Extending Job hindrance and well being: The mediation effect of mindfulness

Introduction

The study of Job demands and well being is a growing field. Several years ago, the Job demands and resources model (JD-R model) argued that job characteristics have an important impact on well being (Demerouti, Bakker, de Jonge, Janssen & Schaufeli, 2001). Briefly, the Job Demands-Resources (JD-R) model has the assumption that every occupation has its own risk factors, which are related with job stress. There are two types of factors: Job demands and Job Resources (Bakker, Demerouti, De Boer, & Schaufeli, 2003a; Bakker Demerouti, Taris, Schaufeli, & Schreurs, 2003b). Job demands are physical, psychological, social or organizational characteristics of the job that require physical and psychological skills, that consequently gathers an effort that can have a physiological and psychological cost (e.g. role ambiguity and emotional demands).

Job resources refer to the psychological, physical, social or organisational features of the job that are: Functional in achieving work goals, reduce job demands and their physiological and psychological costs. Therefore job resources are necessary to deal with job demands which could cause job stress (Bakker & Demerouti, 2006).

This work will focus on Job demands which are not necessarily negative. But when those demands require extreme effort from which the person has not recovered properly they could turn into job stressors (Meijma & Mulder, 1998). In the past, Job stress has been associated with negative (Bhagat, McQuaid, Lindholm, & Segovis, 1985) and positive outcomes (Merelman, 1997). Afterwards, job stress was separated in two types: Challenges and Hindrance. The first one is more related to positive outcomes whereas the second to more negative ones (Cavanaugh, Boswell, Roehling & Boudreau, 1998).

Since those days, there has been a growing amount of research on the topic which at the same type has produced more questions regarding it. For instance, this work will focus specifically on job hindering variables such as emotional demands and role ambiguity. There has been an increasing amount of research regarding Job hindrance and their relationship with well being. In this case, Job Hindrance is positively related to Job strain and negatively related to job satisfaction (Podsakoff, LePine & LePine, 2007) which are characteristic that at the time enables higher well-being.

Even though the relationship between stressors in the working environment and well being are already partly settled, but some questions for future research are also rising. One of this is

regarding how personal resources mediates the relationship between Job characteristics and well being. Furthermore, how these resources which can be trained in the working environment can affect this relationship (Van den Broeck, Van Ruysseveldt, Vanbelle & De Witte, 2013). Demerouti and Bakker agreed with the previous suggestion and also proposed that job hindrance should further be studied regarding different work places (Demerouti & Bakker, 2011).

As a result of the empirical evidence there is a need to address further topics regarding Job hindrance, personal resources and well being. Therefore, this paper aims to address these variables in order to further extend the knowledge of the JD-R model, better understand what factors detriment or boast well-being. Finally, what personal resources can behave as mediators of the relationship aforementioned.

Theoretical background

Job Hindrance

As stated before, the JD-R model focus on demands and resources. Inside these demands, it is possible to recognise Job Hindrance. This concept is tracked back from Lazaus and Folkma'n ideas about coping. These authors stated that there are some situations (in this case the working environment) were people feel a lack of control, and therefore seem threatened about it and experience negative emotions (Lazarus & Folkman, 1985). Due to the negative aspect of these experiences, literature labeled it Job Hindrance. Some examples of these are emotional demands, and role ambiguity in the working environment (Cavanaugh, Boswell, Roehling, & Boudreau, 2000).

As part of one of the Job demands from the JD-R model (Bakker, Demerouti, 2006), a meta analytic analysis showed the following: Job Hindrance has a negative effect in engagement which is related to well-being. On the other hand, Job Hindrance has positive relationship with burnout which is related to ill-being (Crawford, LePine & Rich, 2010). Results have also shown that Job Hindrance is negatively related to Vigour (Van den Broeck, De Cuyper, De Witte, & Vansteenkiste 2010). As mentioned before, Job hindrance will be measured using two variables (emotional demands and role ambiguity).

Personal resources

For the purpose of this work, to understand the possible mediators of the relationship between Job hindrance and well-being one specific personal resource was taken into account. Mindfulness, which is taken from positive psychology field.

The idea of studying personal resources as means to further understand the JD-R model is on the base of Bakker and Demerouti's ideas, who proposed that personal resources (e.g Optimism, Resilience, etc) are the main predictors of work engagement (Bakker & Demerouti, 2008). The decision to test for mindfulness was based on the fact that this concept referees to mindful awareness and concerns regulation towards present mental states. It involves acceptance and a non-evaluative openness towards those experiences that are occurring at that precise moment (Bishop et al, 2004). In that case, Mindfulness has been found to increase well-being by controlling behaviour and improve decision making (Brown, Ryan & Creswell, 2007). Therefore as means of a coping strategy Mindfulness could possibly reduce hindrance and increase well-being in the work place.

Exhaustion and Engagement as measures of well being

"Work engagement is a positive, fulfilling, work related state of mind that is characterized by vigor, dedication and absorption" (Schaufeli, Salanova, Gonzalez-Roma & Bakker, 2002 p. 74). Engaged employees have energy and a sense of connection with their work and view it as challenging (Bakker, Schaufeli, Leiter & Taris, 2008). Furthermore a balance between high engagement at work and high disengagement from work during non-work time is highly important for protecting employees' well-being. Employees with greater levels of work engagement report higher levels of positive affect and lower levels of negative affect at the end of the working week (Sonnentag, Mojza, Binnewies & Scholl, 2008).

On the other hand, exhaustion is the opposite of engagement and occurs when worker's energy turn into exhaustion. In that case, workers exhaust their capacity to maintain focus on their work and due to that, there is a decline on their working performance (Schaufeli, Leiter & Maslach, 2008).

Present study

The theoretical review has shown that there is a a relationship between Job hindrance and health outcomes in the organisational setting such as engagement and exhaustion. What is still not clear is, does personal resources mediate this relationship? For this study, Mindfulness was used as a personal resources in order to answer that question.

In that regard, as a result of the empirical evidence and the need to extend the knowledge on Job characteristics, well-being and ill-being in the work place, the aim of this study is to further understand the relationship between job hindrance, engagement and exhaustion. Furthermore, the aim is to understand how personal resources such as mindfulness have a mediation effect on the relationship between job hindrance and exhaustion and engagement.

In order to test the model the following hypothesis were proposed:

1) Job hindrance will have a negative relationship with engagement and a positive relationship with exhaustion.
2) Mindfulness will have a positive relationship with engagement and negative one with exhaustion.
3) Mindfulness will have a mediation effect in the relationship between Job hindrance, engagement and exhaustion.

Method

Participants and procedure

The sample is comprised of 708 workers with a mean age of 41.25 years old (*SD* = 11.63). 410 where female and 226 were men and 72 people that did not gave information about their gender. 2 people had Primary education, 14 people had Lower secondary technical or vocational education, 7 people had Lower secondary general education, 70 people had Upper secondary technical or vocational education, 75 had Upper secondary general education, 334 had Higher education outside university / professional degree, 208 people had University / academic bachelor or masters while the rest did not respond to this question.

In order to assess the aim of the study the following procedure was performed. Reliability analysis using Cronbach's alpha was done for Job hindrance, Mindfulness, Engagement and Exhaustion. Multiple regression analyses were performed on the variables to test linear relationships between variables and possible mediation effects.

Afterwards, Structural equation modelling was executed doing a Multiple indicator, multiple cause model (MIMIC model) in order to assess the mediation effect of mindfulness in the relationship of Emotional demands, Role ambiguity with Engagement and Exhaustion.

Measurement

Job hindrance

This variable was measured by two different variables, role ambiguity and emotional demands. Both of them were measured using three items each. Role ambiguity used a Likert scale from 1 to 5, were 1 means totally disagree and 5 means totally agree (Rizo, House & Lirtzman, 1970). Some examples of items used to measure role ambiguity where: "I know exactly what others expect of me at my workplace" and "It is firmly clear to me what exactly my job is". In this case, items were reversed in order to get that a higher score meant a higher role ambiguity.

On the other hand, emotional demands used the same Likert scale (1 to 5) and the same response options as role ambiguity. The following were some examples of items for this measurement: “My work is emotionally demanding” and “In my work I face things that touch me personally”. In this case, the items to measure emotional demands were taken from the questionnaire of Kristensen, Hannerz, Hogh, and Borg (2005) and higher scores meant a higher emotional demand. For this study, the Cronbach’s alpha of role ambiguity was equal to .80. On the other hand, emotional demands showed a Cronbach’s alpha = .86 which showed that both measurements were reliable. The decision to separate both variables instead of creating one latent variable of job hindrance was as a result of a poor model fit when combining both variables in a confirmatory factor analysis model.

Mindfulness

Mindfulness was measured by using the mindfulness attention and awareness scale (MAAS), which consists of 15 items and uses a Likert scale of 6 options (Brown & Ryan, 2003). In this case, 1 stands for almost always and 6 stands for almost never. Examples for items are the following: “I could be experiencing some emotion and not be conscious of it until sometime later” and “It seems I am running on automatic without much awareness of what I'm doing” (reverse item). In that sense, a higher score means that the person has a higher amount of mindfulness. In this study, this measurement showed a Cronbach’s alpha of .89, which proved to an adequate reliability.

Engagement:

Engagement was measured by using the short version of the Utrecht work engagement scale (UWES) (Schaufeli & Bakker, 2003). This questionnaire is comprised of 9 items with a likert scale of 1 to 7, where 1 meant never and 7 meant always. Some examples for this items were: “At work, I fizz with energy” and “When I work, I feel fit and strong”. In that case, a higher score meant a higher amount of engagement. For this study, this measurement showed adequate reliability (Cronbach’s alpha = .95).

Exhaustion:

Exhaustion was measured by using 5 items with a Likert scale from 1 to 7, where 1 meant never and 7 meant always. These items were taken from the dutch version of the Maslach Burnout inventory (Schaufeli & van Dierendonck, 2000). The following were examples of some of the items

used: “I feel completely mentally exhausted” and “A full day of work is a heavy burden for me”. In that case, a higher score meant higher exhaustion. For this study, this measurement showed an adequate reliability (Cronbach’s alpha = .89).

Results

Descriptive statistics

Descriptive statistics showed the following: engagement had a mean and standard deviation (u = 4.82, sd = 1.08). Exhaustion had a mean and standard deviation of (u = 2.40, sd = 0.94). Likewise, emotional demands had a mean and standard deviation of (u = 2.55, sd = 1.07) and role ambiguity a mean and standard deviation of (u = 2.07, sd = 0.70). Finally, mindfulness showed a mean and standard deviation equal to (u = 4.51, sd = 0.73).

Multiple regression analyses shows there is a relationship between emotional demands and engagement (B = 0.16207, ß = 0.1611261, p = .0001) and role ambiguity and engagement (B = -0.48452, ß = -0.3163311, p = .0001). This model, explains 12% of the proportion of variance of engagement ($F(2,705) = 47.67$, $R^2 = 0.1191$, p = .0001).

Furthermore, there is also a relationship between emotional demands and exhaustion (B = 0.18278, ß = 0.2092849), role ambiguity and exhaustion (B = 0.31530 , ß = 0.2370840). This model, explains 11% of the proportion of variance of exhaustion ($F(2,705) = 42.1$, $R^2 = 0.1067$, p = .0001).

Likewise, these two variables had a significant relationship with Mindfulness. In this case, role ambiguity showed a higher relationship with the aforementioned variable (B = -0.25971, ß = -0.2499631, p = .0001), than emotional demand (B = -0.06997, ß = -0.1025516, p = .005). This model, explains 8% of the proportion of variance of mindfulness ($F(2,705) = 29.19$, $R^2 = 0.07647$, p = .0001).

Also, multiple regression analysis shows there is a relationship between Mindfulness (B = 0.18833 , ß = 0.1277528, p = .0004), Emotional demand (B = 0.17524, ß = 0.1742274, p = .0001) and Role ambiguity (B = -0.43560 , ß = -0.2843976, p = .0001) with Engagement. This model, explains 13% of the proportion of variance of Engagement ($F(2,704) = 36.38$, $R^2 = 0.1342$, p = . 0001).

Moreover, multiple regression analysis also shows there is a relationship between Mindfulness (B = -0.36280, ß = -0.2834370, p = .0001), Emotional demand (B = 0.15739, ß = 0.1802180, p = .0001) and Role ambiguity (B = 0.22108, ß = 0.1662352, p = .0001) with

Exhaustion. This model, explains 18% of proportion of variance of Exhaustion ($F(2,704) = 51.83$, $R^2 = 0.1809$, $p = .0001$).

Full structural equation model (MIMIC model)

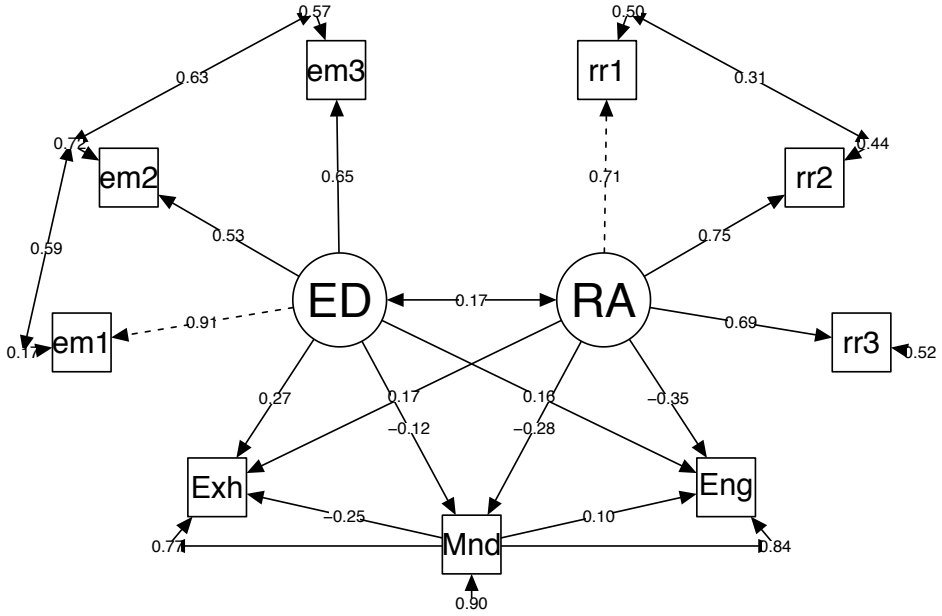
Table 1: Model comparison of fit indices of Job hindrance, Mindfulness, Engagement and Exhaustion

Criterion	Model 1	Model 2	Model 3	Model 4
χ^2	98.296	52.432	40.810	36.161
$\Delta\chi^2$	-	45.863	11.623	4.649
df	20	19	18	17
CFI	0.964	0.985	0.990	0.991
TLI	0.936	0.971	0.979	0.981
RMSEA	0.074	0.050	0.042	0.040
SRMR	0.036	0.028	0.029	0.030

Table 1 shows that the proposed model showed a good model fit. Even though some paths had to be added in order to achieve a good model fit (Figure 2), the forth model proved to be the best fitting model. According to Hu & Bentler, (1999) and Hooper, Coughlan & Mullen, (2008) model 4 showed adequate CFI and TLI (less than .95), RMSEA and SRMR (less than .05). Even though the same can be said with model 3, in the chosen model, the χ^2 of model 4 proved to be significantly lower than the one from model 3 ($p = .03$).

Finally, model 4 shows a ratio between degrees of freedom and χ^2 value ($36.161/17 = 2.127118$) lower than 3, which reinforces the idea that it has an adequate fitting model. These results suggest that mindfulness mediates the relationship between job hindrance (measured by role ambiguity and emotional demands) and engagement and exhaustion. Furthermore, the chosen model showed three error correlations that were not present in the original proposed model. These relationships were regarding the manifest variables of the latent variables of emotional demands and role ambiguity (see figure 2).

Figure 2: Structural model 4 of the relationship of Job hindrance, Mindfulness, Engagement and Exhaustion. Coefficients represent standardized estimates



All paths in the model were significant, therefore there is a relationship between job hindrance (measured role ambiguity and emotional demands) and engagement and exhaustion. Also, role ambiguity and emotional demand were correlated with each other (r = .165, p = .0001), which could theoretically measure Job hindrance. The same can be said with engagement and exhaustion (r = -0.348, p = .0001).

Regarding the model's paths, emotional demands (Z = 6.068, p = .0001) and role ambiguity (Z = 3.917, p = .0001) are positively related with exhaustion. As it is possible to see in figure 2, loadings show that emotional demands showed a higher relationship than role ambiguity. On the other hand, engagement had a negative relationship with role ambiguity (Z = -6.673, p = .0001) but a positive one with emotional demands (Z = 3.882, p = .0001). In this case, role ambiguity had a higher relationship with engagement than emotional demands. These results partially confirm the proposed hypothesis as it was expected that emotional demands will show a negative loading on the relationship with engagement.

In the case of hypothesis 2, there was a negative significant relationships between mindfulness and exhaustion (Z = -6.947, p = .0001) and a positive and significant relationship between the engagement and mindfulness (Z = 2.597, p = .009). As shown in figure 2, there was a stronger relationship between exhaustion and mindfulness than engagement with mindfulness. These findings confirm the previously stated hypothesis.

Finally, the relationship between role ambiguity and engagement was partially mediated by mindfulness (indirect effect = -0.028, Z = -2.520, p = 0.012). Moreover, the total effect also proved to be significant (Z = -7.334, p = 0.0001, total effect = -0.382). In that case, the relationship between role ambiguity and engagement (direct effect) and the partially mediated relationship between role ambiguity and engagement was also significant.

Moreover, the relationship between role ambiguity and exhaustion was also partially mediated by mindfulness (indirect effect = 0.071, Z = 4.627, p = 0.0001). Also, the total effect in this relationship was also was significant (total effect = 0.244, Z = 5.328, p = 0.0001). Therefore, the combination of the direct and indirect effect in the relationship between role ambiguity and exhaustion was significant.

On the other hand, the partial indirect effect of mindfulness on the relationship between emotional demands and engagement was on the limit threshold of a significant value (indirect effect = -0.012, Z = -1.910, p = 0.056). Whereas, the combination of direct and indirect effect (the total effect) was significant in the relationship between emotional demands and engagement (total effect = 0.147, Z = 3.622, p = 0.0001).

Mindfulness partially mediated the relationship between emotional demand and exhaustion (indirect effect = 0.030, Z = 2.778 , p = 0.005). In this case, the total effect also was significant in the relationship of emotional demand and exhaustion (total effect = 0.298, Z = 6.381, p = 0.0001).

In summary, the hypothesis was not completely confirmed. Even though, the vast majority of results show that mindfulness mediated the relationship between job hindrance and engagement and exhaustion, this statement does not hold for all cases. There was no significant mediation effect of mindfulness in the relationship between emotional demands and engagement.

Finally, according to the model, both latent variables, role ambiguity and emotional demand showed strong relationships with there manifest variables (items from both concepts).

The three manifest variables of Emotional demands had loadings between .53 and .91 with p values < .0001. These variables were positively correlated between each other. On the other hand, the three manifest variables of role ambiguity had loadings between .69 and .75 and the first and second manifest variables had error correlations (r = .31, p = 0.011).

Discussion

The aim of this study was to further understand if a personal resource such as mindfulness mediates the relationship between job hindrance, engagement and exhaustion. In that sense this work aimed to further understand the relationship of personal resources within the JD-R model. The

vast majority of the stated hypothesis were confirmed. In spite of that, some results were not in line with the previously proposed hypothesis.

Regarding model structure, results show that job hindrance variables (emotional demand and role ambiguity) and well and ill being measurements are related. The final model also showed significant correlations between emotional demand and role ambiguity as well as engagement and exhaustion.

Results show that role ambiguity has a clear negative relationship with a well being outcome and positive relationship with an ill being outcome. These results confirms one part of the first hypothesis and is also very much in line with previous findings (Schwab & Iwanicki, 1982; Sardeshmukh, Sharma & Golden, 2012). On the other hand, the relationship between emotional demands, engagement and exhaustion did not fully confirmed the previously stated hypothesis. First of all, emotional demands did have a positive relationship with exhaustion which confirmed the hypothesis. This finding also supports past literature about the topic (Bakker, Demerouti & Verbeke, 2004)

On the other hand, the positive relationship between emotional demands and engagement rejected the proposed hypothesis and differs from previous findings (Xanthopoulou, Bakker & Fischbach, 2013). In that sense, emotional demands not necessarily could mean that a person is feeling discomfort on his job, but it can also underline the fact that people could be very much involved and engaged in their jobs. This high involvement at the same time can be related to high emotional energy usage. Therefore, high emotional demands could show job engagement but at the end it can also lead to exhaustion. These ideas show that Job demands (in this emotional demands) are not necessarily always negative but can generate discomfort when a lot of effort is used to counter those demands (Meijman & Mulder, 1998). Also, other studies have found that when emotional demands are moderated by other variables it increases well being at work like for example commitment (Bakker, van Veldhoven, Xanthopoulou, 2010).

Regarding this hypothesis, based on loadings size, it is possible to suggest that role ambiguity has a higher hindering effect on engagement than emotional demands. On the contraire, emotional demands could help build higher amounts of exhaustion than role ambiguity.

Furthermore, the second hypothesis was confirmed where mindfulness showed a negative relationship with exhaustion and a positive one with engagement. These results are in line with Leroy's findings that showed a positive link between mindfulness and engagement (Leroy, Anseel, Dimitrova & Sels, 2013). Likewise, other findings have also found similar results were Mindfulness has a negative relationship with exhaustion (Abenavoli, Jennings, Greenberg, Harris & Katz, 2013). In that case, it is possible to suggest that mindfulness acts as a personal resource that could possibly encounter feelings of exhaustion and serve as a protective factor for well being in the work place.

More importantly, the third hypothesis showed mixed results. On one hand, in line with the stated hypothesis mindfulness partially mediated the relationship between role ambiguity, engagement and exhaustion. These results seem to indicate that personal resources play an important role in the relationship between job hindrance, engagement and exhaustion indistinctive that a well being or ill being outcome is being measured. These results are in line with Hobfoll's theory of conservation of resources (Hobfoll, 2002) were these personal resources (such as mindfulness) will help not only generate other resources but also generate positive outcomes, such as more work engagement. In that case, these resources work as coping mechanisms to hindering situations such as role ambiguity and exhaustion.

Furthermore, these results are also similar to other studies that show the importance of mindfulness. Previous evidence have also shown a relationship between mindfulness with positive emotions, engagement and cynicism. This study showed that the amount of mindfulness could affect the amount of engagement and cynicism (moderating effect) (Avey, Wernsing & Luthans, 2008). In spite of not being the exact same effect to the present study (results should a mediating effect) it also translates the fact that mindfulness has a role between negative feelings and well being and ill being outcomes. In that case, as these findings suggest, personal resources such as mindfulness has an effect on the perception of job characteristics (Schaufeli & Taris, 2014).

Regardless of these findings, it is also important to take into account that mindfulness did not mediated all the relationships between job hindrance variables and work related health outcomes. On one hand, evidence that shows that mindfulness has an indirect on the relationship between emotional demands and exhaustion display similarities to other findings. This study stated that personal resources partially mediate the relationship between job demands (such as emotional demands) and exhaustion (Xanthopoulou, Bakker, Demerouti & Schaufeli, 2007). In that sense, mindfulness play a role in the relationship between hindrance and exhaustion but does not offset that relationship.

On the other hand, the lack of indirect effect between emotional demands and engagement could reside on the fact that emotional demands was positively related to engagement. In that case, mindfulness and emotional demands in this sample could be covering a similar aspect in the work place. Whereas having more awareness of what is happening in the working environment could be emotionally demanding for people. Therefore, two similar and parallel processes could be happening: a) being emotionally involved in the job can result in higher work engagement. b) being aware of what is happening on the work also shows a higher work engagement.

The present study has some limitations. In spite of using a structural equation modelling technique the study design (a cross sectional study) limits to some extent the conclusions for this study. Furthermore, even though it is possible to judge the direction of effects of job hindrance,

mindfulness and well and ill being outcomes, it is not possible to understand the sequence in which they appear. Longitudinal studies are needed to further understand these findings and to be able to propose causal inference about them. Finally, future studies could control for previous experience of mindfulness training by the participants because that could ease the ability to feel mindful.

These findings are important in the sense that they add up to the knowledge about the JD-R model and also the inclusion of personal resources into the model in order to make a further explanation of it (Bakker, Demerouti & Sanz-Vergel, 2014). Also, these results builds up on the knowledge about job hindrance and if a personal resource such as mindfulness mediate the relationship with engagement and exhaustion. Besides, it adds up to the knowledge of the JD-R model, the role personal resources have and gives preliminary ideas of the place they should take in the model (Schaufei & Taris, 2014). Also, it focus on personal resources which is one aspect of the up and coming JD-R theory that extends the relationship between demands, sources and well being (Bakker & Demerouti, 2014).

Further studies should be done in order to further understand mindfulness in the relationship with job hindrance, engagement and exhaustion. Knowledge of moderation effects of this personal resource could be an interesting study for the future.

These findings have some practical implications were mindfulness could tried to be develop in the working environment in order to increase workers well-being.

Reference

Abenavoli, R. M., Jennings, P. A., Greenberg, R. T., Harris, A. R., & Katz, D. A. (2013). The protective effects of mindfulness against burnout among educators. *The Psychology of Education Review, 37*(2), 57-69.

Avey, J., Wernsing, T., & Luthans, F. (2008). Can positive employees help positive organisational change? Impact of psychological capital and emotions on relevant attitudes and behaviors. *The Journal of Applied Behavioral Science, 44*(1), 48-70. doi 10.1177/0021886307311470

Bakker, A., & Demerouti, E. (2006). The Job Demands-Resources model: state of the art. *Journal of Managerial Psychology, 22*(3) 309-328. DOI 10.1108/02683940710733115.

Bakker, A. B., & Demerouti, E. (2008). Towards a model of work engagement. *Career Development International, 13*(3), 209-223. DOI 10.1108/13620430810870476

Bakker, A. B., & Demerouti, E. (2014). *Job Demands-Resources theory*. Chen, P., & Cooper, C. (eds) *Work and Wellbeing: Wellbeing: A Complete Reference Guide Volume III*. 37-64. John Wiley & Sons. DOI: 10.1002/9781118539415.wbwell019

Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. I. (2014). Burnout and work engagement: The JD-R approach. *The Annual Review of Organisational Psychology Behavior, 1,* 389-411. DOI: 10.1146/annurev-orgpsych-031413-091235

Bakker, A. B., Demerouti, E., De Boer, E., & Schaufeli, W. B. (2003a). Job demands and job resources as predictors of absence duration and frequency. *Journal of Vocational Behavior*, *62,* 341-56.

Bakker, A. B., Demerouti, E., Taris, T., Schaufeli, W.B. & Schreurs, P. (2003b). A multi-group analysis of the Job Demands-Resources model in four home care organizations. *International Journal of Stress Management, 10,* 16-38.

Bakker, A. B., Schaufeli, W., Leiter, M., & Taris, T. (2008). Work engagement: An emerging concept in occupational health psychology. *Work & stress: An international Journal of Work, Health & Organizations*. *22,* 187-200. DOI: 10.1080/02678370802393649

Bakker, A. B., van Veldhoven, M., & Xanthopoulou, D. (2010). Beyond the demand-control model. *Journal of Personnel Psychology, 9*(1), 3-16. DOI: 10.1027/1866-5888/a000006

Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the job demands-resources model to predict burnout and performance. *Human resource management, 43*(1), 83-104.

Bhagat, R. S., McQuaid, S. J., Lindholm, H., & Segovis, J. (1985). Total life stress: A multimethod validation of the construct and its effects on organizational valued outcomes and withdrawal behaviors. *Journal of Applied Psychology, 70,* 203-214.

Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Andreson, N. D., Carmody, J., Segal, Z., Abbey, S., Speca, M., Velting, D., & Deving, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice, 11*(3), 230–241. Doi:10.1093/clipsy/bph077

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. J*ournal of Personality and Social Psychology*, *84*, 822–848.

Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry*, *18*(4), 211–237.

Cavanaugh, M. A., Boswell, W. R., Roehling, M. V. & Boudreau, J. W. (1998). *"Challenge" and "hindrance" related stress among U.S. managers* (CAHRS Working Paper 98-13). Ithaca, NY: Cornell University, School of Industrial and Labor Relations, Center for Advanced Human Resource Studies.

Crawford, E. R., LePine, J., & Rich, B. L. (2010). Linking Job Demands and Resources to Employee Engagement and Burnout: A Theoretical Extension and Meta-Analytic Test. *Journal of Applied Psychology, 95*(5), 834–848. DOI: 10.1037/a0019364

Demerouti, E., Bakker, A., de Jonge, J., Janssen, P., & Schaufeli, W. (2001). Burnout and engagement at work as a function of demands and control. *Scandinavian of work environment health, 27*(4), 279-286.

Demerouti, E., & Bakker, A.B. (2011). The Job Demands– Resources model: Challenges for future research. SA Journal of Industrial Psychology/SA Tydskrif vir Bedryfsielkunde, 37(2), Art. #974, 9 pages. doi:10.4102/ sajip.v37i2.974

Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology, 6,* 307–324.

Hooper, D., Coughlan, J., Mullen, M.: Structural Equation Modelling: Guidelines for Determining Model Fit. Electronic Journal of Business Research Methods, 6(1), 53-60.

Hu, L., & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structural analysis: Conventional criteria veruss new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55. DOI: 10.1080/10705519909540118

Kristensen, T. S., Hannerz, H., Hogh, A., & Borg, V. (2005). The Copenhagen Psychosocial Questionnaire: A tool for the assessment and improvement of the psychosocial work environment. *Scandinavian Journal of Work Environment and Health*, *31,* 438–449.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.

Leroy, H., Anseel, F., Dimitrova, N. G., & Sels, L. (2013). Mindfulness, authentic functioning, and work engagement: A growth modeling approach. *Journal of Vocational Behavior, 82,* 238-247.

Meijman, T. F., & Mulder, G. (1998). *Psychological aspects of workload*. In P. J. D. Drenth & H. Thierry (Eds.). *Handbook of work and organizational psychology* (5–33). Hove: Psychology Press.

Merelman, D. (1997). *Stressed*. Forbes, 159, 20-21

Podsakoff, N., LePine, J., & LePine, M. (2007). Differential Challenge Stressor–Hindrance Stressor Relationships With Job Attitudes, Turnover Intentions, Turnover, and Withdrawal Behavior: A Meta-Analysis. *Journal of Applied Psychology, 92*(2) 438-454. DOI: 10.1037/0021-9010.92.2.438.

Rizzo J. R., House R. J., & Lirtzman S. I. (1970). Role conflict and ambiguity in complex organizations. *Administrative Science Quarterly, 15,* 150-163.

Sardeshmukh, S., Sharma, D. S., & Golden, T. (2012). Imapact of telework on exhaustion and exhaustion: a job demands and job resources model. *New Technology and Work Employment, 27*(3), 193-207.

Schaufeli, W. B., & Bakker, A. B. (2003). Utrecht Work Engagement Scale (UWES) preliminary manual (Version 1, November 2003). Utrecht, The Netherlands: Occupational
Health Psychology Unit, Utrecht University.

Schaufeli, W. B., & van Dierendonck, D. (2000) *Utrechtse Burnout Schaal (UBOS): Testhandleiding*. *Amsterdam*: Harcourt Test Services.

Schaufeli, W., Salanova, M., Gonzalez-Roma, V., & Bakker, A. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of happiness studies*. *3* 71-92.

Schaufeli, W., Leiter, M., & Maslach, C. (2008). Burnout: 35 years of research and practice. *Career development international, 14*(3), 204-220. DOI 10.1108/13620430910966406

Schaufeli, W., & Taris, T. (2014). *A critical review of the job demands-resources model: Implications for improving work and health*. In Bauer, G. F., & Hammig, O. (Eds). *Occupational, Organizational and Public Health: A Transdisciplinary Approach*. 43-68. Springer Science Business Media: Dordrecht. DOI 10.1007/978-94-007-5640-3_4

Schwab, R. L., & Iwanicki, E. F. (1982). Perceived role conflict, role ambiguity and teacher burnout. *Educational Administrational Quarterly, 18*(1), 60-74.

Sonnentag, S., Mojza, E., Binnewies, C., & Scholl, A. (2008). Being engaged at work and detached at home: A week-level study on work engagement, psychological detachment, and affect. *Work & Stress: An international Journal of Work, Health & Organisations. 22,* 257-276. DOI: 10.1080/02678370802379440

Van den Broeck, A., Van Ruysseveldt, J., Vanbelle, E., & De Witte, H. (2013). The Job demands-resources model: Overview and suggestions for future research. *Advances in Positive Organizational Psychology, 1,* 83-105. Doi:10.1108/S2046-410X(2013)0000001007

Van den Broeck, A., De Cuyper, N., De Witte, H., & Vansteenkiste, M. (2010). Not all job demands are equal: Differentiating job hindrances and job challenges in the Job Demands–Resources model. *European Journal of Work and Organizational Psychology, 19*(6), 735-759. DOI: 10.1080/13594320903223839.

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. (2007). The Role of Personal Resources in the Job Demands-Resources Model. *International Journal of Stress Management, 14,* (2), 121–141. DOI: 10.1037/1072-5245.14.2.121

Xanthopoulou, D., Bakker, A. B., & Fischbach, A. (2013). Work engagement among employees that faces emotional demands. *Journal of Personnel Psychology, 12*(2), 74-84. DOI: 10.1027/1866-5888/a000085