PSYCHO-SOCIAL RISKS AND TRAIT ANXIETY AS PREDICTORS OF STRESS AND JOB SATISFACTION

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Resumen: El presente trabajo investiga la relación entre la exposición a factores psicosociales adversos en el entorno laboral, evaluados a través del *Cuestionario Multidimensional DECORE* (Luceño, Martín, Miguel Tobal y Jaén, 2005), el *rasgo de ansiedad* del trabajador, determinado por medio del *Cuestionario de Ansiedad Estado-Rasgo* (Spielberger, Gorsuch y Lushene, 1986), y la percepción de estrés y satisfacción laboral. El método de análisis se realizó a través de *ecuaciones de regresión lineal,* utilizando el método de selección de variables *pasos sucesivos*, con el objetivo de predecir *estrés* y *satisfacción* de forma independiente. La muestra estuvo constituida por 614 empleados, 283 hombres y 327 mujeres, pertenecientes a distintos sectores de actividad empresarial. Los resultados muestran que el *rasgo de ansiedad* del trabajador es la variable más importante a la hora de predecir *percepción de estrés laboral*, seguida de la percepción adversa en relación a los siguientes factores psicosociales: *Demandas Cognitivas, Recompensas* y *Control* (R^2=.356). En la predicción de la *satisfacción laboral* la variable más relevante es la percepción de *Apoyo Organizacional*, seguida de *Rasgo de Ansiedad* y el resto de los factores psicosociales, en el siguiente orden: *Demandas Cognitivas, Control* y *Recompensas* (R^2=.285).

Palabras Clave: Factores psicosociales, Cuestionario Multidimensional DECORE, Estrés, Satisfacción, Rasgo de ansiedad, Salud Laboral.

Abstract: This paper deals with the relationship between exposure to adverse psycho-social risks within the work environment, assessed by means of the *DECORE Multidimensional Questionnaire* (Luceño, Martín, Miguel Tobal & Jaén, 2005), employees' trait anxiety, measured by the *State-Trait Anxiety Inventory* (Spielberger, Gorsuch & Lushene, 1986), and perception of job stress and satisfaction. With the aim of predicting *stress perception* and *satisfaction perception* separately, a *linear regression analysis* was carried out, using the *stepwise* variable selection method. The sample consisted of 614 workers, 283 males and 327 females, from different activity sectors. Results showed that workers' *trait anxiety* is the most important variable to predict *job stress perception*, followed by adverse perception of the following psycho-social risks: *Cognitive Demands, Rewards* and *Control* (R^2=.356). Regarding *job satisfaction perception*, the most relevant variable is *Organizational Support* perception, followed by *Trait Anxiety* and the rest of psycho-social risks, in this order: *Cognitive Demands, Control* and *Rewards* (R^2=.285).

Key words: Psycho-social risks, DECORE Multidimensional Questionnaire, Stress, Satisfaction, Trait Anxiety, Occupational health.

Title: *Factores psicosociales y rasgo de ansiedad como predictores de estrés y satisfacción en el trabajo*

Introduction

The study of psycho-social risks is frequently associated with research on job stress, more precisely with the stimuli approaches, those that focus on stressful situations research. Psycho-social risks can be defined as *"those conditions present in a working situation that are directly related to the organization, the content of the work and the realization of the task, and have the capacity to affect workers' well-being or health (physical, psychic or social) as well as their work performance"* (INSHT, 1997). For other approaches to the study of psycho-social risks, the linking between them and job stress is direct; in this sense, the *Trade-Union Institute of Work, Environment and Health* defines psycho-

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social risks as *"those characteristics of the working conditions, most of all, of their organization, that affect people's health through psychological and physiological mechanisms that we call stress"* (ISTAS, 2002).

Assessment of these psycho-social risks is mainly done through self-reports, (because of the advantages they present); therefore, measuring the workers' perception of these risks (Luceño, Martín, Jaén & Díaz, 2005; Luceño, Martín, Rubio & Díaz, 2004). From the Laboratory of Work Psychology we have elaborated the *DECORE Multidimensional Questionnaire,* which assesses workers' perception of four psycho-social risks: *Cognitive Demands, Control, Rewards and Organizational Support;* the questionnaire also provides a global score of the psycho-social risk (Luceño, 2005; Luceño, Martín, Miguel Tobal & Jaén, 2005; Luceño & Martín, 2005). From all the research using the *DECORE Multidimensional Questionnaire,* it could be concluded that workers with a more adverse perception of these psycho-social risks are significantly more stressed and fatigued and less satisfied; they also have a higher probability of belonging to the group of workers that have had a work accident within the last five years (Luceño, 2005).

Workers' personality also influences their perception of their work environment. For instance, individuals who show a *"negative affectivity"* have a more negative perception of both themselves and the world around them, therefore perceiving psycho-social risks in a more adverse way, compared to individuals with a *"positive affectivity"*. *"Negative affect"* is a general dimension of subjective distress and unpleasant participation that includes a variety of adverse emotional states, such as displeasure, anger, shame, fear and nervousness (Watson, Clark & Tellegen, 1988). *"Negative affect"* has been considered not

just as a disposition of negative emotionality, but also as a more general trait of *"somato-psychic distress"*, which would explain the high positive correlations between *"positive affect"* and self-reports of stress and somatic complaints (Watson, 1988; Watson & Pennebaker, 1989). Thus, the distinction between *"positive affect"* and *"negative affect"* has been considered as one of the main pillars for differentiating anxiety from depression (Tellegen, 1985). Therefore, a personality pattern dominated by *"negative affectivity"* would make individuals more vulnerable, becoming a risk factor of anxiety, depression and job stress.

In the same way, being exposed to adverse psycho-social risks in the work environment provokes *mental strain* in workers (job stress), which, if maintained for a long time, may become a risk factor for cardiovascular disease (Karasek & Theorell, 1990; Miguel Tobal & González, 2003; Siegrist & Peater, 1996; Stansfeld & Marmot, 2002). Additionally, exposure to certain adverse psycho-social risks has been associated with other diseases, such as muscular-skeletal disturbances (Stansfeld, Bosman, Hemingway & Marmot, 1998), depression (Tsutsumi, Kayaba, Theorell & Siegrist, 2001), substance abuse, slight psychiatric disorders (Stansfeld, Fuhrer, Shipley & Marmot, 1999), burnout (Gil-Monte, Carretero & Roldan, 2005; Moreno-Jiménez, Seminotti, Garrosa, Rodriguez-Carvajal & Morante, 2005; Topa, Fernández & Lisbona, 2005) and low health self-perception (Pikhart, Bobak, Siegrist, Pajak, Rywik, Kyshegye, Gostautas, Skodova & Marmot, 2001).

On the other hand, from an organizational point of view, *stress perception* and lack of *job satisfaction* have also been associated with mental load (Rubio, Martín & Díaz, 1995; Martín, Díaz & Rubio, 1995), absenteeism, accident rate and a higher proneness to leave the organization

(Bardera, Oscar & González-Camino, 2002).

Considering these two factors, workers' personality and their perception of psycho-social risks, we carried out a survey to determine the importance of workers' *trait anxiety* and their perception of *psycho-social risks* when predicting *perceived satisfaction* and *stress*.

Our working hypotheses were:

Hypothesis 1: Employees who perceive psycho-social risks, assessed in *DECORE*, as adverse and have high trait anxiety, are significantly more stressed.

Hypothesis 2: Employees who perceive psycho-social risks, assessed in *DECORE*, as adverse and have high trait anxiety, are significantly less satisfied.

Method

Participants

The sample was composed of 614 workers from different *activity sectors*, education sector being the most numerous (16.4%), followed by: administration and banking (13.4%), postal service (10.7%), sanitary (10.1%) and defense (9%).

283 out of the 614 employees were males and 327 were females (4 workers did not answer the question "*gender*").

The *age* variable was split into five groups, the most numerous one being the age group between 25 and 34 (34.4%), followed by the 35-44 group (30.1%), the 45-54 group (19.7%), the group over 55 (7%) and, in the last place, the group under 24 (6.5%).

Regarding *educational level*, the highest percentage of individuals has a university degree (60.4%), as opposed to a very low percentage of workers that report "no studies" (0.5%). A 10.3% segment of the sample finished elementary school, and 28.4% finished secondary school.

Of the queried workers, 69.4% had a steady work contract, 23% had a temporary contract and 7.6% had "*some other type of contract*". The predominant work shift is "morning" (29%), followed by "split shift" (25.2%) and "whole day" (16.5%). Shift work represents 11.6% of the sample, most of them being morning-evening shifts or morning-evening-night shifts. Finally, more than 50% of the sample (52.1%) report working more than 52 hours per week, and 20.5% works on week-ends.

Instruments

Biographical data were gathered by means of a questionnaire, in which subjects were asked about their age, gender, number of children, educational level, work position, activity sector, time working for the company, type of contract and working shift.

To assess the psycho-social risks that workers are exposed to, we used the last version (44 items) of the *DECORE Multidimensional Questionnaire* (Luceño, 2005; Luceño, Martín, Miguel Tobal & Jaén, 2005). This instrument measures the perception that workers have regarding the following psycho-social risks: *Cognitive Demands, Control, Rewards and Organizational Support*. Four scores were obtained, one for each one of the aforementioned dimensions, as well as a *global score* that represents the mean value of the four factors. The range of scores for each one of the scales, as well as the global scale, varies between 100 and 500. A high score indicates that the worker perceives the psycho-social factors in his/her working environment as adverse.

To assess workers' *satisfaction* and *stress perception* we used a scale composed of two items: "*I am very satisfied with my job*" and "*I am very stressed*". The employees had to answer using a 5-grade continuous scale, according to his/her de-

gree of agreement (from "*I fully disagree*" to "*I fully agree*").

For the purpose of measuring the workers' anxiety, we used the trait anxiety scale from the Spanish version of the *State-Trait Anxiety Inventory*. The scale refers to relatively stable anxiety proneness that differentiates between people in their tendency to perceive situations as threatening, consequently elevating their State Anxiety (Spielberger, Gorsuch & Lushene, 1986). It is composed of 20 items and a frequency scale is used to reply (from *"almost never"* to *"almost always"*).

Procedure

At the beginning of the survey, we contacted many professionals who were interested in the study of psycho-social risks. These people were in charge of collecting data for the workers at their respective organizations. They were provided with information regarding psycho-social risks and their assessment: *what are they?, why are they important?, how are they assessed?*, and finally, *what is the DECORE Multidimensional Questionnaire and what is it for?* The objective was to qualify the responsible professional to inform the workers about the survey, as well as to avoid suspicion on the part of the employees.

Results

Table 1 shows the descriptive statistics, the index of internal consistency and the number of items for each questionnaire used in this survey, that is, the scales from the *DECORE Multidimensional Questionnaire* (*Organizational Support, Rewards, Control and Cognitive Demands*) and its global score, as well as the *Trait Anxiety scale* from the *State-Trait Anxiety Inventory*.

Table 1. Descriptive statistics, index of internal consistency and number of items in each scale; global score of the *DECORE Multidimensional Questionnaire*; *trait anxiety* scale from the *State-Trait Anxiety Inventory* (n=614).

SCALE	Mean	S. D.	Min	Max	α	N
ORGANIZATIONAL SUPPORT	248.95	61.51	100	467	.84	12
REWARDS	358.38	73.81	145	500	.85	11
CONTROL	243.89	74.00	100	455	.81	9
COGNITIVE DEMANDS	307.40	68.87	100	492	.81	12
GLOBAL	289.65	43.57	156	434	.86	44
TRAIT ANXIETY	18.59	9.21	0	52	.44	20

Note: S. D. = Standard deviation; Min. = Minimum; Max.= Maximum; α= Index of internal consistency (Cronbach's coefficient alpha); N= Number of ítems in each scale;

Table 2. Summary of regression equations for independent variable "stress" (n=604)

Model	R	R2	Adjusted R^2	S. E.	R^2 change	F change	gl1	gl2	Sig. F
1	.464(a)	.215	.214	.971	.215	164.727	1	602	.000
2	.579(b)	.335	.333	.894	.121	109.040	1	601	.000
3	.590(c)	.349	.345	.886	.013	12.070	1	600	.001
4	.596(d)	.356	.351	.882	.007	6.573	1	599	.011

Note: S. E. = Standard Error; a Predictor variables: ta (trait anxiety); b Predictor variables: ta, COG; (cognitive demands); c Predictor variables: ta, COG, REW (rewards); d Predictor variables: ta, COG, REW, CONT (control)

Table 3. Final equation derived from linear regression analysis for "stress"   (n=604).

	Non-standardized coefficients		Standardized coefficients			Confidence Interval for B at 95%	
	β	S. E.	β	t	Sig.	Lower limit	Upper limit
Constant	-687	.243		-2.823	.005	-1.165	-.209
TRAIT ANXIETY	.048	.004	.400	11.745	.000	.040	.055
COGNITIVE DEMANDS	.005	.001	.337	10.162	.000	.004	.006
REWARDS	.001	.001	.093	2.691	.007	.000	.002
CONTROL	.001	.001	.090	2.564	.011	.000	.002

Regression equation:

STRESS = - 0.687 + 0.048 (ta) + 0.005 (COG) + 0.001 (REW) + 0.01 (CON)

To predict the perception that the workers in our sample had regarding job stress and satisfaction, we calculated two *linear regression equations,* using the *stepwise* variable selection method.

Tables 2 and 3 describe the different regression equations that were derived when analyzing psycho-social risks and workers' trait anxiety, as independent variables, and *stress perception* and *satisfaction perception*, as dependent variables.

The best equation for predicting job stress perception is the one that includes the following variables as predictors: *Trait anxiety, Cognitive Demands, Rewards* and *Control*; therefore, *Organizational Support* is not included in the equation (see tables 2 and 3). Nevertheless, when it comes to predicting job satisfaction perception, all psycho-social dimensions are taken into account, as well as trait anxiety (see tables 4 and 5).

Although the *coefficient of determination* is not very high for any of the equations, (R^2 = .356 for stress and R^2 = .285 for satisfaction), predictions improve, com-

pared to when the means of the scale are used, 35% for stress perception and almost 30% for satisfaction perception (see tables 2 and 4).

Table 4. Summary of regression equations for independent variable "satisfaction" (n=604)

					Change Statistics				
Model	R	R2	Adjusted R^2	S. E.	R^2 change	F change	gl1	gl2	Sig. F
1	.415(a)	.172	.170	.981	.172	125.830	1	602	.000
2	.488(b)	.238	.236	.941	.067	52.60	1	601	.000
3	.508(c)	.258	.254	.930	.019	15.656	1	600	.000
4	.524(d)	.375	.270	.920	.017	13.940	1	599	.000
5	.534(e)	.285	.279	.914	.011	8.985	1	598	.003

Note: S.E. = Standard Error; a Predictor variables: ORGS (organizational support); b Predictor variables: ORGS, ta (trait anxiety); c Predictor variables: ORGS, ta , COG (cognitive demands); d Predictor variables: ORGS, ta, COG, CONT (control); e Predictor variables: ORGS, ta, COG, CONT, REW (rewards)

Table 5. Final equation derived from linear regression analysis for "satisfaction" (n=604).

	Non-standardized coefficients		Standard-ized coeffi-cients			Confidence Interval for B at 95%	
	β	S. E.	β	t	Sig.	Lower limit	Upper limit
Constant	5.493	.264		20.771	.000	4.974	6.013
ORGANIZATIONAL SUPPORT	-.005	.001	-.269	-6.937	.000	-.006	-.003
TRAIT ANXIETY	-.030	.004	-.253	-6.863	.000	-.038	-.021
COGNITIVE DEMANDS	.002	.001	.153	4.382	.000	.001	.003
CONTROL	-.002	.001	.118	-3.085	.002	.003	-.001
REWARDS	-.002	.001	-.112	-2.998	.003	-.003	.001

Regression equation:

SATISFACTION = 5.493 - 0.005 (ORGS) - 0.30 (ta) + 0.002 (COG) – 0.002 (CON) – 0.002 (REW)

Discussion and Conclusions

The scores obtained with the *DECORE Multidimensional Questionnaire* are useful in predicting stress and satisfaction perception in workers. This way, it will be possible to predict whether an employee will be stressed in his/her work environment, as long as we know his/her scores in three of the considered psycho-social risks (*Rewards, Control and Cognitive Demands*) as well as in the variable *Trait anxiety*. Thus, individuals who perceive these three psycho-social factors as adverse and have high *Trait anxiety* will more frequently perceive their working environment as stressful. It is

also possible to predict whether workers will be satisfied by knowing their scores in all four psycho-social risks assessed in the *DECORE Multidimensional Questionnaire* (*Organizational Support, Rewards, Control and Cognitive Demands*) as well as in *Trait anxiety.*

Although job stress perception can be predicted by means of psycho-social risks, the most important dimension in the prediction is the employee's trait anxiety, a variable that predisposes the worker to perceive his/her work environment in a more adverse way, and which is directly and positively related to a personality pattern characterized by *"negative affectivity"* (Watson, Clark & Tellegen, 1988). Therefore, and in spite of the importance that exposure to adverse psycho-social risks have in the development of the disease, we cannot forget that personality influences the perception of stress, and that workers that show a "*negative affect*" (personality vulnerable to experience stress) tend to present an emotional state characterized by feelings of strain, disgust, guilt, fright, anger, annoyance, shame, nervousness, lack of peacefulness and fear. Thus, it is likely that this type of individuals have high trait anxiety, defined as "*the propensity to experience reactions of anxiety because of a person's proneness to perceive situations as threatening*" (Spielberger, Gorsuch & Lushene, 1986).

With regard to the aforementioned, apart from investigating psycho-social risks within the organizational sphere, we must not forget that the perception that workers have about those risks are mediated by their personality, which plays a main role in the perception of psycho-social risks in the work environment, as demonstrated in this survey.

Regarding satisfaction perception, the most important variable in its prediction is *Organizational Support*, followed by *Trait*

anxiety, Cognitive Demands, Control and *Rewards.* These results highlight the great importance of social support in the perception of job satisfaction, strengthening those surveys that indicate high and positive correlations between social support and job satisfaction (Pérez & Martín, 1997; Pozo, Alonso, Hernández & Martos, 2005).

This survey presents certain limitations that should be pointed out. It is a cross-sectional study, what constrains the strength of conclusions. Moreover, besides worker's trait anxiety, other personal variables that may influence worker's perception of psycho-social risks, have been investigated; *Type A personality* (Siegrist, 1996; Siegrist 1998) and *self-esteem* (Oliver & Tomás, 2005) are examples of these factors. Therefore, it is of utmost importance to continue research on these variables that, somehow, negatively influence the perception that employees have regarding psycho-social risks in their work environment, and that might be associated with reduction of job satisfaction and higher proneness to occupational disease.

The fact that the assessments of job stress and satisfaction perception are single-item ones, should be carefully considered with regard to robustness and generalization of results; in the future, we recommend using measures validated in social research. On the other hand, using scales and inventories may influence the intensity of the relationship between predictor and dependent variables; that is, the *shared variance bias*, that may lean or increase the relationship between two variables assessed by same format instruments and which are, somehow, conceptually overlapped, as it is the case of "*anxiety*" and "*stress*".

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