
RELATIONSHIP BETWEEN WORKPLACE PSYCHOSOCIAL RISK FACTORS AND STRESS PERCEPTION IN A SAMPLE OF SPANISH WORKERS¹

RELACIÓN ENTRE FACTORES DE RIESGO PSICOSOCIAL EN EL LUGAR DE TRABAJO Y LA PERCEPCIÓN DE ESTRÉS EN UNA MUESTRA DE TRABAJADORES ESPAÑOLES

LOURDES LUCEÑO-MORENO

JESÚS MARTÍN-GARCÍA

EVA MARÍA DÍAZ-RAMIRO

Universidad Complutense de Madrid, Spain.

MARIAN JAEN-DÍAZ

Universidad Pontificia de Comillas, Spain

e-mail: lluceno@psi.ucm.es

ABSTRACT

This paper describes the association between several workplace psychosocial risk factors (Cognitive Demands, Control, Rewards and Organizational Support) and stress perception. A group of 1,143 Spanish employees from different activity sectors completed the DECORE Questionnaire. Results indicated that individuals perceiving their work environment as adverse reported feeling more stressed, compared to those having a more positive perception of psychosocial risk factors. Differences were evident for all four psychosocial risk factors considered in this study.

RESUMEN

El artículo describe la investigación que tuvo como objetivo buscar la relación entre diferentes riesgos psicosociales del trabajo (Demandas cognitivas, Control, Recompensas y Apoyo organizacional) y la percepción de estrés. Los riesgos psicosociales fueron evaluados a través del Cuestionario DECORE.

Se evaluaron a 1143 trabajadores de distintos sectores de actividad. Los resultados muestran que los empleados que perciben su entorno laboral como adverso se sienten más estresados, en comparación con los trabajadores que tienen una percepción más saludable de los riesgos psicosociales. Estas diferencias se observan para todos los riesgos psicosociales.

¹ Adress correspondence to Prof. Lourdes Luceño-Moreno, Facultad de Psicología, Universidad Complutense de Madrid, Campus de Somosaguas, 28223 Pozuelo de Alarcon, Madrid (Spain) or e-mail (lluceno@psi.ucm.es)

KEY WORKS

Psychosocial risk factors, Occupational stress, Working conditions.

PALABRAS CLAVE

Riesgos psicosociales, Estrés laboral y Condiciones de trabajo.

Psychosocial risk factors can be defined as “*those aspects of work design, and the organization and management of work, and their social context, which have the potential for causing physical, social and psychological harm*” (Cox & Griffiths, 1995).

Some of the most frequently studied psychosocial risk factors are: lack of control, lack of rewards, excessive demands and poor social support from co-workers and supervisors (Bosman, Peater, Siegrist & Marmot, 1998; Häusser, Mojzisch, Neisel & Schulz-Hardt, 2010).

The Demand-Control and Effort-Reward Imbalance models are pioneers in this field. Their premises are still valid and both models are particularly relevant to the study of psychosocial risk factors. In the Demand-Control Model (Johnson & Johansson, 1991; Karasek, 1979; Karasek & Theorell, 1990), the main sources of stress are two basic job characteristics: (1) *job demands* and (2) *control*. Stress reactions occur when psychological demands at work are high and *control* is low. In a latter formulation, *social support* is also included in this model, as research has confirmed that workers exposed to high demands, low *control* and poor social support have twice the risk of suffering from a variety of diseases associated with chronic occupational stress (especially cardiovascular disease), compared to individuals perceiving low demands, high *control* and strong social support (Johnson & Hall, 1994).

The Effort–Reward Imbalance model (Siegrist, 1996, 1998) is focused on the relationship among psychosocial risks, stress and health, determined by the imbalance between a worker’s level of perceived effort (costs) and the rewards he or she receives (gains). Rewards refer to: salary, social support and security.

This model predicts that high efforts along with low rewards will increase mental strain, which can result in chronic occupational stress over the long term.

Since there seems to be an association between exposure to psychosocial risk factors (high efforts and/or low rewards) and stress and occupational disease, research on this particular issue has become of utmost importance. Growing evidence suggests that chronic stress exposure can lead to increased risk of suffering from cardiovascular disease, as stress-related autonomic activation plays an important role in atheroma formation and other cardiovascular risk factors (Kuper, Sing-Manoux, Siegrist & Marmot, 2002; Tsutsumi, Kayaba, Kario & Ishikawa, 2009).

Stress has also been associated with other pathologies, such as: psychiatric disorders, alcohol dependence (Stansfeld, Fuhrer, Shipley & Marmot, 1999; Stans-

feld, Head & Marmot, 2000), sleep disorders (Diaz, Rubio, Luceño & Martin, 2010; Nakata, Haratani, Takahashi, Kawakami, Arito, Kobayashi, *et al.*, 2004), burnout (Akhtar & Lee, 2010; Barraca, 2010; Zhong, You, Gan, Zhang & Lu, 2009), as well as higher intent to quit the organization (Conley & You, 2009; Smith, 2010).

On the other hand, employee's perception of supervisor support facilitates work-family balance (Beutell, 2010) and is associated with subjective well-being (Khan & Husain, 2010).

Tissot, Messing & Stock (2005) examined the relationship between psychosocial risk factors, body position and musculoskeletal disorders, and found an association between low job control and forced body positions, which considerably increased the risk of musculoskeletal disorders.

The linkage between exposure to effort-reward imbalance in the workplace and stress has been confirmed in a large number of studies across different occupational groups: manual workers (Siegrist, Peter, Junge, Creme & Seidel, 1990; Siegrist, Peter, Motz & Strauer, 1992); public workers (Bosman, *et al.*, 1998; Marmot, Davey-Smith, Stansfeld, Patel, North, Head, *et al.*, 1991) and medical staff (Jonge, Mulder & Nijhuis, 1999; Luceño, Rubio, Díaz & Martín, 2010; Shanafelt, Bradley, Wipf & Back, 2002).

Exposure to psychosocial risk factors is not only associated with higher risk of suffering from occupational chronic stress and illness, but it is also linked to workers' perception of their own health. Niedhammer, Tek, Starke & Siegrist (2004), conducted a cross-sectional study (n=10,175) and a longitudinal study (n=6,286) to investigate the relationship between effort/reward imbalance and health perception. Results revealed that effort/reward imbalance was a significant predictor of negative general health perception. In the Whitehall II Study (Stansfeld, *et al.*, 1999; Stansfeld, *et al.*, 2000) results were similar.

Chronic occupational stress derived from exposure to psychosocial risk factors, is therefore not only associated with different diseases, but it is also associated with negative health perception.

The objective of the present study is to investigate the relationship between psychosocial risk factors (*Cognitive Demands, Control, Rewards, Organizational Support*) and stress perception. According to the above-mentioned empirical evidence, our hypothesis is as follows:

Workers exposed to adverse psychosocial risk factors (high or low demands, low control, low rewards or low organizational support) will perceive their workplace as more stressful, compared to those with a more positive perception of the same psychosocial risk factors.

METHOD

Participants

A group of 1,143 workers, 641 males and 502 females, were assessed. Mean age means was 38 years (SD=10, maximum=68, minimum=19). They all worked in the tertiary sector (services), with the following distribution: education (17.4%), telecommunications (15.4%), security (14.9%), banking (12.9%), social services (8.4%), healthcare (7.5%), transportation (5.7%), sales (4.1%), NGOs (3.5%), automotive (1.3%), media (1.2%), other services (7.7%)

Instruments

Demographic data were collected using a questionnaire that was designed for this research.

To assess the psychosocial risk factors to which workers were exposed, we used the DECORE Questionnaire (Luceño & Martín, 2008), which evaluates workers' perception of the following psychosocial risk factors: Cognitive Demands, Control, Rewards and Organizational Support. Three combined scores can also be obtained: *Demands-Control Imbalance Index* (DCI), *Demands-Reward Imbalance Index* (DRI) and *Global Risk Index* (GRI).

The Control subscale assesses the degree to which workers may choose tasks, methods, work places and, in general, other aspects that affect their work objectives.

The Organizational Support subscale measures the quality of relationship with co-workers and supervisors.

The Rewards subscale assesses the benefits that workers obtain for their contribution to the organization.

The Cognitive Demands subscale measures quantitative and qualitative requirement, it refers to how much work it is done.

Demands-Control Imbalance Index (DCI) assesses the relationship between demands and the degree of control the workers have over their daily tasks.

Demands-Reward Imbalance Index (DRI) represents the relationship between the demands a worker has and the rewards he gets for his effort.

Global Risk Index (GRI) is a global measure of risk.

The DECORE Questionnaire comprises 44 items, which were scored on a 5-point response scale (1: I fully disagree, 5: I fully agree). For every scale and combined risk indices, the scores were standardized (Mean=50, SD=20).

For the Control, Organizational Support and Rewards subscales, as well as the 3 combined indices, 4 exposure risk levels were set: "Emergency" (highest score), "Alert", "Healthy" and "Excellent" (lowest score).

For the Cognitive Demands subscale, 3 exposure risk levels were set: “Positive alert” (highest score), “Healthy” and “Negative alert” (lowest score).

The DECORE Questionnaire has good psychometric characteristics. Reliability was assessed by Cronbach’s α internal consistency coefficient, with values higher than .80 for all four scales. Validity was assessed through confirmatory and exploratory factorial analyses that confirmed the four-factor model (Luceño, Martín, Rubio & Díaz, 2010).

To assess workers’ perception of stress, a single-item measure was used: “*I am very stressed*”. The individuals indicated their degree of agreement or disagreement on a 5-point response scale (1: I fully disagree, 5: I fully agree).

Procedure

We contacted managers and workers’ representatives at different organizations, who were informed of the purpose of this research. The questionnaires were collectively administered during working hours and took about half an hour. Participation in the study was voluntary and anonymous. Participants had at all times the possibility to ask any questions on the research, for at every workplace there was a designated person for this purpose.

RESULTS

In order to explore the relationship between psychosocial risk factors (Control, Rewards, Organizational Support and Cognitive Demands) and stress perception, four one-factor analyses of variance (ANOVA) were conducted. Stress was the dependent variable with each one of the risk factors, for all risk exposure levels.

Three more one-factor ANOVA were conducted to set the relationship between each one of the combined risk indices (DCI, DRI, GRI) and stress perception. Thus, stress was again the dependent variable with each one of the DECORE’s indices for all exposure levels.

Multiple post hoc comparisons were conducted (Tukey’s test) to identify any statistically significant differences between risk exposure levels. According to the characteristics of the sample, this test is the most accepted method and was therefore preferred (Pardo & Ruiz, 2002).

All analyses were carried out using the SPSS-15 statistical package.

Results indicate that for Control, Rewards, Organizational Support and combined risk indices (considering stress as dependent variable) there are statistically significant differences between exposure risk levels in the expected direc-

tion: that is, workers at emergency level report a higher level of stress than those at alert level, who report higher levels of stress than individuals at healthy and excellent levels, respectively (Tables 1 and 2).

For the Cognitive Demands factor, those workers at the positive alert level experience more stress than those at the healthy and negative alert levels. These differences are statistically significant.

Table 1. *One-way analysis of variance (dependent variable: stress perception; factors: Control, Rewards, Organizational Support, Cognitive Demands).*

	STRESS	N	MEAN	SD	D.F.	F	COMP. D	D
Control	(1) Emergency	311	3	1.13	(3, 1139)	24.21**	(1-2)*	.22
	(2) Alert	340	2.76	1.09			(1-3)**	.50
	(3) Healthy	241	2.47	.94			(1-4)**	.66
	(4) Excellent	251	2.27	1.08			(2-3)**	.28
	Total	1143	2.66	1.10			(2-4)**	.45
								(3-4)
Rewards	(1) Emergency	178	2.97	1.17	(3, 1139)	11.85**	(1-2)	.17
	(2) Alert	405	2.78	1.10			(1-3)**	.45
	(3) Healthy	383	2.49	1.03			(1-4)**	.48
	(4) Excellent	177	2.43	1.09			(2-3)**	.27
	Total	1143	2.66	1.10			(2-4)**	.32
								(3-4)
Organizational Support	(1) Emergency	134	2.99	1.12	(3, 1139)	16.38**	(1-2)	.10
	(2) Alert	360	2.88	1.11			(1-3)**	.47
	(3) Healthy	446	2.50	1.03			(1-4)**	.55
	(4) Excellent	203	2.38	1.11			(2-3)**	.36
	Total	1143	2.66	1.10			(2-4)**	.45
								(3-4)
Cognitive Demands	(1) Positive alert	222	3.30	1.15	(2, 1140)	61.27**	(1-2)**	.70
	(2) Healthy	773	2.57	1.03			(1-3)**	1.06
	(3) Negative alert	148	2.14	1.01			(2-3)**	.42
	Total	1143	2.66	1.10				

Note.
 * $p < .05$. ** $p < .01$.
 COMP. = Comparison between factor levels.

Table 2. *One-way analysis of variance (dependent variable: stress perception; factors: combined risk indices).*

	STRESS	N	MEAN	SD	D.F.	F	COMP. D	D
DCI	(1) Emergency	280	3.25	1.10	(3, 1139)	61.01**	(1-2)**	.46
	(2) Alert	333	2.75	1.09			(1-3)**	.78
	(3) Healthy	280	2.45	.95			(1-4)**	1.13
	(4) Excellent	250	2.09	.93			(2-3)**	.29
	Total	1143	2.66	1.10			(2-4)**	.64
								(3-4)**
DRI	(1) Emergency	181	3.39	1.10	(3, 1139)	57.61**	(1-2)**	.55
	(2) Alert	406	2.79	1.07			(1-3)**	.93
	(3) Healthy	382	2.44	.98			(1-4)**	1.28
	(4) Excellent	174	2.06	.96			(2-3)**	.34
	Total	1143	2.66	1.10			(2-4)**	.70
								(3-4)**
GRI	(1) Emergency	184	3.32	1.13	(3, 1139)	57.94**	(1-2)**	.43
	(2) Alert	417	2.85	1.09			(1-3)**	.94
	(3) Healthy	376	2.38	.93			(1-4)**	1.20
	(4) Excellent	166	2.05	.97			(2-3)**	.46
	Total	1143	2.66	1.10			(2-4)**	.76
								(3-4)**

Note.
 * $p < .05$. ** $p < .01$.
 COMP. = Comparison between factor levels.

Following are the results from Tukey’s test, with stress as the dependent variable, for each one of the psychosocial risk levels.

For the Control factor, differences were statistically significant between the following levels: emergency–alert ($DF=.24, p=.02$); emergency–healthy ($DF=.52, p\leq.01$); emergency–excellent ($DF=.72, p\leq.01$); alert–healthy ($DF=.28, p\leq.01$); alert–excellent ($DF=.48, p\leq.01$); difference was not statistically significant between healthy - excellent ($DF=.19, p=.17$).

For the Rewards and Organizational Support factors, statistically significant differences appeared between the following levels: emergency-healthy ($DF=.47, p\leq.01$ for Rewards; $DF=.48, p\leq.01$ for Organizational Support); emergency-excel-

lent ($DF=.53, p\leq.01$ for Rewards; $DF=.60, p\leq.01$ for Organizational Support); alert-healthy ($DF=.28, p\leq.01$ for Rewards and $DF=.37, p\leq.01$ for Organizational Support); alert-excellent ($DF=.34, p\leq.01$ for Rewards and $DF=.49, p\leq.01$ for Organizational Support). Differences were not statistically significant between: emergency-alert ($DF=.19, p=.21$ for Rewards and $DF=.10, p=.76$ for Organizational Support), healthy-excellent ($DF=.06, p\leq.92$ for Rewards and $DF=.12, p=.52$ for Organizational Support).

For the Cognitive Demands factor, differences were statistically significant between all risk exposure levels: positive alert-healthy ($DF=.72, p\leq.01$); positive alert- negative alert ($DF=1.15, p\leq.01$); healthy-negative alert ($DF=.42, p\leq.01$).

With the combined risk indices (stress as the dependent variable) statistically significant differences appeared for all risk exposure levels in the expected direction: emergency-alert ($DF=.49, p\leq.01$ for DCI; $DF=.60, p\leq.01$ for DRI; $DF=.46, p\leq.01$ for GRI); emergency-healthy ($DF=.79, p\leq.01$ for DCI; $DF=.95, p\leq.01$ for DRI; $DF=.93, p\leq.01$ for GRI); emergency-excellent ($DF=1.16, p\leq.01$ for DCI; $DF=1.33, p\leq.01$ for GRI; $DF=.1.26, p\leq.01$ for GRI); alert-healthy ($DF=.30, p\leq.01$ for DCI; $DF=.34, p\leq.01$ for DRI; $DF=.47, p\leq.01$ for GRI); alert-excellent ($DF=.66, p\leq.01$ for DCI; $DF=.72, p\leq.01$ for DRI; $DF=.80, p\leq.01$ for GRI); healthy-excellent ($DF=.36, p\leq.01$ for DCI; $DF=.38, p\leq.01$ for DRI; $DF=.33, p\leq.01$ for GRI).

As shown in Tables 1 and 2, Cohen's *d* (1992) is always higher than .20, and sometimes, higher than .80.

DISCUSSION AND CONCLUSIONS

From these results we can conclude that workers who are highly exposed to psychosocial risk factors in their workplace perceive it as more stressful compared to workers who are less exposed and thus perceive their workplace as less stressful. The same happens for all four psychosocial risk factors (Cognitive Demands, Control, Rewards and Organizational Support) and for all combined risk indices as well (DCI, DRI, GRI). Those individuals that perceive moderate demands, high rewards, high control or high social support experience less stress than workers under more adverse work conditions. In a similar way, workers exposed to several adverse psychosocial risk factors (high demands and low control, or high demands and low rewards) or all of them (GRI) are more stressed.

Previous research under the Demand-Control model (Karasek, 1979; Karasek & Theorell, 1990) and the Effort-Reward Imbalance model (Siegrist, 1996; 1998) obtained similar findings. More recent studies also reported comparable

results (Lehr, Koch & Hillert, 2010; Semmer, Tschan, Meier, Facchin & Jacobshagen, 2010; Tsai & Chan, 2010; Zurlo, Pes & Siegrist, 2010). Therefore, our hypothesis is confirmed.

To conclude, it should be noted that every research has limitations; in this sense we highlight the difficulty of cross-sectional studies to set causal relationships between variables; the problem of finding a sample of workers that accurately reflects the characteristics of the working population also limits the width of the results. Future research should continue to examine the relationship between psychosocial risk factors and stress perception with workers in similar positions (therefore, under similar working conditions). We are currently studying healthcare (nurses, doctors and hospital porters) and education populations (teachers and professors) as empirical evidence has shown that these occupational groups are more likely to suffer from occupational stress than the general working population.

Because they may modulate workers' perception of psychosocial risk factors, other variables, such as personal initiative at work, should also be examined (Taris & Wielenga-Meijer, 2010).

REFERENCES

- Akhtar & Lee (2010) Job Burnout: toward an integration of two dominant resource-based models. *Psychological Reports*, 107, 193-208.
- Barraca, J. (2010) Emociones negativas en el profesorado universitario: burnout, estrés laboral y mobbing. *Edupsykhé*, 9, 85-100.
- Beutell, N. J. (2010) Health, Supervisory Support, and workplace culture in relation to work-family conflict and synergy. *Psychological Report*, 107, 3-14.
- Bosman, H., Peter, R., Siegrist, J., & Marmot, M. (1998) Two alternative job stress models and the risk of coronary heart disease. *American Journal of Public Health*, 88, 68-74.
- Cohen, J. (1992) A power primer. *Psychological Bulletin*, 112, 155-159.
- Conley, S., & You, S. (2009) Teacher role stress, satisfaction, commitment, and intentions to leave: a structural model. *Psychological Reports*, 105, 771-786.
- Cox, T., & Griffiths, A. (1995) The assessment of psychosocial hazards at work. In M. J. Shabracq, J. A. M. Winnubst & C. L. Cooper (Ed). *Handbook of Work and Health Psychology*. Chichester: Wiley & Sons.

- Díaz, E. M., Rubio, S., Luceño, L., & Martín, J. (2010) Relación entre la percepción de riesgos psicosociales y hábitos de sueño. *Ansiedad y Estrés*, 16 (2-3), 249-258.
- Häusser, J. A., Mojzisch, A., Niesel, M., & Schulz-Hardt, S. (2010) Ten years on: A review of recent research on the Job Demand-Control (-Support) model and Psychological well-being. *Work & Stress*, 24, 1-35.
- Johnson, J.V., & Hall, B. M. (1994) Social support in the work environment and cardiovascular disease. In S. Shumaler, & S. Czajkowski (Eds.), *Social Support and Cardiovascular Disease*. Nueva York: Baywood.
- Johnson, J. V., & Johansson, G. (1991) *The Psychosocial Work Environment: Work Organization, Democratization and Health*. Amityville, Nueva York: Baywood.
- Jonge, J., Mulder, M. J., & Nijhuis, F. J. N. (1999) The incorporation of different demand concepts in the job demand-control model: effects on health care professionals. *Social Science & Medicine*, 48, 1149-1160.
- Khan, A., & Husain, A. (2010) Social support as a moderator of positive psychological strengths and subjective well-being. *Psychological Reports*, 106, 534-538.
- Karasek, R. (1979) Job demands, job decision latitude and mental strain: Implications for job redesign. *Administrative Science Quarterly*, 24, 285-308.
- Karasek, R., & Theorell, T. (1990) *Healthy Work, Stress, Productivity and the Reconstruction of Working Life*. New York: Basic Books.
- Kuper, H., Singh-Manoux, A., Siegrist, J., & Marmot, M. (2002) When reciprocity fails: effort – reward imbalance in relation to CHD and health functioning within the Whitehall II study. *Occupation and Environmental Medicine*, 59, 777-784.
- Lehr, D., Koch, S., & Hillert, A. (2010) Where is (im)balance? Necessity and construction of evaluated cut-off points for effort-reward imbalance and overcommitment. *Journal of Occupational and Organizational Psychology*, 83, 251-261.
- Luceño, L. & Martín, J. (2008) *DECORE, Cuestionario de Evaluación de Riesgos Psicosociales*. TEA Ediciones: Madrid.
- Luceño, L., Martín, J., Rubio, S. & Díaz, E. (2010) Análisis Factorial Confirmatorio del cuestionario DECORE. *Ansiedad y Estrés*, 16, 237-248.

- Luceño, L., Rubio, S., Díaz, E., & Martín, J. (2010). Percepción de riesgos psicosociales en distintas muestras de trabajadores españoles. *Edupsykhé*, 9, 119-139.
- Marmot, M. G., Davey-Smith, G., Stansfeld, S. A., Patel, C., North, F., Head, J., White, I., Brunner, E., & Feeney, A. (1991) Health inequalities among British civil servants: The Whitehall II Study. *Lancet*, I, 1003-1006.
- Nakata, A., Haratani, T., Takahashi, M., Kawakami, N., Arito, H., Kobayashi, F., & Araki, S. (2004) Job stress, social support, and prevalence of insomnia in a population of Japanese daytime workers. *Social Science & Medicine*, 59, 1719-1730.
- Niedhammer, I., Tek, M., Starke, D., & Siegrist, J. (2004) Effort-reward imbalance model and self-reported health: cross-sectional and prospective findings from the GAZEL cohort, 58, *Social Science & Medicine*, 58, 1531-1541.
- Pardo, M., & Ruiz, M. A. (2002) *SPSS 11: Guía para el análisis de datos*. Madrid: Mc Graw Hill.
- Semmer, N., Tschann, F., Meier, L., Facchin, S., & Jacobshagen, N. (2010) Illegitimate Tasks and Counterproductive Work Behavior. *Applied Psychology*, 59, 70-96.
- Siegrist, J., (1996) Adverse health effects of high-effort/low-reward conditions. *Journal of Occupational Health Psychology*, 1, 27-41.
- Siegrist, J., (1998) Adverse health effects of effort-reward imbalance at work: theory, empirical support and implications for prevention. In: C. L. Cooper (Ed.), *Theories of Organizational Stress*. Oxford: Oxford University Press. Pp. 190-204.
- Siegrist, J., Peter, R., Junge, A., Cremer, P., & Seidel, D. (1990) Low status control, high effort at work and ischemic heart disease: Prospective evidence from blue collar men. *Social Science and Medicine*, 31, 1127-1134.
- Siegrist, J., Peter, R., A., Motz, W., & Strauer, B. E. (1992) The role of hypertension, left ventricular hypertrophy and psychosocial risk in cardiovascular disease: Prospective evidence from blue-collar men. *European Heart Journal*, 13 (Suppl.), 89-95.
- Shanafelt, T. D., Bradley, K. A., Wipf, J. E., & Back, A. L. (2002) Burnout and self-reported patient care in an Internal Medicine Residency Program. *Annals of Internal Medicine*, 136 (5), 358-367.
- Smith, K. J. (2010) A structural model of teacher role stress, satisfaction, commitment and intentions to leave: a comment on Conley and You. *Psychological Reports*, (2009), 106, 576-579.

- Stansfeld, S. A., Fuhrer, R., Shipley, M. J., & Marmot, M. G. (1999) Work characteristics predict psychiatric disorder: prospective results from the Whitehall II Study. *Occupational and Environmental Medicine*, 56, 302-307.
- Stansfeld, S. A., Head, J., & Marmot, M. G. (2000) *Work related factors and ill health: the Whitehall II study*. London: HSE Books.
- Taris, T. W., & Wielenga-Meijer, E. G. A. (2010) Worker's Personal initiative as a moderator of the relations between job characteristics and well-being. *Psychological Reports*, 107, 255-264.
- Tissot, F., Messing, K., & Stock, S. (2005) Standing, sitting and associated working conditions in the Quebec population in 1998. *Ergonomics*, 48, 249-269.
- Tsai, F., & Chan, C. (2010) Occupational stress and burnout of judges and procurators. *International Archives of Occupational and Environmental Health*, 83, 133-142.
- Tsutsumi, A., Kayaba, K., Kario, K., & Ishikawa, S. (2009) Prospective Study on Occupational Stress and Risk of Stroke. *Archives of Internal Medicine*, 169, 56-61.
- Zhong, J., You, J., Gan, Y., Zhang, Y., & Lu, C. (2009) Job stress, burnout, depression symptoms, and physical health among Chinese university teacher. *Psychological Reports*, 105, 1248-1254.
- Zurlo, M. C., Pes, D., & Siegrist, J. (2010). Validity and reliability of the effort-reward imbalance questionnaire in a sample of 673 Italian teachers. *International Archives of Occupational and Environmental Health*, 83, 665-674.