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Towards an Understanding of Remote Work Exhaustion:
A Study on the Effects of Individuals' Big Five Personality Traits

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Abstract

At a time when many organizations have adopted, or are considering adopting, fully remote, hybrid, or partially remote working modalities, this study explores links between individuals' (Big Five) personality traits and their likelihood of experiencing remote work exhaustion. Hypothetical associations are developed and then tested using survey data collected from 642 participants in the United States working in different industries. Results show that while neuroticism predicts remote work exhaustion, agreeableness and conscientiousness act as protective personality traits. This article offers several research implications and actionable, practical insights.

Keywords: remote work exhaustion; personality traits; neuroticism; agreeableness; conscientiousness

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1. Introduction

Recently, many companies from various industries have announced plans to adopt fully remote, hybrid, or partially remote working modalities (Stoller 2021; Tayeb 2021). Relatedly, Gartner, a global research and advisory firm based in the United States, surveyed more than 4,000 human resources (HR) executives and employees and found that an expected long-term implication of the COVID-19 pandemic is that “nearly half of employees will work remotely at least some of the time” (Gartner 2020). In light of these developments, a reasonable question to ask is whether remote work would be appropriate for all employees? Some employees perform jobs that require them to be physically present at their jobs, and of course remote working modalities would not be appropriate for them. However, if employees can perform their jobs remotely, we wondered whether certain personality types would be more likely to experience exhaustion from remote work than others?

With this in mind, we looked for previous business studies on the topic. On the one hand, business scholars have examined the effect of personality traits on job burnout in the psychology literature (Zellars et al. 2004; Perry et al. 2010; Swider and Zimmerman 2010). Burnout has three

components—emotional exhaustion, depersonalization, and personal accomplishment—that have been found to be associated with individuals’ personality traits (we will delve into these components and associations in the next section). On the other hand, in the management and information systems literature, Moore (2000b) proposed extracting the exhaustion component out of the original three-dimensional burnout construct, since the two remaining components—depersonalization and personal accomplishment—could also be considered consequences of work exhaustion (just as turnover intentions, for example). This work exhaustion conceptualization was operationalized by Moore (2000a) in a manner that ensured it would focus exclusively on individuals’ job-related fatigue and strain. However, there’s one previous business study that has explored associations between exhaustion and the big five personality traits: Alarcon et al. (2009).

In an effort to help fill this gap in the business literature, while providing an answer to the question posed above and thus helping identify individual level vulnerabilities associated to remote work (Soga et al. 2022), work exhaustion shall be the simplified operationalization of burnout followed in this study. In particular, we adapt Moore’s (2000a; 2000b) work exhaustion construct to remote work modalities, in order to capture remote work exhaustion. In the following section we present a review of research on burnout, work exhaustion, and exhaustion from remote work. And we finalize it by discussing the Big-Five personality traits, and how they relate to burnout, for developing our hypotheses. We then explain our methods and findings, before proposing research and practical implications, limitations, and future research opportunities.

2. Literature Review and Hypotheses Development

The review of literature examines the original burnout construct, its three components, and how the exhaustion component was isolated to develop the work exhaustion construct (Moore 2000b; a), in turn leading to our conceptualization of remote work exhaustion. We then discuss recent research around ways in which remote work may increase exhaustion, and transition into discussing personality traits and how they have been found to associate with burnout before presenting our hypotheses.

2.1. Burnout and Work Exhaustion

Maslach and Jackson (1981) proposed a burnout construct encompassing three components: emotional exhaustion, depersonalization, and diminished personal accomplishment. Cropanzano et al. (2003) describe these three components of burnout, respectively as: “a chronic state of emotional and physical depletion,” “a type of interpersonal distancing and lack of connectedness with one’s coworkers and clients,” and as “a negative evaluation of the self.” Revised and more generalizable conceptualizations of burnout that follow Schaufeli et al. (1995) have referred to emotional exhaustion simply as exhaustion, depersonalization as cynicism, unaccomplishment as decreased professional self-efficacy (Hurt et al. 2013; Mojsa-Kaja et al. 2015), and burnout matters as it has been linked to reduced work performance (Wright and Bonett 1997), reduced engagement at work (Albrecht and Anglim 2018), increased turnover intention (Wright and Cropanzano 1998), and even absenteeism (Swider and Zimmerman 2010).

Emotional exhaustion has been identified as the most salient component of burnout (Lee and Ashforth 1996), to the point that the two terms have been deemed to be interchangeable (Moon and Hur 2011; Seidler et al. 2014). Specifically, emotional exhaustion has been conceptualized as emerging from workplace or job-related strain (Demerouti et al. 2001); insofar as emotional exhaustion entails the perception of excessive fatigue due to continued exposure to job demands (Bakker et al. 2008). Job burnout may simply allude to work-related emotional exhaustion. In fact, as mentioned above, Moore (2000b) proposed isolating work exhaustion by positing that “an individual experiencing work exhaustion might or might not adopt the associated job attitudes and behaviors included in the three-component conceptualizations” of burnout, namely: depersonalization (or cynicism) and diminished personal accomplishment (or decreased professional self-efficacy). Which in turn could simply be regarded as additional consequences of work exhaustion, and thus could “be separated conceptually from the exhaustion construct and would join the list of other variables identified by researchers as potential consequences of exhaustion (e.g., reduced job satisfaction and higher turnover)” (Moore 2000b). This realization was operationalized by Moore (2000a) using a work exhaustion construct that followed Leiter and Schaufeli (1996) and modified the original “emotional exhaustion scale to encompass mental and physical as well as emotional exhaustion, and to eliminate references to people as the source of exhaustion.” This is how work exhaustion, as a new construct, managed to ensure that it would capture work-related fatigue or strain normatively. Moreover, the remote context adaptation of work exhaustion used herein, remote work exhaustion, also manages to do so while specifically focusing on remote work-related fatigue and strain.

2.2. Exhaustion From Remote Work (and remote work exhaustion – RWE)

In the context of remote work (or telework), Golden (2006) found that work exhaustion partially mediated the relationship between the degree to which remote work was adopted by an organization and organizational commitment. Such that “higher degree of telework was negatively related to work exhaustion” and “work exhaustion was found to be negatively related to organizational commitment.” Moreover, work exhaustion completely mediated the relationship with employees’ turnover intentions, insofar as “the relationship between teleworking and turnover intentions was negative” and, crucially, “teleworking was negatively related to work exhaustion” (Golden 2006). However, Golden (2006) followed Moore (2000a) directly and assessed work exhaustion “using the five-item work exhaustion subscale of the General Burnout Questionnaire (Schaufeli et al. 1995),” which in turn “uses items from the Maslach and Jackson (1981) exhaustion scale modified to reflect general exhaustion in the work context.” But not in the remote work context! In essence, Golden (2006) was in effect measuring whether remote work could help reduce work exhaustion from being physically present at a job (instead of exhaustion from remote work!), which -before the COVID-19 pandemic- business scholars had reasons to believe it should.

In particular, business scholars justified the adoption of remote working modalities using, for instance, the Conservation Of Resources (COR) theory (Hobfoll 1989). COR was used to stipulate that employees’ ability to conserve energy (for example, by better managing interactions with coworkers) was augmented thanks to their “ability to work at a physical and psychological distance from others in the work environment” (Golden 2006). Not just because

employees could feel emotionally drained from interactions with their coworkers while at the office (Windeler et al. 2015). But also since remote work could help avoid burnout associated to employees' perception of their positions in social networks (defined by task interdependence), which was posited using the Job Demands-Resources theory (Schaufeli and Bakker 2004; Bakker and Demerouti 2017). Our contention is that employees' personality traits may also underpin their likelihood of experiencing job burnout and exhaustion, as well as that of experiencing remote work exhaustion (RWE). In essence, the Big Five personality traits, even though inductively developed, can act as a theoretical framework for subsequent hypotheses development insofar as "personality traits are useful predictors of future behavior" and "yield sufficiently reliable individual differences to be useful in themselves" (Tupes and Christal 1992). A discussion on whether inductively obtained theoretical frameworks might be as good as (or perhaps in fact better than) deductively developed ones for hypothesis development is beyond the scope of this study. Because of this, in the next section, we use the Big Five personality traits and their intrinsic characteristics, to hypothesize (based on previous findings from healthcare and educational studies) which type of employees would be more likely to experience RWE.

It is in light of this that we define, and introduce, RWE as a remote context adaptation of Moore's (2000a; 2000b) work exhaustion construct. Even though RWE emerges out of work exhaustion, and work exhaustion comes from the exhaustion component extracted out of the original general burnout questionnaire, we believe that RWE will be better at capturing how individuals' personality traits associate to their likelihood of experiencing exhaustion from remote working modalities (introduced during the pandemic and otherwise). Since, as explained above, RWE will focus on the likelihood of experiencing exhaustion from remote work, as

opposed to on whether remote work affects the likelihood of experiencing work exhaustion from having to be physically present at a job. Additional details about how RWE is operationalized and captured in this study are presented in the methods section.

Now, the COVID-19 pandemic made remote work the only option for large swathes of the global population. Which may have not only changed the nature of work for years to come, but also altered the merits initially ascribed to remote work by business scholars. As uncovered by Soga et al. (2022) in their literature review of Flexible Work Practices (FWP) that encompass remote working modalities, 32% of studies considered “reflect a clearly negative position on FWP and its associated technologies, whereas a total of 68% hold either a positive view or are undetermined about FWP’s impact on workers.” For instance, Mihalca et al. (2021) showed how work overload lead to burnout by increasing emotional exhaustion when employees of a large Romanian information technology company were forced to work remotely at the onset of the COVID-19 pandemic.

In particular, role clarity partially mediated the association between work overload and emotional exhaustion, such that “higher levels of work overload” caused individuals to “perceive that they receive less clear and precise information about their work roles and responsibilities,” which in turn helped increase their emotional exhaustion (Mihalca et al. 2021). Which, on the one hand, clarifies why precise remote work designs with succinct role definitions have been deemed to be of the essence for organizations that have adopted, or are exploring the adoption of, remote working modalities (Wang et al. 2021). And on the other, explains how providing clear

and consistent expectations can improve the delegation skills of remote team managers (Soga et al. 2021).

Other organizational factors may also help mitigate emotional exhaustion (and thus burnout) in remote work environments. For example, Collie (2021) investigate predictors of emotional exhaustion in teachers working remotely from home during Australia's first COVID-19 wave and found that autonomy-thwarting leadership was associated positively with emotional exhaustion. Furthermore, autonomy-thwarting leadership may not only work against but also preempt remote team managers' acquisition of delegation skills essential for empowering remote workers and yielding “more productive, independent team members and leaders” (Soga et al. 2021). Relatedly, the COVID-19 pandemic also forced many children to study from home, which exacerbated work-family conflicts, and related work-from-home stress (Galanti et al. 2021) and thus remote workers' emotional exhaustion. All of which suggests that, under certain conditions, remote working modalities may augment, instead of decrease, employees' exhaustion and burnout. Thankfully, it appears that leisure crafting, enabled by proactive personalities, can help reduce remote workers' emotional exhaustion (Abdel Hadi et al. 2021), pointing to the importance of exploring how individuals' personality traits may relate to RWE.

2.3. Big-Five Personality Traits

Most personality psychology research is conducted using the Big-Five-factor representation developed by Tupes and Christal (1992), which organizes personality traits into five dimensions:

emotional stability (vs. neuroticism), extraversion (or surgency), openness, agreeableness, and conscientiousness (or dependability) (Costa and McCrae 1992; Goldberg 1992).

Alarcon et al. (2009), citing Costa and McCrae (1992), describe these five dimensions as follows: emotional stability, as the “general tendency to be free of negative emotions, such as anxiety, depression, hostility, frustration, and guilt.” This is why in some constructs that consider maladaptive personality trait variants, the emotional stability dimension may be alluded to as neuroticism (Crego and Widiger 2020). Extraversion, as reflecting “the extent to which one is cheerful, gregarious, fun-loving, and enthusiastic” (Alarcon et al. 2009). Openness, as reflecting the extent to which individuals desire “uniqueness, change, and variety,” which would, in turn, make them “imaginative, independent thinkers, who are tolerant of ambiguity, and are amenable to new experiences and ideas.” Agreeableness “as the extent to which one is cooperative, caring, trusting, and sympathetic towards others.” And finally, conscientiousness, as the extent to which an individual may be “achievement-oriented, dependable, organized, and responsible” (Alarcon et al. 2009). As such, many measures have been developed to capture each of these five personality dimensions. In this study, we use the Big-Five Factor Markers from the International Personality Item Pool (IPIP), developed by Goldberg (1992).

2.4. Personality Traits Associated With Burnout

Studies exploring the association between personality traits and burnout have been conducted in the context of various industries. More prominently in healthcare and education, but also in the

hospitality sector. Table 1 below summarizes the directional associations found between the three components of burnout and the five dimensions of personality traits.

Table 1 about here.

Summary of directional associations between personality traits and burnout (with studies supporting them)

Overall, neuroticism appears to be the main predictor of burnout, principally through its positive influence on exhaustion, while extraversion appears to be the most protective personality trait against burnout, mainly by exerting a negative effect on exhaustion. Both agreeableness and conscientiousness are deemed to be most helpful in reducing depersonalization (or cynicism) and increasing personal accomplishment (professional efficacy). Openness exerts the least influence on burnout. In terms of professional efficacy, openness is the only personality trait for which conflicting directional associations were identified. In particular, Morgan and De Bruin (2010) report a positive association between openness and professional efficacy for South African students, while Salami (2011) asserts that openness exerts a negative influence on personal accomplishment for Nigerian lecturers. In terms of academic achievement and productivity, openness might be effective for students, while lecturers might benefit more from following their fields' norms, being focused as well as less tolerant of ambiguity.

2.5. Hypotheses

Based on the directional associations between personality traits and burnout detailed above, we present hypothetical relationships between each personality trait and RWE. In particular, we shall utilize directional associations uncovered between personality traits and emotional exhaustion (i.e., the second column in Table 1), insofar as the exhaustion component of burnout led to the conceptualization of work exhaustion (Moore 2000b; a) and its remote context adaptation (i.e., RWE). In addition, since directional associations between personality traits and exhaustion have been uncovered in various contexts and across different industries (from South African students, Turkish primary and secondary teachers and Nigerian college lecturers to American nurses, Dutch anesthesiologists, and Cypriot hotel managers), we deem it reasonable to expect associations uncovered in general (non-remote) work contexts to also apply in remote work contexts.

2.5.1. Neuroticism and Remote Work Exhaustion

Neuroticism has been identified as the most salient predictor of exhaustion (Castillo-Gualda et al. 2019), burnout (Hurt et al. 2013), and psychological distress (van der Wal et al. 2016).

Individuals with neurotic tendencies tend to experience more distress due to their essentially negative nature, which may, in turn, make them experience higher levels of exhaustion (George 1992). Neuroticism's positive association with exhaustion has been corroborated in the healthcare sector: among American nurses (Zellars et al. 2004), ABA therapists (Hurt et al. 2013), Dutch anesthesiologists (van der Wal et al. 2016), and Greek ICU physicians and nurses (Ntantana et al. 2017). Also in the education sector: among South African students (Morgan and De Bruin 2010), Nigerian lecturers (Salami 2011), Turkish primary and secondary teachers (Basim et al. 2013), Spanish public school teachers (Castillo-Gualda et al. 2019), as well as in

the hospitality industry, among American hotel managers (O'Neill and Xiao 2010) and Cypriot ones alike (Zopiatis et al. 2010). Thus, we expect that:

H₁: Neuroticism will be positively associated with RWE

2.5.2. Extraversion and Remote Work Exhaustion

Contrary to neuroticism, extraversion can entail a predisposition to experiencing positive emotions (Costa and McCrae 1992). Because of this, Alarcon et al. (2009) posit that extroverts tend to have positive experiences at work because they tend to elicit positive responses from their colleagues, which in turn makes them more likely to experience their work environments positively in general. As such, extraversion has been found to exert a negative influence on exhaustion among healthcare workers, such as Dutch anesthesiologists (van der Wal et al. 2016) and Greek ICU physicians and nurses (Ntantana et al. 2017). And also among various educational actors, including South African students (Morgan and De Bruin 2010), Nigerian lecturers (Salami 2011), and Turkish primary and secondary teachers (Basim et al. 2013). As well as amongst American hotel managers (O'Neill and Xiao 2010). Thus, we posit:

H₂: Extraversion will be negatively associated with RWE

2.5.3. Openness and Remote Work Exhaustion

In line with the description of openness provided above, O'Neill and Xiao (2010) clarify that it might also imply "being imaginative, cultured, curious, original, broad-minded, intelligent, and

having a need for variety, aesthetic sensitivity, and unconventional values.” However, they cite Costa and McCrae (1984) to highlight that “individuals open to experience tend to experience both the good and bad more intensely” (O’Neill and Xiao 2010). This may help explain why openness was the only personality trait that exhibited conflicting directional associations for a component of burnout—personal accomplishment/professional efficacy. In any case, no statistically significant association has ever been uncovered between openness and exhaustion. Which, in turn, may be why Alarcon et al. (2009) in their meta-analyses found that openness and exhaustion were unrelated. Thus, we assume that:

H₃: Openness will not exhibit a statistically significant association with RWE

2.5.4. Agreeableness and Remote Work Exhaustion

Bowling et al. (2004) point out that agreeable employees are prone to exhibiting kind, cooperative, and tolerant behaviors at work, which will tend to be reciprocated by their colleagues, in turn leading to positive interactions as well as greater interpersonal intimacy (McCrae and Costa Jr 1991), which are likely to make them less susceptible to experiencing exhaustion. This may be why agreeableness has been found to help protect against exhaustion, especially among healthcare workers (Hurt et al. 2013; van der Wal et al. 2016). Therefore, we presume that:

H₄: Agreeableness will be negatively associated with RWE

2.5.5. Conscientiousness and Remote Work Exhaustion

Costa and McCrae (1992) proposed that, in general, high conscientiousness individuals tend to be viewed by others as dependable, trustworthy, and responsible, which (just as agreeableness) may help elicit positive responses and interactions from supervisors as well as from colleagues (Kim et al. 2007). This may be why Morgan and De Bruin (2010) found that conscientiousness can help protect against exhaustion among South African students. As such, we suspect that:

H₅: Conscientiousness will be negatively associated with RWE.

Figure 1 below depicts our hypotheses, along with directions and control variables. We will now discuss this study's methodology, data collection process, participants and measures.

Figure 1 about here.

Hypotheses, directions and control variables

3. Methods

To test our hypotheses, we collected data using Amazon Mechanical Turk (MTurk). MTurk is an online panel in which individuals agree to participate in studies in return for financial incentives (Lamberton and Rose 2012; Lowry et al. 2016). In the past few years, MTurk has become a credible data source for studies in business and non-business disciplines. Daly and Natarajan (2015) conducted three studies to assess the quality of the data collected using MTurk and found that the studies demonstrated minimal non-response biases, which made MTurk data a reliable

and inexpensive tool for data collection. Moreover, Paolacci et al. (2010) found that data collected using MTurk could produce results consistent with results obtained from laboratory experiments, which was corroborated within the realm of personality psychology research by Miller et al. (2017), who found that data collected using MTurk were of the same quality as that obtained using traditional methods.

In addition, a brief review of studies published in the *Journal of Business Research* (JBR) indicates 77 articles that have utilized MTurk as a data collection tool. These studies span across various research contexts—the retail industry (Skarmeas and Leonidou 2013; Baldus et al. 2015; Collier and Barnes 2015), social media (Lee and Watkins 2016; Gretry et al. 2017), pro-environmental research (Ertz et al. 2016), sustainability (Minton et al. 2015), the sharing economy (Lawson et al. 2016; Lutz and Newlands 2018), the tourism industry (Harrigan et al. 2018), and product design (Kumar and Noble 2016). Therefore, we used MTurk for data collection in this study because prior research shows that data obtained from MTurk are of high quality, and scholars and researchers have utilized MTurk as a data source in JBR and other business as well as non-business academic journals.

3.1. Participants

The first step was to conduct a pilot test to assess our instrument's readability and reliability (e.g., survey format and questions) within the study setting. To do so, we collected 50 responses from participants in the United States. Participants received \$1.50 for their pilot test participation. We then conducted the main study also with participants in the United States.

Responses from individuals who participated in the pilot study were excluded. In sum, 642 completed responses were recorded from participants working under a remote modality, 408 were males, and 234 were females. The average age of participants was 37 years, and most participants had between 3 and 9 years of work experience. The sample included respondents from a variety of industries (see Table 2).

Table 2 about here.

Participants' Demographic Information

3.2. Measures

Constructs utilized for capturing participants' RWE and personality traits were discussed previously. To recap, RWE is a remote setting adaptation of the work exhaustion construct introduced by Moore (2000b), which was achieved by modifying the original questions used by Moore (2000a) to incorporate a remote working environment (see Table 3). Once again, a pilot study was conducted to ensure the validity of the remote context adaptation of Moore's (2000a; 2000b) work exhaustion construct (i.e., RWE). Meanwhile, the Big-Five personality traits were captured following Goldberg (1992) and his IPIP. In addition to these main study variables, participants' age, gender, and years of work experience were included in the survey. Participants were asked the extent to which they agreed with each statement/question using a 7-point Likert-type scale, where "1" meant "Strongly Disagree" and "7" meant "Strongly Agree." Even though we asked study participants all items in Goldberg's (1992) copyrighted instrument (which readers are encouraged to review), the personality items included in Table 3 are only those with

high factor cross-loadings (presented in Table 5) and are provided as reference for readers to see how each personality dimension was captured here.

Table 3 about here.

Survey items (with variable labels)

4. Results and Discussion

We shall first report on reliabilities and validity and then present the results of our tests along with a corresponding discussion of our findings.

4.1. Statistical Analysis

Data were analyzed using PLS-SEM analysis (i.e., Smart PLS 3) with RWE as the dependent variable. There are four main reasons for using PLS-SEM analysis. First, PLS-SEM uses weighted composites of indicator items that enable accounting for measurement error, making PLS-SEM superior to regression analysis, which is based on sum scores or the averaging of construct items (Hair et al. 2013). Second, prior research has found that the sum scores approach can generate significant parameter biases and has less statistical power than PLS-SEM (Thiele et al., 2015). And third, regression analysis may mask the effects of individual construct indicators at the time of the analysis. In particular, with PLS-SEM the researcher knows which indicator has a higher or lower relative importance in the structural model (Hair et al, 2013).

We first examined the measurement model by assessing the convergent and discriminant validities of the Big-Five personality traits and RWE variables. After removing the items with low factor loadings (i.e., < 0.6) in their intended personality dimension/trait, all variables demonstrated good psychometric properties as assessed using reliabilities, cross-loadings, and average variance extracted (AVE) (Hair Jr et al. 2013). As shown in Table 4, all constructs had Cronbach's α and CR above 0.7, thereby demonstrating excellent composite reliabilities (Hair Jr et al. 2013). All AVE values were further above 0.50, suggesting that all constructs used in the study were convergent. Additionally, the square root of the AVEs of each construct was greater than their correlation with any other constructs, indicating discriminant validity (Fornell and Larcker 1981).

Table 4 about here.

Reliabilities and Correlations

Discriminant validity was also assessed by examining items' cross-loadings (see Table 5), which were all smaller than their factor (of interest) loadings (Hair Jr et al., 2013). The measurement model also demonstrated sound psychometric properties. We further assessed the degree of multicollinearity between items and constructs by calculating variance inflation factors (VIF). All VIF values were below 3.3, indicating multicollinearity was not a concern in our data.

Table 5 about here.

Factor Cross-Loadings

We then tested the significance levels of the proposed hypotheses using a bootstrapping (500 resamples) procedure (Hair Jr and Hult 2016). The overall model, consisting of the Big-Five personality dimensions, accounted for 55% of the variance (i.e., R-squared) in RWE.

4.2. Results

Of the five proposed hypotheses, four were supported (see Table 6). As posited and expected, neuroticism is a predictor of RWE ($H_1: \beta = .14; p = .038; r = .62$), while agreeableness ($H_4: \beta = -.34; p < .0001; r = -.69$) and conscientiousness ($H_5: \beta = -.27; p < .0001; r = -.67$) associated negatively to RWE (i.e., act as protective personality traits against RWE). In addition, openness ($H_3: \beta = -.10; r = -.61$) did not exert a statistically significant effect on RWE. However, the hypothesis pertaining to extraversion ($H_2: \beta = .04; r = -.37$) was not supported.

Table 6 about here.

Regression Results

Notably, the participants' gender ($\beta = .001$), age ($\beta = .04$) and years of work experience ($\beta = -.05$) were not significant.

4.3. Discussion

Recalling associations between personality traits and exhaustion discussed in our literature review, neuroticism—as the most salient predictor of emotional exhaustion (Castillo-Gualda et al. 2019), of burnout (Hurt et al. 2013), and of psychological distress (van der Wal et al. 2016)—has also been identified herein as positively associated to RWE. Individuals' predisposition to being anxious, depressed, angry, embarrassed, worried, and insecure can permeate every aspect of their life. Thus, it is no surprise that this condition could also cause them to experience remote working modalities negatively. Extraversion, which we anticipated would act as a protective personality trait against RWE, was the only hypothetical association that did not conform to our theoretical expectations. Indeed, remote work modalities (i.e., telework) preclude casual water-cooler, or cafeteria, and other basic networking opportunities (Even 2020), during which being friendly, outgoing, talkative, and active can help pave the road or set the stage for future work-related collaborations and/or partnerships. These teamwork opportunities have been deemed critical for positive and productive working relationships (Ichniowski and Shaw 1999; Hamilton et al. 2003).

Now, we were again not surprised that openness did not exhibit a statistically significant association with RWE, insofar as no prior research has found evidence (or reported) that it could exert a statistically significant effect on exhaustion. For agreeableness, we expected a negative association with RWE, but we did not expect this association to exhibit a stronger significance than extraversion's. Furthermore, we did not expect agreeableness to exert a stronger protective (or negative) influence on RWE than conscientiousness either. This might be another consequence of the pandemic, especially for individuals with children and large families working remotely from home (Abdel Hadi et al. 2021; Galanti et al. 2021), for whom extending and

expecting kindness, tolerance and consideration may have, arguably, become the new norm, or even quite possibly the only option, for facilitating positive work-related interactions (not just to avert other colleagues' or whole team's exhaustion, but also conceivably to be able to keep their jobs).

Regarding conscientiousness, we also did not expect it to exhibit an association to RWE with a stronger significance than extraversion's. Similar to agreeableness, being (and/or being viewed by others as) efficient, competent, hardworking, dependable, and responsible appears to have become even more essential for maintaining positive remote work interactions (and perhaps just as critical as being kind, tolerant, and understanding). Thanks in part to the lack of casual networking opportunities, usually afforded by in-person meetings (from spontaneous group gatherings to large conferences) (Dua et al. 2021), it may have become somewhat easier to focus on reporting work advances and achieved milestones during remote meetings, especially those that are well planned and designed (Cao et al. 2021). In addition, sociodemographic variables (e.g., age, gender, or experience) did not have any effect on RWE, similar to other studies that have also explored associations between personality and burnout (Salami 2011; van der Wal et al. 2016).

In sum, almost all expected directional effects of personality traits (including not statistically significant ones, in the case of openness) on RWE were supported, except for extraversion's. However, there are differences in the correlations obtained in a remote work environment from those obtained in general work contexts. For instance, agreeableness was found to act as protective personality traits against RWE with $r = -.60$, while Alarcon et al. (2009) -in their meta-analyses for the relationships between employee personality and exhaustion- found the

average-weighted correlation coefficient (mean r) between agreeableness and exhaustion to be -.12. Similarly, conscientiousness associated negatively to RWE with $r = -.67$, and Alarcon et al. (2009) reported a mean r between conscientiousness and exhaustion of -.16. These differences might be attributable to the instrument (and/or the items from the instrument) used to capture personality traits in this study. And also perhaps, to the fact that here we are concerned RWE as opposed to the complete burnout construct, which is the focus of Alarcon et al. (2009). Finally, this study's data was gathered during the COVID-19 pandemic, which may have also exacerbated these differences (more on this ahead).

4.4 Research Implications

Charalampous et al. (2019) suggested that, in terms of well-being, academic research on exhaustion from remote work appears to be more concerned with remote workers' social and professional life than with their psychosomatic conditions. As an initial exploration of RWE (a remote context adaptation of work exhaustion) and how it may associate to individuals' personality traits, this study presents novel but intuitive findings. First, neuroticism can also permeate remote work environments and act as a predictor of RWE, just as it does in general (non-remote) work contexts. In addition, agreeableness and conscientiousness have been identified as protective personality traits against RWE and may have replaced extraversion in its traditional role as the most protective trait against exhaustion (Basim et al. 2013; van der Wal et al. 2016; Ntantana et al. 2017) as well as burnout (Morgan and De Bruin 2010; Salami 2011) in general work contexts.

This was an unexpected result, and more scholarly attention may be warranted in this space, since Alarcon et al. (2009) reported a mean r between extraversion and exhaustion of $-.21$ for general work contexts. However, it may simply be the case that remote working modalities limit ways in which extraversion has traditionally enabled positive work-related interactions, that in turn can help prevent exhaustion (and burnout). Moreover, since our sample included respondents from a variety of industries (please refer to Table 2), it seems likely that this finding (regarding extraversion and RWE) might also emerge in different contexts (i.e., if/when this study is replicated in other countries).

In addition, even though, RWE is a remote context adaptation of work exhaustion, which is an exhaustion component scale modified to reflect exclusively work-related fatigue and strain, there may be merit in investigating whether a shift from niceness to kindness and diligence may also be (in part) due to the pandemic itself. Indeed, this period of compulsory work/study from home has also been a particularly difficult time characterized by an extreme disconnection between family and friends (thanks to social distancing, lockdowns, limited travel, etc.) (Heshmat and Neustaedter 2021). In essence, changes in the prominence of personality traits that can help enable positive work-related relations and interactions may have been prompted by conditions inherently associated with remote working conditions imposed due to the pandemic.

4.5 Practical and Policy Implications

In light of the fact that organizations from a variety of sectors have announced plans to adopt (or are exploring the possibility of adopting) fully remote, hybrid, or partially remote working

modalities (Stoller 2021; Tayeb 2021), our findings could be used by these organizations to facilitate transitions and/or provide tailored support to employees that may require it. Indeed, as clarified in the introduction, remote working modalities might not be appropriate for everyone. As part of efforts to gauge whether it might be, HR managers of companies that have adopted (or are exploring the adoption of) remote work modalities ought to examine candidates' personality traits beyond extraversion, and further assess their agreeableness, conscientiousness and emotional stability (or neuroticism) during prospective interviews.

For instance, it seems likely that employees who rely (or have relied) mostly on establishing and building personal relationships for advancing work-related collaborations, partnerships, projects, ideas, etc., will encounter difficulties continuing to do so. This could be the case because in remote work settings, niceness appears to be less of a critical enabler of positive work relations and interactions than in general work contexts. Although extrovert employees are not likely to experience RWE, a personality trait that used to protect them against exhaustion may no longer be as effective at doing so. Moreover, extrovert employees could become less productive (and perhaps start to derive less job satisfaction), if/when they perceive remote working modalities as limiting their chances of finding synergies, or of exploring opportunities to leverage common resources, which would not only benefit themselves but their organization as well. Thus, organizations should come up with new ways for remote workers (scoring high on extraversion) to meet, interact and discuss.

With regards to remote workers scoring high on neuroticism, which is not only the most salient predictor of emotional exhaustion and of burnout, but also of RWE. In general work contexts,

coaching sessions promoting the use of mindfulness techniques to enhance individuals' emotional regulation abilities (Hülshager et al. 2013) have been found to help modulate the influence exerted by personality traits on exhaustion (Castillo-Gualda et al. 2019). Having a better grip on one's emotions, and being able to regulate them, are signs of emotional intelligence. And emotionally intelligent individuals are less likely to experience exhaustion (Colomeischi 2015). General work context methods/techniques that have helped employees cope with exhaustion, might also be effective in remote work environments (which should be explored in another study). In any case, these initiatives would align with Maslach et al. (2012) who have been arguing for interventions to prevent and/or help alleviate burnout for quite some time now (Leiter and Maslach 2018). Finally, since our findings were obtained using data gathered from 642 survey participants working in various sectors, our recommendations regarding implications for practice could extend beyond any particular industry.

5. Limitations, Future Research and Concluding Remarks

On the one hand, the work exhaustion construct (adapted to remote settings here) is not as comprehensive as the original three-dimensional burnout construct (Shih et al. 2013). Exploring how remote workers' personality traits associate with depersonalization (or cynicism) and personal accomplishment (or professional efficacy) components of burnout would be an interesting next step. On the other hand, other techniques may be used to capture remote workers' personality traits. For example, O'Neill et al. (2009) used the HEXACO personality inventory, which (besides the Big Five) also measures the honesty-humility dimension. Mojsa-Kaja et al. (2015) analyzed predictors of burnout and assessed personality traits using the

Temperament and Character Inventory (TCI). Similarly, there are other ways of capturing burnout (even country-specific ways of measuring it) while exploring how it may associate with personality traits (Persson et al. 2017).

In addition, since remote work modalities appear to be limiting how extraversion has traditionally enabled positive work-related interactions (that help prevent exhaustion). Future research could be aimed at gauging how remote work modalities, in general, may impair individuals' ability to be gregarious and cheerful, as well as specific ways in which it may enable them to continue to be so. This line of research should present interesting challenges, especially since we are not yet completely sure if a global pandemic has ended, during which exhibiting extrovert tendencies (e.g., in time-constrained Zoom meetings) may have been perceived by other remote workers (i.e., colleagues or supervisors) as unproductive, inconsequential, and perhaps even disingenuous. Relatedly, future research could help elucidate the mechanisms by which remote work settings could have agreeableness and conscientiousness replace extraversion as a prime protective trait.

Now, insofar as RWE is based on the work exhaustion construct operationalized in Moore (2000a), which aimed at ensuring that its measurement would relate exclusively to individuals' work-related fatigue and strain, our findings may still hold after the pandemic completely subsides. However, COVID-19 has had such an all-pervading, and overwhelming impact on all of our lives that any effects (e.g., psychological conditions) brought on by the pandemic itself should be teased out in future research. For instance, examining whether neuroticism could more easily lead to exhaustion in in-person work environments or to RWE in remote ones.

In addition, since family-work conflict has been found to associate negatively to remote work productivity and engagement (Galanti et al. 2021), it may be the case that for single neurotic individuals, having a controlled environment while working remotely from home could be more beneficial than for neurotic individuals with children, who may augment the daily demands of such remote workers, and increase their likelihood of experiencing exhaustion (and burnout) (Abdel Hadi et al. 2021). Finally, business scholars could focus on designing (and assessing the impact of) interventions, following the recommendations proposed in our practical implications, aimed at preventing or helping mitigate RWE.

In this study, we explored the association between individuals' (Big Five) personality traits and their likelihood of exhibiting (or of experiencing) RWE. Our findings evidenced that, as expected, neuroticism predicts RWE. In addition, agreeableness and conscientiousness were found to be protective personality traits against RWE (as opposed to extraversion, which has tended to protect against exhaustion in non-remote contexts). Based on these findings, various theoretical implications and recommendations for practice were discussed, along with limitations and avenues for future research. We hope this is one of many future studies focused on RWE, and that business and information systems scholars are successful in designing and implementing interventions aimed at helping prevent and/or mitigate RWE.

Tables

Table 1. Summary of directional associations between personality traits and burnout (with studies supporting them)

Personality trait	Burnout		
	Emotional Exhaustion (Exhaustion)	Depersonalization (Cynicism)	Personal accomplishment (Professional efficacy)
Neuroticism	Positive Zellars et al. (2004), Hurt et al. (2013), van der Wal et al. (2016), Ntantana et al. (2017), Morgan and De Bruin (2010), Salami (2011), Basim et al. (2013), Castillo-Gualda et al. (2019), Zopiatis et al. (2010), O'Neill and Xiao (2010).	Positive Zellars et al. (2004), Hurt et al. (2013), Morgan and De Bruin (2010), Salami (2011).	Negative Hurt et al. (2013), Morgan and De Bruin (2010), Salami (2011).
Extraversion	Negative van der Wal et al. (2016), Ntantana et al. (2017), Morgan and De Bruin (2010), Salami (2011), Basim et al. (2013), O'Neill and Xiao (2010).	Negative Hurt et al. (2013), Morgan and De Bruin (2010).	Positive Zellars et al. (2004), Morgan and De Bruin (2010), Salami (2011).
Openness		Negative Salami (2011).	Positive for Morgan and De Bruin (2010), Negative for Salami (2011).
Agreeableness	Negative Hurt et al. (2013), van der Wal et al. (2016).	Negative Hurt et al. (2013), Morgan and De Bruin (2010), Castillo-Gualda et al. (2019), Zopiatis et al. (2010).	Positive Hurt et al. (2013), Morgan and De Bruin (2010), Castillo-Gualda et al. (2019).
Conscientiousness	Negative Morgan and De Bruin (2010).	Negative Hurt et al. (2013), Morgan and De Bruin (2010), Salami (2011), Zopiatis et al. (2010).	Positive Hurt et al. (2013), Morgan and De Bruin (2010), Salami (2011), Zopiatis et al. (2010).

Table 2. Participants' Demographic Information

Demography	Percentage in Sample
Gender	
Female	36.5%
Male	63.5%
Work experience	
1	<1%
1-2 years	7.2%
3-5 years	32.4%
6-9 years	27.9%
10 or more years	17.0%
Industry	
Information Technology	20.1%
Finance or Insurance	14.2%
Manufacturing	14.0%
Professional, scientific or technical services	8.6%
Management of companies or enterprises	8.6%
Retail trade/wholesale trade	6.3%
Health care or social assistance	6.2%
Educational services	5.0%
Construction	3.7%
Others	13.3%
Income	
< \$50,000	27.9%
\$50,000 - \$75,000	48.0%
\$75,000 - \$100,000	20.4%
> \$100,000	3.7%
Age (continuous variable)	
Years	
Minimum	21
Maximum	70
Average	37.15

Table 3. Survey items (with variable labels)

Remote Work Exhaustion
(RWE1) Working remotely is emotionally draining.
(RWE2) Working remotely makes me feel used up at the end of the workday.
(RWE3) I feel fatigued when I get up in the morning and have to face another day working remotely.
(RWE4) I feel burned out due to working remotely.
(RWE5) Working remotely all day is really a strain for me.
Personality Traits
Agreeableness questions measured the extent to which one:
(Agree1) Is concerned for others.
(Agree2) Insults people.
(Agree3) Is interested in other people's problems.
(Agree4) Is not really interested in others.
Conscientiousness questions measured the extent to which one:
(Cons1) Leaves their belongings around.
(Cons2) Makes a mess of things.
(Cons3) Forgets to put things back.
(Cons4) Shirks their duties.
Extraversion questions measured the extent to which one:
(Extrv1) Talks.
(Extrv2) Remains in the background.
(Extrv3) Has something to say.
(Extrv4) Draws attention.
(Extrv5) Is quiet around strangers.
Openness questions measured the extent to which one:
(Open1) Understands abstract ideas.
(Open2) Is interested in abstract ideas.
(Open3) Has a good imagination.
Neuroticism questions measured the extent to which one:
(Neuro1) Gets stressed out
(Neuro2) Worries about things.
(Neuro3) Gets disturbed.
(Neuro4) Gets upset.
(Neuro5) Changes their mood.
(Neuro6) Has mood swings.
(Neuro7) Gets irritated.
(Neuro8) Feels blue.

Table 4. Reliabilities and Correlations

	α	CR	AVE	Agree	Cons	Extrv	Open	Neuro	RWE	WExp	Age	Gender
Agree	0.86	0.90	0.70	<i>0.84</i>								
Cons	0.90	0.93	0.76	0.71	<i>0.87</i>							
Extrv	0.83	0.87	0.58	0.49	0.46	<i>0.76</i>						
Open	0.82	0.89	0.74	0.72	0.69	0.47	<i>0.86</i>					
Neuro	0.93	0.94	0.67	-0.70	-0.71	-0.54	-0.69	<i>0.82</i>				
RWE	0.89	0.92	0.70	-0.69	-0.67	-0.37	-0.61	0.62	<i>0.84</i>			
WExp	1	1	1	0.31	0.28	0.14	0.21	-0.27	-0.26	<i>1</i>		
Age	1	1	1	0.09	0.01	0.05	-0.02	-0.06	-0.02	0.50	<i>1</i>	
Gender	1	1	1	0.09	-0.01	-0.01	0.06	-0.02	-0.03	0.06	0.1	<i>1</i>

Note 1: Agreeableness (Agree); Conscientiousness (Cons); Extraversion (Extrv); Openness (Open); Neuroticism (Neuro); Remote Work Exhaustion (RWE); Work Experience (WExp); Composite Reliability (CR)

Note 2: Gender coding (Male 0, Female 1)

Note 3: The square roots of average variance extracted (AVE) appear along the diagonal in bold (and italics).

Table 5. Factor Cross-Loadings

	Agree	Cons	Extrv	Open	Neuro	RWE	Exp	Age	Gender
Agree1	0.88	0.60	0.47	0.65	-0.60	-0.58	0.26	0.10	0.09
Agree2	0.74	0.56	0.33	0.47	-0.47	-0.56	0.25	0.06	0.03
Agree3	0.85	0.64	0.39	0.66	-0.65	-0.60	0.28	0.07	0.10
Agree4	0.88	0.58	0.45	0.63	-0.64	-0.56	0.26	0.09	0.08
Cons1	0.66	0.88	0.42	0.63	-0.64	-0.63	0.28	0.03	0.02
Cons2	0.57	0.84	0.35	0.54	-0.55	-0.52	0.25	0.02	-0.01
Cons3	0.64	0.89	0.41	0.62	-0.65	-0.61	0.25	0.01	-0.02
Cons4	0.61	0.89	0.44	0.62	-0.64	-0.56	0.19	-0.02	-0.04
Extrv1	0.35	0.35	0.79	0.32	-0.42	-0.27	0.09	0.04	-0.06
Extrv2	0.35	0.28	0.77	0.35	-0.37	-0.22	0.13	0.06	0.02
Extrv3	0.37	0.37	0.79	0.34	-0.43	-0.25	0.09	0.07	0.00
Extrv4	0.49	0.47	0.86	0.46	-0.49	-0.42	0.15	0.03	0.00
Extrv5	0.18	0.13	0.60	0.22	-0.31	-0.08	-0.03	-0.04	0.00
Open1	0.66	0.57	0.40	0.87	-0.58	-0.53	0.18	-0.03	0.10
Open2	0.58	0.62	0.42	0.85	-0.62	-0.54	0.18	-0.04	0.01
Open3	0.61	0.59	0.39	0.86	-0.58	-0.51	0.19	0.01	0.06
Neuro1	-0.48	-0.51	-0.43	-0.51	0.81	0.45	-0.16	-0.02	0.04
Neuro2	-0.40	-0.46	-0.42	-0.47	0.75	0.39	-0.13	-0.02	0.04
Neuro3	-0.59	-0.59	-0.46	-0.59	0.84	0.50	-0.26	-0.05	0.00
Neuro4	-0.58	-0.57	-0.43	-0.59	0.86	0.51	-0.24	-0.02	-0.01
Neuro5	-0.63	-0.64	-0.44	-0.57	0.81	0.56	-0.25	-0.09	-0.06
Neuro6	-0.65	-0.65	-0.44	-0.59	0.82	0.58	-0.27	-0.09	-0.05
Neuro7	-0.63	-0.58	-0.45	-0.58	0.83	0.52	-0.20	-0.04	-0.02
Neuro8	-0.57	-0.60	-0.47	-0.59	0.81	0.50	-0.23	-0.02	-0.02
RWE1	-0.57	-0.58	-0.32	-0.48	0.50	0.84	-0.24	-0.02	-0.02
RWE2	-0.55	-0.52	-0.27	-0.48	0.49	0.80	-0.21	-0.02	0.02
RWE3	-0.58	-0.55	-0.34	-0.54	0.55	0.85	-0.22	-0.01	-0.04
RWE4	-0.58	-0.55	-0.31	-0.52	0.53	0.84	-0.20	-0.03	-0.05
RWE5	-0.60	-0.59	-0.32	-0.55	0.54	0.86	-0.23	-0.02	-0.05
Exp	0.31	0.28	0.14	0.21	-0.27	-0.26	1.00	0.50	0.06
Age	0.09	0.01	0.05	-0.02	-0.06	-0.02	0.50	1.00	0.09
Gender	0.09	-0.01	-0.01	0.06	-0.02	-0.03	0.06	0.09	1.00

Table 6. Regression Results

Hypotheses	Betas	P Values	Hypotheses
Agree -> RWE	-0.336	P < .001	<i>Supported</i> ; Agreeableness associated negatively to RWE
Cons -> RWE	-0.267	P < .001	<i>Supported</i> ; Conscientiousness associated negatively to RWE
Open -> RWE	-0.098	Not significant	<i>Supported</i> : Openness did not exhibit a statistically significant association with RWE
Extrv -> RWE	0.042	Not significant	<i>Not Supported</i> : Extraversion did not associate negatively (or in a statistically significant manner) to RWE
Neuro -> RWE	0.138	P < .05	<i>Supported</i> ; Neuroticism associated positively to RWE
Demographic Variables	Betas	P Values	Results
Age -> RWE	0.039	Not significant	Age was found to have no effect on RWE
Gender -> RWE	0.001	Not significant	Gender was found to have no effect on RWE
WExp -> RWE	-0.051	Not significant	WExp was found to have no effect on RWE

Note 1: Agreeableness (Agree); Conscientiousness (Cons); Extraversion (Extrv); Openness (Open); Neuroticism (Neuro); Experience (Exp); Composite Reliability (CR)

Figures

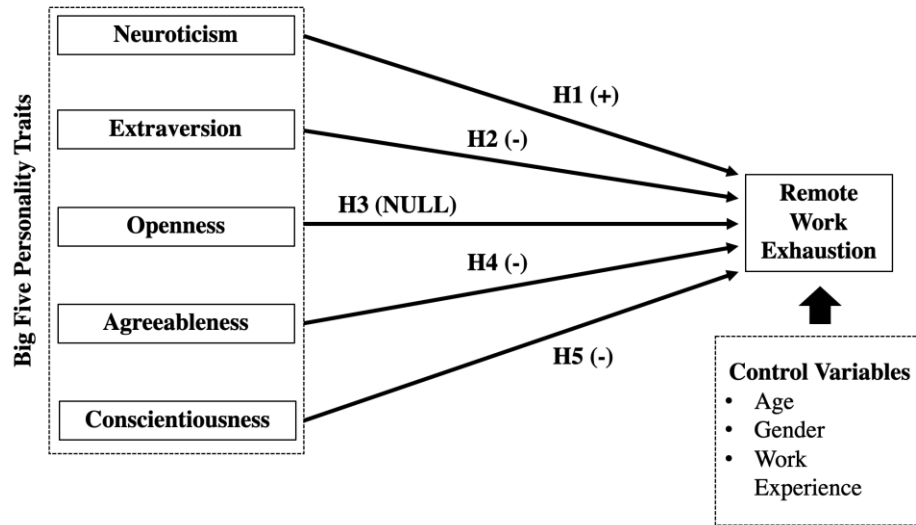


Figure 1. Hypotheses, directions and control variables

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