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WORKING CONDITIONS, WORK ENGAGEMENT AND HEALTH: A MEDIATION ANALYSIS

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Abstract:

This study investigates whether work engagement mediates the association between the Job Demands-Control model of stress and workers' wellbeing. In this cross-sectional research, 463 workers completed the Job Content Questionnaire, the Utrecht Work Engagement Scale (UWES) and the vitality, pain and mental health subscales of the short form-36 Health Survey Questionnaire (SF-36). The study hypotheses were tested using path analysis based on structural equation models (SEM). It was found that work engagement partially mediates the associations between decision latitude and between job strain with well-being. Meanwhile, job strain was negatively associated with work engagement and well-being. Job demands were negatively associated with well-being, but, contrary to expectations,

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they were not significantly associated with work engagement. Theoretically, the findings of this study suggest that adverse working conditions can deteriorate wellbeing both by the direct path of stress reactions, and by the indirect path of reduced work motivation (i.e. low work engagement).

Keywords. work engagement; work demands; decision latitude; job strain; well-being.

CONDICIONES LABORALES, COMPROMISO CON EL TRABAJO Y SALUD: UN ANÁLISIS DE MEDIACIÓN

Resumen:

Este estudio investiga si el compromiso con el trabajo media la asociación entre el modelo de estrés Demanda-Control y el bienestar de los trabajadores. En esta investigación transversal, 463 trabajadores diligenciaron el Job Content Questionnaire, la Utrecht Work Engagement Scale (UWES) y las subescalas de vitalidad, dolor y salud mental de la versión corta del Health Survey Questionnaire (SF-36). Las hipótesis del estudio se probaron mediante análisis de camino mediado basados en modelos de ecuaciones estructurales (SEM). Se encontró que el compromiso con el trabajo media parcialmente las asociaciones entre la latitud de decisión y el bienestar, y entre la tensión laboral y el bienestar. Así mismo, la tensión laboral se asoció negativamente con el compromiso con el trabajo y con el bienestar. Las demandas laborales se asociaron negativamente con el bienestar, pero, contrariamente a lo esperado, no se asociaron significativamente con el compromiso con el trabajo. En teoría, los hallazgos de este estudio sugieren que las condiciones laborales adversas pueden deteriorar el bienestar tanto por el camino directo de las reacciones de estrés como por el camino indirecto de la baja motivación laboral (es decir, bajo compromiso con el trabajo).

Palabras clave. compromiso con el trabajo; demandas laborales; latitud de decisión; tensión laboral; bienestar.

CONDIÇÕES DE TRABALHO, ENGAJAMENTO NO TRABALHO E SAÚDE: UMA ANÁLISE DE MEDIAÇÃO

Resumo:

Este estudo investiga se o comprometimento com o trabalho medeia a associação entre o modelo de estresse Demanda-Controle e o bem-estar dos trabalhadores. Nesta investigação transversal, 463 trabalhadores responderam ao Job Content Questionnaire, à Utrecht Work Engagement Scale (UWES) e às subescalas de vitalidade, dor e saúde mental da versão curta do Health Survey Questionnaire (SF-36). As hipóteses do estudo foram testadas por meio de análise de caminho mediado com base em modelagem de equações estruturais (SEM). Compromisso com o trabalho medeia parcialmente as associações entre latitude de decisão e bem-estar, e entre estresse no trabalho e bem-estar. Da mesma forma, o estresse no trabalho foi negativamente associado ao compromisso com o trabalho e bem-estar. As demandas de trabalho foram negativamente associadas ao bem-estar, mas ao contrário do que se esperava, não foram significativamente associadas ao compromisso com o trabalho. Em teoria, os resultados deste estudo sugerem que as condições adversas de trabalho podem prejudicar o bem-estar tanto por meio do caminho direto das reações de estresse quanto pelo caminho indireto de baixa motivação para o trabalho (ou seja, baixo comprometimento com o trabalho).

Palavras chave. compromisso com o trabalho; demandas de trabalho; latitude de decisão; estresse no trabalho; bem estar.

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1. INTRODUCTIÓN:

The Job Demands-Control (JDC) model (Karasek, 1979) suggests that job demands (quantitative workload) and decision latitude (skill discretion and decision authority) influence the workers' health and organizational behaviour both jointly and separately. Consistent evidence suggests that chronic high job demands, and low decision latitude are associated with stress responses in the autonomic, neuroendocrine, cardiovascular and immune nervous systems (Chandola et al., 2010; Ohlson et al., 2001; Sun et al., 2007). The acute stress responses allow facing environmental demands, but they could imply a cumulative physiological cost, known as allostatic load, which in the medium and long term leads to negative health outcomes (McEwen, 1998, 2005; McEwen & Wingfield, 2003).

2. LITERATURE REVIEW

Although numerous epidemiological studies suggest that job strain (i.e. the combination of high demands and low decision latitude) is associated with cardiovascular diseases and psychological strain (for a summary see Backé et al., 2012; De Lange et al., 2003; Gilbert-Ouimet et al., 2014; Hausser et al., 2010; Kivimäki et al., 2012; Landsbergis et al., 2013; Luchman & González-Morales, 2013; Van der Doef & Maes, 1999), few investigations have associated the JDC model with positive individual outcomes.

A personally satisfied employee will perform better in the company, will be more productive and will also be more loyal. Likewise, this influences the level of work life that employees have; that is, an employee with high levels of quality of life in his family, in himself and with the company or position he has, will have an impact on the overall satisfaction in the company (Gómez et al., 2018). This study associates the JDC model with work engagement. According to Salanova and Schaufeli (2009), work engagement is a positive work-related state of mind associated with the availability of organizational resources, which play both an intrinsic motivational role in fostering the personal and professional growth of the employee, his learning and development; and an extrinsic motivational role in facilitating the achievement of work objectives.

The association between the JDC model and work engagement is poorly documented (De La Rosa, 2008; De La Rosa & Jex, 2010; Demerouti et al., 2001), because work engagement has been investigated mainly from the perspective of the job demands-resources (JDR) model (Schaufeli et al., 2002). Compared to the JDC model, the JDR model asserts that, as well as high job demands and low resources at work impair health, the availability of job resources stimulates work motivation, leading to three positive individual outcomes, or dimensions of work engagement: vigour, dedication and absorption (Schaufeli et al*.,* 2002). Vigour is associated with high levels of energy and willingness to work hard and persist in the face of difficulties. Dedication is defined as a state of high psychological involvement with work, accompanied by feelings of significance, enthusiasm, and challenge. And absorption is a state of complete concentration in which the worker feels "happily absorbed" with his work, loses track of time (which seems to pass very quickly) and has difficulties for suspending work activities (Bakker & Demerouti, 2008; Schaufeli et al., 2002).

It is known that work engagement is associated with organizational and individual level outcomes, such as health risks and presenteeism (Burton et al., 2017), sickness absenteeism (Schaufeli et al., 2009), burnout, anxiety and depression (Hakanen et al., 2008; Korunka et al., 2009; Moodie et al., 2014; Schaufeli & Bakker, 2004), and psychosomatic health (Matsuda-Chapman & Mori, 2018; Schaufeli et al., 2009). In addition, work engagement has been documented as a mediator of the association between working conditions (especially resources) and positive organizational behaviours (for a summary see Bailey et al., 2017). However, very few studies have investigated whether work engagement also mediates the association between working conditions and health outcomes (Richardsen et al., 2006; Schaufeli & Bakker, 2004; Schaufeli et al., 2009; Upadyaya et al., 2016). Responding to these gaps, this study investigates whether work engagement mediates the association between the JDC model and the workers' wellbeing.

Hypothesis Development

Theoretically, this research differs and adds to previous literature on the JDC model by examining whether an additional mechanism to stress reactions can link working conditions (job demands, decision latitude and job strain) with workers' health. In particular, this study suggests that just as the variables of the JDC model trigger stress reactions that affect health, they can also indirectly affect health through motivation-related outcomes such as work engagement. According to Bakker and Demerouti (2007), the broaden-and-build theory (Fredrickson, 2000) explains the mechanism that links the availability of work resources with positive emotional states and good health. The broadening hypothesis suggests that mental states characterized by the presence of positive emotions, such as work engagement, produce a broader and flexible cognitive organization, associated with creative thinking patterns, better coping with stress situations, improved physical, intellectual and social resources, and therefore, positive health outcomes (Cohn et al., 2009; Fredrickson, 2000; Gloria et al., 2013).

Thus, by combining the JDC and work engagement models, it can be expected that there is a causal chain in which decision latitude is positively associated (via improved work motivation) with work engagement (+decision latitude → +work engagement), which in turn is associated (via broaden cognition and positive emotions) with positive health outcomes (+work engagement → +positive health outcomes). In addition, based on the transactional theory of stress (Lazarus & Folkman, 1984), the JDC model suggests that work stressors (high demands, low decision latitude and job strain) can be appraised as potential sources of harm and/or threat. Consequently, stressors are associated with negative emotional states (e.g. sadness, anger, anxiety and fear), incompatible with the positive mental states that characterize work engagement (+Job demands → −work engagement).
Summarizing, from the theoretical perspectives of JDC and work engagement models, it can be predicted: H1. Job demands are negatively associated with work engagement and well-being. H2. Decision latitude is positively associated with work engagement and well-being. H3. Job strain is negatively associated with work engagement and well-being. H4. Work engagement is positively associated with well-being. In addition, H5. Work engagement mediates the association between the JDC model (job demands, decision latitude and job strain) and wellbeing.

3. METHOD

Participants

Participants were selected in a non-probabilistic manner. The total sample consisted of 463 workers from Colombian companies in the private sector. The 61% of the participants were woman and 39% were men. The average age of the sample was 35 years (range between 18 and 62 years, SD = 9.9). The 26% of the sample belonged to companies in the industrial sector, and 74% to companies in the service sector. Regarding education, 70.7% of the workers had a university education, technical or technological training, 26% had finished high school, and 3.3% only finished primary school. The average seniority was 5.49 years (range between 1 and 37 years, SD = 6.2). Workers with less than 6 months in their company were excluded from the study in order to ensure that the information reported by the participants describes their current employment.

Instruments

Work conditions were measured with the Spanish version of Job Content Questionnaire (JCQ), validated for Colombian workers by Gómez (2011). The JCQ includes the following sub-scales: Skill discretion (6 items, α=0.7), decision authority (3 items, α=0.7) and psychological job demands (5 items, α=0.7). The participants were asked to answer each question on a 4-point Likert scale, in which 1 was labelled as "strongly disagree" and 4 as "strongly agree. Decision latitude was calculated as the sum of skill discretion and decision authority subscales. Job strain was calculated using the formula (Demands * 2)/decision latitude.

Work engagement was measured with the Spanish version of the UWES questionnaire (Schaufeli & Bakker, 2003). The scale consists of three dimensions: Vigor (6 items, α=0.8), Dedication (5 items, α=0.8) and Absorption (6 items, α=0.7). The items that measure each factor refer to how people feel in relation to their work, and the response scale indicates how often people perceive these feelings on a seven-point Likert scale ranging from 0 (“never”) to 6 (“every day”).
Wellbeing was measured with three subscales (Mental Health, Energy/Vitality and Pain) of the Short form-36 Health Survey Questionnaire (SF-36)”, adapted for the Colombian context by Lugo et al. (2006). The items of these scales were recorded in order to guide them positively. Therefore, the higher the score in the SF-36

subscales, the better the health status. For this sample, the internal consistency (alphas of Cronbach) of the subscales of the SF-36 was as follows: Pain (2 items, α=0.8), Vitality (4 items, α=0.9) and Mental Health (5 items, α=0.8). According to Jenkinson et al. (1993), the scores of these subscales were averaged in order to obtain a general score of wellbeing.

Procedure and Ethics

Data collection was conducted personally and virtually. In the virtual mode, once the worker agreed to participate in the study, an email was sent with the link to access the informed consent form and the electronic questionnaire. In the face-to-face mode, the workers were gathered by the Human Resource Management office of their companies. Research assistants provided each participant with the informed consent and the study questionnaire. The information was handled confidentially, using codes to identify each questionnaire. This study was conformed to the ethical principles for research in humans expressed by the Declaration of Helsinki (2017) issued by the World Medical Association (2021).

Statistical Analysis

The study hypotheses were tested by using path analysis based on structural equation models (maximum likelihood method). In particular, two path models were conducted. In model 1, job demands, and decision latitude were used as predictors of work engagement and wellbeing; engagement, in turn, was used as a predictor of wellbeing. Model 2 is the same as model 1, but job strain was used as predictor instead of job demands and decision latitude. The fit of the models with the data was defined by using the Chi-square statistic (and their associated probability), Comparative Fit Index (CFI), Standardized Root Mean Square Residual (SRMSR), and Root Mean Square Error of Approximation (RMSEA). These indicators and the model estimators were calculated using SPSS AMOS 21.

4. RESULTS:_

Table 1 shows the descriptive statistics and Pearson's correlations between the study variables. Job demands (D) and decision latitude (DL) averages were similar to those found in other Colombian studies (Gómez et al., 2016). The average of the job strain (JS) score was below the risk threshold (1.0). The vigour (Vi), dedication (De), absorption (Ab) an overall work engagement scores were relatively high. All predictors of the JDC model and work engagement, except absorption, were positively and significantly associated with the three indicators of wellbeing (physical pain (PP), vitality (V) and mental health (MH)).

Table 1.
Means, Standard Deviations and Pearson Correlations Between Study Variables.

	Mean	SD	2	3	4	5	6	7	8	9
1. D	30,12	7,13	-,012	,684**	-,115*	-,060	,033	-,249**	-,339**	-,274**
2. DL	72,62	11,54		-,641**	,259**	,378**	,195**	,137**	,249**	,217**
3. JS	0,87	0,27			-,225**	-,252**	-,081	-,255**	-,382**	-,322**
4. Vi	5,15	0,81				,737**	,573**	,236**	,471**	,324**
5. De	5,32	0,87					,552**	,222**	,391**	,333**
6. Ab	4,62	1,00						,097*	,169**	,075
7. PP	4,52	0,99							,594**	,503**
8. V	4,28	0,88								,712**
9. MH	4,71	0,77								

**p < .01 // *p < .05

The path analysis presented in Table 2 (Model 1: X2 = 9,763, gl = 6, p = 0.135, CFI = 0.995, RMSA = 0.037) and graphically in Figure 1, revealed that, contrary to hypothesis 1, job demands are not associated with work engagement, although they are negatively associated with well-being. According to hypothesis 2, decision latitude is positively associated with work engagement and wellbeing. Likewise, according to

hypothesis 4, work engagement is positively associated with wellbeing. Finally, it was found that (according to hypothesis 5) work engagement partially mediates the association between decision latitude and well-being, but (contrary to hypothesis 5) not the association between job demands and wellbeing.

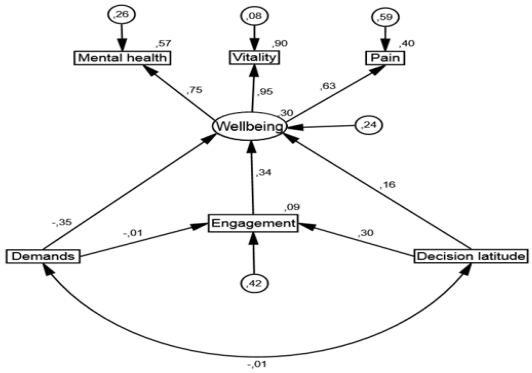
Table 2
Path Model 1 to Predict Well-Being.

			Estimated SPC	S. E.	C. R.
Engagement	<--	Demands	-0,01	0,00	-0,26
Engagement	<--	Decision latitude	0,30**	0,00	6,77
Wellbeing	<--	Demands	-0,35**	0,00	-7,82
Wellbeing	<--	Decision latitude	0,16*	0,00	3,55
Wellbeing	<--	Engagement	0,34**	0,04	7,19
Physical pain	<--	Wellbeing	0,63**	0,08	13,45
Mental health	<--	Wellbeing	0,75**		
Vitality	<--	Wellbeing	0,95**	0,09	16,92

**p < .01 // *p < .05

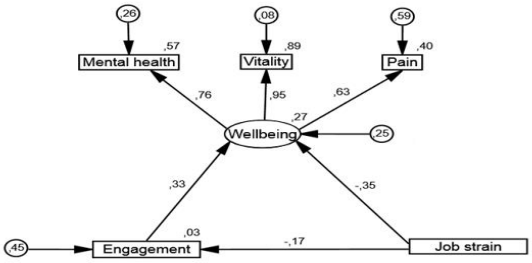
The path model presented in Table 3 (Model 2: X2 = 8.9956, gl = 4, p = 0.062, CFI = 0.993, RMSA = 0.052) and graphically in Figure 2, revealed that, according to hypothesis 3, job strain is negatively associated with work engagement and wellbeing. In addition, according to hypothesis 5, work engagement partially mediates the association between job strain and wellbeing.

Figure 1.
Path Model 1 to Predict Well-Being.



Note. Standardized path coefficients represented through straight arrows and multiple squared correlations in the upper right corner of the variables. Curved arrows represent covariances. Circles represent error terms.

Figure 2
Path Model 2 to Predict Well-Being



Note. Standardized path coefficients represented through straight arrows and multiple squared correlations in the upper right corner of the variables. Curved arrows represent covariances. Circles represent error terms.

Table 3.
Path Model 2 to Predict Well-Being.

			Estimated SPC	S.E.	C.R.
Engagement	<--	Job strain	-0,17*	0,12	-3,67
Wellbeing	<--	Job strain	-0,35**	0,10	-7,54
Wellbeing	<--	Engagement	0,33**	0,04	7,14

Physical pain	<--	Wellbeing	0,63**	0,08	13,46
Mental health	<--	Wellbeing	0,76**		
Vitality	<--	Wellbeing	0,95**	0,09	16,71

**p < .01 // *p < .05

This study investigated whether work engagement mediates the association between the JDC model and the workers' wellbeing. Consistently with the study hypotheses, it was found that work engagement partially mediates the associations between decision latitude and well-being, and between job strain and well-being. Likewise, according to expectations, the associations between decision latitude, engagement and wellbeing were positive. Meanwhile, job strain was negatively associated with work engagement and wellbeing. Job demands were negatively associated with wellbeing, but, contrary to expectations, they were not significantly associated with work engagement.

Consistently with the evidence on the mediating role of work engagement in the relationship between working conditions (especially job resources) and positive organizational behaviours (Bailey et al., 2017), this study suggest that work engagement mediates the association between working conditions and wellbeing. This finding contributes to the literature on work engagement and the JDC model in at least two ways. First, the reported findings suggest that the JDC model may affect wellbeing directly and indirectly. It is known that the direct effect of the JDC model on wellbeing is due to the fact that adverse working conditions produce psycho-physiological stress reactions (Chandola et al., 2010; Ohlson et al., 2001; Sun et al., 2007). However, this study found that, additionally, decision latitude and job strain may be associated with motivational states such as engagement, which theoretically affect well-being through motivation and positive emotions (Bakker & Demerouti, 2007, 2008; Cohn et al., 2009; Fredrickson, 2000).

Second, the results of this study are consistent with previous research that reports positive associations between work engagement and self-reported health outcomes (Burton et al., 2017; Freeney & Fellenz, 2013; Hallberg & Schaufeli, 2006; Imamura et al., 2016; Shimazu et al., 2012; Sonnentag et al., 2010). In addition, one of the most salient findings of this study is that the effect of engagement on well-being is as strong as that of the stressors of the JDC model (job demands and job strain). Taking into account that a negative effect of job strain on work engagement was also found, it is theoretically possible to suggest that adverse working conditions can deteriorate wellbeing both by the direct path of stress reactions, and by the indirect path of reduced work motivation.

The null association between job demands and work engagement was unexpected. However, recent review studies suggest that the research results on the relationship between these variables are inconclusive (Bailey et al., 2017). In their meta-analysis, Crawford et al. (2010) found that null results on the association between work engagement and job demands could occur because few investigations differentiate hindrance and challenge demands. There is evidence that challenge-demands (e.g. quantitative workload and time pressure) may foster work engagement, while hindrance demands (e.g. interpersonal or role conflict) may hinder it (Baethge et al., 2018; Crawford et al., 2010; Tadić et al., 2015). Therefore, the theoretical approaches that combine challenge and hindrance stressors in the conceptualization of job demands (such as the JDC model), may have problems in detecting the association between job demands and work engagement.

On the other hand, according to the JDR model, job demands, by themselves, do not have a direct effect on the workers' motivation, but do modify the effect of job resources on work engagement. In particular, Bakker and Demerouti (2008) found that resources such as skill discretion, decision authority, social support and performance feedback become more salient and gain motivational potential when workers face highly demanding work situations. Consistently with this hypothesis, Bakker et al. (2007) found that the association of job resources with engagement is stronger under conditions of high demands. Likewise, Demerouti et al. (2001) reported that active jobs, which combine high job demands and high decision latitude, are associated with high levels of engagement. In the same direction, this study suggests that job strain, which also represents an interaction term of job demands and resources, is negatively associated with work engagement.

In practical terms, the popularity of work engagement in the field of organizational studies is due to its association with both organizational performance and individual wellbeing (Bailey et al., 2017; Halbesleben,

2010). The results of this study suggest that interventions focused on improving working conditions, especially job resources and job strain, can simultaneously impact work engagement and health (Knight et al., 2017). Indeed, job re-designs focused on balancing the structural demands and resources of work could be as effective in reducing stress as in improving work engagement.

5. DISCUSIÓN Y CONCLUSIONES

The research methods used in this study have several limitations. First, the size and selection criteria of the sample limit the generalization of the results. The cross-sectional design limits the establishment of causal relationships between the study variables. In addition, the exclusive use of self-report measures prevents determining whether the data on working conditions, work engagement and health represent subjective perceptions of workers or objective information. This limitation is relatively compensated by the high reliability of the instruments used in the data collection. However, future research could extend this study by documenting the effect of work engagement on objective health outcomes. In addition, several authors have drawn attention to the importance of empirically establishing the physiological mechanisms that underlie the association between positive organizational behaviours (such as work engagement) and the workers' wellbeing (e.g. Bailey et al., 2017; Bakker et al., 2011; Langelaan et al., 2006).

Finally, this study found that work engagement is a mechanism that mediates the association between decision latitude and job strain with well-being. This chain of associations suggests that in addition to predicting stress-related health outcomes, the Karasek's JDC model can indirectly affect wellbeing, through changes in the workers' motivational states. These findings suggest that interventions focused on modifying stress related work conditions (especially the balance between job demands and resources) could be effective in both improving wellbeing and work engagement.

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