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Human Factors in Safety and Health in the Workplace

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Human Factors in Safety and Health in the Workplace

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SUPPORT IN WORK CONTEXT AND EMPLOYEES' WELL-BEING: THE MEDIATION ROLE OF THE WORK-FAMILY CONFLICT

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ABSTRACT

Changes in families and in the structure of the workforce have contributed to a change in traditional roles, leading to an increase of the number of men and women who simultaneously have family and work responsibilities. Because the workforce has different sources of support in the labor environment – organizational, supervisor, and coworker support – it becomes important to study the impacts that each of these sources of support has on workers' general well-being and to understand whether the existent work-family conflict explains this relationship. Indeed, the present research aims to examine the relationship between perceived support and general well-being as well as the mediating effect of work-life conflict on this relationship. The data were collected from a company from the textile industry, composing a sample of 821 store operators. The results show that work-life conflict helps explain the relationship between support from the organization and coworkers and workers' general well-being. However, supervisor support did not relate to work-family conflict. Based on the specific managerial characteristics of this company, some plausible explanations for these results are provided. Practical implications related to the results obtained are presented, in addition to the research limitations and suggestions for future research.

Keyword: Support; Work-Family-Conflict; General Well-being.

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1. INTRODUCTION

Over the last few years, we have witnessed the impact of remarkable social, economic, and demographic changes that have affected family dynamics and structure and the current workforce. These changes include (1) increasing globalization and the increased diversity of the labor market, such as a greater number of diversified schedules, new contractual forms, and the need for employee geographical mobility; (2) the increasing participation of women in the labor market (e.g., Eby, Casper, Lockwood, Bordeaux & Brinley, 2005) and the greater participation of men in family life (Kinnunem & Mauno, 1998), thus increasing the number of couples in which both elements of the couple have a responsibility to work outside the home and, simultaneously to educate their children (Grzywacz & Marks, 2000) and take care of dependents (Navarro, 2011); (3) new family structures, such as single-parent families and restructured families; (4) the increase in dual-career families; and, finally,

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(5) a change in the guiding values of individuals, with an increasing number of societies attributing more importance to quality of life and well-being (Sümer, Smithson, Guerreiro & Granlund, 2008). All of these changes have made it difficult to manage and reconcile the roles in the family and work domains and have led to a growing interest in this subject, with several studies in recent years that have been contributing to the understanding of the causes and consequences of work-family and family-work conflicts (Eby *et al.*, 2005; Santos, 2011; Williams, Berdahl & Vandello, 2016).

In the scientific environment, the study of the relationship between work and family demonstrates an accumulation of roles that can have multiple consequences for individuals. These consequences mainly focus on a negative perspective, called Work-Family Conflict (WFC) (Greenhaus & Beutell, 1985), which refers to the pressure that each role exerts on the individual, making it difficult to meet all pressures simultaneously (Kahn, Wolf, Quinn, Snoek & Rosenthal, 1964). That is, participation in one of the domains (work or family) is hampered by participation in the other domain (Greenhaus & Beutell, 1985). The incompatible aspects can occur at the following levels: the pressure on the roles that the individual performs; the time spent on these roles; or the specific behaviors required for one role and that make difficult the performance of the other (Greenhaus & Beutell, 1985).

Thus, given that, at present, the relationship between work and family is extremely important for organizations because the balance between these two domains of their workers' lives affects their well-being, attitudes, behaviors, and interpersonal relations at work (Frone, Yardley & Markel, 1997; Voydanoff, 2004; Carvalho & Chambel, 2017), it becomes important to study the role of WFC to explain the relationship between the different perceived types of support and the general well-being of individuals. Most of the developed studies on the effect of support in this relationship have only focused on the level of organizational support under a more holistic view, whereas the present study seeks to analyze this relationship at the level of the different sources of support that individuals perceive in the work domain – supervisory support, coworker support, and company support – and to understand how WFC mediates the relationship between this support and general well-being. Thus, the present study aims to confirm the relationship between perceived support and general well-being and presents an innovative analysis of the mediating role of WFC in this relationship.

The analysis of the relationship between these variables and the analysis of the mediating role of WFC in this relationship make it possible not only to support the development of interventions to reduce WFC but also to evaluate how these interventions may be appropriate to the different types of support of the organizational domain. That is, the study of WFC in the relationship between perceived support and general well-being may have practical implications for human resource management because it can provide organizations with relevant information on this topic.

1.1 WFC and the general well-being

Since the beginning, the analysis of the relationships between the family and professional domains has focused on the conflict that could arise with the simultaneous performance of multiple roles. With a relative consensus in the scientific community, WFC has been considered a form of inter-role conflict in which role pressures in the work and family domains are to some extent mutually incompatible (Greenhaus & Beutell, 1985).

Role Conflict Theory (Kahn, Wolf, Quinn, Snoek & Rosenthal, 1964) argues that the individual time, energy, and attentional resources of a person are finite and that maintaining multiple roles thus decreases the amount of available resources, causing the individual to experience feelings of conflict (Carlson & Grzywacz, 2008). In this sense, the satisfaction

and time dedicated to a certain role (work) necessarily imply that fewer resources can be dedicated to other roles (family). Therefore, individuals who have resources that allow them to balance work and family are less likely to experience this work-family interference. In this line of thought, Greenhaus and Beutell (1985) identify three dimensions of WFC: time-based conflict, strain-based conflict, and behavior-based conflict. Time-based conflict occurs when the time spent on the activities of one of the domains prevents the fulfillment of the responsibilities of the other domain. At the work level, time-based conflict is related to the number of working hours per week (Pleck, Staines & Lang, 1980; Netemeyer, Boles & McMurrian, 1996), the presence and irregularity of shiftwork, the inflexibility of the work schedule, and the amount and frequency of the workload (Pleck *et al.*, 1980). Strain-based conflict occurs when the pressure created within a role interferes with the fulfillment of the responsibilities of the other role (Greenhaus & Beutell, 1985) and, regarding work, is related to the ambiguity of the work role (Kopelman, Greenhaus & Connolly, 1983), a lack of support from supervisors and coworkers (Jones & Butler, 1980), the physical and psychological demands of the work (Pleck *et al.*, 1980), and work stress factors (e.g., constant changes in the work environment and a lack of communication) (Burke, Weir & Duwors, 1980). Finally, behavior-based conflict occurs when the required behavior in one role cannot be adjusted as being compatible with the behavior patterns required in the other role. Regarding the sources of behavior-based conflict, both work- and family-related, to date, there are no studies that directly assess their prevalence (Greenhaus & Beutell, 1985).

The literature has consciously shown that workers who experience such interference between the performance of their role in work and in the family present poorer levels of health and well-being, both physically and psychologically (Allen, Herst, Bruck & Sutton, 2000; Greenhaus, Allen & Spector, 2006; Neto, Carvalho, Chambel, Manuel, Miguel & Reis, 2016). However, the ability to balance professional and family roles is something that enhances the well-being and psychological health of individuals (Eddleston & Powell, 2012; Carvalho & Chambel, 2017).

Currently and gradually, well-being is of great importance in our lives. For individuals to maintain good rates of motivation and physical and mental health, it is necessary that they feel good about themselves, their lives, and the events that occur in them (Imaginário, Vieira & Jesus, 2013). Individuals are always in a continuous search for obtaining and maintaining resources (such as energy, time, conditions, and personal characteristics) to ensure their well-being (Hobfoll, 2002). However, as noted above, the time, energy, and attentional resources of an individual are finite, and a greater commitment to one role necessarily implies that less dedication is given to the other, increasing WFC and consequently diminishing the well-being of the individual. In fact, previous studies have shown that WFC is associated with decreased general life satisfaction (Kossek & Ozeki, 1998; Aryee *et al.*, 1999; Greenhaus, Collins & Shaw, 2003), increased psychological stress (Kelloway, Gottlieb & Barham, 1999), specific somatic symptoms (e.g., headaches, sleep deprivation, and chest pain) (Geurts, Rutte & Peeters, 1999; Peeters, de Jonge, Janssen & van der Linden, 2004), depression (Vinokur, Pierce & Buck, 1999), and increased consumption of substances such as tobacco, coffee, and alcohol (Allen *et al.*, 2000).

Based on the assumptions and results described in the literature, it is hypothesized that the conflict of roles between work and family negatively influences the well-being of employees.

Hypothesis 1. WFC has a negative relationship with the general well-being of employees.

1.2 Perceived support and the mediating role of WFC

WFC is a prevalent problem for many employees who simultaneously have family responsibilities and constant job demands. According to the job demands-resources model (Demerouti, Bakker, Nachreiner & Schaufeli, 2001; Bakker & Demerouti, 2007), the combination of demands and resources is responsible for the conflict between these two dimensions. The demands are all of the physical, social, and organizational aspects of the job that require physical and/or mental effort and are associated with certain psychological costs (e.g., pressure at work; too much work; handling clients) (Demerouti *et al.*, 2001). Work resources have been viewed as all of the physical, psychological, social, and organizational aspects that (1) are useful for achieving objectives; (2) reduce work demands and the associated physiological or psychological costs; and (3) stimulate personal growth and development. Thus, the presence of resources can prevent the harmful impact of job demands and the interference of work with the family (Bakker, Demerouti, Taris, Schaufeli & Schreurs, 2003; Bakker, ten Brummelhuis, Prins & der Heijden, 2011). In this sense, coworker support and supervisory support have been highlighted as important work resources (Demerouit *et al.*, 2001).

In addition, Self-Determination Theory (SDT) (Deci, Olafsen & Ryan, 2017) proposes to explain the psychological processes that are responsible for promoting individuals' optimal functioning and health. According to this theory, the need for relationships, i.e., the desire to be connected or in touch with others, is one of the basic and innate needs of individuals, and its satisfaction is vital to individuals' well-being. Thus, Perceived Organizational Support (POS) (Eisenberger *et al.*, 1986; Armeli *et al.*, 1998), i.e., the employee's general perception of the extent to which the organization values, recognizes, and rewards him or her, is fundamental to explaining the well-being of employees and is one of the mechanisms that ensures the satisfaction of their socio-emotional needs. POS translates into advantages at the individual level, with employees feeling greater well-being, and at the organizational level, through the employees' positive orientation toward the organization and behavioral outcomes that are favorable to the organization (Eisenberger & Stinglhamber, 2011; Santos, Gonçalves & Gomes, 2013). Employees who feel greater organizational support are happier in the workplace (Eisenberger, Armeli, Rexwinkel, Lynch & Rhoades, 2001), feel more satisfied with their job (Rhoades & Eisenberger, 2002), believe that they significantly contribute to the success of the organization (Lee & Peccei, 2007), and feel less stress (Cropanzano, Howes, Grandey & Toth, 1997) and less interference from work in family life (Wadsworth & Owens, 2007). In fact, when an organization acts according to the interests and needs of its employees, as POS implies, it cannot act to the detriment of the employee's family life and, by contrast, is viewed as an important resource that the employee can resort to if necessary.

The supervisory support received also represents a crucial variable for explaining the satisfaction of employees' relationship needs (Karasek & Theorell, 1990). By receiving this type of support, employees feel assisted and confident that their work performance will be facilitated (Mesmer-Magnus, Murase, DeChurch & Jimenez, 2010; Michel, Kotrba, Mitchelson, Clark & Baltes, 2011; Rathi & Barath, 2012), producing beneficial effects on health and well-being (Broadhead *et al.*, 1983; Cohen & Wills, 1985). In turn, in the specific case of the relationship between work and family, in addition to reinforcing the importance of POS, the supervisors also play a key role in the effectiveness of work-family policies and programs. Supervisors can encourage employees to participate in these programs and can reinforce cultural policies that encourage employees' efforts to integrate their work and family life (Starrels, 1992; Jacobs & Gerson, 2004). From this perspective, some studies (Grzywacz & Marks, 2000; McManus, Korabik, Rosin & Kelloway, 2002; Hill, 2005) have shown that perceived supervisory support is related to a reduced perception of WFC. In fact,

supervisory support can encourage employees to openly discuss family issues and reinforce a positive image to the employee by understanding their family situation (Halbesleben, 2006; Lapierre & Allen, 2006), thus being an extra essential resource that employees can resort to in the work context.

In addition to supervisors, the role of coworkers in promoting employee well-being has been highlighted (Karasek & Theorell, 1990). In turn, some studies (Breaugh & Frye, 2008; Mesmer-Magnus *et al.*, 2010; Rathi & Barath, 2012) have also demonstrated the importance of the coworker's role in reducing WFC. According to Mesmer-Magnus and Viswesvaran (2009), due to the importance that organizations presently attribute to teamwork, coworkers play an important role in reducing WFC because they are in a privileged position to provide both instrumental and emotional support.

According to the literature review, a negative relationship between perceived support (i.e., POS, supervisory and coworker support) and the interference of work in the family domain (i.e., WFC) is expected because these sources of support can be understood as key resources that employees can use to prevent the harmful effect of the demands in their family domain (Bakker *et al.*, 2011).

In turn, it is expected that WFC will be a mediator in the relationship between perceived support and the general well-being of employees. That is, the significant relationship between perceived support and general well-being occurs because this support satisfies the basic relationship needs of individuals and this satisfaction assumes, at least in part, that the negative interference of work in the family is attenuated. In addition, it is expected that, in the face of perceived support (i.e., resources), there will be an avoidance of conflict between these two dimensions that are so important in the lives of employees and, for this reason, employees can feel well-being.

Hypothesis 2. The perceived support at work; 2.a) organizational support; 2.b) supervisory support; 2.c) coworker support has a negative relationship with WFC.

Hypothesis 3. WFC mediates the relationship between support at work; 3.a) organizational support; 3.b) supervisory support; 3.c) coworker support and the general well-being of employees.

2. METHOD

2.1 Procedure and sample

The data were collected from employees in the textile trade industry through the completion of an anonymous online questionnaire. The sample consisted of 821 employees with store operator functions, with 154 (18.8%) being male and 667 (81.2%) female. Regarding the age group of the sample, 50 (6.1%) individuals were less than 20 years old, 621 (75.6%) were between 20 and 29 years old, 136 (16.6%) were between 30 and 39 years old, 13 (1.6%) were between 40 and 49 years old, and one (0.1%) was 50 years old or older. Concerning educational level, 62 (7.6%) completed ninth grade, 376 (45.8%) completed high school, 166 (20.2%) were attending university, 169 (20.6%) held a bachelor's degree, and 48 (5.8%) held a master's degree. Regarding seniority in the company, 458 (55.8%) of the individuals worked in the organization for less than one year, 334 (40.7%) were in the company for one to five years, and the remaining 29 (3.5%) worked in the company for five to 10 years. Considering the work schedule of the individuals, we observed that 64.7% of the employees worked in shifts.

2.2 Measurements

2.2.1 Perceived Organizational Support (POS)

To measure POS, the eight-item version (α=.93) (e.g., "The organization really cares about my well-being", "The organization strongly considers my goals and values") of the POS scale, developed by Eisenberger *et al.* (1986), was used. The Likert scale responses range from 1 (Strongly Disagree) to 7 (Strongly Agree), with higher scores indicating greater POS by employees. This scale was used in a previous Portuguese study (Chambel & Sobral, 2011).

2.2.2 Supervisory and coworker support

Support from the supervisor and coworkers was assessed through the Job Content Questionnaire scale (Karasek, 1985), with four items for the supervisor (α=.90) (e.g., "My supervisor/direct manager is concerned about the well-being of his subordinates", "My supervisor/direct manager helps in getting the job done") and five items for coworkers (α=.89) (e.g., "The people I work with are personally interested in me", "The people I work with help in getting the job done"), answered using a seven-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). This scale was used in a previous Portuguese study (Ângelo & Chambel, 2013).

2.2.3 Work-Family Conflict

To evaluate WFC, a translation to Portuguese of the scale by Carlson, Kacmar, and Williams (2000), used in a previous Portuguese study (Carvalho & Chambel, 2015), was used in the present study. This scale consists of 14 items (α=.95), e.g., "I feel that I do not have enough time for my tasks at home due to the time I have to spend at work", "When I get home from work, I'm physically too tired to perform family tasks". To answer each of the items, participants use a five-point Likert scale response ranging from 1 ("almost never") to 5 ("almost always"). Higher scores indicate high levels of WFC.

2.2.4 General Well-being

To evaluate general well-being, a translation and adaptation to Portuguese of the General Health Questionnaire Scale, version 12 (GHQ-12), (Goldberg, 1972) by Laranjeira (2008) was used in this study. In several studies, this scale only evaluates one dimension; however, in many others, the existence of two dimensions is shown. Thus, it was decided to perform an exploratory factor analysis (EFA) to evaluate the best fit for our data. The data of this study better fitted two dimensions, i.e., stress (five items, α=.76) and well-being (seven items, α=.71), which are represented in the following examples: for well-being, "You have been able to concentrate on what you do"; and, for stress, "You have lost many hours of sleep due to concerns". For each item, the participants used a four-point Likert scale response ranging from 1 ("Not at all") to 4 ("Much more than usual").

2.2.5 Control Variables

Previous studies (Rothbard, 2001) have shown that gender, age, and shiftwork can influence the work-family relationship. Thus, to eliminate potential alternative explanations for the results, gender (dummy variable, where 1=woman and 0=man), age (in years), and work schedules (dummy variable, where 0=no shifts and 1=shifts) were used as control variables.

2.3 Statistical analysis

The data were processed using the AMOS (Analysis of Moment Structures) version 23.0 for Windows statistical program. We started with the Confirmatory Factor Analysis, which presents the main advantage of eliminating the error variance through multiple indicators for each latent variable and the possibility of testing the general fit of the proposed theoretical model and confront it with alternative models. The hypotheses were tested using structural equation models. To that end, two models of mediation were tested: the Total Mediation Model, which includes the structural paths of the perceived support to WFC and WFC to the well-being, and the Partial Mediation Model, in which a path between the independent variables (i.e., the three perceived sources of support) and the dependent variables (i.e., well-being and stress) was added. The objective of this procedure was to determine, based on the fit indices of both models, the existence of a mediation relationship between the latent variables and the type of mediation that is more adjusted to the collected data. For the most suitable model, the standardized regression coefficients (β) between the variables were also obtained. Finally, the statistical procedure that ensured and confirmed the mediation was the Sobel Test, which made it possible to calculate the size and significance of the direct relationship between the perceived support variables and general well-being, through the mediating variable of WFC.

According to the recommendations by Hu and Bentler (1990), the evaluation of the data fit to the models was based on a combination of several quality of fit indices: the Standardized Root Mean Square (SRMR) (with values equal to or lower than .08 being considered adjusted), the Bentler Comparative Fit Index (CFI) (with values equal to or greater than .90 being considered adjusted), and the Root Mean Square Error of Approximation (RMSEA) (with values equal to or lower than .06 being considered adjusted). In addition to these indices, the comparison based on the Chi-square ($\chi 2$) and respective degrees of freedom (df) of the models were also important factors in deciding the most adjusted model.

3. RESULTS

3.1 Confirmatory Factor Analysis

The Confirmatory Factor Analysis of the Theoretical Model with six latent variables – perceived sources of support (POS, supervisory, and coworker support), WFC, well-being, and stress – revealed an appropriate fit for all adjustment indices [$\chi 2(801)= 3155.96$, $p<0.001$; SRMR=0.05; CFI=0.91; RMSEA=0.06]. For purposes of comparison, the One-Factor Model was created; it assumes that all items saturated into a single latent variable. Unlike the Theoretical Model, the One-Factor Model did not reveal satisfactory results [$\chi 2\ (819)= 12986.31$, $p<0.001$; SRMR=0.13; CFI=0.51; RMSEA=0.14]. Therefore, the Theoretical Model is the model that best fits the data, and the difference is significant in relation to the Alternative One-Factor Model ($\Delta\chi 2\ (18)= 9830.352$, $p<0.001$).

3.2 Means, Standard Deviations, and Correlations between variables

The means (M), standard deviations (SD), and correlation values among the studied variables are presented in Table 1. Based on the mean values, it was observed that employees, in general, did not have a perception of conflict between work and family (M=1.87, SD=0.81) and had a positive perception regarding well-being (M=2.71, SD=0.63) and a moderately positive perception regarding stress (M=1.76, SD=0.67). There was also a positive perception of organizational support (M=4.96, SD=1.2), suggesting that employees generally felt that the company they work for took them into consideration and cared about them. The same

was demonstrated regarding supervisory and coworker support (M=5.31, SD=1.11 and M=5.31, SD=1.02, respectively). The analysis of the correlations between the variables revealed that the WFC variable was negative and significantly correlated with the three support dimensions, the variables of POS (r= -.44, p<.001), supervisory support (r= -.39, p<.001), and coworker support (r= -.43, p<.001). The well-being dimension was also negatively and significantly related to WFC (r= -.33, p<.001), whereas the stress dimension was positively and significantly related to WFC (r= .59, p<.001). In summary, these results indicate that the higher the levels of WFC, the lower the POS and the well-being of individuals. The correlations also show that the higher the perceived support, the greater the well-being of individuals because the well-being dimension is positively and significantly related to the three support dimensions: POS (r= .45, p<.001), supervisory support (r= .39, p<.001), and coworker support (r= -.43, p<.001). The opposite was observed for the correlation between the stress dimension and the three support dimensions, which were negative and significant: POS (r= -.40, p<.001), supervisory support (r= -.35, p<.001), and coworker support (r= -.38, p<.001).

Table 1. Means, Standard Deviations and Correlations

	Mean	SD	*R*							
1. Gender[(a)]	_	_	1	2	3	4	5	6	7	8
2. Age[(b)]	_	_	.62							
3. Work Hours[(c)]	_	_	.15**	-.11**						
4. WFC	1.87	.81	-.14**	.04**	-.32**					
5. Stress	1.76	.67	-.04	-.03	-.16**	.59**				
6. WB	2.71	.63	-.02	-.05	.08*	-.33**	-.38**			
7. Organizational S.	4.96	1.2	-.07	-.01	.11**	-.44**	-.4**	.45**		
8. Supervisor S.	5.31	1.11	.05	-.003	.10**	-.39**	-.35**	.39**	.61**	
9. Co-Worker S.	5.31	1.02	.06	.03	.13**	-.43**	-.38**	.33**	.52**	.55**

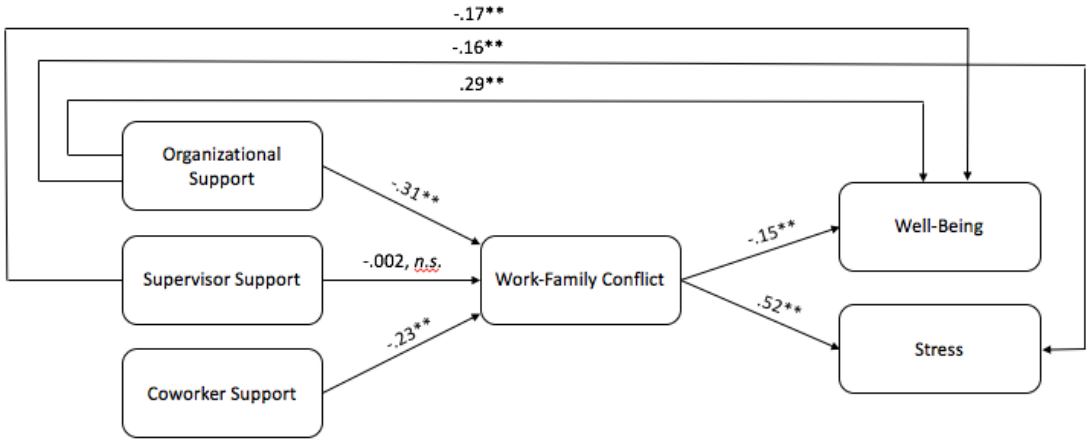
Source: Own Elaboration

Notes: ** p <.01 ; *p<.05; SD – Standard Deviation ; WFC – Work-Family Conflict; WB – Well-being; Organizational S. – Organizational Support; Supervisor S. – Supervisor Support; Co-Worker S. – Co-Worker Support; (a)Dummy variable (0=men; 1= women); (b)Ordinal Variable (1= less than 20 years old; 2= between 20 and 29 years old; 3= between 30 and 39 years old; 4=between 40 and 49 years old; 5= 50 or more years old); (c)Dummy variable (0=part-time; 1=full-time)

3.3 Models of Structural Equations

Subsequently, to verify the hypotheses of this study, analyses with structural equation models that assumed the Total Mediation Model and the Partial Mediation Model were conducted. The first model presented an adjusted fit for all evaluated indices [$\chi2$ (917)=3296.95, p<.001; SRMR=0.082; CFI=0.91; RMSEA=0.06], and the Partial Mediation Model [$\chi2$ (911)=3107.99, p<.001; SRMR=0.05; CFI=0.91; RMSEA=0.05]. As expected, comparing the two models, the Partial Mediation Model showed a better fit to the data than the Total Mediation Model, [$\Delta\chi2$ (6)= 188.96, p<.001]. This Partial Model demonstrates the existence of direct relationships between the perceived support variables and well-being and stress, that is, without considering only the relationship through WFC. Figure 1 shows the standardized coefficients for each of the significant connections in the Partial Mediation Model that allowed the hypotheses to be tested. For simplicity, Figure 1 does not show the effect of the control variables.

Figure 1. The final model (Standardized path coefficients)



Source: Own Elaboration

Note: ** = p<.01; *n.s.* = non significant

As expected, WFC is negatively associated with the individuals' well-being (β= -.15, p<0.001) and positively associated with their stress (β= .52, p<.001). Thus, we confirm that Hypothesis 1 is supported by the data.

In turn, and as expected, WFC is negatively correlated with POS (β= -.31, p<.001) and coworker support (β= -.23, p<.001). However, contradicting expectations, supervisory support did not show a significant relationship with WFC (β= -.002, *n.s.*). Therefore, Hypotheses 2a and 2c of this study are supported, and Hypothesis 2b is refuted.

To test Hypothesis 3, the presence of mediation by WFC in the relationship between perceived support with general well-being was assessed using the Sobel Test. The results showed a total mediation by WFC in the relationship between coworker support and well-being (Z= -4.60, p<.001) and stress (Z=3.01, p<.01). In addition, given the direct relationship between the POS variable and well-being and stress, it was also possible to conclude that there is a partial mediation by WFC in the relationship between POS and well-being (Z= 3.15, p<.01) and stress (Z= -5.18, p<.001). These results support Hypotheses 3a and 3c. Hypothesis 3b was not tested because the initial results do not indicate a significant relationship between supervisory support and WFC.

In addition to the hypotheses, the direct relationship between supervisory support and well-being also proves to be significant (β=.17, p<.01).

4. CONCLUSION

The main objective of this study was to confirm the relationship between the different perceived sources of support in the work domain and the general well-being of individuals, analyzing the mediating role of WFC in this relationship. This study contributes to the reinforcement of the literature on WFC because it sought to replicate the evidence of a relationship between organizational, supervisory, or coworker support and WFC and, consequently, with the well-being of employees. However, this study supplements the literature with the combined visibility of the effects of the three dimensions of support, which had not been studied to date.

This study shows that the relationship between the types of support and the general well-being of individuals is best explained if WFC is considered. It was possible to show that the greater the POS and coworker perceived support, the lower the levels of WFC and,

consequently, the greater the general well-being of employees. This result highlights the importance of employees' considering that the company takes into account their objectives and takes care of their well-being so that they consider that their job does not interfere with their family life and, consequently, they feel greater well-being and less stress. This evidence is in agreement with the studies by Eisenberger *et al.* (1986) and Armeli *et al.* (1998), who demonstrate the relevance of POS as an incentive for the fulfillment of the important socio-emotional needs within the organization that, in turn, leads to higher levels of employee general well-being. In addition, the results also highlight the importance of an environment of unity, equality, and support among coworkers because, as shown by Mesmer-Magnus and Viswesvaran (2009), the teamwork encouraged by organizations grants coworkers an important role in reducing WFC because they are in a privileged position to provide both instrumental and emotional support. Thus, both POS and perceived coworker support can be viewed as resources, which is in agreement with the demands and resources model in the literature, which proposes that jobs with high resources jobs are fundamental to reducing WFC (Bakker *et al.*, 2011).

However, contrary to expectations, we find that supervisory support did not show a significant relationship with WFC. One possible explanation for this result may be related to the management of this company. In each store, there is a human resource manager, who plays an important role in the management of several aspects (i.e., schedules, rotation of tasks, training) that may interfere with the relationship between work and family. By contrast, the supervisor plays a crucial role in the operational management of the team, and he or she may have no interference in the relationship between work and family. Future studies will be able to analyze this aspect more deeply.

In fact, an interesting aspect of this study is that it highlights the difference in the relationship between the different organizational support types (i.e., from different sources) and WFC and well-being that may exist. Organizational support showed that, in addition to being relevant to the well-being of employees by reducing WFC, it also has a direct effect on employee well-being. This result is consistent with the assumption that the well-being of individuals is significantly stimulated when there is POS and in agreement with other studies on the organizational context (Grzywacz & Marks, 2000; Hill, 2005; McManus *et al.*, 2002; Eisenberger & Stinglhamber, 2011).

By contrast, coworker support is only related to employee well-being because coworkers help them manage their family and professional life. Perhaps the emotional support (i.e., sharing of their difficulties) and instrumental support (i.e., exchange shifts) from coworkers contribute to reducing WFC, benefitting employee well-being. Additionally, by contrast, the results of this study show that supervisory support is a relevant variable for the benefit of employee well-being, as proposed by Karasek and Theorell (1990); however, WFC does not explain this relationship. Therefore, in future studies, it would be appropriate to differentiate the emotional and instrumental support aspects and evaluate them in the support dimensions that are analyzed in this study. In turn, and to make the results of these studies more consistent, the effect of the three dimensions of support that are directly related to the relationship between work and family should be studied in depth.

4.1 Limitations

This study has a set of limitations that must be acknowledged. The first is related to the evaluation tool used. The questionnaire used is a self-assessment, and the responses may be subject to bias (Ciarrochi *et al.*, 2002). Thus, the responses obtained may contain errors of social desirability and may be underestimated or overvalued; therefore, the results should be interpreted with caution. The second limitation of this study is that the participants

work in the same company. In future studies, greater heterogeneity should be sought, including employees from different companies and sectors, to transversely confirm the analyzed dimensions. Another limitation is the fact that the sample is composed of mostly women; thus, it will be necessary in a future study to balance the number of female and male individuals. Another limitation of this study is related to the fact that it is a cross-sectional study, i.e., the data were collected in a single moment in time. Therefore, it is not possible to make conclusions regarding the causal relationships between the variables, and the results are only indicative of the nature (positive or negative) of these relationships. In this sense, in future research, it would be interesting to conduct longitudinal studies with the purpose of filling this gap. Finally, it is also important to highlight the fact that this study was conducted in a Portuguese context, which does not allow the generalization of the results to countries with different cultures and organizational management practices.

4.2 Implications for Human Resource Management

Despite the limitations of this study, it presents positive and important aspects to consider in organizational practice. This study shows the importance of support within the organization and the reverse side of WFC because these interfere with employee well-being. The life of an individual is divided into two great dimensions, family and work, and when there is no balance between them the individual's well-being is affected. Therefore, organizations – Human Resources – must assume that the lives of their employees outside the work context can influence their professional well-being and that this influence can be increased through the importance attributed to the performance of other roles. The results of this study reinforce this idea and show that it is necessary to develop and think about new methods of increasing the balance between work and family roles and that organizational support plays a crucial role in this balance.

Therefore, it is important that the value of conciliation is present and formalized in the mission, vision, and values of the organizations and that there is a program and action plan work-family conciliation to minimize the impact of WFC and to encourage a supportive environment in all main settings of the contact with the employee. Thus, this study reinforces the need to have a balance between work and family for the harmony of employees to increase their emotional connection with the organization, which, in turn, promotes a greater perception of their well-being.

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THE EVALUATION OF PSYCHOSOCIAL RISKS: AN EMERGING ISSUE? AND ITS PREVENTION... A POSTPONED ISSUE?

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ABSTRACT

Psychosocial risks, its diagnosis and better understanding, have, in recent years, occupied a central place in the societal debates, setting new demanding to the ones involved in the field of occupational safety and health. In line with this, the concerns of evaluation and diagnosis of psychosocial risk factors boosted the development of several questionnaires, their widespread dissemination, and even their "exportation", not always sensitive to the specificities of local realities. The purpose of this paper is to discuss the methods of "diagnosis" and the type of prevention practices, taking into account the comparison of two surveys in this area and the theoretical and epistemological approaches that underlie them: (i) the Copenhagen Psychosocial Questionnaire (COPSOQ) and (ii) the Health and Work Survey (INSAT). The results reinforce the importance of a contextualized approach in work situations, as well as in the perspective of the workers themselves about the risks to which they are exposed to - beyond what is, or not, significant from the statistical point of view, or what can be normatively defined as an "acceptable risk".

Keywords: Employment and Working conditions; Risk Assessment; Diagnosis; Intervention.

JEL Classification: J81

1. INTRODUCTION

Psychosocial risk factors, its diagnosis and better understanding have, in recent years, occupied a central place in the societal debates, setting new demanding to the ones who intervene in the field of occupational safety and health.

Apparently, the sub-categorization of these work-related risks as of "psychosocial" nature seems to justify the fact that psychologists are increasingly called upon to respond to such requests. These requests often reflect an expectation that the intervention will contribute to help workers, victims of such risks, to take ownership of other strategies, suitable of allowing them to react more positively to the "work demands".

So, in this type of interventions, potentially "psychologizing", to which we critically position ourselves, an intervention at the individual behaviour level is favoured, leaving aside the collective difficulties (Loriol, 2005).

It is the concrete work activity and the options on work organization that should assume the centrality in the analysis of these risks - which, actually, interact with other risks, making them, in the majority of the cases, more worrisome. Indeed, it is no coincidence that the visibility given to psychosocial risks arises in an historical context marked by the intensification of work rhythms and by a certain naturalization of physical and emotional

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exhaustion (closely associated with increasingly precarious labour relations), together with a professional activity whose complexity has also increased significantly.

The concerns of assessment and diagnosis of psychosocial risk factors boosted the development of several questionnaires, which reflects the idea that if work-related risks are better known, work contexts can be managed more effectively and hence improvements in workers' health and wellbeing can be achieved. To better evaluate the impact of working conditions on workers' health and wellbeing, it is important to analyse a set of different variables such as work characteristics and conditions, health and safety, work organisation, opportunities for the development of work, and balance between work and life outside work, as mentioned by Eurofound (2014; 2015; 2016).

Beyond the issue of "diagnosis", the aim of this study is to discuss the type of assessment and prevention practices that have been privileged in this area, particularly questioning the limits of a type of usage of statistics and individual approaches.

2. MATERIALS AND METHODS

The analysis here pursued is sustained on the comparison of two reference instruments in this area and the theoretical and epistemological approaches underlying them. The first instrument is the Copenhagen Psychosocial Questionnaire (COPSOQ) and, the second one, is the Health and Work Questionnaire (INSAT: Inquérito Saúde e Trabalho).

The COPSOQ was developed and validated by Kristensen and cols. (Danish National Institute of Occupational Health), in 2005 (Kristensen, Hannerz, Hogh & Borg, 2005) and, recently, was revised (COPSOQ II) (Petjersen, Kristensen, Borg & Bjorner, 2010). It is a questionnaire broadly used in the assessment of psychosocial risks, which integrates in its conception the influence of dominant psycho-sociological theories, among which: the work characteristics model, the Michigan organizational stress model, the demand-control-support model, the sociotechnical approach and the effort-reward theory (Kristensen, Hannerz, Hogh & Borg, 2005; Petjersen, Kristensen, Borg & Bjorner, 2010).

The Portuguese translation and adaptation of COPSOQ (Silva, Amaral, Pereira, Bem-Haja, Pereira, Rodrigues, Cotrim, Silvério & Nossa, 2011), and its three versions are available: the long version for researchers (41 scales and 128 questions); the medium version for occupational health professionals (28 scales and 87 questions); and the short version, used in work places (23 scales and 40 questions).

The psychosocial dimensions are analysed through questions (using Likert scales) reported to the evaluation of: cognitive and emotional demands, rewards, interpersonal conflicts, stress and harassment in the workplace. The order of the questions follows this structure: assessment of *health and wellbeing* items; *relationship with the labour market*; *employment conditions*; *work and private/family life*; *psychosocial work environment*; *workplace as a whole*; *conflicts and offensive behaviour*.

The INSAT (Barros-Duarte, Cunha & Lacomblez, 2007; 2010) main aim is to analyse the relation between working conditions and health and wellbeing. It's a questionnaire developed in Portugal, and conceived from the contribution of European surveys, such as the SUMER, the EVREST, and European Working Conditions Survey conducted by Eurofound since 1990.

The first published version of INSAT was presented in 2007, reviewed in 2010, and consolidated in 2013, through several studies developed and published in different business sectors in Portugal such as: a) Health and Social Support; (b) Education; (c) Wholesale and Retail; (d) Manufacturing Industry; (e) Public administration and defence, and (f) Other service activities (e.g., Barros, Carnide, Cunha, Santos & Silva, 2015; Silva, Barros, Cunha,

Carnide & Santos, 2016; Norton, Costa, Teixeira, Azevedo, Roma-Torres, Amaro & Cunha, 2017).

Its first version appeared in 2007 (Barros-Duarte, Cunha & Lacomblez, 2007) and it was updated in 2010 (Barros-Duarte & Cunha, 2010), and again in 2013 (Barros-Duarte & Cunha, 2014), with the contribution of the experience acquired through its application in different sectors of activity, in Portugal (Barros, Carnide, Cunha, Santos & Silva, 2015). In terms of psychometric properties, INSAT has been found to have good internal consistency, in a Rasch PCM analysis, with a reliability coefficient > 0.8 (Barros, Cunha, Baylina, Oliveira & Rocha, 2017).

From the standpoint of its structure, INSAT follows a coherent and integrative logic – from work to the effects of work in health and wellbeing (in a total of 145 items) – allowing the worker, in the auto-filling of the questionnaire (in most items using Likert scales), a reflection and a progressive awareness of the consequences of work in health and wellbeing. It focuses on the interaction of physical, cognitive, organizational and psychosocial dimensions of work activity, as well as on its effects on physical health and social and psychological wellbeing.

It is organized into seven axes: The *work*; *work conditions and characteristics* (Environment and physical constraints; Organizational and relational constraints; Work characteristics); *Life conditions outside work*; *Training and work*; *Health and work*; *My health and my work*; *My health and wellbeing*.

To discuss the potentialities and singularities of these two reference instruments in the assessment of psychosocial risk factors, we developed a comparative analysis from three case studies in the context of industrial sectors: furniture, cork and automobile industries. The sample was composed of 215 Portuguese workers from small and medium companies (Almeida & Peñalver, 2013), located in north and center regions: 116 from the furniture industry, which answered to COPSOQ; and 99 workers which answered to INSAT questionnaire – 43 of these from the cork industry, and 56 from the automobile industry.

3. RESULTS AND DISCUSSION

3.1 Study 1: contributions of risk factors evaluation with COPSOQ in the furniture industry

The results of the COPSOQ questionnaire are frequently expressed under the shape of mean values, being its discussion instigated from the comparison with "averages of reference" (always followed by an index of dispersion), as defined by its theoretical framework.

In tables 1 and 2, are presented the results of the application of COPSOQ in the furniture industry: the comparison of the means obtained in this study (second column) and the "average of reference" (last column) corresponds, according to that theoretical framework, to the privileged standpoint that can be assumed in the interpretation of the results. High values are considered "positive" and "healthy" (Kristensen, Hannerz, Hogh & Borg, 2005; Petjersen, Kristensen, Borg & Bjorner, 2010), and low values considered as "threateners". However, there are a considerable number of exceptions as portrayed by table 1.

Table 1. COPSOQ results: dimensions related to individual factors

Dimensions	Mean	Standard Deviation	Minimum	Maximum	Average of reference
General Health	44,82	23,19	0	100	66,0
Sleeping troubles	38,45	20,99	0	100	21,3
Stress	38,64	19,77	0	87,50	26,7
Burnout	45,65	20,62	0	100	34,1
Depressive symptoms	28,31	15,51	0	75	21,0
Somatic stress	28,55	19,59	0	94	17,8
Cognitive stress	31,63	18,93	0	75	17,8
Self-efficacy	68,99	19,09	14	100	67,5

Source: Own Elaboration

Observing the results in table 1, it can be said, for example, that these workers evidence a general health state worse than the reference value, and a self-efficacy perception higher than the normative value.

Well, these are not conflicting results, the work constraints and their effects are not necessarily correlated with the perception of efficacy or with the accomplishment of a job "well done" (Clot, 2008). The workers do not remain passive when facing these hazards; on the contrary, they act, both individually and in group, upon the constraints imposed by their work situation. It partly reveals the insufficiency of statistical indicators for the analysis of psychosocial risk factors, unless they are complemented with qualitative data that enhance the specificity of the real work (Gollac & Bodier, 2011).

Table 2. COPSOQ results: dimensions related to work environment

Dimensions	Mean	Standard Deviation	Minimum	Maximum	Average of reference
Quantitative Demands	30,66	15,19	0	75	40,2
Cognitive Demands	45,26	21,36	0	99	63,9
Emotional Demands	42,94	16,06	0	88	40,7
Work rhythm	56,90	15,55	25	92	59,5
Development possibilities	62,12	18,38	0	100	65,9
Rewards	57,97	25,02	0	100	66,2
Paper conflicts	47,41	18,78	0	99	42,0
Colleagues social support	52,58	25,59	0	100	57,3
Superiors social support	53,05	31,78	0	100	61,6
Work insecurity	56,95	28,87	0	100	23,7

Source: Own Elaboration

None the less, if table 2 show apparently favourable results – less quantitative and cognitive demands, a work rhythm considered "acceptable" (Cadet & Kouabénan, 2005) - the analysis of the questions that compose these dimensions reveals both the presence of items related to work constraints and items that refer to individual assessment criteria. For example, the "quantitative demands" dimension integrates, namely, a question related to work constraints (workload) and a question based on the assumption that the person, by itself, tends to accumulate work.

Still, this analysis cannot be taken separately (disaggregation of the "quantitative demands" indicator), as advocated by the COPSOQ. The reason thereto is twofold: there is the risk the occupational health issues will be individualized and externalized and there is the risk the prescription of "best practices" may diminish the weight of organizational and social factors in their understanding (Silva, Amaral, Pereira, Bem-Haja, Pereira, Rodrigues, Cotrim, Silvério & Nossa, 2011).

3.2 Study 2: evaluation of risk factors with INSAT in the cork industry

The INSAT results, opposed to the COPSOQ's, are expressed in terms of frequency of exposure to different risk factors – environmental risk factors, physical constraints, psychosocial factors of risk – as it is illustrated in tables 3, 4 and 5, respectively.

Table 3. Frequency of worker's self-declarations to environmental risk factors

Exposure to:	Number of workers (%)
Harmful noise	40 (97,6)
Temperature variations (heat/cold)	38 (92,7)
Dust or gases	33 (80,5)
Chemical products	21 (51,2)
Other dangerous situations	8 (19,5)

Source: Own Elaboration

One of the INSAT particularities is its conceptual framework that conceives the work situation as a whole, besides its specific risks. For example, the identification of "other dangerous situations" corresponds, in this case, to the work with certain type of machines (e.g., laminators). This information comes from other complementary methods of analysis - such as the analysis of the work activity in real context (Lacomblez, Bellemare, Chatigny, Delgoulet, Re, Trudel & Vasconcelos, 2007) -, assuming that INSAT results are not self-explanatories, but have to be articulated with other data sources, namely from qualitative analysis.

Besides this, it is also visible in the interpretation of INSAT results the concern about the options on work organization and not about the individuals' performance or characteristics (tables 4 and 5).

Table 4. Frequency of worker's self-declarations to physical constraints

Exposure to:	Number of workers (%)
Repetitive gestures	32 (78%)
Precise gestures	23 (56,1%)
Harmful postures	33 (80,5%)
Intense physical effort	30 (73,2%)
Standing up at same position for a long period of time	24 (58,5%)
Standing up with displacements	30 (73,2%)

Source: Own Elaboration

Table 5. Frequency of worker's self-declarations to work rhythm constraints

Exposure to:	Number of workers (%)
Intense rhythm	23 (56,1)
Production norms or strict deadlines	31 (75,6)
Having constantly to adapt to method changes or work tools	25 (61)
Manage contradictory instructions	22 (53,7)
Hyper-request	26 (63,4)

Source: Own Elaboration

Another data that deserves to be highlighted in the usage of INSAT is related to health issues. On the one hand, these arise in this instrument after the exploration of work risks and, on the other hand, the confrontation between data of the following tables make visible how contrasting the results can be – when the question is more abstract (table 6) (the reference to health in a more global way) or when it is contextualized in the relation with work situation (table 7). A broader self-assessment of the health condition has implicit the judgment of the others regarding the (in)capacity to remain and perform the same job and therefore it may be underestimated (Coutrot & Wolff, 2005).

Table 6. Frequency of worker's self-declarations to the effects of work in health

Work affects my health…	Number of workers (%)
Not at all	16 (39)
Yes, mainly negatively	5 (12,2)
Yes, mainly positively	19 (46,3)

Source: Own Elaboration

Table 7. Frequency of worker's self-declarations to health problems related to work

Health problem	Number of workers (%)	Relationship with work (%)	
		Caused	Aggravated
Back pain	31 (75,6)	48,8	19,5
Musculoskeletal diseases	28 (68,3)	46,3	19,5
Anxiety/Irritability	17 (41,5)	14,6	19,5
Generalized fatigue	18 (43,9)	22	19,5

Source: Own Elaboration

3.3 Study 3: evaluation of risk factors with INSAT in the automobile industry

The third study was developed in the automobile industry, and highlights another specificity of INSAT further explored in this context, which enriches the debate about the instruments in the assessment of psychosocial risk factors. The INSAT includes a discomfort scale (Likert scale), to which the worker answers every time he marks being exposed to a certain risk factor. Tables 8, 9 and 10 are an example of this.

Table 8. Frequency of discomfort degree concerning physical constraints (%)

Degree of discomfort in exposure to:	Precise gestures	Painful postures	Intense physical efforts	Standing up at same position for a long period of time
Severe discomfort	4 (13,3)	7 (19,4)	11 (26,8)	7 (19,4)
Moderately severe discomfort	5 (16,6)	15 (41,7)	16 (39,0)	16 (44,4)
Discomfort	10 (33,3)	11 (30,6)	9 (22,0)	8 (22,2)
Minimal discomfort	11 (36,7)	3 (8,3)	5 (12,2)	4 (11,1)
No discomfort	0 (0,0%)	0 (0,0)	0 (0,0)	1 (2,7)

Source: Own Elaboration

Table 9. Frequency of discomfort degree concerning work intensification constraints (%)

Degree of discomfort in exposure to:	Intense rhythm	Follow production norms or meet strict deadlines	Hyper-request
Severe discomfort	5 (12,2)	1 (2,0)	2 (9,0)
Moderately severe discomfort	11 (27,5)	11 (22,4)	6 (27,3)
Discomfort	16 (40,0)	15 (30,6)	5 (22,7)
Minimal discomfort	8 (20,0%)	15 (30,6)	8 (36,4)
No discomfort	0 (0,0%)	7 (8,1)	1 (4,5)

Source: Own Elaboration

Table 10. Frequency of discomfort degree concerning social work relationships (%)

Degree of discomfort in exposure to:	Not having my opinion taken into consideration	Lack of recognition from managers
Severe discomfort	4 (18,2)	10 (45,5)
Moderately severe discomfort	4 (18,2)	7 (31,8)
Discomfort	3 (13,6)	4 (18,2)
Minimal discomfort	1 (4,5%)	1 (4,5)
No discomfort	4 (18,2%)	1 (4,5)

Source: Own Elaboration

On the one hand, it is visible in INSAT's analysis the attempt to express results in frequencies and not using averages, trying to highlight the weight of the exposure to different risk factors, more than trying to identify the "acceptability of the risk", with reference to standard mean values.

In fact, observing the results in table 9, it is possible to note the variability of workers' self-declarations concerning the degree of discomfort when exposed to intense rhythm, to production norms or rigid deadlines, or situations of hyper-request.

Besides that, it is the knowledge of the work activity, in the real context, as well as the knowledge of the options on work organization, that allows us to understand that in the case of an assembly line - with strong time constraints - a high percentage of workers declare discomfort due to the adoption of painful postures, the intense physical efforts and having to remain a long time up with displacements (table 8). Furthermore, the lack of recognition from managers considering the work done (table 10), as well as the values debate (Orgambídez-Ramos, Mendoza-Sierra & Giger, 2013) and the lower "power to act"

(Clot, 2008) according to their own opinions about the working methods, were pointed as harmful among these workers.

It is in this perspective that INSAT tries to exceed the traditional practices of risks assessment, reinforcing an approach more "comprehensive" than "explanatory", when assuming in the interpretation of its results, a coherent combination between the analysis of the activity and the use of a quantitative method of analysis.

4. CONCLUSION

Besides the diversity of themes framed under the notion of "psychosocial risks" – and, sometimes, confusing its causes with its effects (Nasse & Légeron, 2008) – the principle we assume in the analysis of the psychosocial risk factors is to anchor their assessment and prevention in the work analysis, trying to understand the risks in the scope of a contextualized approach and considering, at the same time, the interaction between them, that is, without treat them isolated.

The approach was developed, in the pathway of a greater recognition of these risk factors and its prevention, corroborates the perspective of using questionnaires that allow an analysis more centred on the work situation - in the context of a certain work activity, of a concrete enterprise, of a professional group, in view of the working conditions improvement (Borralha, Jesus, Pinto & Viseu, 2016).

The debate concerns also the passage from diagnosis to intervention (Lacomblez, 2012) and, in this sense, the proposal of questions that sustain the dialog with the actors of prevention in work safety and health domains: quantifying risks is a mean of giving them visibility, but how to use statistics taking into account the singularities of the work situation, as well as what escapes to a certain "statistical orthodoxy" (Volkoff, 2010)?

Bearing in mind the effective action upon the risk factors, it is important that the mediation instruments that assess such risks actually describe the causes (the working conditions and the organization conditions that determine their expression on health) and not only the symptoms. Therefore, the intervention focuses on the level of the work situation rather than on the level of the worker alone. It is even more so because a worker's "complain" is always subject to a values debate (Schwartz, 1997), or as Molinié (2010) puts it "(…) inform - or omit - an health problem (…) is also opening - or trying to avoid - the possibility that this information may have effects throughout the work life, effects that may be feared or wanted (…)" (p.70, free translation).

The conjuncture encourages the naturalization of the exposure to this type of risk factors or the assumption that it is the "lesser of two evils" (the worst-case scenario is losing the job). In this context, the shortage of surveys about the working conditions in addition to the absence of longitudinal data contribute to leave the exact outline of the effects caused by these risks in the gloom. Hence, it requires a different epistemological surveillance over the findings.

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MENTAL FATIGUE ASSESSMENT IN DIFFERENT THERMAL ENVIRONMENTS – PROTOCOL

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ABSTRACT

Environmental and personal characteristics influence the behavior of individuals through the limitation of effort levels by a more or less rapid induction of fatigue. In particular, mental fatigue is recognized as a major cause of errors leading to accidents. As a consequence, thermal environment study has gained increasing importance in recent years. In order to contribute to enlarge the knowledge in this field, this work aims to present an essay protocol to evaluate the influence of the thermal environment on mental fatigue, based on electroencephalographic (EEG) analysis. With this purpose an exploratory study was held with 36 volunteers to validate the protocol. Volunteers simulated an administrative task for one hour. Fatigue assessment was carried out by analyzing *Alpha* and *Beta* waves amplitude over time. Assays were performed in a climatic chamber with controlled temperature and humidity: 22°C (40 and 80% RH) and 32°C (40 and 80% RH). Results suggest that both temperature and humidity influence the amplitude of the EEG signal (*Alpha* and *Beta* waves) in both hemispheres. The greatest amplitudes were found whenever environmental temperature and/or relative humidity values were higher. At the end of the article the advantages and limitations of mental fatigue assessment are discussed.

Keywords: EEG; Mental Fatigue; Thermal Environnement; Fatigue Indexes.

JEL Classification: C91

1. INTRODUCTION

Cultural intelligence and multicultural personality emerge as new constructs that enhance adaptation and effective adjustment to environments characterized by cultural diversity, namely within enterprises context (Sousa *et al.* 2015). According to Pinto (2013) for a better economic development, it is fundamental to have a very close cooperation between companies and universities. Information and knowledge have taken a central role in the economy (Sequeira *et al.*, 2011).

In studies about the influence of the thermal environment, one of the factors that needs to be controlled is the acclimation state. Acclimation plays a key role in human health risks prevention. It occurs in Human body, as a physiologic adjustment process to a continuous exposure to a thermal environment different from the usual. This physiological response has transient characteristics during the adaptation time of the body between the initial state and the one to which it is intended to acclimate. Several authors as Olesen & Fanger (1973)

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and Parsons (2003) investigated acclimation and its consequences and one of the easiest parameters to measure is the skin temperature.

Dry heat acclimation is different from humid heat acclimation, because the physiological adaptation is different between these two conditions. Although the literature about this matter is rather scarce, there is evidence to support this expectation (Sawka, 2001). Acclimatization to heat, in dry or hot conditions, is likely to confer an important advantage by causing a decrease in core body temperature between 0.3 and 0.5 °C (Buono *et al.*, 1989). Radakovic (2007) also studied the effects of acclimation on cognitive and physiological performance under heat stress in soldiers, when carrying out stress tests.

The development of mental fatigue is a complex process. It is determined by an interaction between psychological and physiological factors. Mental fatigue may manifest itself through the reduction of alertness levels as a consequence of reduced cognitive performance, leading to a decrease in safety levels. The nature of mental fatigue can be subjective, objective and physiological. Subjective fatigue corresponds to the feeling of tiredness, objective fatigue is usually related to a decrease in performance and physiological fatigue can be defined as a reduction in the neuromuscular capacity of the system to carry out its functions as a result of physiological overload and strain (Haworth *et al.*, 1988).

Fatigue contributes to a significant number of accidents. In driving, the values of 20-30% are indicated (Punsawad *et al.*, 2011). For this reason, in recent years, there has been a growing interest in studying mental fatigue, being electroencephalography (EEG) technology widely used. EEG is indicated as the most reliable and predictive indicator of mental fatigue even when it has physiological origin (Shen *et al.*, 2007).

Mental fatigue is related to the effects that people may experience during or after prolonged periods of cognitive activity (Zang *et al.*, 2010). Therefore, sleepiness and a lack of concentration may arise in people performing long and/or stressing period tasks (Fallahi *et al.*, 2016; Jolly *et al.*, 2016). EEG is also used to study problems as different as visual fatigue (Zou *et al.*, 2015), dissociation between mental fatigue and low motivational state (Gergelyfi *et al.*, 2015) or even the effects of computer games on changes in cognitive functions (Aliyari *et al.*, 2015).

There have been several indexes associated with the EEG, presented as possibly being correlated to mental fatigue. Among them are the four EEG wave types (delta, 0-4 Hz, theta, 4-7 Hz, alpha, 8-13 Hz and beta, 13-20 Hz) (Shen *et al.*, 2007; Cheng *et al.*, 2007). The relationship between the power of α / β waves is also used as an early warning indicator (Nybo *et al.,* 2001; Ftaiti *et al.*, 2010). Cheng (2007) classified the EEG indices into two groups: the basic indices (delta, theta, alpha and beta features) already mentioned and the ratios derived from these basic indices (Cheng *et al.*, 2007).

To measure fatigue, usually, are used 17 electrodes placed on specific points of the scalp labelled as: front (F), central (C), parietal (P), occipital (O), the temporal lobe (T): FP1; FP2; F7; F8; F3; F4; T3; T4; C3; C4; T5; T6; P3; P4; O1; O2 e Fz; Cz; Pz (Shem *et al.*, 2007). Among these key points, it was found that the electrodes placed in the frontal and occipital regions of the scalp are the most important for the classification of mental fatigue at various levels. These findings are consistent with knowledge about the functions of the anatomical regions that manage mental fatigue. Based on this previous knowledge, this study aims to present an essay protocol to evaluate the influence of the thermal environment on mental activity.

2. MATERIALS AND METHOD

2.1. Stages of Protocol Development – Global Overview

The development of the protocol went through two stages:

1. The first stage, involving: literature review, test of the necessary equipment to perform the experimental trials, submission of the project to CEUP (Ethics Committee of the University of Porto) and selection of the sample according to the defined strategy.
2. The second stage, definition of the study design, involved two steps:
   - the first step: a pilot test to analyze the repeatability of the study, testing five volunteers in different conditions of temperature and relative humidity (RH) (22ºC-40%RH; 22ºC-80%RH; 32ºC-40%RH; 32ºC-80%RH).
   - the second step: design of the final protocol, was made with all the experience, decisions and corrections from the essays carried out in the pilot tests.

2.2. Materials

The materials used to test and implement the protocol are identified in the Table 1.

Table 1. Equipment and its function

EQUIPMENT	FUNCTION
Climatic Chamber (Fito-Clima 2500EC20)	Simulation of thermal environments
Brain-sensors (Emotiv Epoc – EEG*)	Monitorization of brain activity
Skin Thermal Sensors (BioPlux)	Monitorization of skin temperature
Computer	Real time control of all parameters
Precision weighing scale (039-SA700.102)	weighting each volunteer before and after each test to determine body weight loss.
Questionnaires	Comfort/discomfort evaluation according to the standard ISO10552:1995
Individual Data Sheet	Registration of individual and environmental parameters of each test
Cognitive tests	GoNoGo - Continuous classic performance task

Source: Own Elaboration

*Electoencephalogram

2.2.1. The importance of maintaining the climatic conditions

It is already commonly assumed that temperature and humidity conditions have a significant influence in terms of performance and fatigue development. In this context, the ability to control and manipulate these conditions in order to evaluate their effects is fundamental when assessing the extent to which these parameters influence the development of fatigue (Cheung, 2010).

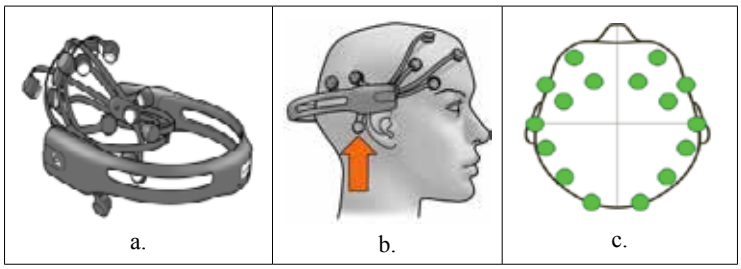
2.2.2 Measurement of brain activity

Mental fatigue is a gradual and cumulative process also associated with reduced efficiency, reduced alertness and decreased capacity for mental performance (Grandjean, 1979; Cutsem *et al.*, 2017). These changes, reflecting the brain reaction to external stimuli, can be recorded through EEG (Lal & Craig 2001; Berka *et al.*, 2007). The brain's electrical activity is classified according to frequency bandwidths as mentioned (delta, theta, alpha and beta). The delta activity appears in the transition between drowsing,ess and sleep. Theta rhythm are associated with several psychological states including low levels of alertness and

consequently are associated with a decrease in information processing. Alpha waves occur during daytime, particularly on the occipital cortex and can be clearly observed when the eyes are closed. When the eyes are open its wave amplitude range decreases. These rhythms are present both in alertness as on relaxation. The beta waves are associated with increasing arousal /alertness. These waves are still associated with the reaction time of motor tasks (Lal & Craig 2001; Borghini *et al.*, 2017).

For this protocol an Emotive SDK EEG device was used (Figure 1a). The electrodes must be installed in the standard positions: parietal and frontal temporal, as shown in Figure 1b. The head set / electrode has to be adjusted so that two reference electrodes are positioned in the mastoid area. The electrodes should be adjusted carefully to ensure a good contact. In Figure 1c each circle represents a sensor and its color the contact quality. When all sensors are marked in green, it means that the best overall contact quality has been achieved.

Figure 1a. Emotiv SDK EEGequipment and respective sensor location



Source: www.engr.ucr.edu

2.2.3. Skin temperature

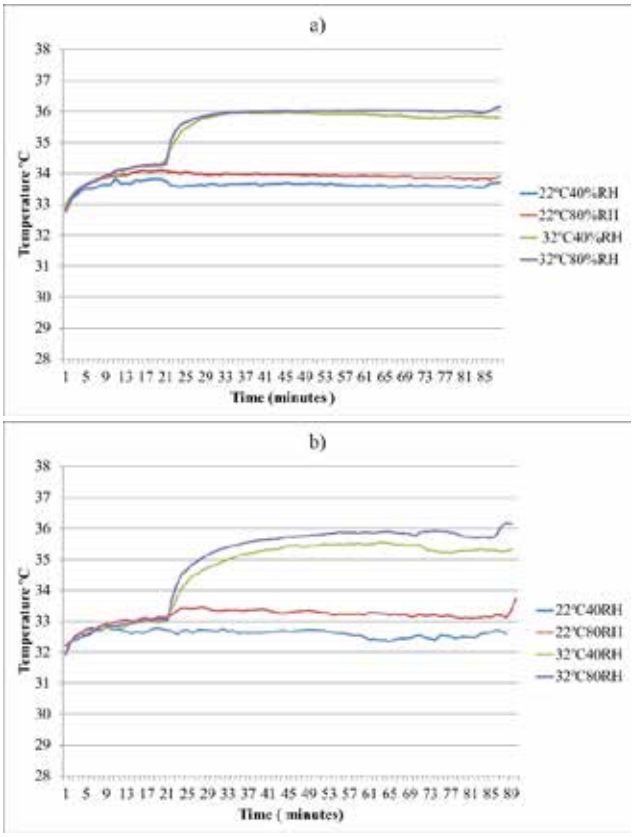
When the skin temperature exceeds the ambient temperature, heat can be dissipated through thermal changes by radiation, convection, conduction and evaporation. When the ambient temperature is above the skin temperature, evaporation is the only mechanism by which the body can lose heat. Sweat evaporation depend on the water vapor pressure gradient on the surface of the skin, which, in turn, depends on ambient temperature and relative humidity of the air. (Maughan *et al.*, 2007).

The overall relative power of the different EEG frequency bandwidths, and skin temperature (local and medium), and are sensitive and respond to the ambient temperature and the thermal sensations of the volunteers (Yao *et al.,* 2008). It is also important to note that both skin temperature and thermal sensation appear to reach a constant level approximately 20 minutes after exposure onset (Nagano *et al.*, 2005).

The experimental initial procedure consisted in recording the demographic and anthropometric data of each volunteer as well as the skin temperature in 14 points of the body according to ISO 9886: 2004, in order to evaluate its evolution over time. Before starting the test, the volunteer had two consecutive stabilization periods. The first 20 minutes period for a first stabilization took place in the laboratory space at a controlled temperature of 20 ± 1 ° C . The second 10 minutes additional period took place within the climatic chamber, for adaptation to temperature and humidity test conditions.

After analyzing the results of the temperature evolution in the fourteen points of the body defined by the referred standard, it was found that not all of them had the same levels of stability over time. Thus, since it is only intended to have an indicator that a balance between body temperature and ambient temperature has been reached, it has been decided, for reasons of comfort for volunteers, to reduce these measurements to the forehead and back of the neck (figure 2).

Figure 1b. Forehead (a) and Neck (b) mean temperature of 15 volunteers at different conditions of temperature and relative humidity



Source: Own Elaboration

2.3 Sedentary task

For the simulation of sedentary work, the GoNoGo Classic test is used for 60 consecutive minutes, with computer support. (Costa *et al.*, 2013d). This task requires the subject to click on a computer key when a stimulus appears (in this case the letter P) and not reacting when another stimulus occurs (in this case, the letter R) and this simple decision is repeated by volunteers for as long as it is determined.

3. PROTOCOL DESCRIPTION

One of the main concerns in the design of this protocol is to minimize the possibility of bias, considering bias any deviation that prevents a result to be considered incontestable (Gerhard, 2008). In the next few pages the essay protocol will be presented systematically with a sequential summarized description of the different steps to be followed and its justification, whenever it is considered justified.

Stages prior to the tests:

1. Project design for approval in ethics committee.
   The Helsinki Declaration, in its 7th Revision in 2008, Articles 20, 21 and 22, declares the right of individuals to self-determination and to make informed decisions about participation in research, both at the beginning and in the course of the research.
2. Elaboration of the informed consent document to be read and signed by each of the subjects submitted to the test, According to Annex A of ISO Standard 12894: 2001.

3. Selection of the sample according to the following criteria, in order to minimize bias:
   a) Gender - the sample should be all of the same gender or have a significant number of subjects of each gender;
   b) Defined age group(s);
   c) Have an equivalent professional activity;
   d) Not be a smoker;
   e) Band(s) of defined body mass index(es);
   f) Have a stable weight in the last six months;
   g) Be a habitual consumer of breakfast;
   h) Be unmedicated;
   i) Have a good general health;
   j) Do not have a disease register in the last 12 months.

The sample itself is one of the most common bias factors. The selection bias, a statistical base error caused by a bias in sampling, can occur when a group with certain influent characteristics is selected more frequently than other groups in the sample. This may produce imprecise conclusions if the selection bias is not identified. For example: if a global response is to be achieved and one gender predominates over the other; if the age distribution or professional activity of the sample does not match the population to be studied.

Other types of bias may arise from mixing in the same sample individuals with different behaviors, such as smoking habits and sleep / wake cycles, as well as substance use with a direct effect on behavior or wakefulness, such as alcohol, tea, coffee, some types of medicines, psychotropic substances or others. In the case of tests that can be performed under different temperature and humidity conditions, a sample with individuals with different values of Body Mass Index (BMI) may also be a bias factor due to the different physiological response to different temperatures, in particular at more extreme temperatures.

4. Operation test of each equipment and of all the steps of the protocol, for training the procedures and verification of any failures;
   These tests are important not only to dismiss problems as simple as the state of the battery charge, the operation of the support software or the adhesion of the adhesives to attach the sensors to the skin, as well as to avoid any hesitation with the volunteers during the tests.
5. Detailed explanation to each volunteer of all test procedures;
   a) Explain the functioning of the Climate Chamber;
   b) Detailed explanation of the test, as well as its purpose;
   c) Explain what a skin temperature sensor is;
   d) Explain what an EEG is;
   e) Explain that they will respond to a thermal sensation questionnaire with three questions (Table 2):
      - Question 1 - determines the sensation vote on the ASHRAE scale, which can be directly comparable to the PMV Thermal Comfort Index measure, as described in ISO7730: 2005.
      - Question 2 - reflects the feeling how the volunteer would like to feel at the moment.
      - Question 3 - reflects the "state of health" at the end of the test.
   f) Explain the volunteer's necessary prior preparation:
      - Type of clothing to wear: shorts, t-shirt, slippers;
      - Report that there is a robe available for warm clothing before and after completing the tests;
      - Hygiene care of the body and head;

1. Importance of bringing the scalp clean and without any trace of softener, gel or foam;
2. Importance of bringing clean skin so that the sensors can adhere as better as possible;

- Caring on feeding during test days as well as days prior to testing (avoiding changes in diet, in the consumption of alcohol, coffee and tea);
- Rest conveniently on test days;
- Report if any medicine was taken prior to test.

g) Present the emergency contact list;
h) Explain the procedures in case of emergency;
i) Record the volunteer's data in the database and schedule the trials by mutual agreement;

Explanation of each trial detail to each volunteer is not only a way of passing information, but also of creating bonds of trust with the researcher. The knowledge of the different stages of the test and what is supposed to feel in each of them, helps to control the stress levels of a trial that besides being relatively long, needs to be repeated several times under different environmental conditions. From the experience in the application of this protocol, the first trials should be conducted on thermal comfort conditions. This can help to prevent frictional discomfort among volunteers with the consequent reduction of the sample number during the tests.

The volunteers are tested one by one in each of the previously defined conditions. All tests must be performed in the morning and at the same time, before the subject performs any other activity, in order to avoid variations in the initial conditions of the tests.

Main protocol:

6. Volunteer reception in the laboratory;
7. Informed consent statement read and signed by the volunteer;
8. Completion of the initial questionnaire (to verify if there are conditions to start the test);
   If the volunteer has not had a good night's sleep or any other bias factor has been identified the test should not be performed;
9. Completion of the thermal sensation questionnaire (Table 2);
10. Wear the test clothes (shorts, shirts and slippers);
    The use of clothing with the same level of protection is an important factor in that it allows all volunteers to perform the tests under the same conditions avoiding biases at this level.
11. Placement of the sensors for measuring skin temperature at two points: Forehead and neck;
12. Stabilization of the skin temperature for at least 20 minutes before entering the climatic chamber, with real-time temperature verification from the sensors placed;
    During this period, the volunteer should remain seated to minimize metabolic oscillations;
13. Enter in the climatic chamber.
    The entrance must be fast to minimize temperature fluctuations inside the chamber;
14. Sit the volunteers comfortably in front of the computer;
15. Stabilization of the skin temperature for at least 10 minutes, with real-time verification of the values. During these 10 minutes:
    a) The volunteer should respond to the thermal sensation questionnaire (Annex 1),

b) The researcher should place the EEG equipment on the volunteer, making sure that all the sensors are emitting properly the signal,
c) After placing the equipment, remember the volunteer to remain as quiet as possible, avoiding to move the head (head movement can cause noise in the signal);

16. Start the test which should take 60 minutes, using a single battery of cognitive tests (GoNoGo type) throughout the test;
    It is expected that during this test some volunteers will experience periods of drowsiness or even sleep. All these periods should be recorded in order to later help in the interpretation of the values obtained from the EEG.
17. At the end of the trial, the volunteer must complete the thermal sensation questionnaire again;
18. Disconnect and remove EEG equipment from the volunteer's head;
19. Exit the camera;
20. After leaving, the volunteer should wait at least 10 minutes outside the chamber to stabilize the body temperature, wrapping himself in a robe;
21. Remove the temperature sensors;
22. Collect and make copies of all data generated during the test.

Table 2. Thermal sensation questionnaire (based on standard ISO 10551:1995)

1- Indicate in the scale how you felt when you entered the camera:
Hot; Warm; Slightly Warm; Neutral; Slightly Fresh; Fresh; Cold;

2- How would you like to be now?
Hot; Neutral; Fresh;

3- Have you experienced any of the following symptoms?
Somnolence; Seasickness; Vomiting; Dizziness; Chills; Anxiety; Fatigue; Apathy; Loss of motor coordination; Other, Which? None.

Source: Own Elaboration

4. ADVANTAGES AND LIMITATIONS OF MENTAL FATIGUE TESTS

This work presents a protocol for conducting tests that allow the identification of the effects of temperature and humidity variations on mental fatigue. The research carried out so far has identified the fundamental parameters to be monitored, as well as the necessary equipment to perform the monitoring in real time and continuously. The individuals submitted to the tests will know the respective physiological response in different environmental conditions, which may help them or others in future professional and other options. For the general population, greater knowledge in the area creates conditions for better choices in terms of living and working conditions. Knowledge in this area can also contribute to a safer working environment, particularly in tasks where possible cognitive errors can lead to accidents.

The main constraints are, firstly, the need for material and human resources with a relatively high level of technology, in particular for the analysis of results, which requires specific technical and scientific expertise, in particular EEG data analysis, processing and interpretation. Secondly, it requires participants to perform several tests of relatively long duration, about two hours per test.

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PSYCHOMETRIC EVIDENCES OF THE WORKAHOLISM BATTERY IN A PORTUGUESE SAMPLE

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ABSTRACT

Workaholism, defined as an addiction or dependence on work, is a subject that has become prominent in the literature, although its investigation is still at an early stage. The present study aims to adapt the Spence and Robbins' Workaholism Battery - WorkBat (1992) to the Portuguese reality. The sample of the present study consists of 407 participants (313 women, 92 men, 2 don't answered), aged between 18 and 68 years (M = 39; SD =10.449). The results from confirmatory analysis corroborate the original three factors structure: work involvement; work drive; work enjoyment. At the level of internal consistency, global and by dimension, the obtained values are acceptable; allowing reiterating what was observed in the original scale study. Although none of the models tested guarantees ideal adjustment values, either for the reasonableness of the values or for a better theoretical adequacy, the model considered more suitable meets the threefold solution initially proposed by Spence and Robbins (1992).

Keywords: Workaholism; Adaptation; Psychometric Properties; Portuguese Sample.

JEL Classification: J29

1. INTRODUCTION

The word workaholism reminds us an age-old discussion about the limits of what is perceived at a given moment, in a given society, culture and values as acceptable, desirable and "normal" in terms of dedication, motivation and enthusiasm for work. Some describe it as obsession, addiction, compulsion or vice; others say that this obsession is the word that lazy people use to describe those who work. Oscillating between a vision that goes from the obsession with dedication/commitment and commitment to work, what happens is that the phenomenon of workaholism and the interest in its study, triggered in the 70s, with the so-called crisis of Fordism and, driven by the development of an increasingly competitive, aggressive and globally demanding world (Serva & Ferreira, 2006).

Due to the constant, and increasingly rapid changes in the organizational world and to the needs and demands of the workers, it becomes pertinent to deepen the study of

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workaholism in order to better understand this constantly evolving reality. For the same reason, the investigations, theories and models conceived regarding workaholism are increasing. However, the conclusions are unclear and nonconsensual, which supports the necessity and importance of further studies.

Given the importance of the construct for Organizational Psychology, due to its antecedents and consequents, as well as the lack of a tool for measuring workaholism in Portuguese, it is the objective of this study to contribute to the validation of the Workaholism Battery (Spence & Robbins, 1992), for a Portuguese sample.

2. WORKAHOLISM

The workholism definition did not always have consensus. The first author to investigate the concept of workaholic was Wayne Edward Oates (1971). This author relied on the fact that some individuals work regularly above their limits, which could trigger the so-called addition to work - a phenomenon known as workaholism, which means being addicted or dependent on work. Oates (1971), considered that the characteristics of workaholics' behaviors were similar to any other addition/dependence (e.g., alcoholism), being possible to observe excessive behaviors and neglect of other spheres of life (e.g., family). His work served as a basis for further works, once Oates (1971) identified disturbances in the areas of health, happiness, interpersonal relations and social functioning, as a consequence of the work addition and the extreme need to work.

In the 1980s, Machlowitz (1980) presented the first empirical work devoted to this topic. The author characterizes workaholism as a personality trait, which involves an intrinsic desire to work excessively, in an attempt to achieve greater responsibility, opportunities and recognition at work. In order to remove the connotation of pathology, she emphasized that the posture of the workaholics, expressed in effort and time, represents an extreme involvement with work. Machlowitz (1980) further argues that it is the combination of aspects of work and support received in other areas (e.g., family), which can lead to frustration or achievement of the individual.

In another perspective, guided by the initial conception of Oates (1971), but with a focus on the family perspective, Robinson (1998; 2011) used the addition paradigm to explain the construct. The author defends this addition as a progressive process translated into specific behaviors, framed in five aspects: work more than required; increase levels of self-esteem and productivity at the expense of personal needs; control-perfectionism; difficulties of intimacy/relationship; constant mental worry (difficulty in relaxing). Robinson (1998) considers workaholism as an unconscious attempt to solve unknown psychological needs, which may have as a consequence the family separation, health problems, difficulties in managing everyday life, and even death. In the book, *Chained to the Desk*, Robinson (1980) exposes four major risk factors that can lead to workaholism or the difficulty of overcoming it: everyday environment/daily context (e.g., family context in which the individual grows); interconnections between environments (e.g., company that requires the employee to work too many hours for financial rewards or recognition); neighborhood and community (e.g., stereotypes supporting positive portraits of workaholics); and, culture and societal beliefs (e.g., an economy that requires working long hours to earn enough money to have an acceptable standard of living).

In 1992, Spence and Robbins carried out a vast review of the literature on this subject, in order to organize the various studies and theories to date. As a conclusion of the study, the authors defined workaholism as a stable trait, which involves high level of commitment

to work, large amount of time spent on such tasks and a strong compulsion to work, even when it is not necessary.

Based on the work of Machlowitz (1980), these authors created a battery of tests, in order to test the difference between workaholism and work enthusiasm, two close concepts. For these authors, the individuals of the first profile (workaholics) would obtain higher scores on the scales of work involvement and driveness, and low scores on measures of work enjoyment (Spence & Robbins, 1992). That is, the main characteristics that distinguish both types of workers are: the pleasure obtained through work, the involvement with it and the drive to perform this activity. A few years later, Porter (1996) finds results similar to those obtained by Oates (1971), arguing that workaholism translates into excessive involvement with work, even leading to neglect of other areas of life, and that the behaviors are maintained by internal causes, rather than by requirements of the work or organization itself. In 1997, Scott, Moore and Miceli, with the purpose of clarifying the definition of workaholism, also performed a critical analysis of the theme, creating a new conceptual model. According to the authors, workaholics have three main characteristics: they spend many hours in work activities, giving up other important areas of their lives (e.g., family, friends); they resist dropping work activities, and think persistently about self-related matters, even when they are not doing so; and they work harder than they are required and expected, whether at the level their professional functions or at the level of their economic needs. In this same study, the authors identified three types of patterns of workaholic behaviors: the compulsive-dependent; the perfectionist; and the achievement-oriented. The compulsive-dependent workaholic is characterized by the compulsion to work, doing it in an excessive or irrational way and even recognizing this excess, he/she cannot control. Regarding to the perfectionist workaholics, he/she reveals great need to control work and colleagues, seeking to master the environment and work, is rigid and inflexible, caring enough about the details. As for the workaholic achievement-oriented, he/she has great motivation for achievement, identifies with his/her career, has a great capacity to deal with postponing rewards, and strives to achieve excellence in all that he/she does (Scott *et al.*, 1997).

For Shimazu and Schaufeli (2009) workaholism can be conceptualized as an internal force/impulse to which the subject cannot resist, presenting itself as a negative view of the process. Workaholism can be interpreted as an addition, that is, excessive and persistent behavior with negative consequences for the subject (Schaufeli, Taris & Bakker, 2008). In this perspective, we can distinguish two major dimensions of this construct: work excessively (behavioral dimension - investing too much time and energy at work, much more than it is expected) and work compulsively (cognitive dimension - having an uncontrollable impulse to get involved in job issues) (Schaufeli *et al.*, 2008; Shimazu and Schaufeli, 2009; Gorgievski, Bakker & Schaufeli, 2010). From the perspective of some authors (e.g., Schaufeli, Bakker, Van der Heijden & Prins, 2009), it is necessary to combine the two dimensions - cognitive and behavioral - so that one can face with a situation of true workaholism.

McMillan and O'Driscoll (2006), when studying possible predictors of workaholism, proposed the existence of three antecedents: the drive to work, pleasure taken from work and an obsessive personality. In turn, the adjacent behaviors associated with workaholism, have as a consequence, work at any time, and anywhere. These consequences can contribute to an increase of the spiral in which the workaholic is, that is, he/she wants to work even more. Other studies dealing with the analysis of the possible antecedents of workaholism, covered the personal demographic characteristics (Spence & Robbins, 1992; Harpaz & Snir, 2003; Burke, Oberklaid & Burgess, 2004), the personality (Jackson, Fung, Moore & Jackson, 2016) and the organizational values (Burke, 2000; 2008; Schaef & Fassel, 1988). Several studies have shown that the organizational context plays a prominent role in the development and maintenance of workaholism (e.g. Fassel, 1990; Harpaz & Snir, 2003), as

some organizations have the reputation to be a place where people work hard and play hard (Peiperl & Jones, 2001).

With regard to the possible consequences of workaholism, these affect not only the workaholic, but also those with whom he/she works, because of his/her great need for control over work and others (Porter, 2004). Some studies have evidenced the relationship between workaholism and negative health and well-being outcomes (e.g., Balducci, Avanzi & Fraccaroli, 2016; Gonçalves, Nené, Sousa, Santos & Sousa, 2016), including results related to work, such as burnout (e.g., Gonçalves, Brito, Sousa & Santos, 2017; Schaufeli *et al.*, 2009) or with the work-family conflict (e.g., Pan, 2018; Shkoler, Rabenu & Tziner, 2017).

2.1 The Workaholism Battery

Although there are various measures to evaluate workaholism - Schedule for Non-Adaptive and Adaptive Personality-Workaholism (SNAP-Work: Clark, 1993); Children of Workaholic Parents Screening Test (CWST: Robinson & Carroll, 1999); Work Attitudes and Behaviors Inventory (WABI: Senholzi, 2008) – those who received more empirical attention were the Spence and Robbins´ (1992) Workaholism Battery (WorkBat) and the Robinson´s (1999) Work Addiction Risk Test (WART).

Following workaholism studies, and in order to respond to less consensual aspects in their study, Spence and Robbins (1992) developed a deductive methodology to create a tripartite model of workaholism: (1) Work Involvement (WI); (2) Work Enjoyment (E); and (3) Work Drive (D). The authors tested the three-factor structure in two student pilot samples and one sample of skilled social workers (Spence & Robbins, 1992). The WorkBAT, was used in more than 482 studies (see Patel, Bowler, Bowler & Methe, 2012, for a review) presenting adequate facial validity and internal consistency (α = 0.67-0.86) as well as reasonable convergent validity, either with organizational or with individual variables. In a later analysis, Kanai, Wakabayashi and Fling (1996), with a sample of 1072 employees, could not confirm the three-factor structure of WorkBAT, reporting the WI dimension as indistinct. Thus, there seems to be some uncertainty about the internal structure of the scale (McMilan, Brady, O´Driscoll & Marh, 2002).

From the literature review, and from the various authors and approaches related to workaholism, it is possible to identify divergent views and almost antagonistic positions about the phenomenon. Thus, while some authors attribute a negative connotation to workaholism (e.g., Spence & Robbins, 1992; Robinson, 1998), others give it a positive connotation, as is the case of Gorgievski, Bakker and Schaufeli (2010) (workaholism would be synonymous with passion for work), or even Peirperl and Jones (2001) (workaholics take great gratification from work). Yet, some authors view workaholism as a learned behavior (e.g., Porter, 1996; Robinson, 1998), others see this construct as a personality trait (e.g., Mudrack, 2004).

2.2 The present research

In summary, and given the lack of a reliable and valid Portuguese quantitative tool that allows the evaluation of workaholism, it is the objective of this study to develop and validate the WorkBat (Spence & Robbins, 1992) in a Portuguese sample, through a reliability analysis and a confirmatory factor analysis (CFA)

3. METHODOLOGY

3.1 Sample

The sample of the present study consisted of 407 participants, aged between 18 and 68 years (M=39; SD =10.449), of which 313 (76.9%) were female and 92 (22.6%) were male, and 2 (0.50%) don´t identify the gender. With regard to marital status, the participants are mostly married (n = 241; 59.2%), followed by singles or separated (n=158; 38.8%), and 4 (1%) widowers. The qualifications are, for the most part, higher level (n=231, 56.8%), followed by secondary education (n=106; 26.0%) and basic education (n=63; 15.5%). In terms of professional status, the majority of participants are employed (n=331; 81.3%), followed by entrepreneurs (n=48; 11.8%) and service providers (n=14; 3.4%), the others did not identify.

3.2 Instrument

WorkBat: this scale was originally developed in English by Spence and Robbins (1992). It is a scale composed of 25 items that evaluate three dimensions: (1) Work Involvement (8 items), which refers to the generalized attitude of psychological involvement with work (e.g., item 5 "I spend my free time on projects and other activities"); (2) Work Drive (7 items) which is related to an internal compulsion to work hard and blame when work fails (e.g., item 15 "I seem to have an inner compulsion to work hard"); and (3) Work Enjoyment (10 items) related to the pleasure that comes from work (e.g., item 25 "Sometimes I enjoy work so much I have a hard time stopping"). All items are scored along a 7-point Likert format continuum ranging from strongly disagree (1) to strongly agree (7) and items 1, 2, 3 and 21 are reversible.
Demographics: In order to characterize the sample, participants were asked to provide basic demographic information, including gender, age, marital status, educational level and area, and professional activity.

3.3 Item Translation

Two bilingual translators have supported the apparent validity through a back-translation process in accordance to Hambleton, Merenda, and Spielberger's procedure (2006). First, the scale was translated from English into Portuguese by two bilingual specialists working independently. Second, both versions were re-translated into English by two other bilingual specialists, also independently. The translations were compared to the original and two psychologists' experts in this theme adjusted the final version.

3.4 Procedures

Participants were approached individually or in a group for participation in a behavioral study that was guaranteed to be anonymous and voluntary. After the informed consent, the questionnaire was delivered to the participants who filled it in the presence of the investigator. Its application lasted an average of 10 minutes and was carried out either in professional context, in classrooms, libraries or other social contexts that allowed participants to respond quietly to the questionnaire. No compensation was offered to participants and the study subject was blinded. Only the questionnaires completed correctly were considered.

3.5 Data analysis

The data collected were analyzed through the SPSS program (version 20.0) and the SPSS AMOS program (version 20.0). The psychometric properties of the scale were explored

through: a) a statistical description of the scale items that included percentiles, mean, standard deviation and asymmetry; b) internal consistency analysis; and c) testing the structure of the scale through a confirmatory factor analysis. The maximum likelihood estimation method was used, which assumes a multivariate normal distribution, and is robust when this premise is not met (Schermelleh-Engel, Moosbrugger & Müller, 2003), which occurred in our data. The following adjustment indicators were considered:

The χ^2 (Chi-square), corresponds to the probability of adjusting the data to the theoretical model and the higher this value, the weaker the model (e.g., Marôco, 2010). Given that the values may be affected by the sample size, the ratio between the $\chi 2$ and the corresponding degrees of freedom (χ^2/gl) is considered more adequate. Values between 2 and 3 indicate a suitable theoretical model, assuming up to 5. The Comparative Fit Index (CFI), Goodness-of-Fit Index (GFI), Tucker-Lewis Index (TLI), Incremental Fit Index (IFI), which may vary between 0 and 1, considering that the closer to 1 the better the adjustment, with values close to or greater than 0.90 being considered for adequate adjustment (e.g., Bentler & Bonett, 1980; Byrne, 2009). The Root-Mean Square Error of Approximation (RMSEA) is characterized by a confidence interval of 90% (CI90). It is assumed that the ideal value of the RMSEA is between 0.05 and 0.08, accepting values up to 0.10 (e.g., Hu & Bentler 1999; Ullman, 2006). The Standardized Root-Mean Square Residual (SRMR) corresponds to the mean of the standard residuals and an appropriate adjustment of the model is indicated by values less than 0.05 (Hu & Bentler, 1999).

4. RESULTS

The univariate analysis of the scale results, by item, shows an asymmetric distribution (see table 1). According to the results of the Kolmogorov-Smirnov test, the data obtained do not fulfill the assumption of normality. The item means vary between 5.69 (item 6) and 2.61 (item 9) on a 7-point rating scale.

Table 1. Data location, normality and asymmetry

	Percentile							Central tendency		Normality	Asymmetry
	5	10	25	50	75	90	95	M	SD		
Item 1	1.00	1.00	2.00	4.00	6.00	7.00	7.00	4.05	2.286	KS=0.167, p=0.000	-0.015
Item 2	1.00	1.00	1.00	4.00	7.00	7.00	7.00	3.89	2.467	KS=0.196, p=0.000	0.079
Item 3	1.00	1.00	2.00	4.00	5.00	7.00	7.00	3.86	1.992	KS=0.134, p=0.000	0.134
Item 4	1.00	2.00	3.00	5.00	7.00	7.00	7.00	4.70	1.974	KS=0.163, p=0.000	-0.459
Item 5	1.00	2.00	4.00	5.00	6.00	7.00	7.00	4.95	1.757	KS=0.173, p=0.000	-0.668
Item 6	3.00	4.00	5.00	6.00	7.00	7.00	7.00	5.69	1.318	KS=0.216, p=0.000	-0.993
Item 7	1.00	2.00	4.00	6.00	7.00	7.00	7.00	5.09	1.810	KS=0.208, p=0.000	-0.773
Item 8	1.00	1.00	1.00	2.00	5.00	6.00	7.00	3.10	2.093	KS=0.228, p=0.000	0.550
Item 9	1.00	1.00	1.00	2.00	4.00	6.00	7.00	2.61	1.972	KS=0.261, p=0.000	0.974
Item 10	1.00	1.00	2.00	4.00	5.00	7.00	7.00	3.83	1.993	KS=0.154, p=0.000	0.070
Item 11	1.00	2.00	3.00	5.00	6.00	7.00	7.00	4.58	1.888	KS=0.157, p=0.000	-0.441

Item 12	1.00	1.00	3.00	5.00	6.00	7.00	7.00	4.26	1.925	KS=0.160, p=0.000	-0.275
Item 13	1.00	1.80	3.00	5.00	6.00	7.00	7.00	4.60	1.943	KS=0.182, p=0.000	-0.476
Item 14	1.00	1.00	3.00	4.00	6.00	7.00	7.00	4.13	1.941	KS=0.157, p=0.000	-0.227
Item 15	1.00	1.00	2.00	4.00	5.00	6.20	7.00	3.64	1.957	KS=0.139, p=0.000	0.152
Item 16	1.00	1.00	2.00	4.00	5.00	7.00	7.00	3.75	1.980	KS=0.138, p=0.000	0.087
Item 17	1.00	1.00	1.00	2.00	4.00	6.00	7.00	2.80	1.873	KS=0.216, p=0.000	0.791
Item 18	1.00	1.00	2.00	4.00	5.00	6.00	7.00	3.47	1.895	KS=0.139, p=0.000	0.237
Item 19	1.00	1.00	1.00	2.00	4.00	5.00	6.00	2.68	1.681	KS=0.209, p=0.000	0.845
Item 20	2.00	3.00	4.00	5.00	6.00	7.00	7.00	4.73	1.626	KS=0.156, p=0.000	-0.421
Item 21	1.00	1.00	2.00	4.00	7.00	7.00	7.00	4.09	2.333	KS=0.185, p=0.000	-0.010
Item 22	2.00	3.00	4.00	5.00	6.00	7.00	7.00	5.08	1.596	KS=0.192, p=0.000	-0.732
Item 23	1.00	1.00	2.00	3.00	4.00	6.00	6.00	3.07	1.691	KS=0.168, p=0.000	0.589
Item 24	1.40	2.00	3.00	4.00	6.00	7.00	7.00	4.43	1.667	KS=0.133, p=0.000	-0.243
Item 25	1.00	1.00	2.00	4.00	5.00	6.00	7.00	3.61	1.794	KS=0.135, p=0.000	0.248

Source: Own Elaboration

4.1 Reliability analysis

Scale reliability analysis was performed using the Cronbach's alpha, considered the most suitable statistical test for Likert type measurement scales, which can vary from 0 to 1 and values > 0.70 are considered to be acceptable (Nunnally, 1978). The reliability of the scale was 0.81. It was also observed that if any item were eliminated, internal consistency would decrease its value, with the exception of item 3 (alpha would increase to 0.82) and item 21 (alpha would be 0.84). Regarding the values of internal consistency by dimension: Involvement - $\alpha = 0.56$; Drive - $\alpha = 0.82$; Enjoyment - $\alpha = 0.76$.

4.2 Confirmatory factor analysis

In the confirmatory factorial analysis, several models subordinated to three factors were tested, according to the original model, as well as a two-factor model without the involvement dimension, as tested by Kanai and colleagues (1996) (see table 2).

Table 2. Confirmatory factorial analysis (tested models)

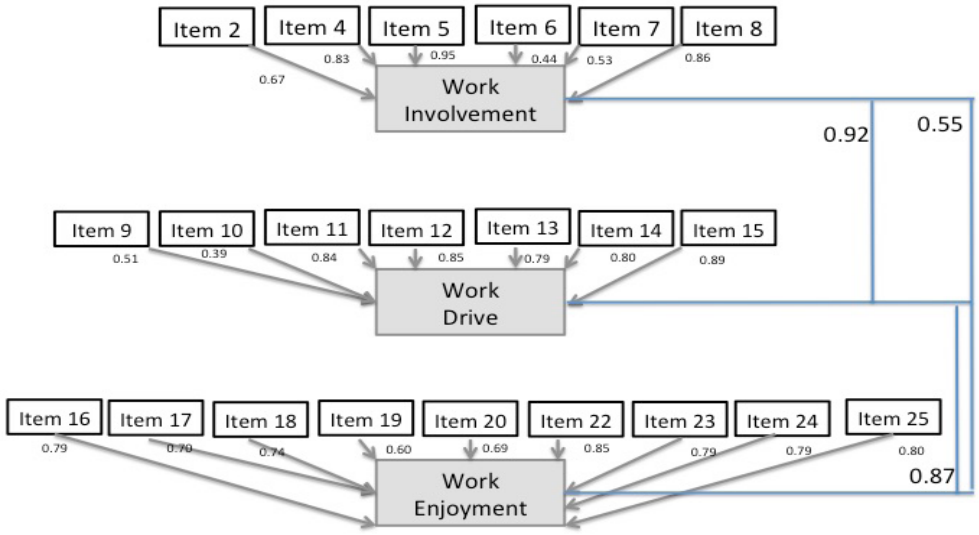
	χ^2/gl	CFI	GFI	IFI	TLI	RMSEA	SRMR
1. Three factor (25 items)	6.178	0.617	0.731	0.620	0.578	0.104	0.104
2. Three factor (without items 1, 3)	5.794	0.674	0.768	0.676	0.637	0.109	0.095
3. Three factor (without items1, 3, 21)	5.125	0.725	0.789	0.727	0.692	0.101	0.093
4. Two factor	6.564	0.757	0.795	0.759	0.720	0.117	0.094

Source: Own Elaboration

The first model tested integrates the totality of the items. In the second model, the items contributing to a decrease in the alpha of the scale (items 3 and 21) were eliminated. In the

third model, in addition to items 3 and 21, the item with the lowest explanatory contribution (item 1) was also eliminated. Although the values obtained are not totally satisfactory, this was the model that presented more adequate adjustment values (see Figure 1).

Figure 1. Proposed model (factorial weights)



Source: Own Elaboration

The observed X^2/gl observed of 5.125 (p = 0.000) is close to the desired values (Marôco, 2010). The CFI (0.73), GFI (0.79), IFI (0.73) and TLI (0.70) present values for a little satisfactory adjustment (Byrne, 2009). As regards the error measures, the SRMR (0.093) and the RMSEA (0.100) values, are indicators of an adjustment close to the acceptable (Hu & Bentler 1999; Ullman, 2006).

5. CONCLUSION

Currently, in an extremely competitive environment, the professional context demands a greater dedication of the employees. The new technologies, which on the one hand are facilitators and have several advantages, on the other, increase the difficulty of the individual to be able to disconnect from the professional activity when leaving the work place. In this scenario, the workaholics, people who constantly think about work, even when they are not working (Schaufelli *et al.*, 2008), are individuals of special interest for studies in the field of Organizational Psychology and Organizational Behavior.

Clark and Baltes (2014) through a meta-analysis, grouped the repercussions of workaholism into three categories: (1) at work (job satisfaction, stress, performance, career prospects); (2) in the family (family functioning, dissatisfaction in marriage, work-family conflict); (3) individual (professional satisfaction, burnout, physical health and mental health). Thus, it is possible to verify that the effects of workaholism go beyond the family sphere and may endanger the individual's psychological health.

The present study aimed to contribute to the adaptation of the scale of Spence and Robbins (1992) in a Portuguese sample. Although none of the models tested guarantees ideal adjustment values, either for the reasonableness of the values or for a better theoretical adequacy, the model considered more suitable meets the threefold solution initially proposed by Spence and Robbins (1992). Internal consistency meets the requirements for its use.

In future research, it is considered interesting to carry out a study, in line with the one developed by Shimazu and colleagues (2015), which shows the two poles of high investment in work, that is, workaholism and work engagement. Specifically, the authors observed that workaholism has negative consequences over a 2-year period, while engaged work has positive consequences in terms of well-being and performance. Workaholism must be prevented and engagement must be stimulated, so it is considered interesting to increase the study of these concepts. Other studies should reinforce the validity of the instrument, including convergent, discriminant and invariant analyzes.

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WORKPLACE INCIVILITY AMONG PORTUGUESE HOTEL EMPLOYEES: IS LACK OF RESPECT BURNING THEM OUT?

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ABSTRACT

Workplace incivility is defined as rude behaviour that violates social norms at work. It has been linked to psychological distress (burnout), mainly in healthcare and educational settings. Burnout is a serious public health concern. Studies addressing the impact of workplace incivility on employee well-being in the hospitality industry are scarce. The primary aim of this study was to examine the relationship between workplace incivility and burnout among hotel employees. Cross-sectional data for 385 Portuguese hotel employees (54% male; M_{age} = 33.9, SD = 11.3) were analysed using bootstrap regression models. Results revealed that (1) supervisor incivility was significantly more frequent than co-worker incivility; (2) supervisor and co-worker incivility were significant positive predictors of emotional exhaustion and cynicism, the core components of burnout; (3) supervisor incivility was the stronger predictor of emotional exhaustion, and co-worker incivility the stronger predictor of cynicism; and (4) severe burnout was highly prevalent in our sample. This study provides insight into the phenomena of workplace incivility and burnout among Portuguese hotel employees. Our results have practical value for management strategies aiming to prevent or reduce burnout, which in turn has the potential to enhance individual, group, customer and organizational outcomes within the hospitality industry.

Keywords: Workplace Incivility; Respect; Burnout; Hotel Employees.

JEL Classification: L83, I10

1. INTRODUCTION

Our global and highly competitive world poses a number of challenges for quality interpersonal relationships at work. The requirement to work with culturally diverse people means that we need to interact with and understand different social norms. To successfully deal with such diversity on a number of levels, clear and shared norms for respectful behaviour in the workplace are paramount (Barak, 2014). Our dependency on electronic communication can also facilitate rude behaviour (incivility), be it due to misunderstandings caused by the lack of non-verbal cues, or because physical absence can protect the instigator of negative behaviour (Pearson, Andersson & Porath, 2000).

Workplace incivility is a *subtle*, yet pervasive, form of interpersonal mistreatment (Cortina, 2008), that has shown to have deleterious effects on employees' levels of motivation (Reio & Sanders-Reio, 2011), performance (Porath & Erez, 2007) and well-being (Leiter, Peck & Gamuchian, 2015). Workplace incivility can escalate to more violent behaviour

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(Andersson & Pearson, 1999), such as bullying, that is highly prevalent in a number of industries (Einarsen, Hoel, Zapf & Cooper, 2011). Poor interpersonal relationships at work are considered a psychosocial risk (Elsler, 2011), a well-known source of stress in the work environment (Day & Leiter, 2014).

The effects of prolonged exposure to work-related stress can lead to burnout, that is characterized by high levels of emotional exhaustion and cynicism (Maslach & Leiter, 2008). Given its detrimental effects on workers' physical (Armon, Melamed, Shirom & Shapira, 2010; Toker, Melamed, Berliner, Zeltser & Shapira, 2012) and emotional (Ahola *et al.*, 2005, 2006; Peterson *et al.*, 2008; Hakanen & Schaufeli, 2012) well-being, burnout is currently considered to be a serious public health issue (Bauer & Hämmig, 2014). Burnout can also lead to negative organizational outcomes, such as high employee turnover (Leiter & Maslach, 2009), which is a major problem for the tourism and hospitality industry (Faldetta, Fasone & Provenzano, 2013).

Tourism and hospitality is a key business sector for the Portuguese economy (Pordata, 2017a, 2017b, World Economic Forum, 2017). However, employees within this industry are exposed to a number of well-known stressors, such as long or unsociable work hours, high workload, low wages, and interpersonal conflict at work (Murray-Gibbons & Gibbons, 2007; Poulston, 2008; Kim & Jogaratnam, 2010; Elsler, 2011; O' Neill & Davis, 2011; Yavas, Karatepe & Babakus, 2013). Studies have shown that hotel employees' job satisfaction, which is inversely associated with burnout, is an important factor for promoting customer satisfaction, customer loyalty, and customer willingness to recommend the hotel to others, thereby contributing to the organization's bottom line (Moura, Orgambídez-Ramos & Jesus, 2015; Borralha, Jesus, Pinto & Viseu, 2016; Melo, Moniz, Silva & Batista, 2017).

The majority of studies on workplace incivility have been conducted among North American health service providers, and a call has been made to extend incivility research to other countries and occupations (Schilpzand, Pater & Erez, 2016).

In general, research on incivility in the hotel industry is scarce, and to the best of our knowledge the relationship between incivility and burnout in the Portuguese hospitality industry has not been investigated. Thus, the principal aim of this study is to examine the relationship between workplace incivility and burnout among Portuguese hotel employees. The specific objectives of the study are to: (a) assess the frequency of workplace incivility experienced from supervisors and from co-workers; (b) examine levels of emotional exhaustion, cynicism and burnout among employees; and (c) assess the impacts of supervisor and co-worker incivility on employees' levels of emotional exhaustion and cynicism.

Insight into the phenomena, and an understanding of the nature of the relationship between, workplace incivility and burnout in the hotel industry can provide vital knowledge for the prevention or reduction of burnout, which in turn has the potential to enhance individual, group, customer and organizational-based outcomes.

2. THEORETICAL FRAMEWORK

2.1 Workplace Incivility

In their seminal paper, Andersson and Pearson (1999: 458) defined workplace incivility as "low-intensity deviant behaviour with ambiguous intent to harm the target, in violation of workplace norms for mutual respect. Uncivil behaviours are characteristically rude and discourteous, displaying a lack of regard for others". Indeed, it is the mild, seemingly irregular, and ambiguous nature of the behaviour that differentiates incivility from other more aggressive workplace behaviours, such as sexual harassment and bullying, that by

definition are high intensity acts, perpetrated on a regular basis, and clearly intended to cause harm to others (Andersson & Pearson, 1999).

Uncivil behaviour is subtle and generally covert. It can be manifested through verbal (e.g., a sarcastic comment) or non-verbal behaviour (e.g., ignoring or excluding someone, facial expressions, or not completing an assigned task and creating extra work for others), and the intention to deliberately do harm might not be clear or even exist (Andersson & Pearson, 1999). As such, an experience of workplace incivility can be the result of carelessness, oversight or indifference on the part of the instigator, and/or hypersensitivity or misunderstanding on the part of the target (Andersson & Pearson, 1999; Sliter, Withrow & Jex, 2015).

Workplace incivility is shaped by cultural norms, traditions, as well as formal and informal rules. Thus, the very definition of acceptable or unacceptable social behaviour at work can vary by group, organization, industry and country (Hofstede, 1983; Andersson & Pearson, 1999).

Incivility may be the result of the global, technological and multicultural economy that we live and work in. The demand for very short response times can lead people to believe that being courteous (e.g., greeting people, showing personal concern for others) is a waste of time (Pearson & Porath, 2005). Also, communicating via technology, often without knowing the person with whom we are communicating with, might be reason enough to dismiss careful and respectful treatment. Cultural differences can also facilitate misunderstandings, as what might be acceptable behaviour in one culture, could be deemed disrespectful behaviour in another culture (Hofstede, 1983; Pearson & Porath, 2005).

Although workplace incivility is often trivialized (Cortina, Magley, Williams & Langhout, 2001), its prevalence is on the rise (Porath & Pearson, 2013), and research shows that it can have detrimental effects on individual, group and organizational outcomes (Estes & Wang, 2008; Lim, Cortina & Magley, 2008; Porath & Pearson, 2010, 2013; Schilpzand *et al.*, 2016).

Workplace incivility negatively affects mutual respect at work and cooperation (Andersson & Pearson, 1999), as well as work effectiveness (Pearson, Andersson & Porath, 2000). It has also been linked to reduced work effort, productivity, performance, job satisfaction, and organizational commitment, and increased voluntary turnover (Lim *et al.*, 2008; Pearson & Porath, 2005). Workplace incivility can jeopardize an organization's image and reputation (Porath, Macinnis & Folkes, 2010; Bavik & Bavik, 2015), and have a negative impact on an organization's financial performance (Porath & Pearson, 2013).

Workplace incivility is a negative form of interpersonal treatment that can be explained using a social interactionist perspective (Felson & Tedeschi, 1993), which takes interpersonal, situational and contextual factors into account. Uncivil behaviour may stem from the need to defend oneself or restore justice, so the behaviour should not be viewed as a discrete event, but rather as a dynamic interpersonal process that involves at least two, if not three, parties: the instigator of the behaviour, the target of the behaviour, and those who witness the behaviour (Andersson & Pearson, 1999).

The extant literature on workplace incivility deals primarily with the effects of supervisor-to-employee incivility and/or co-worker-to-co-worker incivility. Nevertheless, a number of studies have shown the importance of customers' negative behaviour (incivility) for employee health and well-being (Grandey, Dickter & Sin, 2001; Rupp & Spencer, 2006; Karatepe, Yorganci & Haktanir, 2009; Sliter, Jex, Wolford & McInnerney, 2010; Han, Bonn & Cho, 2016; Cho, Bonn & Han, 2016).

2.1.1 Cycle of incivility

Despite its subtle nature and dubious intent, workplace incivility can lead to more violent behaviour, that has a clear intent to harm, thereby activating an aggression spiral (Baron & Neuman, 1996). An experience of incivility can be perceived as unfair treatment, and may trigger a desire to respond in kind as a way to restore justice (Andersson & Person, 1999).

The incivility spiral can however be interrupted, if the target chooses to overlook the behaviour, give the instigator the benefit of the doubt, or if the instigator apologizes for his/her behaviour. However, if disrespectful behaviour persists in the workplace, and if it is perceived as unfair, then at some stage a tipping point will be reached and workplace incivility may be replaced by behaviour that is considerably more violent and intentional in nature (e.g., bullying). This is especially the case when the target feels that the uncivil behaviour poses a threat to his/her identity or sense of dignity (Andersson & Pearson, 1999). In some organizations, incivility might be used as a way to gain power over others (Pearson & Porath, 2005).

Workplace incivility might be fostered by the reduced capacity for emotional self-regulation of one of the parties involved in the interpersonal behaviour, or by an informal workplace climate. Witnessing disrespectful behaviour can also promote a spiral of incivility, as witnesses might be uncivil towards others. Being the target of disrespectful behaviour can also prompt misdirected incivility towards a third party, thereby spreading this antisocial phenomenon throughout the whole organization (Foulk, Woolum & Erez, 2016).

2.2 Burnout

Maslach, Jackson and Leiter (1996) defined burnout as a psychological syndrome comprising three dimensions: (a) emotional exhaustion, refers to an overwhelming feeling of no longer being able to handle the demands of the job, when an individual feels physically and emotionally drained; (b) cynicism, refers to a state of psychological detachment, a negative attitude towards the job, the clients and the organization as a whole; and (c) professional inefficacy, which entails feelings of low levels of agency, competence and productivity.

Burnout stems from prolonged exposure to chronic work-related stress, and can manifest itself in any occupation and professional context (Leiter & Maslach, 2003; Maslach & Leiter, 2008).

Burnout has been linked to a number of undesirable health outcomes, such as anxiety and depression (Ahola *et al.*, 2005, 2006; Hakanen & Schaufeli, 2012; Peterson *et al.*, 2008), heart disease (Toker *et al.*, 2012), and musculoskeletal disorders (Armon *et al.*, 2010). The deleterious effects of burnout on workers' physical and emotional well-being makes it a serious public health concern (Bauer & Hämmig, 2014).

In addition, burnout reduces employee motivation and increases the likelihood of dysfunctional attitudes and behaviours at work (Schaufeli & Buunk, 2004). Also, at the organizational level, burnout can lead to high employee turnover (Leiter & Maslach, 2009), which is a major challenge for the tourism and hospitality industry (Faldetta *et al.*, 2013).

2.3 Workplace Incivility and Burnout

Quality social interactions and positive social support are critical factors for a demanding, yet healthy, work environment (Day & Leiter, 2014). A meta-analysis of 68 studies indicates that social support can act in different ways: it can directly reduce stressors (environmental conditions) and strains (individual responses to stressors, including burnout), and also reduce (moderate) the level of stress on strain (Viswesvaran, Sanchez & Fisher, 1999).

Although early burnout studies focused primarily on the importance of interpersonal relationships between professionals and service recipients (e.g., patients) as one precursor

of burnout, it is now recognized that the quality of relationships with other people in the work environment (e.g., co-workers) can also promote the onset of burnout (Day & Leiter, 2014). Unsupportive, disrespectful or unfair work environments are other known predictors of burnout (Schaufeli & Buunk, 2004).

Hobfoll's (1989) Conservation of Resources (COR) theory can explain the relationship between workplace incivility and burnout. COR theory posits that individuals strive to maintain, protect and enhance valued resources, and that stress is produced whenever an individual perceives a threat of loss of, or actually losses, valued resources. Workplace incivility can activate (additional) stress as it threatens the loss of protective and valued social resources (i.e., social support at work), required for the preservation and enhancement of valued personal resources (i.e., sense of identity and dignity; health and well-being).

Workplace incivility is in itself a source of stress. However, workplace incivility can also intensify the level of stress already being generated by other work-related factors (e.g., high workload) that are predictive of poor occupational health and well-being (Oore *et al.*, 2010).

We found several studies that have addressed the relationship between incivility (from supervisors and from co-workers) and burnout (Laschinger, Leiter, Day & Gilin, 2009; Taylor, 2010; Leiter, Price & Laschinger, 2010; Leiter, Laschinger, Day & Oore, 2011; Leiter, Nicholson, Patterson & Laschinger, 2011; Leiter, Day, Oore & Laschinger, 2012; Sulea, Filipescu, Horga, Orlan & Fischmann, 2012; Giumetti, McKibben, Hatfield, Schroeder & Kowalski, 2012; Leiter, Day & Price, 2015).

The majority of the nine studies were conducted among health service providers in the North American continent, except for (a) Giumetti *et al.* (2012) and Sulea *et al.* (2012), who surveyed professionals from the education sector; (b) Taylor (2010), who studied a sample of MBA students employed in a variety of organizations; and (c) Sulea *et al.* (2012), who used a Romanian sample. Three of the nine studies (Leiter *et al.*, 2010; Leiter, Laschinger *et al.*, 2011; Leiter, Nicholson *et al.*, 2011) used a longitudinal design.

The overall results from these nine studies suggest that: (a) the level of incivility experienced from co-workers is higher than that experienced from supervisors; (b) incivility from supervisors and incivility from co-workers are positively associated with emotional exhaustion and cynicism, the core components of burnout; (c) the effect of supervisor incivility on burnout is greater than the effect of co-worker incivility on burnout; and (d) compared with emotional exhaustion, it is the cynicism dimension of burnout that has the stronger association with incivility.

However, regarding the frequency of incivility from supervisors and co-workers, recent research in the Portuguese healthcare context indicates that the level of incivility experienced from supervisors is higher than that experienced from co-workers (Laneiro, Magalhães and Nitzsche, 2016; Laneiro, Ribeiro, Queiroz, Gonçalves and Nitzsche, 2016), a finding that contradicts a result in the international studies referred to in the previous paragraph. This poses the following question: Which of the two forms of incivility (supervisor and co-worker) is higher among Portuguese hotel employees?

2.4 Tourism and Hospitality

Tourism and hospitality is a key industry for the Portuguese economy given that it represents 10% of the country's Gross Domestic Product. The industry generates almost 363,000 jobs, which equates to approximately 8% of all jobs in Portugal (World Economic Forum, 2017). In 2015, the hotel industry alone generated some 52,000 jobs (Pordata, 2017a) and a revenue of just over 2.5 billion Euros (Pordata, 2017b).

The industry relies heavily on its workers, who play a pivotal role in ensuring customer satisfaction. As with workers in other service sector jobs, employees in the tourism and

hospitality industry are especially prone to work-related stress and burnout (Karatepe, Babakus & Yavas, 2012), which can negatively affect the quality of services rendered and customer loyalty (Salanova, Agut & Peiró, 2005; Humborstad, Humborstad & Whitfield, 2007; Gracia, Salanova, Grau & Cifre, 2013; Rhee, Hur & Kim, 2016; Cho *et al.*, 2016).

It is well known that employees in this industry are exposed to a number of psychosocial risks, such as work-family conflict, unpredictable and unsociable work hours, high workload, low wages, poor communication and interpersonal conflict at work (Murray-Gibbons & Gibbons, 2007; Poulston, 2008; Blomme, Rheede & Tromp, 2010; Kim & Jogaratnam, 2010; Elsler, 2011; O' Neill & Davis, 2011; Daskin & Tezer, 2012; Yavas *et al.*, 2013).

Incivility at work has been associated with reduced levels of job satisfaction and organizational commitment, and increased voluntary turnover (Pearson & Porath, 2005). Employee satisfaction has been shown to have a positive effect on employee retention and productivity, which benefits a hotel's bottom line (Borralha *et al.*, 2016; Moura *et al.*, 2015). Customer satisfaction, that is linked to employee satisfaction, increases customer intention to return to the hotel, as well as customer willingness to recommend the hotel to others, thereby promoting the site abroad (Melo *et al.*, 2017).

2.5 Workplace Incivility and Burnout in Tourism and Hospitality

Although most of the studies on workplace incivility and burnout have been conducted in healthcare and educational settings (e.g., Leiter *et al.*, 2010, 2015; Giumetti *et al.*, 2012; Sulea *et al.*, 2012), research on the relationship between these phenomena has started to emerge in the tourism and hospitality industry.

In their study among 239 restaurant employees in the USA, Cho *et al.* (2016) found that supervisor incivility and co-worker incivility were significantly associated with emotional exhaustion, which in turn predicted reduced service performance. Cho *et al.* did not investigate the effects of supervisor incivility and co-worker incivility on employees' level of cynicism.

In the South Korean hospitality industry, Rhee *et al.* (2016) showed that co-worker incivility had a significant negative indirect effect on job performance, through emotional exhaustion, among 215 hotel employees. The concepts of supervisor incivility and cynicism were not included in Rhee *et al.* study.

Han *et al.* (2016) investigated the relationship between customer incivility, employee burnout and turnover intention among 228 North American restaurant employees. Customer incivility was shown to be positively related to employee burnout, which fully mediated the relationship between customer incivility and employee turnover intention. Han *et al.* study did not include the concepts of supervisor incivility and co-worker incivility.

Although Torres, van Niekerk and Orlowski (2017) did not examine supervisor incivility or burnout in their study among 297 hotel employees in the USA, they found that a higher frequency of incivility between co-workers predicted increased co-worker to customer incivility.

Hur, Moon and Jun (2016) assessed the effects of co-worker incivility and customer incivility on creativity in a sample of 281 hotel employees in South Korea. Although, Hur *et al.* found no significant direct relationships between the two sources of incivility and creativity, they showed that both co-worker incivility and customer incivility significantly predicted increased emotional exhaustion, which together with intrinsic motivation predicted reduced creativity. The concepts of supervisor incivility and cynicism were not included in Hur *et al.* study.

Interestingly, Abubakar, Namin, Harazneh, Arasli and Tunç (2017) did not find a significant relationship between supervisor incivility and cynicism in their study among a

sample of 291 hotel employees in Northern Cyprus. This contradictory finding was attributed to cultural differences. The concepts of co-worker incivility and emotional exhaustion were not included in Abubakar *et al.* investigation.

Regarding the Portuguese tourism and hospitality industry, we are unaware of any studies that have specifically examined the relationship between workplace incivility and burnout. Nevertheless, studies conducted within the Portuguese tourism and hospitality industry indicate that what workers most appreciate, and regard as highly motivating and satisfying work factors, include good interpersonal relations, both with colleagues and with supervisors (Freitas, 2006; Guzmán, Cañizares & Jesus, 2009). This highlights the relevance of assessing and understanding the relationship between workplace incivility and burnout in the hospitality industry.

Also, as previously stated, incivility at work can escalate into more violent and aggressive behaviours such as sexual harassment and bullying, which are highly prevalent in the tourism and hospitality industry (Ram, 2015). A recent study on sexual harassment and bullying among male and female workers in 13 Portuguese business sectors revealed that the sector with the highest levels of sexual harassment (14.1% - 14.9%) and bullying (15.9% - 16.7%) is the hospitality industry (Torres, Costa, Sant'Ana, Coelho & Sousa, 2016). In light of this information, we expect workplace incivility to be a feature of Portuguese hotel employees' social environment.

Based on our review of the literature, we propose the following hypotheses:

Hypothesis 1: Supervisor incivility will positively predict emotional exhaustion;
Hypothesis 2: Supervisor incivility will have a positive influence on cynicism;
Hypothesis 3: Co-worker incivility will positively predict emotional exhaustion;
Hypothesis 4: Co-worker incivility will have a positive effect on cynicism.

3. METHOD

3.1 Participants

This study was conducted with a convenience sample of 385 workers in the Portuguese hotel industry, 206 (54.1%) of whom were male and 175 (45.9%) female; 1.0% (n = 4) of the participants did not confirm their gender. Participants' age ranged from 17 to 72 years (M = 33.91, SD = 11.31); 2.1% (n = 8) did not report their age. Regarding marital status, most (51.5%; n = 195) participants were single, and 145 (38.3%) were married; 1.6% (n = 6) did not disclose their marital status.

In terms of education, almost half (45.1%; n = 171) of the participants had attended school for up to 12 years, 102 (26.9%) held a higher degree, and 79 (20.8%) had spent a maximum of 9 years at school; 1.6% (n = 6) did not indicate their level of education.

The majority (87.3%; n = 329) of the participants worked in the Lisbon area, in 4-star hotels (51.1%; n = 194), and almost half (49.7%; n = 189) worked in reception. On average, participants had worked at their organizations for 7.07 years (SD = 96.00), ranging from a minimum of one month to a maximum of 45 years. The average number of hours worked per week was 41.92 hours (SD = 7.15), varying between a minimum of 10 hours per week to a maximum of 69 hours per week. Table 1 provides details on hotel location and category, as well as on participants' functional work areas.

Table 1. Hotel Location and Category, and Participants' Functional Work Areas

	N	%
Hotel location		
Lisbon	329	87.3
Central region	39	10.3
Northern region	4	1.2
Alentejo region	1	0.3
Algarve region	3	0.8
Madeira island	1	0.3
Missing	8	2.1
Hotel category		
Five stars	94	24.7
Four stars	194	51.1
Three or less stars	92	24.2
Missing	5	1.3
Functional work area		
Reception	189	49.7
Restaurant/bar	84	22.1
Rooms	42	11.1
Back office	34	8.8
Kitchen	31	8.2
Missing	5	1.3
Total	385	100

Source: adapted from Nitzsche (2016)

3.2 Instruments

Workplace incivility and burnout were assessed using the Straighforward Incivility Scale (SIS; Leiter & Day, 2013) and the Maslach Burnout Inventory - General Survey (MBI-GS; Maslach *et al.*, 1996; Schaufeli *et al.*, 1996), respectively. A sociodemographic questionnaire was also included in the survey.

3.2.1 Workplace incivility

Workplace incivility was measured by the Portuguese version of the SIS (Leiter & Day, 2013), as validated by Nitzsche (2016) in the Portuguese hospitality context. The SIS originally comprises five dimensions: supervisor incivility, co-worker incivility, subordinate incivility, client incivility, and incivility instigated by the respondent against others at work. Two of these dimensions were used for the current study: supervisor incivility and co-worker incivility, both of which consist of five items.

Respondents answered all items on a 7-point Likert scale, ranging from 0 (never) to 6 (more than once a day). The items from each dimension were then summed and averaged to create an overall rating for supervisor incivility and for co-worker incivility. A higher score indicated a higher frequency of incivility experienced from supervisors or from co-workers, in the previous month.

Regarding the internal consistency reliability (alpha coefficient) of the two incivility dimensions, Leiter and Day (2013) reported α = .90 for supervisor incivility, and α = .95 for co-worker incivility. In the present study, the alpha coefficient for each of the incivility dimensions was very high (supervisor incivility: α = .91; co-worker incivility: α = .93).

3.2.2 Burnout

Given that our sample comprised of hotel employees, and not health service providers, we used the General Survey version of the Maslach Burnout Inventory (MBI-GS; Maslach *et al.*, 1996; Schaufeli *et al.*, 1996) to measure the level of burnout. The MBI is the most widely used and most validated measure of burnout (Schaufeli & Buunk, 2004; Mäkikangas *et al.*, 2011).

The MBI-GS consists of 16 items distributed among three dimensions: emotional exhaustion (five items), cynicism (five items) and professional efficacy (six items). However, previous research suggests that the core components of burnout are emotional exhaustion and cynicism (Schaufeli & Taris, 2005; Maslach & Leiter, 2008; Qiao & Schaufeli, 2011), whereas professional efficacy is considered to be more of a personal resource in the work context (Bakker & Leiter, 2010). Thus, in this study we only measured emotional exhaustion and cynicism.

Participants' responses to the 10 items were rated on a 7-point Likert scale, ranging from 0 (never) to 6 (every day). The items from each dimension were summed and averaged to provide an overall score for emotional exhaustion and for cynicism. The higher the score, the more frequently the participant experienced feeling emotionally exhausted or cynical.

In terms of reliability, alpha coefficients reported in the literature range from .80 to .94 for the emotional exhaustion component of burnout, and between .79 and .87 for the cynicism component of burnout (Leiter, Nicholson *et al.*, 2011; Sulea, Filipescu *et al.*, 2012; Leiter *et al.*, 2015; Cho *et al.*, 2016; Han *et al.*, 2016). In this study, the alpha coefficients for emotional exhaustion (α = .87) and cynicism (α = .81) were high.

3.3 Procedure

Using a convenience sampling strategy, we contacted several Human Resource (HR) directors from national and international hotels and requested their permission for the participation of their employees in this cross-sectional study. Following approval from HR, data were collected using a self-report survey questionnaire that was made available in two formats: pen-and-paper and online. Participants were informed of the scope and objectives of the study, the voluntary nature of participation, as well as the guarantee of anonymity and confidentiality of individual responses.

Of the 385 questionnaires that were returned, the greater majority (97%; n = 374) were in pen-and-paper format, and 11 (3%) questionnaires had been completed online. Participants did not receive an incentive for their participation in this study.

3.4 Data Analysis

Data were analyzed with SPSS v.22. The frequency and randomness of missing data were examined. Descriptive statistics and reliability analysis were conducted for all study variables and scales.

The effects of workplace incivility (supervisor incivility and co-worker incivility) on burnout (emotional exhaustion and cynicism) were tested using four bootstrap (1,000 samples) regression models with a 95% bias-corrected confidence interval (95% CI). The multivariate assumptions of linearity, homoscedasticity and independence of residuals were tested, and data were inspected for the presence of outliers. Outliers, identified as cases

with a significant ($p < .05$) studentized residual value, were removed from the regression analyses. Cohen's f^2 was used to determine effect sizes, whereby ≥ .02, ≥ .15 and ≥ .35 represent small, medium and large effect sizes, respectively.

4. RESULTS

4.1 Preliminary Analysis

The frequency and randomness of missing data was assessed. Overall, the percentage of missing data was low (1.29%), and found to be missing completely at random (MCAR), $\chi^2(349) = 383.67$, $p = .10$. Missing data was imputed using the expectation-maximization technique.

4.2 Descriptive Statistics

Given that the possible scores for supervisor incivility and co-worker incivility range from 0 (never) to 6 (more than once a day), the levels of incivility found in our sample were generally low. We obtained an average of 0.83 ($SD = 1.18$) for incivility from supervisors and an average of 0.64 ($SD = 1.07$) for incivility from co-workers. Despite both values being low, there was a statistically significant difference between the two values, $t(384) = 3.53$, $p < .001$, 95% CI [.08, .29], $d = 0.18$, with supervisor incivility being significantly higher than co-worker incivility. More than one third (37.1%) of the participants confirmed that they had experienced incivility from their supervisors during the past month, and 30.1% of all participants revealed that they had experienced incivility from their co-workers in the last month.

As previously stated, the core dimensions of burnout are emotional exhaustion and cynicism. The participants in our study reported relatively high levels of emotional exhaustion ($M = 2.86$, $SD = 1.47$), and cynicism ($M = 2.17$, $SD = 1.54$). Based on the burnout cut-off points, detailed in the MBI user manual (Maslach *et al.*, 1996), we found that almost half of our sample showed high levels of emotional exhaustion (42.9%; $n = 165$) and cynicism (47.0%; $n = 181$). Moreover, almost one third (29.1%; $n = 112$) of the participants reported a high level of emotional exhaustion together with a high level of cynicism, which is indicative of severe burnout.

4.3 Testing of Hypotheses

Four linear bootstrap (1,000 samples) regression models were used to test for: Hypothesis 1- the positive effect of supervisor incivility on emotional exhaustion (Model 1); Hypothesis 2 - the positive effect of supervisor incivility on cynicism (Model 2); Hypothesis 3 - the positive effect of co-worker incivility on emotional exhaustion (Model 3); and Hypothesis 4 - the positive effect of co-worker incivility on cynicism (Model 4).

In terms of the assumptions related to regression analysis, linearity and independence of residuals were ensured for all four models: $F(31, 342) = 0.907$, $p = .614$; $d = 1.838$ (Model 1); $F(33, 350) = 1.335$, $p = .108$; $d = 1.761$ (Model 2); $F(31, 341) = 1.359$, $p = .101$; $d = 1.865$ (Model 3); and $F(32, 337) = 1.078$, $p = .359$; $d = 1.740$ (Model 4). The assumption of homoscedasticity was met for Model 2, $F(1, 383) = 3.216$, $p = .074$, and Model 3, $F(1, 372) = 1.409$, $p = .236$, but not for Model 1, $F(1, 373) = 7.606$, $p = .006$, and Model 4, $F(1, 369) = 6.451$, $p = .012$.

Table 2 presents the results of the regression analyses. As hypothesized, the results show significant positive links between supervisor incivility and emotional exhaustion ($b = .445$, $p = .001$), supervisor incivility and cynicism ($b = .408$, $p = .001$), co-worker incivility and

emotional exhaustion (b = .453, p = .001), and co-worker incivility and cynicism (b = .570, p = .001). Participants who perceived higher levels of incivility from supervisors and from co-workers tended to report higher levels of emotional exhaustion and cynicism. Regarding emotional exhaustion, 13% of its variance is explained by supervisor incivility, and 12% by co-worker incivility. Supervisor incivility accounts for a 10% variance in cynicism, whereas co-worker incivility, showing the highest effect size (.230; Model 4), explains 19% of the variance in cynicism.

Table 2. Effects of Supervisor Incivility and Co-Worker Incivility on Emotional Exhaustion and Cynicism

Model	Predictor → Outcome	*b*	*SE*	*t*-statistic	95% CI	R^2	f^2
1	Supervisor incivility → Exhaustion	.445	.053	7.596	[.342, .555]	.134	.155
2	Supervisor incivility → Cynicism	.408	.066	6.393	[.284, .535]	.096	.106
3	Co-worker incivility → Exhaustion	.453	.060	7.130	[.345, .595]	.120	.136
4	Co-worker incivility → Cynicism	.570	.054	9.224	[.462, .677]	.187	.230

Source: adapted from Nitzsche (2016)

b = Unstandardized coefficient. SE = Standard error. 95% CI= 95% bias-corrected confidence interval. R^2 = Coefficient of determination. f^2 = Effect size; ≥ .02, ≥ .15 and ≥ .35 represent small, medium and large effect sizes, respectively.

Thus, our four hypotheses were confirmed. Our results indicate that supervisor incivility and co-worker incivility are significant positive predictors of emotional exhaustion and cynicism, the core components of burnout.

5. DISCUSSION

Burnout is a precursor of undesirable physical and mental health issues (Armon *et al.*, 2010; Hakanen & Schaufeli, 2012), and is a serious public health concern (Bauer & Hämmig, 2014). Preventing the causes of health problems is generally thought to be more cost effective than treating existing health issues. Thus, preventing burnout could potentially decrease health-related costs, and lead to a healthier, more motivating and productive work environment.

Workplace incivility is considered to be a mild, yet insidious form of interpersonal mistreatment (Cortina, 2008) that has a spiralling effect (Baron & Neuman, 1996), meaning it can escalate into more violent workplace behaviour, such as bullying (Andersson & Pearson, 1999), which is already highly prevalent in the hospitality industry (Torres *et al.*, 2016), a key industry for the Portuguese economy. Workplace incivility is a dynamic and progressive interaction process, with a "contagious" effect. An uncivil work environment can lead to disrespectful behaviour towards customers (Torres, van Niekerk & Orlowski, 2017), thereby reducing customers' desire to return to the site and/or to recommend the site to others, which can ultimately have a negative impact on the organization's bottom line (Moura *et al.*, 2015; Borralha *et al.*, 2016; Melo *et al.*, 2017).

To the best of our knowledge this is the first study to investigate the phenomenon of workplace incivility in the Portuguese hospitality industry. In this study, we examined the relationship between workplace incivility and burnout among Portuguese hotel employees.

We found that levels of experienced workplace incivility, from supervisors and from co-workers, were relatively low, although generally consistent with findings reported in the literature for employees in other professions, such as university staff (Giumetti *et al.*, 2012),

healthcare service providers (Laschinger *et al.*, 2009; Leiter *et al.*, 2010; Leiter, Nicholson *et al.*, 2011; Leiter *et al.*, 2012; Leiter *et al.*, 2015), and federal court employees (Lim *et al.*, 2008). Nevertheless, and considering the high prevalence of bullying in the Portuguese hospitality industry (Torres, Costa, Sant'Ana, Coelho & Sousa, 2016), the relatively low indices of supervisor and co-worker incivility reported by our sample could reflect a certain level of unawareness of, or insensitivity to, the problem of workplace incivility. In addition to this, and for cultural reasons (Hofstede, 1983; Andersson & Pearson, 1999), Portuguese hotel employees might expect a certain level of interpersonal mistreatment at work to occur, meaning that workplace incivility is simply considered part of the job and, thus, not an issue.

Contrary to findings reported in international studies (Leiter *et al.*, 2009; Leiter *et al.*, 2010; Leiter, Laschinger *et al.*, 2011; Leiter, Nicholson *et al.*, 2011; Leiter *et al.*, 2012; Leiter *et al.*, 2015), we found that the frequency of supervisor incivility was significantly higher than co-worker incivility. However, our result is consistent with studies on this negative workplace phenomenon in the Portuguese healthcare context (Laneiro, Magalhães & Nitzsche, 2016; Laneiro, Ribeiro, Queiroz, Gonçalves & Nitzsche, 2016). Cultural norms might help to explain the difference found between Portuguese and non-Portuguese samples, as acceptable and unacceptable interpersonal behaviour can vary by group, organization, industry and country (Hofstede, 1983; Andersson & Pearson, 1999; Pearson *et al.*, 2000).

As hypothesized, our results show that supervisor and co-worker incivility account for statistically significant amounts of variance in the burnout dimensions, which is in line with past research among service providers in healthcare (Laschinger *et al.*, 2009; Leiter *et al.*, 2010; Leiter *et al.*, 2012; Leiter *et al.*, 2015; Leiter, Laschinger *et al.*, 2011; Leiter, Nicholson *et al.*, 2011), education (Giumetti *et al.*, 2012; Sulea *et al.*, 2012) and hospitality (Cho *et al.*, 2016; Hur *et al.*, 2016; Rhee *et al.*, 2016). It should be noted that our result for the relationship between supervisor incivility and cynicism is not consistent with that obtained by Abubakar *et al.* (2017) among hotel employees in Cyprus. Abubakar *et al.* did state that their finding (a non-significant relationship between supervisor incivility and cynicism) was contradictory to results in the extant literature on workplace incivility, and possibly due to cultural differences.

In our study, both supervisor incivility and co-worker incivility positively predicted emotional exhaustion and cynicism. In other words, hotel employees who perceived high levels of supervisor incivility and co-worker incivility also reported high levels of emotional exhaustion and cynicism. COR theory (Hobfoll, 1989) proposes that the threat of loss, or actual loss, of valued resources can generate stress and deplete personal resources. Workplace incivility can activate stress as it threatens the loss of protective and valued social resources (i.e., social support at work), required for the preservation and enhancement of valued personal resources (i.e., sense of identity and dignity; health and well-being).

The effects of supervisor incivility and co-worker incivility on emotional exhaustion were found to be similar, although supervisor incivility did have a marginally stronger effect than co-worker incivility, which is consistent with the findings of Cho *et al.* (2016) among restaurant employees in the USA. However, we found that co-worker incivility had a substantially stronger effect on cynicism than supervisor incivility, which is inconsistent with the findings of Laschinger *et al.* (2009), Leiter *et al.* (2010), Leiter *et al.* (2012), Leiter *et al.* (2015), Leiter Laschinger *et al.* (2011), and Leiter, Nicholson *et al.* (2011) in the North American healthcare context. Again, cultural norms (Andersson & Pearson, 1999; Hofstede, 1983) could help to explain this discrepancy.

The hospitality industry is characterized by a number of stressors, such as work-family conflict, long and unsociable work hours, high workload, low wages, poor communication and interpersonal conflict at work (Murray-Gibbons & Gibbons, 2007; Poulston, 2008; Blomme *et al.*, 2010; Kim & Jogaratnam, 2010; O'Neill & Davis, 2011; Elsler, 2011; Daskin

& Tezer, 2012; Yavas *et al.*, 2013), which in turn can predict burnout (Leiter & Maslach, 2003; Maslach & Leiter, 2008). This study found that almost half of the participants had either a high level of emotional exhaustion or a high level of cynicism, and over a quarter of the participants reported a high level of emotional exhaustion together with a high level of cynicism, indicating severe burnout. From an organizational and public health perspective, these are very worrying results.

Workplace incivility is a stressor in its own right, but, as demonstrated by Oore *et al.* (2010), this antisocial phenomenon also intensifies the level of stress produced by other work-related factors (e.g., high workload) that predict poor occupational health and well-being. This renders workplace incivility a pivotal factor for burnout prevention. The situation is particularly sensitive considering the high levels of emotional exhaustion, cynicism and severe burnout reported in this study.

5.1 Limitations and Directions for Further Studies

Our study used a cross-sectional design, which precludes the attribution of cause and effect among the study variables. Future studies could replicate this study in a similar sample, or samples from other industries, using a longitudinal design.

Further research could clarify the issue regarding awareness of, and sensitivity to, the problem of workplace incivility among Portuguese hospitality employees, and examine the relationship between workplace incivility and bullying in this industry.

It could also be interesting to investigate the relationships between workplace incivility and several known stress factors (e.g., workload, social support, low income, work hours) that characterize the hospitality industry, and relate these to indicators of occupational health and well-being. There may also be other variables in the work context, such as civility (Osatuke, Moore, Ward, Dyrenforth & Belton, 2009; Nitzsche, 2016), that could act as buffers for stress and workplace incivility, thereby counteracting existing (and sometimes difficult to change) stress promoting conditions.

Given that the level of stress experienced depends on personal appraisal, individual variables (e.g., self-esteem, coping style, psychological capital) might also play an important role in promoting or buffering stress and incivility.

The interplay between different sources of incivility (supervisors, co-workers, clients, and incivility instigated by the participant against others at work) might enhance our understanding of stress and burnout. Our results point to a higher level of supervisor incivility than of co-worker incivility. Leadership is thus another promising avenue of inquiry for incivility in the workplace.

6. CONCLUSION

Hospitality employees are critical players for customer satisfaction, customer loyalty, and customer willingness to recommend the site to others. Interaction between employees and clients can therefore impact service quality and organizational results, namely financial performance. Dissatisfied or burned out employees are impaired on the relational level (emotional resources depleted, excessive detachment), and are unable to render a high quality, customer-focused service.

The quality of interpersonal relationships, specifically respectful, courteous treatment between peers and supervisors can have a clear influence on the levels of job satisfaction and burnout (emotional exhaustion and cynicism). This study reports a concerning level of burnout among Portuguese hotel employees. The results of this study indicate that incivility from supervisors and incivility from co-workers are precursors of burnout. These interpersonal

factors, in addition to well-known stressors in the industry, such as high workload and low wages, reduce the quality of the work environment, as well as individual and organizational health.

This study provides insight into the phenomena of workplace incivility and burnout in the hotel industry. It reports a higher level of incivility from supervisors than from co-workers, which suggests that leadership is an important factor for promoting a healthy and respectful work environment. The level of incivility from supervisors was significantly higher than that of incivility from co-workers, which might be due to specific cultural norms at the country or industry level. However, cynicism, that could be described as a "couldn't care less" attitude, potentially detrimental for the requirement to render a polite, helpful and high-quality service to customers, appears to be more affected by incivility from co-workers than from supervisors, which suggests that promoting quality interpersonal relationships at work is important at the team level also.

The results of our study are particularly important for the development of effective strategies, norms and policies, designed to foster a healthy and respectful work environment, and thus enhance a number of important individual, group, customer and organizational-based outcomes in the hotel industry.

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