

Personal Characteristics Related to Engagement Before and During the COVID-19 Pandemic

Joan Silveira de Oliveira Leite¹ 

Clarissa Pinto Pizarro Freitas¹ 

Gabriel dos Reis Rodrigues² 

Abstract: Personal resources influence professionals' relationships with their work and impact their engagement. Thus, we investigated whether the relationships between personality traits and meaningful work with engagement showed differences before and during the pandemic. The sample comprised 963 professionals with 828 participants, with a mean age of 35.5 years ($SD = 10.7$ years) before the COVID-19 pandemic, and 135 professionals with a mean age of 42.1 years ($SD = 8.1$ years) during the pandemic. The participants' personality traits, meaningful work, and work engagement were assessed. Differences in the relationships between personal resources and engagement were investigated through network analysis. No significant differences were observed in the relationships investigated before and during the pandemic. Significant work was related to personality traits and played a central role in the network, evidencing its importance in promoting engagement at work.

Keywords: personality traits, positive psychology, work engagement, COVID-19

Características Pessoais Relacionadas ao Engajamento Antes e Durante a Pandemia de COVID-19

Resumo: Os recursos pessoais influenciam nas relações dos profissionais com seu trabalho e impactam no seu engajamento. Desta forma, este estudo teve como objetivo investigar se as relações entre os traços de personalidade e o trabalho significativo com o engajamento apresentavam diferenças antes e durante a pandemia. A amostra compreendeu 963 profissionais, sendo 828 participantes, com idade média 35,5 anos ($DP = 10,7$ anos) antes da pandemia da COVID-19 e 135 profissionais, com idade média 42,1 anos ($DP = 8,1$ anos) durante a pandemia. Foram avaliados os traços de personalidade, trabalho significativo e engajamento no trabalho dos participantes. As diferenças nas relações entre os recursos pessoais com o engajamento foram investigadas por meio da análise de redes. Não foram observadas diferenças significativas nas relações investigadas antes e durante a pandemia. O trabalho significativo esteve relacionado aos traços de personalidade e desempenhou papel central na rede, evidenciando sua importância na promoção do engajamento no trabalho.

Palavras-chave: traços de personalidade, psicologia positiva, engajamento no trabalho, COVID-19

Características Personales Relacionados con el Engagement Antes y Durante la Pandemia de COVID-19

Resumen: Los recursos personales influyen en las relaciones de los profesionales con su trabajo e impactan en su compromiso. De esta forma, investigamos si las relaciones entre rasgos de personalidad y trabajo significativo con engagement presentaban diferencias antes y durante la pandemia. La muestra estuvo compuesta por 963 profesionales, con 828 participantes, con una edad media de 35,5 años ($DE = 10,7$ años) antes de la pandemia de COVID-19 y 135 profesionales, con una edad media de 42,1 años ($DE = 8,1$ años) durante la pandemia. Se evaluaron los rasgos de personalidad de los participantes, el trabajo significativo y el compromiso laboral. Se investigaron las diferencias en las relaciones entre los recursos personales y el compromiso mediante el análisis de redes. No se observaron diferencias significativas en las relaciones investigadas antes y durante la pandemia. El trabajo significativo se relacionó con los rasgos de personalidad y jugó un papel central en la red, evidenciando su importancia en la promoción del compromiso en el trabajo.

Palabras clave: rasgos de personalidad, psicología positiva, compromiso laboral, COVID-19

¹Pontifícia Universidade Católica do Rio de Janeiro, Rio de Janeiro-RJ, Brazil

²Universidade Federal do Rio Grande do Sul, Porto Alegre-RS, Brazil

Correspondence address: Joan Silveira de Oliveira Leite. Pontifícia Universidade Católica do Rio de Janeiro. R. Marquês de São Vicente, 225 - Gávea, Rio de Janeiro-RJ, Brazil. CEP 22.452-900. E-mail: joan_leite@hotmail.com

The levels of well-being experienced by professionals in the work context can contribute to their having better rates of work performance, involvement with work and personal development (Schaufeli, Bakker, & Salanova, 2006; Simonet & Castille, 2020; Steger, 2017). Among the states

of well-being experienced by professionals, engagement at work has been identified as a state of high involvement with work, high energy levels and pleasure at work (Schaufeli et al., 2006).

Engagement at work has a positive impact on the performance of professionals, as well as on their personal and professional development (Robledo, Zappalà, & Topa, 2019; Wang & Chen, 2020; Wood, Jihye, Park, & Kim, 2020). As a result, several studies have investigated which personal characteristics (i.e. personality traits) and personal resources (i.e. meaningful work) can positively impact workers' well-being levels (Geldenhuys, Łaba, & Venter, 2014; Leonardo, Pereira, Valentini, Freitas, & Damásio, 2019; Landells & Albrecht, 2019).

The COVID-19 pandemic occurred in global proportions, and impacted an increase in stress levels, changed the way individuals relate, develop their daily activities, as well as carry out their work (Rammstedt, Lechner, & Weib, 2022). Studies have pointed out a series of negative developments due to the pandemic, such as increased psychological distress, psychopathological symptoms, in addition to increased anxiety and depression (Li, Wang, Xue, Zhao, & Zhu, 2020; McGinty, Presskreischer, Anderson, Han, & Barry, 2020; Schäfer et al., 2020). Several professionals in the Brazilian context observed an increase in their work demands, had to adopt remote work on a compulsory basis, while others were exposed to high stress levels due to the risk of COVID-19 contamination. In view of this context, the objective of this study was to understand whether the influences of personality traits and meaningful work with work engagement changed when comparing these before and during the COVID-19 pandemic.

Despite the current existence of different explanatory models for personality, the Big Five has gained greater visibility given its empirical consistency and its ability to be replicated (Rammstedt et al., 2022; Simonet & Castille, 2020). The Big Five are grouped into personal characteristics, namely: agreeableness, conscientiousness, extraversion, neuroticism, and openness (Nunes, Hutz, & Nunes, 2010; Xie & Cobb, 2020).

When the agreeableness factor presents a high score, it refers to individuals who can be characterized as affectionate, pleasant, kind, cooperative and altruistic people. On the other hand, people with low agreeableness levels can be identified by their cynicism and lack of cooperation, and they can also be manipulative (Nunes et al., 2010; Xie & Cobb, 2020). In a sample of Dutch professionals (Schaufeli, 2016) and Spanish nurses (Pérez-Fuentes, Molero Jurado, Martos Martínez, & Gázquez Linares, 2019) before the COVID-19 pandemic, it was evidenced that high agreeableness levels were positively associated with engagement at work.

People with high conscientiousness levels can be described as organized, reliable, hardworking, ambitious and persevering. Individuals with low levels of this factor may not be clear about their goals, being characterized as unreliable, lazy, careless and hedonistic (Nunes et al., 2010; Xie & Cobb, 2020). It was observed that the presence of higher conscientiousness levels

among Dutch professionals (Schaufeli, 2016) and Spanish nurses (Pérez-Fuentes et al., 2019) before the pandemic was related to higher engagement levels.

When the extraversion factor is at a high level it can lead an individual to be recognized for their extroversion and sociability for being communicative, optimistic and affectionate with others. On the other hand, an individual with low levels can be characterized as reserved, indifferent and discreet (Nunes et al., 2010; Xie & Cobb, 2020). Studies carried out before the pandemic showed that high extraversion levels acted as antecedents of high engagement levels among Dutch professionals (Schaufeli, 2016), Spanish nurses (Pérez-Fuentes et al., 2019) and higher levels of meaningful work among US professionals (Simonet & Castille, 2020).

When the neuroticism factor has a high score, it can lead the individual to experience more intensity in emotional suffering, to be easier to act with hostility, to have anxiety, to have depression and to have a low tolerance for frustration. On the other hand, low levels of this factor can contribute to an individual being recognized as a calm, relaxed and emotionally stable person (Nunes et al., 2010; Xie & Cobb, 2020). It was observed that neuroticism had a history of lower engagement levels among Dutch professionals (Schaufeli, 2016), Spanish nurses (Pérez-Fuentes et al., 2019) and Brazilian professionals (Dalanhol, Freitas, Machado, Hutz, & Vazquez, 2017).

Finally, when an individual has high openness factor levels, they can have great appreciation for new ideas in different fields, to be imaginative and be artistically sensitive. On the other hand, the presence of low scores can characterize the individual as conservative with a preference for what is familiar and have contained emotional responses (Nunes et al., 2010; Xie & Cobb, 2020). It was observed that Dutch professionals (Schaufeli, 2016) and Spanish nurses (Pérez-Fuentes et al., 2019) with high levels of openness before the pandemic had higher engagement levels.

In addition to personality factors, a professional's relationship with their work also impacts their levels of well-being. In this sense, interest in investigating the role of the meaning of work for professionals stems from understanding that work goes beyond the subject; not only how they see their activities, but how this work reflects on the world around them, aligned with everything that makes up their vision of life. Professionals attribute some kind of meaning to their work activities when performing them. The meaning that professionals give to work is influenced by their personal values and their life purpose, so that work can be considered meaningful when there is a congruence between their work activities, their beliefs, values and life goals (Steger, 2017).

Meaningful work refers to the meaning that work has for the individual, and there needs to be an alignment between work and the subject's base of beliefs and values. The presence of perceptions that work is meaningful is also related to the value that professionals place on the contributions that occupational activities make to their communities and society (Steger, 2017). In addition, it appears that perceptions about the meaning of work are

associated with the congruence between the moral values of professionals and their occupational activities, so that workers understand that they are developing and being useful to society (Steger & Dik, 2010).

It is observed that the meaning that work assumes for professionals extends beyond the boundaries of the organizational space in order to impact the way they perform their work and their personal relationships (Steger & Dik, 2010). Thus, meaningful work can increase the feeling of relevance that work has for professionals, strengthening their self-knowledge and personal development processes. This is also related to a more satisfying life, and due to the social aspect of work, it is also related to a feeling that what the professional does makes a difference in the world, given the social dimension of work (Steger, Dik, & Duffy, 2012).

Therefore, meaningful work can be subdivided into three factors: The first being positive meaning at work, considered as the result of a person's interpretation of the work activities carried out and considering them as useful if they have meaning and are positive (Steger et al., 2012). The second factor is meaning-making through work. Research results point to a positive relationship between work and the meaning of life, with work being a source that generates or increases the meaning of life (Steger & Dik, 2010). The third factor is the greater good, which consolidates ideas that work is seen as meaningful when it has a greater impact on others, something that transcends the person performing the activity (Steger et al., 2012).

Meaningful work plays a central role in the interaction of people's personality traits with an assessment of their working conditions. In a sample of American professionals, it was observed that meaningful work was negatively associated with the neuroticism and positively with the conscientiousness, agreeableness, extroversion and openness levels. In addition, meaningful work mediated the relationships of personality traits with professionals' assessments of social support, task variability, and work autonomy. The findings showed that professionals with higher meaningful work levels are more likely to positively evaluate their working conditions (Simonet & Castille, 2020).

Meaningful work also impacts the state of well-being people experience at work (Leonardo et al., 2019; Steger et al., 2012). It was observed that the highest meaningful work levels among professionals from Brazil (Leonardo et al., 2019), South Africa (Geldenhuis et al., 2014) and Australia (Landells & Albrecht, 2019) were antecedents of higher engagement levels.

Engagement at work refers to a positive and gratifying view of work in which the individual expends their vigor, dedication and is absorbed in executing their activities. Thus, the presence of high engagement levels at work is related to putting in several hours to complete their activities, as well as the energy and effort, in addition to their enthusiasm and passion dedicated to the work. The engagement state can also be associated with the feeling of being absorbed in the activity, including a change in the temporality relationship experienced by the professional (Schaufeli et al., 2006).

Work engagement has been investigated as it has a positive impact on performance and psychological well-being. The presence of high professional engagement levels was positively associated with health and well-being reports, as well as their assessment of perceived social relationships (Robledo et al., 2019). Furthermore, engagement at work acted as an antecedent for higher performance levels at work (Wang & Chen, 2020) and balance between family and work demands (Wood et al., 2020).

It is observed that the presence of higher meaningful work levels contributes to higher engagement levels at work (Geldenhuis et al., 2014; Landells & Albrecht, 2019; Leonardo et al., 2019). In view of the changes caused by the COVID-19 pandemic in the relationship of professionals with their work (Rammstedt et al., 2022), the present study sought to investigate whether there would be differences in the relationship between personality traits and meaningful work with engagement at work before and during the pandemic, given that personality traits act as antecedents of meaningful work (Simonet & Castille, 2020) and work engagement (Pérez-Fuentes et al., 2019; Schaufeli, 2016). Therefore, as this study aimed to investigate the relationships between personality traits and meaningful work with engagement differed before and during the pandemic, three research questions were proposed to guide the study: What are the relationships between personality traits and meaningful work with engagement? Do the effects of personality traits on engagement occur through meaningful work? Do the effects of personality traits and meaningful work on engagement before and during the pandemic differ significantly?

Method

Participants

The study was carried out using a convenience sample composed of 963 professionals, with 828 responding to the survey before the start of the COVID-19 pandemic (SARS-CoV-2) and another 135 participants during the pandemic context. The age in the sample before the pandemic ranged between 18 and 69 years ($M = 35.5$ years, $SD = 10.7$ years), with most participants being women ($n = 602$, 72.7%). A total of 397 participants were in the job market for less than 10 years (47.9%), 219 had between 10 and 20 years of work (26.4%) and 212 declared more than 20 years of work (25.6%). The residing state of the sample was mainly represented by Rio Grande do Sul (39.1%), Rio de Janeiro (14.9%), São Paulo (11.8%), Bahia (7.6%), Sergipe (6.4%) and Federal District (3.9%). Education in this sample consisted of graduate studies (51.8%) and higher education (33.9%).

The 135 participants in the sample collected during the pandemic were aged between 24 and 72 years ($M = 42.1$ years, $SD = 8.1$ years). The majority of the participants were female ($n = 75$, 55.6%). Regarding time in the labor market, 22 people had up to 10 years of work (16.3%),

66 people declared between 10 and 20 years of work (48.9%) and 47 participants claimed more than 20 years of work (34.8%). The states with the highest representation for residence were Rio de Janeiro (37.8%), Rio Grande do Sul (17.8%), São Paulo (11.1%), Bahia (9.6%), Paraíba (4.4%) and Sergipe and the Federal District (3.7%). Finally, the vast majority in the sample during the pandemic were professionals with postgraduate degrees (48.9%), followed by those with higher education (28.1%).

Instruments

A *sociodemographic questionnaire* was applied with the aim of investigating sociodemographic (i.e. gender, age, marital status, education, state of residence) and employment (i.e. education and working time) characteristics. Meaningful work was assessed using the *Work as Meaning Inventory* (WAMI-B, Steger et al., 2012; adapted by Leonardo et al., 2019). The WAMI-B consists of 10 items to be answered on a five-point scale, ranging from 1 (completely false) to 5 (completely true). The alpha coefficient of the original scale was 0.93 (Steger et al., 2012). The Brazilian version of the inventory showed better fit indices in the single-factor structure (CFI = 0.99, TLI = 0.99, RMSEA = 0.08) and an internal consistency index of 0.94 (Leonardo et al., 2019).

Engagement at work was measured using the *Utrecht Work Engagement Scale* (UWES-9), with the short version consisting of nine items (UWES-9) being used in this study. All items are scored with a frequency rating of 7 points on a scale ranging from 0 (never) to 6 (always). The UWES-9 achieved excellent internal consistency levels ($\alpha = 0.92$) (Schaufeli et al., 2006). On the other hand, the Brazilian version presented an adequate internal consistency index with the value of 0.94 (Vazquez, Magnan, Pacico, Hutz, & Schaufeli, 2015).

Using the Big Five Factors model as a basis, Hauck Filho, Teixeira, Machado and Bandeira (2012) developed the *Reduced Personality Markers* scale. The scale consisted of 25 items distributed in the five personality factors. Participants respond to items on a frequency scale from 1 (strongly disagree) to 5 (strongly agree). The internal consistency values of the scale factors ranged from 0.61 to 0.83 (Hauck Filho et al., 2012).

Procedures

Data collection. Data collection was carried out through the Survey Monkey online platform with a link made available via WhatsApp and LinkedIn. Data collection for the sample before the pandemic took place between March 2019 and January 2020. Data for the sample during the pandemic were collected during October 2020 to May 2021. Participants could access the questionnaires only after demonstrating agreement with the Informed Consent Form (ICF). The inclusion criteria included: having a formal link with a public, private or mixed economy organization;

having a full degree; working for at least 12 months in the labor market; completing a workload of between 16 and 44 hours per week and being 18 years of age or older.

Data analysis. A network analysis was performed (Machado, Vissoci, & Epskamp, 2015; Schmittmann et al., 2013) to investigate the relationships between personality factors and engagement levels. Data were analyzed using the R version 4.1.1 software program (R Core Team, 2020). Network analysis is an exploratory technique that seeks to model a large set of data, presenting it in a network figure (also called a graph). Each variable in this graph is represented by a vertex (called a node) and each interaction between two nodes is represented by a line (called an edge). Edges in psychometric networks represent the statistical relationships between two nodes. The most used statistical relationship to correspond to the weight of edges in psychology is the partial correlation between two variables (Epskamp & Fried, 2018). Thus, the stronger the association magnitude in the graph, the greater the edge thickness. Edge types indicate the association sign: positive associations are indicated by continuous edges and negative associations are indicated by dotted edges.

Two networks of partial correlations, one for each group, were estimated from the polychoric correlation matrix using the Least Absolute Shrinkage and Selection Operator (LASSO) regularization. After LASSO regularization, the networks were chosen using the Extended Bayesian Information Criterion (EBIC) procedure with a parameter $\gamma = 0.5$. These estimation procedures were performed using the qgraph package version 1.6.9 (Epskamp, Borsboom, & Fried, 2018). Both networks were visualized by the qgraph package using a fixed layout between both networks (obtained through the average Layout function) and the maximum parameter set at the highest edge value among the networks.

The bootnet package (version 1.4.3) was used to estimate the stability of edges and the accuracy of centrality values (Epskamp & Fried, 2018). Non-parametric resampling ($n = 2,500$) was used to estimate the stability of the edges in order to increase the robustness of the analyses, especially due to the difference in the size of the two samples. The stability of centrality values was computed through case-dropping subset resamplings ($n = 2,500$; Epskamp et al., 2018), and by the correlation stability coefficient for values of $r = .7$ (CS-coefficient; Epskamp et al., 2018). The correlation stability coefficient for values of $r = .7$ ($CS(cor = .7)$) indicates the sample percentage which can be excluded to maintain (with 95% CI) correlation values of the centrality measures equal to or greater than $r = .7$ with the original sample. Acceptable values are $CS(cor = .7) \geq .5$.

Finally, the networks were compared in relation to the edge weights and in relation to the general connectivity level using the NetworkComparisonTest (NCT) version 2.2.1 package (van Borkulo et al., 2022) with the value "123" for the randomization seed and $n = 1000$ permutations. In addition, the two final matrices with the edge weights were correlated to investigate possible association between the networks.

Possible differences between edges and between values of expected influence were also evaluated with post hoc tests using Bonferroni-Holm correction. Randomization and permutation were applied to increase the robustness of the analysis in view of the difference in sample sizes.

Ethical Considerations

All procedures of this study from the planning to execution were designed considering the ethical criteria in accordance with the Regulatory Guidelines and Norms for Research Involving Human Beings according to Resolution No. 466/12 of the National Health Council. In addition, this study

was approved by the Ethics Committee of Universidade Salgado de Oliveira, CAAE No. 38134620.5.0000.5289.

Results

The two networks can be observed in Figure 1. Both graphs look very similar visually. The network for the group before the pandemic had density = .37 (294 of 946 possible connections, with $M = .018$ weight for edges) and the network for the group during the pandemic had density = .35 (228 of 946 possible connections, with $M = .014$ weight for the edges).

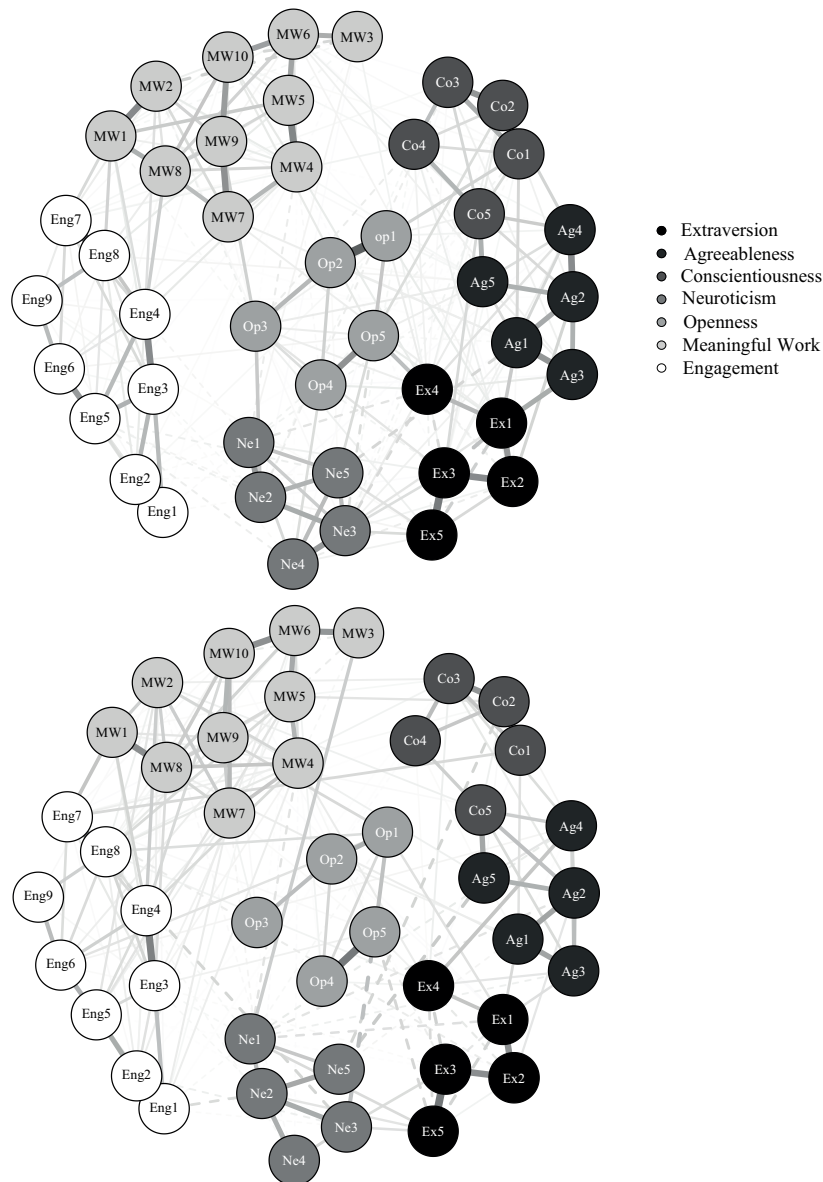


Figure 1. Graph of the participant sample collected prior to the pandemic ($n = 828$) and during the pandemic ($n = 135$). Note. The top network belongs to the pre-pandemic sample, and the bottom is the sample collected during the pandemic. Ex = Extraversion; Ag = Agreeableness; Co = Conscientiousness; Ne = Neuroticism; Op = Openness to Experience; MW = Meaningful Work; and Eng = Engagement.

CS values ($cor = .7$) in the sample collected prior to the pandemic were below 0.5 for all centrality indices, with the exception of effort ($CS(cor = .7) = .67$) and influence expected ($CS(cor = .7) = .75$). All CS values ($cor = .7$) in the sample collected during the pandemic were below .5. Expected influence values for the two networks are shown in Figure 2.

The comparison tests between the networks showed equity between the networks in relation to the edge weights ($M = .24, p = .387$) and in the general connectivity level of

the networks ($S = 3.31, p = .266$). Furthermore, the edge weights between the two networks correlated with $r = .84$. This would indicate that despite a different number of edges, they are not relevant enough to differentiate the functioning of one network from another. Although not necessary, post hoc tests comparing edge weights and expected influence values were conducted. No significant results were found, showing that both edges and expected influence values between networks can be considered the same.

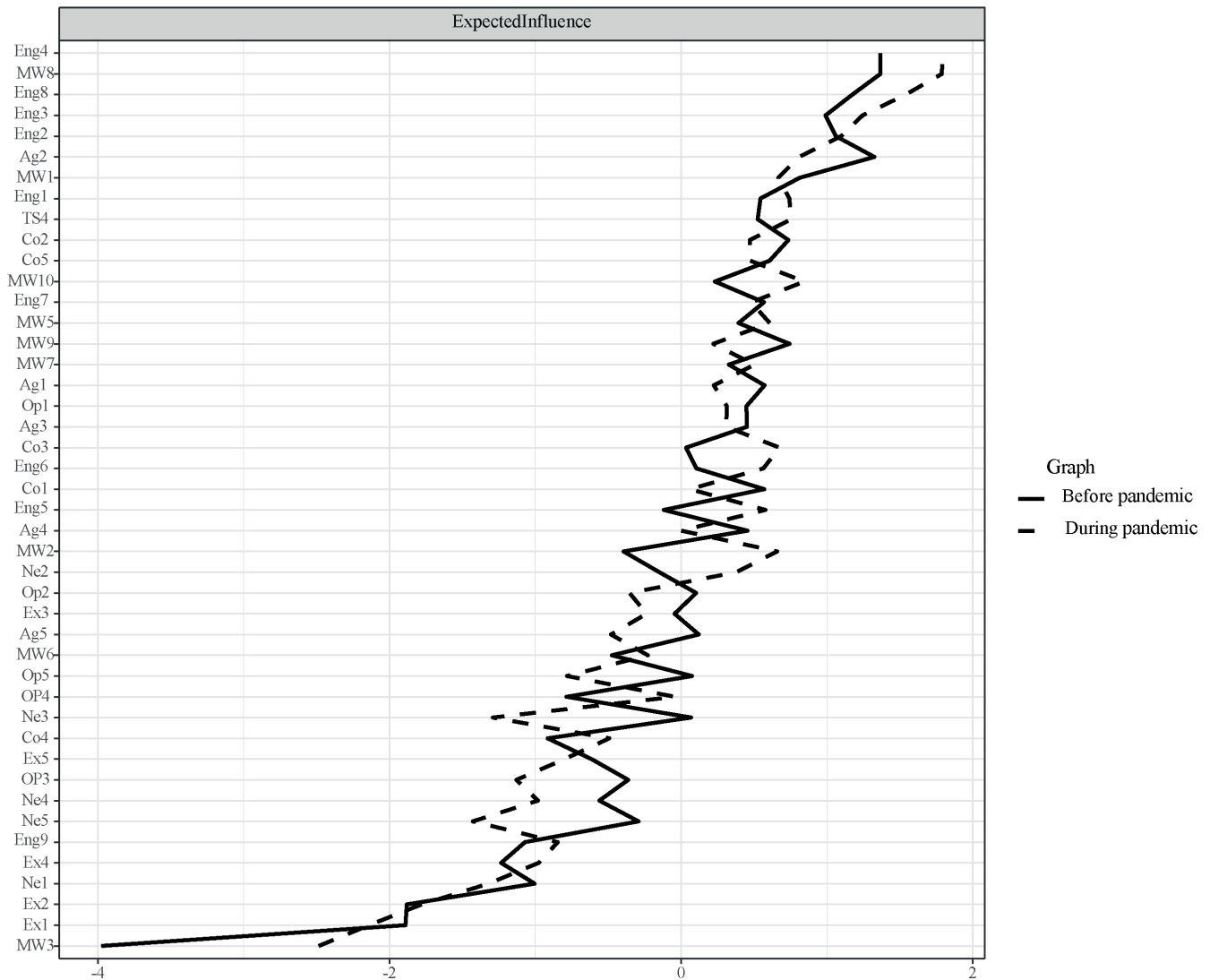


Figure 2. Measures of expected influence for the sample collected prior to the pandemic and during the pandemic.
 Note. The centrality value is represented by z scores. Nodes are sorted in descending order according to their expected influence scores. Ex = Extraversion; Ag = Agreeableness; Co = Conscientiousness; Ne = Neuroticism; Op = Openness to Experience; MW = Meaningful Work; and Eng = Engagement.

Discussion

Personality traits influence the way individuals assess the meaning of their work activities and working conditions (Simonet & Castille, 2020), and they can also act as antecedents of engagement levels by professionals (Pérez-Fuentes et al., 2019; Schaufeli, 2016). Professionals' perceptions of the meaning of their work also contribute to higher engagement levels at work (Geldenhuis et al., 2014; Landells & Albrecht, 2019; Leonardo et al., 2019).

In addition to the influences of personal characteristics and personal resources on engagement, the present study sought to understand whether the COVID-19 pandemic impacted the relationships between the variables, as the COVID-19 pandemic has imposed changes in the daily lives of individuals, in their relationship with work, as well as negatively impacting the quality of life of several individuals (Rammstedt et al., 2022). In this sense, an increase in the anxiety levels and depression symptoms was observed (Li et al., 2020; McGinty et al., 2020; Schäfer et al., 2020). Thus, the present study sought to investigate whether the effects of personality traits and meaningful work on work engagement would present significant differences before and during the pandemic.

It is observed that although professionals were exposed to high instability levels during the pandemic, they report increased psychological distress and emotional instability (Li et al., 2020; McGinty et al., 2020; Rammstedt et al., 2022; Schäfer et al., 2020); the context of the pandemic did not impact on the effects of meaningful work and personality traits with engagement in the investigated samples. These findings differ from the expectations of the present study, as it was expected that meaningful work, conscientiousness and neuroticism would present greater relationships with engagement among the professionals interviewed during the pandemic.

Meaningful work was expected to act as a protective factor for professionals, as those who experience higher levels of meaningful work tend to be positively involved in work (Geldenhuis et al., 2014; Landells & Albrecht, 2019; Leonardo et al., 2019). Professionals with high conscientiousness levels tend to identify personal and social resources that can help in coping with adverse situations (Nunes et al., 2010; Rammstedt et al., 2022), so it was expected that this trait would present relationships of greater magnitude like engagement. On the other hand, individuals with high levels of neuroticism tend to present greater emotional instability (Nunes et al., 2010; Rammstedt et al., 2022; Xie & Cobb, 2020), and so it was consequently expected that the relationship with neuroticism would have a negative impact on engagement. However, differently from what was expected, the findings showed that the relationships between meaningful work and personality traits with engagement were not significantly altered.

The findings regarding the effects of meaningful work and personality traits on engagement showed that engagement was positively related to meaningful work and negatively related to neuroticism. It was observed that the influences

of conscientiousness and openness on engagement occurred through meaningful work.

The relationships between meaningful work and engagement highlight the relevance of this personal resource in promoting states of well-being at work (Geldenhuis et al., 2014; Landells & Albrecht, 2019; Leonardo et al., 2019). Professionals with high meaningful work levels tend to perceive that their work activities are associated with their values, they understand that their occupational activities contribute to their development and to society (Steger et al., 2012). Given that engagement is related to positive engagement with work (Schaufeli et al., 2006; Vazquez et al., 2015), higher meaningful work levels can promote higher engagement levels.

The indirect effects of conscientiousness on engagement show that the characteristics of organization, stability and perseverance that describe this trait contribute to higher engagement levels at work (Pérez-Fuentes et al., 2019; Schaufeli, 2016). The indirect effects of openness on engagement may be related to individuals with high openness levels developing skills to adapt to different contexts (Pérez-Fuentes et al., 2019; Schaufeli, 2016).

Conscientiousness and openness were observed to be positively related to meaningful work. Meaningful work requires individuals to assess their work context and activity, enabling them to assign meanings to their occupational activities that are congruent with their values and beliefs (Steger et al., 2012). It is observed that individuals with high conscientiousness levels identify which aspects can contribute to their development in different contexts. Similarly, professionals with high openness levels are able to analyze the same situation from different angles (Nunes et al., 2010; Xie & Cobb, 2020). Based on this, it is understood that conscientiousness and openness can contribute to developing greater meaningful work levels. Furthermore, it is proposed that the indirect effects of conscientiousness and openness on engagement occur through meaningful work, as meaningful work can contribute to directing the skills of personality traits in promoting engagement at work.

The present study contributes by highlighting the role of meaningful work in promoting work engagement, as well as its role as an intermediary in the relationships between personality factors and work engagement. It is noteworthy that the networks analyzed in the present study did not have their relationships significantly affected before or during the pandemic.

Despite the contributions of the present study, some limitations can be observed. The use of a convenience sample and the comparison of two populations with very different sample numbers between them is the main limitation. It is pointed out that the sample collected during the pandemic was impacted due to the drop-outs generated by changes in social, romantic and work relationships, which made it difficult for people to adhere to the study. When analyzing the data, resampling techniques were used in order to reduce possible biases in interpreting the results.

Future studies focused on specific occupational groups (i.e. health professionals, teachers, justice officials) can contribute to understanding the relationships between personality traits, meaningful work and engagement with the particularities of each work group. In addition, conducting longitudinal studies can complement the findings presented in order to investigate the effects of personality traits, meaningful work and work engagement along the occupational trajectory of professionals.

References

- Dalanhol, N. S., Freitas, C. P. P., Machado, W. L., Hutz, C. S., & Vazquez, A. C. S. (2017). Engajamento no trabalho, saúde mental e personalidade em oficiais de justiça [Work engagement, mental health and personality in justice officers]. *Psico*, 48(2), 109-119. doi:10.15448/1980-8623.2017.2.25885
- Epskamp, S., & Fried, E. I. (2018). A tutorial on regularized partial correlation networks. *Psychological Methods*, 23(4), 617-634. doi:10.1037/met0000167
- Epskamp, S., Borsboom, D., & Fried, E. I. (2018). Estimating psychological networks and their accuracy: A tutorial paper. *Behavior Research Methods*, 50(1), 195-212. doi:10.3758/s13428-017-0862-1
- Geldenhuys, M., Łaba, K., & Venter, C. M. (2014). Meaningful work, work engagement and organisational commitment. *SA Journal of Industrial Psychology*, 40(1), 1. doi:10.4102/sajip.v40i1.1098
- Hauck Filho, N., Teixeira, M. A. P., Machado, W. L., & Bandeira, D. R. (2012). Marcadores reduzidos para a avaliação da personalidade em adolescentes [Brazilian mini-markers for assessing personality in adolescents]. *Psico-USF*, 17(2), 253-261. doi:10.1590/S1413-82712012000200009
- Landells, E. M., & Albrecht, S. L. (2019). Perceived organizational politics, engagement, and stress: The mediating influence of meaningful work. *Frontiers in Psychology*, 10, 1612. doi:10.3389/fpsyg.2019.01612
- Leonardo, M. G. L., Pereira, M. M., Valentini, F., Freitas, C. P. P., & Damásio, B. F. (2019). Adaptação do inventário de sentido do trabalho (WAMI) para o contexto brasileiro [Adaptation of Work and Meaning Inventory (WAMI) to the Brazilian context]. *Revista Brasileira de Orientação Profissional*, 20(1), 79-89. doi:10.26707/1984-7270/2019v20n1p79
- Li, S., Wang, Y., Xue, J., Zhao, N., & Zhu, T. (2020). The impact of COVID-19 epidemic declaration on psychological consequences: A study on active weibo users. *International Journal of Environmental Research and Public Health*, 17(6), 2032. doi:10.3390/ijerph17062032
- McGinty, E. E., Presskreischer, R., Anderson, K. E., Han, H., & Barry, C. L. (2020). Psychological distress and COVID-19-related stressors reported in a longitudinal cohort of US adults in April and July 2020. *JAMA*, 324(24), 2555-2557. doi:10.1001/jama.2020.21231
- Machado, W. L., Vissoci, J. R. N., & Epskamp, S. (2015). Análise de rede aplicada à psicometria e à avaliação psicológica [Network analysis applied to psychometry and psychological Assessment]. In C. S. Hutz, D. R. Bandeira, & C. M. Trentini (Orgs.), *Psicometria* (pp. 125-146). Porto Alegre, RS: Artmed.
- Nunes, C. H. S. S., Hutz, C. S., & Nunes, M. F. O. (2010). *Bateria Fatorial de Personalidade (BFP): Manual técnico* [Personality Factor Battery (BFP): Technical manual]. São Paulo, SP: Casa do Psicólogo.
- Pérez-Fuentes, M. C., Molero Jurado, M. M., Martos Martínez, A., & Gázquez Linares, J. J. (2019). Burnout and engagement: Personality profiles in nursing professionals. *Journal of Clinical Medicine*, 8(3), 286. doi:10.3390/jcm8030286
- R Core Team. (2020). *R: A language and environment for statistical computing* [Computer software]. Vienna, Austria: The R Foundation. Retrieved from <https://www.r-project.org/>
- Rammstedt, B., Lechner, C. M., & Weib, B. (2022). Does personality predict responses to the COVID-19 crisis? Evidence from a prospective large-scale study. *European Journal of Personality*, 36(1), 47-60. doi:10.1177/0890207021996970
- Robledo, E., Zappalà, S., & Topa, G. (2019). Job crafting as a mediator between work engagement and wellbeing outcomes: A time-lagged study. *International Journal of Environmental Research and Public Health*, 16(8), 1376. doi:10.3390/ijerph16081376
- Schäfer, S. K., Sopp, M. R., Schanz, C. G., Staginnus, M., Göritz, A. S., & Michael, T. (2020). Impact of COVID-19 on public mental health and the buffering effect of a sense of coherence. *Psychotherapy and Psychosomatics*, 89(6), 386-392. doi:10.1159/000510752
- Schaufeli, W. B. (2016). Heavy work investment, personality and organizational climate. *Journal of Managerial Psychology*, 31(6), 1057-1073. doi:10.1108/JMP-07-2015-0259
- Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement*, 66(4), 701-716. doi:10.1177/0013164405282471

- Schmittmann, V. D., Cramer, A. O. J., Waldorp, L. J., Epskamp, S., Kievit, R. A., & Borsboom, D. (2013). Deconstructing the construct: A network perspective on psychological phenomena. *New Ideas in Psychology*, 31(1), 43-53. doi:10.1016/j.newideapsych.2011.02.007
- Simonet, D. V., & Castille, C. M. (2020). The search for meaningful work: A network analysis of personality and the job characteristics model. *Personality and Individual Differences*, 152, 109569. doi:10.1016/j.paid.2019.109569
- Steger, M. F. (2017). Creating meaning and purpose at work. In L. G. Oades, M. F. Steger, A. D. Fave, & J. Passmore (Eds.), *The Wiley Blackwell handbook of the psychology of positivity and strengths-based approaches at work* (pp. 60-81). Chichester, United Kingdom: Wiley Blackwell.
- Steger, M. F., & Dik, B. J. (2010). Work as meaning: Individual and organizational benefits of engaging in meaningful work. In P. A. Linley, S. Harrington, & N. Page (Eds.), *Oxford handbook of positive psychology and work* (pp. 131-142). Oxford, United Kingdom: Oxford University Press.
- Steger, M. F., Dik, B. J., & Duffy, R. D. (2012). Measuring meaningful work: The work and meaning inventory (WAMI). *Journal of Career Assessment*, 20(3), 322-337. doi:10.1177/1069072711436160
- van Borkulo, C. D., van Bork, R., Boschloo, L., Kossakowski, J. J., Tio, P., Schoevers, R. A., ... Waldorp, L. J. (2022). Comparing network structures on three aspects: A permutation test. *Psychological Methods*. Advance online publication. doi:10.1037/met0000476
- Vazquez, A. C. S., Magnan, E. S., Pacico, J. C., Hutz, C. S., & Schaufeli, W. B. (2015). Adaptation and validation of the Brazilian version of the Utrecht Work Engagement Scale. *Psico-USF*, 20(2), 207-217. doi:10.1590/1413-82712015200202
- Wang, C.-H., & Chen, H.-T. (2020). Relationships among workplace incivility, work engagement and job performance. *Journal of Hospitality and Tourism Insights*, 3(4), 415-429. doi:10.1108/JHTI-09-2019-0105
- Wood, J., Jihye, O., Park, J., & Kim, W. (2020). The relationship between work engagement and work-life balance in organizations: A review of the empirical research. *Human Resource Development Review*, 19(3), 240-262. doi:10.1177/1534484320917560
- Xie, D., & Cobb, C. L. (2020). Revised NEO Personality Inventory (NEO-PI-R). In B. J. Carducci, C. S. Nave, J. S. Mio, & R. E. Riggio, *The Wiley encyclopedia of personality and individual differences: Measurement and assessment* (Vol. 2, pp. 335-350). Hoboken, NJ: John Wiley & Sons.
- Joan Silveira de Oliveira Leite* is a Ph. D. candidate of the Postgraduate Program in Psychology at Pontifícia Universidade Católica do Rio de Janeiro-RJ, Brazil.
- Clarissa Pinto Pizarro Freitas* is a Ph. D. in Psychology, Professor at Pontifícia Universidade Católica do Rio de Janeiro, Rio de Janeiro-RJ, Brazil.
- Gabriel dos Reis Rodrigues* has a Master's degree in Psychology from the Universidade Federal do Rio Grande do Sul, Porto Alegre-RS, Brazil.
- Authors' Contribution:*
All authors made substantial contributions to the study conception and design, to data analysis and interpretation, and to the manuscript revision and approval of the final version. All the authors assume public responsibility for content of the manuscript.
- Associate editor:*
Vanessa Barbosa Romera Leme
- Received:* Apr. 11, 2022
1st Revision: Jul. 29, 2022
Approved: Aug. 04, 2022
- How to cite this article:*
Leite, J. S. O., Freitas, C. P. P., & Rodrigues, G. R. (2022). Personal characteristics related to engagement before and during the COVID-19 pandemic. *Paidéia (Ribeirão Preto)*, 32, e3236. doi:https://doi.org/10.1590/1982-4327e3236