White collar	0.34*	0.16 - 0.71
Seniority	1.06*	1.01 - 1.12
Self-perception of health (Good)		
Not good	0.34	0.11 - 1.07
Physical activity (Regular)		
Sporadic	2.29*	1.17 - 4.49
Never	0.95	0.38 - 2.37
Refreshed by sleep (No)		
Yes	1.73	0.71 - 4.22
Learning difficulties (Never)		
Only sometimes	0.82	0.41 - 1.65
Regularly	1.34	0.37 - 4.93
Situation at work is generally good (Never)		
Only sometimes	0.29*	0.11 - 0.75
Regularly	0.15*	0.06 - 0.41
Constant	82.8	9.43 - 728

* $p < 0.05$

Hosmer-Lemeshov test $T=164$; $p=0.71$

Partial proportional odds test $T=11.54$; $p=0.57$

affect the differentiation Good job control evaluations of Neither good nor bad versus Poor.

Both models have good specifications and are able to explain the behaviour of “job control” (Hosmer-Lemeshov test $p > 0.05$).

DISCUSSION

As shown by some studies, intervening in job control seems to have potential to allow employees to proactively create a motivating work environment and improve their well-being (27). This observation agrees with what we find in our project, as workers who said that their situation at work was good regularly or only sometimes were less likely to give higher (good or neither good nor bad) scores for “job control” than those who never felt good at work.

Regarding professional categories, in our project we found that white collar workers were less likely to give higher scores for “job control” than workers who were operators or supervisors, which also agrees with findings in other studies highlighting the fact that white collar workers have fewer opportunities to manage their time at work, and they also have higher stress levels (3). Other research has also pointed out that white collar workers who increase their job control reduce the risk of bad or poor health (12), which indicates the importance of the “job control” factor in that group of workers.

Other variables that we found linked to job control are: seniority in the company and education level. Our research found that for every year a worker spends with the company, the assessment of “job control” rises by 6%, while the lower the level of education, the less likely workers are to give higher scores for “job control” than those with a university education. Workers with basic education, in particular, reduced the assessment by 78%, while it was reduced by 68% for those with an intermediate level. Moreover, workers who said that they regularly had difficulty learning their work were 92% less likely to claim good job control than Neither good nor bad-Poor control.

In this respect, other studies state that older workers are more able than younger ones to express different points of view; also, those with higher education are more satisfied with their jobs, as they

have better opportunities to gain posts with greater job satisfaction; a higher level of education means more likelihood of controlling their own work (6, 9, 24) suppressing personal values and pretending to embrace organizational values, which could explain these findings.

We also found that workers who do sporadic physical activity are 2.9 times more likely to return a higher score for “job control”, than those who do it regularly, despite the fact that other studies state that there is no strong link between leisure time physical activity and job stress (13) 573 Finnish public sector employees aged 17-64 years. Job strain was measured by questions derived from Karasek's Demand/Control model. Leisure-time physical activity was defined using activity metabolic equivalent task (MET, which suggests the need for further examination of this aspect to assess the extent to which it can improve job satisfaction, especially for cases of musculoskeletal problems (18).

Lastly, even though workers who had been diagnosed with depression or anxiety were excluded from this study, one out of five participants described episodes of anxiety, depression or stress at work. Workers without a medical diagnosis of psychological alterations showed signs of mental overload in relationship with the job and the company organization and culture. These findings support the proposal of some authors for carrying out a monitoring of these workers, to prevent their exposure to psychosocial risk factors and the development of pathological processes that go over the line of work health (28).

As this is a cross-sectional study, this project has limitations and it is not possible to establish cause-effect links. Furthermore, workers with any medical diagnosis of depression, anxiety or stress, or classed as especially sensitive workers (2), pregnant women, and any employed at the company for less than a year, were excluded as in other studies. This fact does not permit to evaluate the “job control” in the most susceptible workers. These limitations should be considered in future studies; a longitudinal study is required to obtain good profiles of workers in relation to “job control” as a means to design specific improvement measures to increase their wellbeing.

CONCLUSIONS

There are two factors influencing “job control”: social factors concerning educational level, with it being found that the higher the level, the greater the job control; and work situation factors, including seniority and being a white collar worker.

Lastly, some specific dimensions require further examination, such as difficulty in learning and the perception of the work situation, taking into account socio-demographic characteristics.

NO POTENTIAL CONFLICT OF INTEREST RELEVANT TO THIS ARTICLE WAS REPORTED BY THE AUTHORS

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Supplementary table 1. Survey on the perceived state of health

Question	Answers
Age (years)	
Gender	Male Female
Job position	Blue collar White collar
Employment length in years	
Education level	Without studies Basic studies Medium studies Universitary studies
How do you think your state of health is?	Very good Good Normal Bad Very bad
Do you do any sport or physical activity?	Usually Sometimes Never
Do you sleep well?	Yes Normal
Have you had any learning difficulties recently?	Always Usually Sometimes Rarely Never
Do you consider that your job situation is good, in general?	Always Usually Sometimes Rarely Never
