Work Engagement and Job Crafting of Brazilian Professionals

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Keywords:
organizational behavior,
working conditions,
mental health.

Abstract

The job demands-resources (JD-R) model explains the relationships between job demands and (job and personal) resources as well as the outcomes of these relationships in terms of well-being and job performance. We investigated the relationships between working conditions, job crafting and work engagement in two groups of professionals, those with and those without management responsibility. A total of 538 Brazilians professionals, 56.5% female, with a mean age of 43.44 years (SD = 12.54), participated in the study. The results of the network analysis demonstrated that the change and role clarity were direct predictors of work engagement and that personal and moral harassment negatively influenced work engagement. Working conditions did not predict job crafting. Job crafting predicted work engagement in both groups of professionals. Cognitive crafting was a strong predictor of work engagement. Evidence is added to determine the factors that impact work engagement in the JD-R model.

Engajamento no Trabalho e Ações de Redesenho em Profissionais Brasileiros

Palavras-chave:
comportamento organizacional,
condições de trabalho,
saúde mental.

Resumo

O modelo de recursos e demandas no trabalho (RDT) explica as relações entre demandas e recursos do trabalho, recursos pessoais e os desfechos de bem-estar e desempenho no trabalho. Investigamos as relações entre as condições de trabalho, o redesenho do trabalho e o engajamento no trabalho em dois grupos de profissionais, com e sem responsabilidade de gestão. Participaram do estudo 538 profissionais brasileiros, 56,5% do sexo feminino, com idade média de 43,44 (*DP* = 12,54). Os resultados da análise de rede demonstraram que a mudança e a clareza de papel foram preditores diretos do engajamento no trabalho e o assédio moral o influenciou negativamente. As condições de trabalho não predisseram o redesenho do trabalho, porém este foi preditor do engajamento no trabalho em ambos grupos de profissionais. A reformulação cognitiva foi forte preditora do engajamento no trabalho. Agrega-se evidências sobre os fatores que impactam o engajamento no trabalho no modelo RDT.

Engagement en el Trabajo y *Job Crafting* en Profesionales Brasileños

Palabras-Clave:
conducta organizacional,
condiciones de trabajo,
salud mental.

Resumen

El modelo de recursos y demandas en el trabajo explica las relaciones entre demandas y recursos del trabajo, recursos personales y los resultados de bienestar y desempeño. Investigamos las relaciones entre las condiciones de trabajo, el rediseño del trabajo y el engagement en dos grupos de profesionales, con y sin responsabilidad de gestión. Participaron del estudio 538 profesionales, 56,5% del sexo femenino, con una edad promedio de 43,44 (DP = 12,54). Los resultados de los análisis de red demostraron que los recursos, cambio y rol, fueron predictores directos del engagement en el trabajo y que el acoso moral lo influenció negativamente. Las condiciones de trabajo no predijeron el rediseño del trabajo, pero éste fue predictor del engagement en el trabajo en ambos grupos de profesionales. La reformulación cognitiva desempeñó un papel fundamental en el engagement. Se agrega evidencias sobre los factores que impactan el engagement en el trabajo en el modelo RDL.

The aim of this study was to investigate possible relationships between work engagement and job crafting in the context of job resources and job demands of Brazilian professionals. The theoretical model of job demands-resources (JD-R) (Bakker & Demerouti, 2007, 2016), adopted in this study from the perspective of positive psychology, proposes that there is a dynamic and continuous relationship between job demands and the availability of job resources to fulfill them.

Positive psychology refers to the scientific study of optimal human functioning. Its main objectives are to identify and promote factors that enable individuals, organizations and communities to flourish and thrive (Seligman & Csikszentmihalyi, 2000). More specifically, in the organizational and work area, this approach has focused on research about employees' healthy behaviors in work settings and on the positive outcomes produced (e.g., occupational health protection factors, professional self-fulfillment, performance and extra role performance). Concomitantly, with this scientific interest in positive psychological aspects at work, the importance of human capital and the psychological involvement of employees at work has been emphasized by organizational practitioners. Both converging developments have created fertile ground for research on work engagement (Schaufeli, 2013).

In the wake of positive organizational studies with an emphasis on occupational health, Schaufeli and Bakker (2004) proposed that work engagement is a positive and fulfilling mental state at work characterized by vigor, dedication and concentration. Vigor is determined by high levels of energy and mental resilience while working, willingness to invest in one's work and persistence in difficult situations. Dedication is marked by the strong involvement of the individual with his work and by a sense of significance, enthusiasm, inspiration, pride and challenge. Concentration is characterized by being completely absorbed at work, to the point of losing track of time and finding it difficult to detach oneself from work (Schaufeli & Bakker, 2004; Vazquez, Magnan, Pacico, Hutz & Schaufeli, 2015).

In recent decades, work engagement has been investigated mainly through the JD-R model (Bakker & Demerouti, 2007, 2016), which has gained popularity among researchers because it heuristically explains and predicts job performance and well-being at work, serving as a flexible and comprehensive conceptual framework for different studies (Schaufeli & Taris, 2014). Empirical studies based on the JD-R model have provided evidence about the direct and indirect effects of job resources and job demands, mediated by job crafting behaviors (Tims, Bakker, & Derks 2012; Wrzesniewski & Dutton, 2001), on exhaustion and work engagement and on the effects of both psychological states on job performance. Within the proactive perspectives of work design (Grant & Parker, 2009), job crafting is the approach that captures the process of redefining a job. The Portuguese phrase "redesenho do trabalho" (Chinelato, Ferreira, & Valentini, 2015) has been used to refer to job crafting. Job crafting comprises the bottom-up individual actions that modify the characteristics and the social environment of work.

The mechanisms and effects predicted in the JD-R model have been investigated through field survey research, mainly using cross-sectional studies and a few longitudinal studies (Bakker, 2015; Schaufeli & Taris, 2014). In Brazil, studies conducted with the JD-R model have found positive relationships of work engagement with job crafting (Pimenta de Devotto & Machado, in press), job performance (Chinelato, Ferreira, & Valentini, 2019), skills alignment, positive affect, self-efficacy (Farina et al., 2019), meaning at work, role clarity, job control and social support (Prata, Freitas, Pimenta de Devotto, & Damásio, 2019). In addition, negative associations were observed between work engagement and levels of job demand and harassment at work (Prata et al., 2019).

To date, work engagement studies have primarily used data analysis methods such as structural equations (Salanova, Agut, & Peiró, 2005) or multilevel structural equation modeling (MSEM) (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007). Such methods consider *a priori* the relationships between the variables predicted in the JD-R model to test them empirically. These analytical techniques may limit the apprehension of the phenomenon, as they do not explore new relationships between the variables of a system (Machado, Vissoci, & Epskamp, 2015). Thus, it is necessary to undertake analysis techniques that better deal with the complexity of the phenomena (Barabási, 2011).

To this end, network science explores the structure and dynamics of associations between variables of a system in the absence of an *a priori* model. Recently, some fields of psychology in Brazil (Dalanhol, Freitas, Machado, Hutz, & Vazquez, 2017) have employed network analysis (Epskamp, Cramer, Waldorp, Schmittmann, & Borsboom, 2012; Schmittmann et al., 2013) as a method of data analysis to apprehend the complexity of phenomena, allowing new structures and associations to emerge. To date, we are unaware of studies in Brazil that have investigated the relationships of work engagement with variables of the JD-R model by means of network analysis. Thus, the present study aimed to 1) use network analysis to explore the associations between work engagement, job crafting, job resources and job demands and 2) compare the relationships of work engagement with the target variables (i.e., job resources, job demands and job crafting) into two distinct groups of Brazilian professionals (those with and those without management responsibilities).

Job Resources, Job Demands, Job Crafting and Work Engagement

The JD-R model (Bakker & Demerouti, 2007, 2016; Schaufeli & Taris, 2014) identifies two broad categories of working conditions: a) job demands and b) job resources, which are applicable to different types of occupations in which employees work with things, information or people. Job demands and job resources instigate two different psychological processes: a health-impairment process (e.g., exhaustion, job-related anxiety, and health complaints) and a motivational process (e.g., work engagement, commitment, and flourishing) (Bakker & Demerouti, 2016).

Job demands refer to the physical, social, psychological and organizational aspects of the job (e.g., overload, work pressure, interpersonal conflict, and job insecurity) that require physical or psychological (e.g., mental and emotional) effort from employees (Schaufeli & Taris, 2014). Empirical evidence suggests that job demands are the most important predictor of the burnout process and psychosomatic complaints (Bakker, Demerouti, & Sanz-Vergel, 2014). High job demands generate additional efforts to achieve job goals and to maintain job performance and have emotional or mental costs for employees (e.g., fatigue and irritability) (Schaufeli & Taris, 2014).

On the other hand, job resources are the physical, social, psychological and organizational aspects of the job that function as intrinsic and extrinsic motivators and are necessary to cope with the job (e.g., peer support, supervisor support, feedback, variety of skills, autonomy and learning opportunities). Job resources can a) reduce job demands and associated psychological and physiological costs; b) be instrumental in achieving goals at work; and c) stimulate personal growth, learning and development (Bakker & Demerouti, 2007). Job resources can mitigate the impact of job demands on

the exhaustion process and can particularly influence motivation (e.g., work engagement) in the face of high job demands (Bakker & Demerouti, 2016). According to the relationships described in the JD-R model, we predict the following:

Hypothesis 1 - Job resources (i.e., job control, supervisor support, peer support, role clarity and change) will be positively associated with work engagement; Hypothesis 2 - Job demands (i.e., demands, personal and moral harassment) will be negatively associated with work engagement. Job crafting (Wrzesniewski & Dutton, 2001) or "redesenho do trabalho" (Chinelato et al., 2015) has recently been integrated into the job demands-resources (JD-R) model (Bakker & Demerouti, 2016) as a predictor of work engagement. Job crafting refers to employees' self-initiatives to redesign their own job to tailor it to their individual values, strengths and passions (Berg, Wrzesniewski, & Dutton, 2010). Employees modify their job by means of three types of strategies: task crafting, cognitive crafting, and relational crafting (Pimenta de Devotto & Machado, in press; Wrzesniewski & Dutton, 2001). The first strategy includes tangible changes in the set of tasks that the employee considers to form his job (e.g., changes in the number, scope and means of performing the task). Cognitive crafting involves changes in the meaning and purpose of an employee's job (e.g., perception of work not only as a set of concatenated tasks but as a significant part of the whole). Relational crafting encompasses changes in the quantity and quality of work interactions with such people as colleagues, superiors, customers, suppliers.

Within the JD-R model, job crafting has been proposed as a specific form of proactive behavior in which employees initiate changes in the level of job demands and job resources to strike a balance between both their personal resources and needs (Tims & Bakker, 2010). Job crafting behaviors seek to increase job resources (structural and social), increase challenging job demands, and decrease hindering job demands (Tims et al., 2012). These job crafting behaviors emphasize tangible changes in tasks and work relationships (Tims et al., 2012) but do not include the dimension of cognitive crafting (Slemp & Vella-Brodrick, 2013). Evidence suggests that job crafting gained prominence when working conditions were not favorable and employees had to proactively change job demands and job resources (Tims, Bakker, & Derks, 2013). The JD-R model proposed that employees motivated by their work were more likely to use job crafting strategies, which led to higher levels of job resources and higher levels of motivation (Bakker & Demerouti, 2016). Therefore, in line with the relationships explained in the JD-R model, we propose the following:

Hypothesis 3 - Job crafting mediates the relationship between job resources and job demands and work engagement. Research on job crafting has grown rapidly in the last decade, and the job crafting approach formulated by Tims and Bakker (2012) has predominated in empirical studies of the area. Findings from a recent meta-analysis found a strong correlation (r_c = 0.450) between job crafting and work engagement (Rudolph, Katz, Lavigne, & Zacher, 2017). In consonance with the JD-R model, we propose the following:

Hypothesis 4 - Job crafting predicts work engagement. Scholars proposed that job crafting takes place in different working contexts regardless of the degree of autonomy, authority and complexity involved in the job (Wrzesniewski & Dutton, 2001; Wrzesniewski, LoBuglio, Dutton, & Berg, 2013). Empirical evidence indicates that job crafting happens at routine jobs (McClelland, Leach, Clegg, & McGowan, 2014; Nielsen & Abildgaard, 2012) at more complex jobs (Rudolph et al., 2017; Tims et al., 2012) and at different organizational hierarchical levels (Berg et al., 2010). In this sense, we expect

to find no significant differences in the occurrence of job crafting among professionals with and without management responsibility:

Hypothesis 5: Job crafting predicts work engagement in both groups of professionals, those with and those without management responsibility in their job function.

Method

Participants

The convenience sample consisted of 538 individuals, 56.5% female, aged between 25 and 76 years (M = 43.44 years, *SD* = 12.54 years). Among the participants, 53.6% held a postgraduate degree, 6.7% had an incomplete postgraduate degree, and 29.4% had completed only their undergraduate education. Participants reported living in 16 Brazilian states, primarily the states of São Paulo (56.5%) and Minas Gerais (43.1%). Regarding the type of organization, 83.9% of participants worked in private companies, 9.2% in public organizations, 4.6% in mixed capital organizations and 2.3% in nongovernmental organizations. Among participants, 68% had management responsibilities in their job function (e.g., financial, resources, people, projects, and others), and 31.4% declared to have no management responsibilities in their function. The exclusion criteria of the sample were younger than 25 years old and job tenure of less than 6 months.

Instruments

Health and Safety Executive's Management Standards Indicator Tool, HSEMSI -Short Form (Cousins et al., 2004, adapted to Brazilian Portuguese by Prata et al., 2019). This instrument assesses aspects related to working conditions and is composed of 25 items, answered on a five-point Likert scale, in which the extremes are "never" (1) and "always" (5). The Brazilian version of the scale evaluates seven dimensions and present satisfactory reliability indices: demands, a = 0.78; job control, a = 0.82; supervisor social support, a = 0.86; peers social support, a = 0.84; personal and moral harassment, a = 0.80; role clarity, a = 0.79; and change, a = 0.79 (Prata et al., 2019).

Utrecht Working Engagement Scale – UWES (Schaufeli & Bakker, 2004, adapted to the Brazilian context by Vazquez et al., 2015). Consists of 17 items organized into 3 dimensions: vigor, dedication and concentration. Items are answered on a 7-point Likert scale ranging from 0 = "never" and 6 = "always". The Brazilian version of UWES-17 showed good psychometric properties (α = 0.95)

Job Crafting Questionnaire - JCQ (Slemp & Vella-Brodrick, 2013, adapted to Brazilian Portuguese by Pimenta de Devotto & Machado, in press). The scale consists of 15 items, answered on a Likert scale of six points ranging from "rarely" (1) to "very often" (6). The scale evaluates three dimensions and presents satisfactory reliability indices (task crafting, fc = 0.80; cognitive crafting, fc = 0.93; relational crafting, fc = 0.75) (Pimenta de Devotto & Machado, in press).

Sociodemographic questionnaire. The instrument identifies the study sample in relation to demographic variables relevant to the research (e.g., gender and age).

Data Collection Procedures and Ethical Considerations

This study was submitted and approved by the Research Ethics Committee - *Plataforma Brasil* with CAAE 49694115.0.0000.5481. Data collection was carried out through an online questionnaire on the *Survey Monkey* platform and disseminated by email lists,

social and professional networks, and the human resources department of a private organization from the services sector in the countryside of São Paulo state for all its employees. Through each of these research dissemination mechanisms, a link to access the online questionnaire was sent. Participants stated their agreement through an informed consent form, ensuring confidentiality about their identity.

Data Analysis Procedures

Network analysis was conducted (Epskamp et al., 2012) to investigate the structure and dynamics of relationships between work engagement, working conditions (job demands and job resources), and job crafting. Network analysis is an exploratory model based on regularized peer-to-peer interaction between all elements in a system, where the architecture and the dynamics of relationships between variables are *a priori* unknown (Machado et al., 2015). As an inductive method, network analysis does not limit the relationships between system elements and enables new patterns of relationships to emerge from empirical data.

The product of network analysis is a graphical model in which variables are represented by vertices (or circles) and the relationships between variables as edges (or lines). The intensity of the graph edges represents the magnitude of these associations, while the continuous line and dotted line represent the direction (positive or negative, respectively) of the associations. The force-directed placement algorithm (Fruchterman & Reingold, 1991) is applied, in which the variables are spatially arranged to approximate or repel the variables according to the magnitude of their associations, making the variables represented in the center of the graph have a higher number of associations (Machado et al., 2015).

In the first step of our data analysis, the *Graphical Least Absolute Shrinkage and Selection Operator* algorithm (GLASSO; Friedman, Hastie, & Tibshirani, 2008) was applied to estimate partial correlations between variables. The purpose of this method is to generate a sparse network (e.g., with few associations) representing conditioned (e.g., controlled) peer-to-peer associations to the other variables in the system. Edges with very small values have their value set at zero, and the final solution is reached considering the *Extended Bayesian Information Criterion* (EBIC; Chen & Chen, 2008). For better visualization of the results, only those with absolute values equal to or greater than 0.1 are presented. Subsequently, a community analysis was undertaken (Blondel, Guillaume, Lambiotte, & Lefebvre, 2008; Pons & Latapy, 2005; Reichardt & Bornholdt, 2006) to reveal which was the most related

set of variables in the system. Community analysis makes it possible to identify subgrouping solutions on the scale to reduce modularity, that is, the difference between intra- and intergroup associations.

The measures of centrality and clustering were analyzed to describe the characteristics of the system. Among the measures of centrality, connectivity (number of connections that cross a vertex), proximity (connectivity of one vertex with others in the system) and strength (the modular sum of the weight of associations of one vertex with others in the system) were described. The magnitude of the effects associated with work engagement (Opsahl, Agneessens, & Skvoretz, 2010) were mapped in a prediction matrix. Finally, a network comparison analysis between groups was undertaken. The main relationships of work engagement regarding all the variables investigated in this study were compared in two groups of participants, those with and those without management responsibility in their job function. For this purpose, networks were generated for each group of professionals and compared by means of a permutation test (van Borkulo et al., 2015). In this test, different replication samples (*n* = 500) were generated from the permutation of the original values and the edge weights between the compared variables, considering the distribution of their differences. Network analyses were conducted using *R software* and the *qgraph package* (Epskamp et al., 2012).

Results

Table 1 presents in its lower diagonal the bivariate correlation matrix indicating all associations between variables. Weak negative associations of demands and personal and moral harassment with work engagement were observed. Job resources (i.e., peer support, supervisor support, organizational change, role clarity, and job control) displayed positive low-magnitude correlations with work engagement. Task crafting and cognitive crafting exhibited positive moderate correlations with work engagement, and relational crafting showed a positive low-magnitude correlation with work engagement.

The upper diagonal of Table 1 indicates the prediction matrix. The values contained in the prediction matrix indicate the change in units of standard deviations in one variable as a function of the other. The main predictors of work engagement were cognitive crafting and task crafting. Increasing one standard deviation in cognitive crafting would lead to an increase of 0.32 standard units in work engagement, while an increase of one standard deviation in task crafting would increase 0.23 units in work engagement. Role clarity and change were the most predictive job resources for work

Table 1
Prediction matrix and bivariate correlation matrix of model variables.

	1	2	3	4	5	6	7	8	9	10	11
1.Harass	—	0,21	0,00	-0,18	0,00	0,00	0,00	0,00	0,00	0,00	-0,13
2.JD	0,33	—	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
3.SSup	-0,36	-0,24	—	0,35	0,00	0,00	0,16	0,00	0,00	0,00	0,00
4. PSup	-0,46	-0,25	0,68	—	0,12	0,00	0,39	0,00	0,00	0,00	0,00
5.Control	-0,34	-0,11	0,48	0,58	—	0,25	0,26	0,12	0,00	0,00	0,00
6.Role	-0,23	-0,08	0,45	0,51	0,55	—	0,00	0,00	0,00	0,00	0,13
7.Change	-0,39	-0,18	0,61	0,74	0,63	0,52	—	0,00	0,00	0,00	0,12
8.TaskC	-0,16	-0,02	0,27	0,31	0,42	0,30	0,37	—	0,32	0,16	0,23
9.CogC	-0,15	-0,10	0,27	0,32	0,33	0,36	0,36	0,62	—	0,19	0,32
10.RelatC	-0,12	0,00	0,34	0,34	0,38	0,22	0,38	0,46	0,47	—	0,00
11.WE	-0,37	-0,12	0,36	0,43	0,42	0,44	0,48	0,58	0,62	0,40	—

Note. A higher diagonal indicates the prediction; that is, changes of one standard unit in the reference variable are associated with the increase or decrease of X standard units in the connected variable (keeping all other variables fixed). A lower diagonal indicates the bivariate correlation matrix. Role = role clarity; Control = job control; Change = communication and management of organizational change; SSup = supervisor support; PSup = peer support; Harass= personal and moral harassment at work; JD= job demands; WE = work engagement; TaskC = task crafting; CogC = cognitive crafting; RelatC = relational crafting.

engagement. Harassment at work was a negative predictor of work engagement (see Table 1).
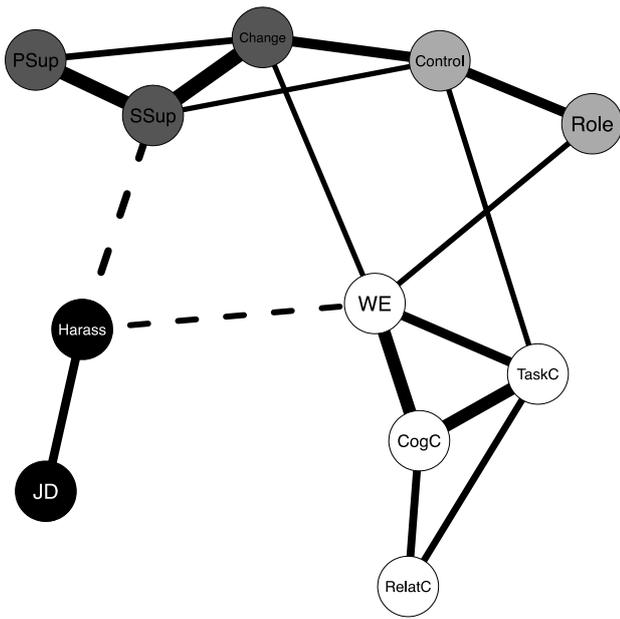

Figure 1. Network of partial correlations and communities. Role = role clarity; Control = job control; Change = communication and management of organizational change; SSup = supervisor support; PSup = peer support; Harass= personal and moral harassment at work; JD= job demands; WE = work engagement; TaskC = task crafting; CogC = cognitive crafting; RelatC = relational crafting

The graph (Figure 1) presents a sparse network with regularized partial correlations. The different shades indicate the formation of five communities, that is, groupings of more related variables in the system. A parsimonious network with greater visibility of the most relevant and stable associations of the system is displayed.

Work engagement has taken the center stage in the network. At the proximal level, work engagement was directly associated with job crafting through cognitive crafting and task crafting. Only two job resources, role clarity and change, exhibited direct and positive relationships with work engagement. Personal and moral harassment negatively and directly affected work engagement. At the distal level, relational crafting was indirectly associated with work engagement through cognitive crafting and task crafting. Job demands (e.g., overloading) affected work engagement through increased levels of personal and moral harassment. Job control influenced work engagement through role clarity and task crafting. Supervisor support and peer support (job resources) affected work engagement through change (communication and management of organizational change). The formation of five distinct communities indicated the division between job demands and job resources and a greater association between work engagement and job crafting. A subdivision of the job resources category into two communities is displayed: job control and role clarity in one community and change, supervisor support, and peer support in the other.

Finally, we compared two groups of professionals; the WMR (with management responsibilities) group was formed by professionals (n = 361) who had management responsibilities in their job function. The WHMR (without management responsibilities) group brought together professionals without management responsibilities in their job function (n = 165). The results indicated that the predictors of work engagement were qualitatively different between the two groups, but these differences were not significant.

In both groups, job crafting was a predictor of work engagement. Peer support was a predictor of relational crafting in both groups. In the WMR group, work engagement was mainly influenced by positive relationships of greater magnitude with role clarity (job resource), cognitive crafting and the negative influence of personal and moral harassment. In addition, job control was a predictor of
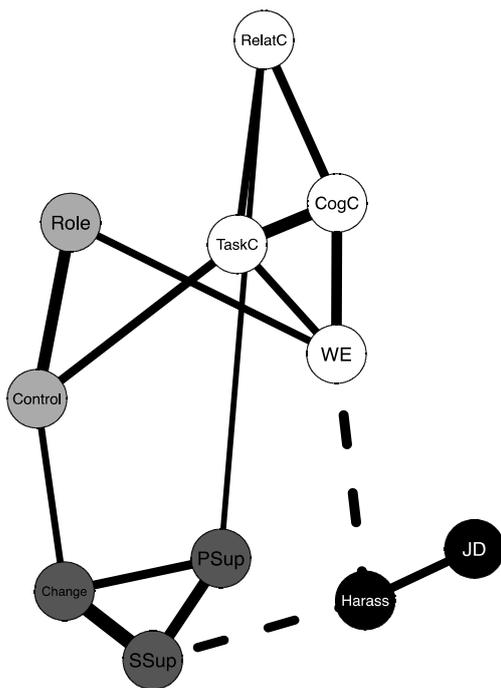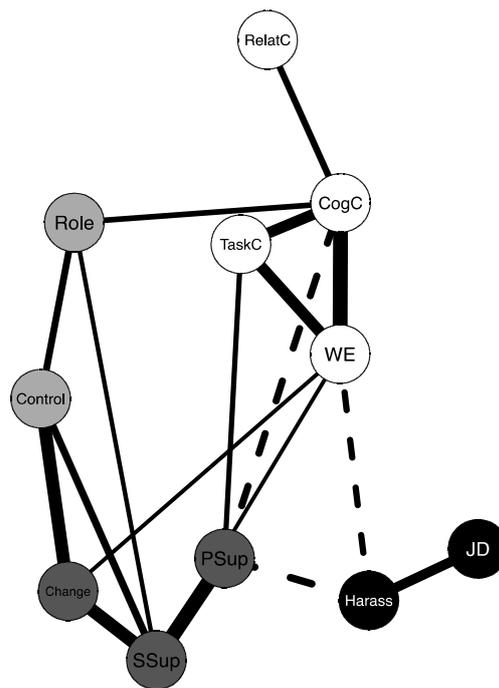

Figure 2. Comparison of networks between groups with and without management responsibility in their job function. Role = role clarity; Control = job control; Change = communication and management of organizational change; SSup = supervisor support; PSup = peer support; Harass= personal and moral harassment at work; JD= job demands; WE = work engagement; TaskC = task crafting; CogC = cognitive crafting; RelatC = relational crafting.

task crafting in the WMR. In the WHMR group, cognitive crafting and task crafting exhibited positive associations of greater magnitude with work engagement (Figure 2).

Discussion

This study contributed to research based on the JD-R model (Bakker & Demerouti, 2016) in Brazil, revealing the relationships of work engagement with work conditions and job crafting from the perspective of network science. The network analysis technique was used to explore the relationships predicted in the JD-R model by analyzing the patterns of relationships between the variables that emerged from the empirical data (Machado et al., 2015). The results partially corroborated hypotheses 1 and 2. Hypothesis 3 was refuted. Hypotheses 4 and 5 were fully confirmed.

Hypotheses 1 and 2 were partially corroborated. In line with the relationships predicted in the JD-R model, the central position of work engagement stands out as the vertex that connects with other variables in the system. Our results indicated that only the job resources variables, change and role clarity, were direct predictors of work engagement. Similarly, in the sparse network, only harassment at work prevailed as a direct negative predictor of work engagement.

Supervisor support was strongly connected to change, and its relationship to work engagement happened through this job resource. This result suggested that the work environments of participants, at the time of data collection, were characterized by organizational changes that positively influenced work engagement. Supervisor support was probably crucial in communicating and managing these changes. Supervisor support has been noted in the literature as a social resource of work that is capable of increasing work engagement (Freeney & Fellenz, 2013; Yulita, Dollard, & Idris, 2017). Supervisor support was also associated with decreased harassment at work behaviors, alleviating the impact of it on work engagement. Evidence has shown that supervisor social support has promoted work engagement and stress reduction (Freeney & Fellenz, 2013; Yulita et al., 2017), performed as a protective factor for employee mental health and buffered the occurrence of personal harassment in the workplace (Warszewska-Makuch, Bedyńska, & Żołnierczyk-Zreda, 2015).

Unlike what was predicted in the JD-R model, job crafting did not mediate the relationship between work conditions and work engagement, which refuted hypothesis 3. We found that only job control positively influenced task crafting. This finding is in line with evidence that job control positively impacted task crafting (Rudolph et al., 2017; Sekiguchi & Hosomi, 2017). Except for job control, the other job resources and job demands evaluated in our study did not predict job crafting. A plausible explanation for this result is that in our study, other variables that predict job crafting or are associated with processes that raise it, such as personal resources, have not been evaluated. Personal resources are positive psychological characteristics and refer to the beliefs that employees hold regarding how much control they have over their environment (Bakker & Demerouti, 2007). Personal resources are functional in goal achievement and stimulate personal growth and professional development (Schaufeli & Taris, 2014) and job crafting (Demerouti, 2014).

The model integrating the findings on job crafting research (Demerouti, 2014) proposed that situational factors (job characteristics and work context) and individual factors (personal resources) are predictors of job crafting. In a study with professionals from different fields (social work, education, trade-related services,

sales, construction, gastronomy and others), the need to create or maintain a positive image at work was the main predictor of job crafting. In the presence of the need to maintain a positive image at work, job control and task interdependence indices did not predict job crafting over time (Niessen, Weseler, & Kostova, 2016).

Based on the above findings, the results of the present study corroborated the idea that the predictors of job crafting are not limited to the optimization of job resources and job demands or to extrinsic aspects of job characteristics and the work environment (Demerouti, 2014; Niessen et al., 2016). Our results indicated the need to further investigate to what extent job crafting is related to intrinsic or internal characteristics of professionals.

Job crafting predicted work engagement, which corroborated hypothesis 4. Task crafting and cognitive crafting exhibited positive moderate relationships with work engagement and mediated the relationship between work engagement and relational crafting. In this study, job crafting was assessed with the Brazilian version of the *Job Crafting Questionnaire* - JCQ (Slemp & Vella-Brodrick, 2013), which evaluated the cognitive crafting dimension of the construct. Cognitive crafting was not assessed in previous empirical studies that used the conceptualization and the scale of Tims & Bakker (2010, 2012). Thus, it was possible to highlight the fundamental role of cognitive crafting as the main predictor of work engagement. This finding is in line with the results of the validation study of the JCQ (Slemp & Vella-Brodrick, 2013) in Brazilian Portuguese (Pimenta de Devotto & Machado, in press), where cognitive crafting had a primacy in factor extraction and presented reliability indices superior to task and relational crafting. Taken together, evidence suggests that cognitive crafting may function as a mastermind dimension that influences the redesign of tasks and relationships at work.

As shown in the prediction matrix (Table 1), a higher level of work engagement could be achieved through interventions that encourage job crafting. The increase of a standard unit in cognitive crafting could generate an increase of almost a third in work engagement indices. Recent studies have indicated that job crafting can be facilitated and fostered by management (Bakker, 2015; van Wingerden, Bakker, & Derks, 2017). Job crafting interventions that stimulated and trained employees to deliberately engage in job crafting generated positive outcomes such as increases in positive affect and decreases in negative affect at work (van den Heuvel, Demerouti, & Peeters 2015), increases in satisfaction with basic psychological needs (van Wingerden et al., 2017), increases in work engagement (Sakuraya, Shimazu, Imamura, Namba, & Kawakami, 2016; van Wingerden, Derks & Bakker, 2017) and increases in job performance (Demerouti, Xanthopoulou, Petrou, & Karagkounis, 2017).

Job crafting predicted work engagement in roles with greater autonomy and complexity (the group of professionals with management responsibility) and in less autonomous and complex roles (the group of professionals without management responsibility). This result fully corroborated hypothesis 5. However, we noted that in the group of professionals without management responsibility, relationships between task crafting and cognitive crafting with work engagement were of greater magnitude compared with the professional group with management responsibility. This finding suggests that job crafting happens in different ways in both contexts. A plausible explanation for that is because in jobs with prescribed tasks and routines (in which management responsibility is low or nonexistent), the occurrence of job crafting is highly influenced by the perception of tasks as an integral part of the whole endowed with meaning.

In this vein, Wrzesniewski and Dutton (2001) reported evidence that the more proactive hospital cleaners built a broader perception of the hospital's workflow and adjusted their tasks and relational interactions in response to a more interdependent and integrated view of their work. Proactive cleaners altered the task and relational boundaries of the job to include additional tasks and interactions (with patients, visitors, nurses), integrating themselves into the workflow of their floor units. Thus, we suggest that cognitive crafting can be even more preponderant and influential to job crafting in more limiting occupational contexts.

The present study has some limitations. The first refers to the use of a nonprobabilistic convenience sample. Sample characteristics and convenience sample type may limit the generalization of results to other types of research (Schiffman & Kanuk, 2007). Our sample was characterized by professionals with a high level of education, which may limit the generalization of the results to other professional groups. Another limitation refers to the absence of the personal resources variables, one of the categories contemplated in the JD-R model. Future studies should investigate positive psychological strength variables (e.g., optimism, resilience, self-efficacy, psychological capital) to obtain a broader network of work engagement that includes relationships with personal resources.

This study contributed to the understanding of the work engagement network, corroborating its central position in the JD-R model. Our findings are consistent with evidence from studies about work engagement in Brazil (Chinelato et al., 2019; Farina et al., 2019; Pimenta de Devotto & Machado, in press; Prata et al., 2019). The prominence of cognitive crafting as a strong predictor of work engagement was highlighted. We emphasized the need to conduct further research on individual predictors of job crafting related to the category of personal resources. We suggest that the promotion of job crafting in organizations is a valuable strategy to increase work engagement. Future research should evaluate the effectiveness of job crafting interventions on work engagement and other positive work-related states.

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