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Masking and cancelation effects of HEXACO domains and facets in relation to work- and study-related burnout

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ABSTRACT

Prior research has shown substantial relations between personality traits and burnout. However, this research has mainly focused on the relations with Big Five personality domains and therefore little is known regarding the relations with the HEXACO personality framework that includes a different conceptualization of affective traits (e.g., emotionality). Moreover, even less is known about the relations between the various burnout scales and personality facets that are subsumed under the six main personality domains. Specifically, such personality facets may differ in their relations with burnout subscales and therefore mask or even cancel each other out, resulting in lower or close to zero correlations at the domain level. Therefore, the current project investigated the masking and cancelation effects of the HEXACO facets and domains in relation to study-related burnout (Study 1, N = 151) and work-related burnout (Study 2, N = 796). The results show relatively consistent masking and cancelation effects of the anxiety facet of emotionality, the diligence facet of conscientiousness, and the social self-esteem and liveliness facets of extraversion in their correlations to the various burnout scales. Overall, the findings call for more consideration of specific personality facets in better understanding the relations between personality and burnout.

Burnout is a phenomenon primarily linked to work-stressors that impacts work employees (Schaufeli et al., 2009) and students (Sulea et al., 2015). Because personality may both be related to how work-stressors are perceived and dealt with, research has investigated how individual differences in Big Five personality traits are related to the experience of burnout symptoms (e.g., Kim et al., 2009; Sulea et al., 2015; see Alarcon et al., 2009 for a meta-analysis). However, given recent developments in personality psychology, this focus on the Big Five personality traits has two shortcomings. First, accumulating evidence shows that an alternative six-dimensional model, the HEXACO model of personality, might be a better representation of personality than the paradigmatic five-dimensional model (Ashton & Lee, 2020). The HEXACO model has just started to be used in research investigating the links between personality and burnout. Therefore, more research is needed to better understand how the HEXACO personality is related to burnout.

The second shortcoming is that prior research has mainly focused on the relation of burnout with – five or six – broad personality traits. However, research has shown that personality information at a lower – facet – level may result in better criterion validity (Pletzer et al., 2020, 2021). This higher validity may be caused by counteracting or inconsistent effects of facets within a personality domain that may either reduce the size of the domain-level correlation (i.e., a masking effect) or even result in a non-significant domain-level correlation (i.e., a cancelation effect) (De Vries et al., 2020).

Given these two shortcomings, our goal in the current two studies is to better understand the relations between personality and burnout using HEXACO personality domains and facets. Moreover, we test masking and cancelation effects using recently proposed procedures to test these effects (De Vries et al., 2020). In Study 1, we focused on study-related burnout among college students. In Study 2, we investigated these relations with work-related burnout in a larger nationally representative sample of Dutch employees.

1. HEXACO personality domains and facets

Personality research in the 1990s argued that personality could best be captured by five independent personality known as the Big Five

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model (Goldberg, 1993). These five personality factors are openness to experience, conscientiousness, extraversion, agreeableness, and emotional stability/neuroticism. However, more recent research has shown that six independent factors more optimally represent the personality space (Ashton et al., 2004; Ashton & Lee, 2020). These six personality factors are known by the HEXACO acronym, referring to Honesty-Humility, Emotionality, eXtraversion, Agreeableness, Conscientiousness, and Openness to Experience. The operationalization of these six factors also includes four underlying facets for each of the six domain scales. Below, all six domains are briefly discussed; definitions of the HEXACO-facets are provided in Table 1.

Honesty-humility is the biggest change compared to the Big Five model capturing the tendency to exploit others and the extent to which people feel superior to others (Ashton & Lee, 2020). Honesty-humility is represented by the facets sincerity, fairness, greed-avoidance, and modesty. Emotionality captures individual differences in the tendency to worry and feel sentimental attachment towards others and covers the facets fearfulness, anxiety, dependence, and sentimentality. Emotionality is also somewhat different from its Big Five counterpart emotional stability/neuroticism as it includes empathy-related content and lacks the Big Five's anger-related content that has shifted to HEXACO agreeableness instead making HEXACO emotionality a more balanced domain scale (Ashton et al., 2014). Extraversion captures individual differences in the tendency to capture social attention and is represented by the facets social self-esteem, social boldness, sociability, and liveliness. Agreeableness captures individual differences in compromising and cooperating with others even if others have exploited them and covers the facets forgiveness, gentleness, flexibility, and patience. Conscientiousness captures individual differences in the tendency to work hard and inhibit impulses. This domain is represented by the facets organization, diligence, perfectionism, and prudence. Finally, openness to experience captures the degree that people engage in novel ideas and covers the facets aesthetic appreciation, inquisitiveness creativity, and unconventionality.

In summary, each of the six HEXACO personality domains contains four facets. Three of the domains, extraversion, conscientiousness, and openness to experience, are conceptually similar to the Big Five model, whereas the other three domains, honesty-humility, emotionality, and agreeableness, are different when compared to the Big Five model.

2. Burnout and HEXACO personality

Burnout is defined as the inability and unwillingness to spend the necessary effort at work (including studying) for proper task completion (Schaufeli et al., 2020; Schaufeli & Taris, 2005). Early research conceptualized burnout as a multidimensional phenomenon, consisting of three subscales (1) exhaustion – feeling overextended and depleted emotionally and physically, (2) mental distance (also known as cynicism or withdrawal) – having a detached attitude towards others or/and own work, and (3) inefficacy[1] - feeling a reduced sense of personal accomplishment and satisfaction with own work (Maslach et al., 2001).

However, it has sometimes been questioned whether inefficacy is actually part of burnout (Schaufeli & Taris, 2005). Therefore, alternative burnout models have sometimes dropped inefficacy and focused on other burnout subscales such as emotional and cognitive impairment to adequately capture the inability to spend effort (Schaufeli et al., 2020).

As noted before, several studies have investigated the relations between HEXACO domains and burnout. However, these studies did not investigate the role of the underlying facets in these relations. That said, these studies found relatively consistent results (De Vries et al., 2022; Evans et al., 2021; Hendrikx et al., 2024; Kannenberg, 2022; Răducu & Stănculescu, 2022). Specifically, honesty-humility, extraversion, agreeableness, and conscientiousness have been found to be negatively related to burnout, and emotionality has been found to be positively related to burnout. However, the findings regarding openness to experience have been mixed as two studies found significant negative relations with burnout (Kannenberg, 2022; Răducu & Stănculescu, 2022) and three other studies yielded null effects (De Vries et al., 2022; Evans et al., 2021; Hendrikx et al., 2024). Some of these studies also considered the underlying burnout subscales and found consistent directional relational patterns of the HEXACO domains with the various burnout subscales, however, the sizes of the correlations often differed across the various burnout subscales (De Vries et al., 2022; Kannenberg, 2022; Răducu & Stănculescu, 2022). Therefore, these findings may be indicative of different relations of some of the HEXACO domains and/or facets to the various burnout subscales.

In summary, burnout is a multidimensional phenomenon which covers several subscales that are somewhat independent from each other and that revolve around the inability and unwillingness to spend the necessary effort in work settings because of – at least – exhaustion and mental distance. Prior studies have found that at least five of the HEXACO domains are related to burnout. However, given the multidimensional structure of burnout, it is possible that some personality domains and/or facets are more strongly related to a particular burnout subscale (e.g., exhaustion) than to other burnout subscales (e.g., mental distance). These different relational patterns of HEXACO facets may be more clearly demonstrated using the masking and cancelation effects that are described next.

3. Masking and cancelation effects

Despite the relevance of personality domains in relation to criteria such as burnout, there has been a trend towards investigating the role of facets that may offer higher validity levels in the explanation of criteria (e.g., Pletzer et al., 2020, 2021). Specifically, some facets within a given domain may relate stronger to a given burnout scale than other facets of the same domain. That is, facets from a given domain may have inconsistent or opposing relations to the criterion, either reducing the overall correlation at the domain level (i.e., a masking effect) or even completely canceling each other out at the domain level (i.e., a cancelation effect).

Recently, formal definitions of masking and cancelation effects have been proposed (De Vries et al., 2020). Specifically, De Vries et al. formalized a masking effect to be present if (a) there is a significant correlation between the domain and the criterion, (b) at least one of the facet-criterion correlations is significantly stronger than another facet-criterion correlation within the same personality domain, and (c) at least one of the two facet-criterion correlations is significantly different from the correlation between the domain and the criterion. To be clear, a masking effect is present if one of these facet-criterion correlations is significantly stronger or significantly weaker than domain-criterion correlation. For a cancelation effect to be present, all of the previously described requirements need to be met with the only difference being that the criterion-domain correlation should not be significantly different from zero.

These masking and cancelation effects can be either weak or strong. If only one facet is significantly different from the domain-criterion correlation, the masking or cancelation effect is considered weak (i.e., either one facet-criterion correlation is significantly stronger or significantly weaker than the domain-criterion correlation). If one of the two facet-criterion correlations is significantly stronger than the domain-criterion correlation and the other facet-criterion correlation is significantly weaker than the domain-criterion correlation, then the masking or cancelation effect is considered strong (De Vries et al., 2020).

In summary, two or more facet-criterion correlations may be different from each other and either reduce the domain-criterion correlation, resulting in a masking effect, or produce a non-significant domain criterion-correlation, resulting in a cancelation effects. These

[1] We changed the often-used term reduced personal efficacy into inefficacy given that reduced efficacy is somewhat confusing.

Table 1
HEXACO facet definitions.

Domain	Facet 1	Facet 2	Facet 3	Facet 4
Honesty-humility	**Sincerity** reflects the tendency to be genuine in interpersonal relations	**Fairness** reflects the tendency to avoid the exploiting others for personal gain	**Greed-avoidance** reflects individual differences in disinterest in wealth and status.	**Modesty** captures the tendency to be unassuming.
Emotionality	**Fearfulness** captures the tendency to be fearful.	**Anxiety** reflects the tendency to worry.	**Dependence** reflects individual differences in help seeking behaviors when feeling distress	**Sentimentality** captures emotional closeness to others.
Extraversion	**Social self-esteem** reflects the degree that people have a positive evaluation of themselves	**Social boldness** reflects the degree that a person takes initiative in social interactions.	**Sociability** reflects the degree that a person enjoys social interactions.	**Liveliness** reflects the degree that people are energetic and enthusiastic.
Agreeableness	**Forgiveness** reflects the willingness to trust others who have exploited them.	**Gentleness** reflects the degree that people are mild in their evaluations of others.	**Flexibility** reflects the tendency to make compromises and being non-argumentative.	**Patience** reflects the tendency to not become angry at others.
Conscientiousness	**Organization** reflects the degree that people organize their personal belongings and how much they plan ahead.	**Diligence** captures individual differences in setting ambitious goals and working hard.	**Perfectionism** reflects the degree that people try to avoid mistakes.	**Prudence** captures the degree that people give in to impulses.
Openness to experience	**Aesthetic appreciation** reflects individual differences in being interested and moved by art and the natural world.	**Inquisitiveness** captures individual differences in interest in various forms of knowledge.	**Creativity** captures the degree that someone approaches issues from novel angles.	**Unconventionality** reflects individual differences in having non-standard attitudes and ideas.

masking and cancelation effects can be either strong if both facet-criterion correlations differ from the domain-criterion correlation, or weak, if only one of the facet-criterion correlations differs from the domain-criterion correlation.

4. Present studies

In the current two studies, we set out to find out which HEXACO domains and facets are related to burnout and its subscales. Our main goal was to test our expectation that masking and cancelation effects are present within the emotionality trait in relation to burnout as we expected stronger (more positive) relations of the anxiety and fearfulness facets with burnout on the one hand and weaker relations of sentimentality and dependence (with potentially even negative relations for the latter facet) with burnout on the other hand. Specifically, in demanding work situations, high levels of anxiety and fearfulness may result in perceiving these situations as overwhelming and highly stressful rather than as challenging and therefore may be positively related to burnout (see Alarcon et al., 2009 for a similar line of reasoning regarding neuroticism). In contrast, dependence may be negatively related to burnout as individuals high in this facet may effectively deal with burnout by seeking support from close others. Sentimentality, in turn, may be weakly or even unrelated to how demanding situations are perceived or dealt with.

Therefore, *hypothesis 1 states that relatively strong positive relations of anxiety and fearfulness to the various burnout scales are masked or canceled by relatively weak or negative relations of dependence and sentimentality to the various burnout scales.*

We expect that the extraversion facet liveliness is particularly relevant to burnout as individuals high in liveliness likely feel they have sufficient energy to cope with demands and also perceive work demands in positive terms as also suggested in prior work (e.g., Alarcon et al., 2009; Bakker et al., 2014). Similarly, liveliness seems particularly relevant to seeking out energizing tasks (Hendrikx et al., 2024). The role of liveliness seems particularly important to exhaustion when compared to the other burnout scales because feeling sufficient energy to tackle demands may counteract exhaustion (Bakker et al., 2014; Hendrikx et al., 2024). That is, the energy that people high in liveliness have may help them effectively cope with demanding work and study situations more than the other three – more socially-oriented – extraversion facets, resulting in a masking effect.

Therefore, *hypothesis 2 states that a relatively strong negative relation between liveliness and exhaustion is masked by relatively weaker relations of the other three extraversion facets and exhaustion.*

Conscientiousness is also expected to be negatively related to burnout as it is positively related to engaging in behaviors such as creating job control (Hendrikx et al., 2024). However, the diligence facet seems particularly relevant to burnout as diligent individuals pursue ambitious goals and therefore may view demanding work situations as challenges rather than obstacles and therefore experience less burnout symptoms. The other conscientiousness facets may also be negatively related to burnout, however, in a relatively weaker degree as controlling impulses, avoiding mistakes, and planning ahead can help avoid stressful situations that can be caused by carelessness or planning issues. However, these three facets may be less relevant to how demanding situations are interpreted and dealt with when compared to diligence.

Therefore, *hypothesis 3 states that a relatively strong negative relation between diligence and burnout is masked by relatively weaker relations of the other three conscientiousness facets and burnout.*

Finally, we exploratorily investigated the relations between all other HEXACO domains and facets with the burnout scales to provide a better understanding of the specificity of these relations. That is, we wanted to investigate whether different facet-level patterns may be found within the HEXACO domain-level traits in relation to the various burnout scales without specifying any a-priori predictions. That is, any of these results should be treated as exploratory.

5. Study 1

5.1. Method

5.1.1. Procedure

This dataset consisted of self-reported student burnout data gathered in an online study that was coupled with self-reported HEXACO-208 data gathered during an undergraduate personality psychology course.[2] During the online study, students completed the Maslach Burnout Inventory-Student Survey (MBI-SS; Schaufeli et al., 2002).[3] During the personality psychology course, students completed the HEXACO-208

[2] The course is part of a bilingual psychology program taught in Dutch and English. However, students are required to be proficient in English to enter the program given that most of the textbooks and lectures are in English.

[3] In the online study, students also completed the GRIT scale (Duckworth et al., 2007) and the ten item IPIP Big Five Factor Marker scales of agreeableness and emotional stability (Goldberg et al., 2006). However, we only these results in Table S1.

(De Vries et al., 2016) and various other self-report instruments and tests (e.g., Dispositional Insight Test; De Vries et al., 2021). However, we did not analyze any of these additional instruments in the context of the current research. The online study and the course were ran at roughly the same time with respondents on average completing the MBI-SS 25.14 days (SD = 36.12) after the HEXACO-208. To be more specific, 9.8 % of the respondents completed both questionnaires in less than a seven-day period from each other and 15.9 % of the respondents completed the questionnaires more than a month apart from each other.[4]

5.1.2. Participants

The current study was conducted in compliance with the Research Ethics Committee of the university. We recruited 215 participants for the study who had studied for at least half a year at the university. However, we dropped the data of 64 participants as they were younger than 18 years, did not give consent to use their HEXACO-208 data for research, or gave noncompliant responses on the HEXACO-208 (Barends & De Vries, 2019). Therefore, the final sample consisted of 151 participants (35 men, 115 women, 1 other; 118 Dutch students, 27 students from other European countries, and 6 students from non-European countries, M_{age} = 21.15 years, SD_{age} = 4.09 years). In order to check the statistical power in our sample a sensitivity power analysis was conducted using G*Power 3.1.9.7 (Faul et al., 2007). The results showed that absolute correlations of r = 0.22 could be detected with 80 % power when an alpha was set at 0.05 and two-tailed testing was used. Therefore, our statistical power was just above the threshold to detect medium sized effects (i.e., r = 0.20; Funder & Ozer, 2019).

5.1.3. Materials

5.1.3.1. HEXACO-208. The HEXACO-208 is an adapted version of the HEXACO-PI-R (De Vries et al., 2016; Lee & Ashton, 2006). It consists of 208 items of which 192 items assess the six HEXACO domains (eight items per facet, four facets per domain). The remaining 16 items measure the interstitial facets Altruism (eight items) and Proactivity (eight items). Respondents could complete the HEXACO-208 in Dutch or English and were free to change the language at any time during the completion of the instrument. For each item, participants responded to a statement using a five-point Likert scale (1 = *strongly disagree*; 5 = *strongly agree*). The Cronbach's alpha reliabilities were at least 0.89 at the domain level and.69 or higher at the facet level (See Table S1).

5.1.3.2. MBI-SS. We utilized the English language version of the MBI-SS (Schaufeli et al., 2002) to assess burnout. The MBI-SS is an adapted version of the Maslach Burnout Inventory-General Survey (Schaufeli et al., 1996) and was created specifically for students. The MBI-SS consists of 15 items and three subscales: exhaustion (five items), cynicism (four items), and inefficacy (six items). Participants rated statements regarding how frequently they had certain feelings regarding their academic work on a seven-point scale (0 = *never* to 6 = *every day*). In the current project, the Cronbach's alpha reliabilities were between 0.78 and 0.87 for the burnout scales and 0.86 for overall burnout[5] (See Table S1).

[4] Given the variability in the timing between the completion of the questionnaires, we tested for interactions between the timing and the HEXACO domains and the overall burnout score. However, none of these interactions was significant after correcting for multiple testing, see Table S2.

[5] Creating an overall burnout score for MBI instruments is somewhat controversial as some take this approach (e.g., Kim et al., 2009) and others advise against it (e.g., Alarcon et al., 2009).

5.2. Results and discussion

Table 2 provides an overview of the correlations among the demographics and HEXACO domains and facets (rows) and the burnout scales (columns; see Table S1 for the full correlation matrix of all variables).

With respect to the HEXACO domain scales, Conscientiousness was the only domain that was significantly correlated to all burnout scales. Emotionality was significantly correlated to Exhaustion, but not to the other burnout scales. Extraversion was significantly correlated to Overall Burnout, Exhaustion and Inefficacy, but not to Cynicism. Honesty-Humility was only significantly correlated to Cynicism and Overall Burnout. Agreeableness was significantly correlated to Exhaustion and Overall Burnout. Finally, Openness to Experience was not significantly correlated to any of the burnout scales.

When looking at the HEXACO facet level correlations with the burnout scales, the facets generally followed the sign and size of their respective HEXACO domain correlations. However, some findings stand out. First, among each HEXACO domain at least one facet-level correlation was descriptively stronger than their domain-level correlation. However, these descriptive differences were generally small as only in three cases the difference in the correlation coefficients were descriptively $r \geq 0.10$ (i.e., twice for emotionality and once for openness to experience). Second, when we compared the multiple R's of regression models including either the six HEXACO domains or the facet with the

Table 2
Study 1 correlations between demographics, HEXACO domains and facets, and the burnout scales (N = 151).

	Exhaustion	Cynicism	Inefficacy	Overall Burnout
Gender	−0.13	−0.21**	0.04	−0.05
Age	−0.05	−0.08	−0.04	−0.08
Honesty-Humility	−0.12	−0.21**	−0.02	−0.17*
Sincerity	−0.06	−0.09	−0.03	−0.08
Fairness	−0.10	−0.22**	−0.02	−0.16*
Greed avoidance	−0.10	−0.09	0.02	−0.08
Modesty	−0.10	−0.25**	−0.05	−0.18*
Emotionality	0.17*	−0.11	−0.04	0.02
Fearfulness	0.20**	−0.07	0.07	0.09
Anxiety	0.24**	0.03	0.10	0.17*
Dependence	0.08	−0.12	−0.16*	−0.07
Sentimentality	−0.04	−0.16	−0.12	−0.13
eXtraversion	−0.22**	−0.12	−0.35**	−0.29**
Social self-esteem	−0.13	−0.13	−0.24**	−0.21**
Social boldness	−0.17*	−0.02	−0.24**	−0.18*
Sociability	−0.12	−0.07	−0.24**	−0.18*
Liveliness	−0.29**	−0.19*	−0.41**	−0.37**
Agreeableness	−0.21**	−0.13	−0.04	−0.18*
Forgiveness	−0.11	0.02	−0.03	−0.05
Gentleness	−0.14	−0.17*	−0.05	−0.17*
Flexibility	−0.14	−0.14	−0.02	−0.14
Patience	−0.24**	−0.11	−0.04	−0.18*
Conscientiousness	−0.21**	−0.19**	−0.27**	−0.29**
Organization	−0.21**	−0.15	−0.21**	−0.25**
Diligence	−0.24**	−0.20**	−0.34**	−0.33**
Perfectionism	−0.11	−0.14	−0.18*	−0.18*
Prudence	−0.02	−0.05	−0.02	−0.04
Openness to Experience	−0.01	0.04	−0.10	−0.02
Aesthetic appreciation	0.01	−0.02	0.07	−0.03
Inquisitiveness	−0.06	−0.03	−0.10	−0.08
Creativity	0.00	0.16*	−0.05	0.06
Unconventionality	0.03	0.01	−0.07	0.00
Interstitial facets				
Altruism	0.00	−0.19*	−0.09	0.12
Proactivity	−0.11	−0.10	−0.30**	−0.21*

Note. For gender, F = 0, M = 1, for this correlation we dropped one 'other' respondent.
* $p < .05$.
** $p < .01$.

strongest zero-order correlation to a specific burnout scale per domain then it was clear that the combination of six facets had higher multiple *R*'s (between 0.05 and 0.09) than the six domains for various burnout scales (see Tables S3-S7).

Third, the descriptively strongest correlations of facets were consistent within half of the HEXACO domains, namely, for honesty-humility this was modesty, for extraversion this was liveliness, and for conscientiousness this was diligence. Within the other three domains the patterns varied. Within emotionality, the strongest descriptive correlations of the facet with the burnout scales were generally unique. Anxiety was the only facet that was significantly correlated to Exhaustion and Overall Burnout, whereas Dependence was the only facet that was significantly correlated to Inefficacy, and Sentimentality had a borderline significant correlation to Cynicism. Within agreeableness, Patience was significantly correlated to Exhaustion and Overall Burnout, whereas Gentleness had descriptively the strongest correlations to Cynicism and Inefficacy (although for Inefficacy all these correlations were close to zero). Finally, Inquisitiveness was descriptively most strongly related to Exhaustion, Inefficacy and Overall Burnout, however, in none of the cases this correlation was significant. Finally, Creativity was the only facet of openness to experience that was significantly correlated to Cynicism.

5.2.1. Masking and cancelation effects

To test the descriptive differences between domains and facets, we used the procedure developed by De Vries et al. (2020) to evaluate the masking and cancelation effects. To test the differences between the facet-criterion and domain-criterion correlations, we used the Meng et al. (1992) difference test between correlated correlations. All ten potential contrasts were checked between the domain-criterion correlation and all four facet-criterion correlations and correlations were corrected for the intercorrelations between the domain and the facets.

We only report findings when the following three conditions were met: First, at least one of the facet-criterion correlations was descriptively stronger than the domain-criterion correlation. Second, the difference between either the domain-criterion correlation and a facet-criterion correlation was $r \geq 0.10$ and/or the difference between the two facet-criterion correlations was $r \geq 0.10$, with a difference in correlation of 0.10 denoting a change from a small to a medium effect size (Funder & Ozer, 2019). Third, the masking and cancelation effects were significant using the De Vries et al. (2020) procedure before correcting for multiple comparisons as the current study was underpowered when correcting for multiple comparisons. Specifically, we also noted whether or not the masking or cancelation effect was significant when adjusting the *p*-values of the various contrasts using the False Discovery Rate (Benjamini & Hochberg, 1995) per HEXACO domain across all four burnout scales. However, as can be seen, only two of these effects remained significant after correction (see Table 3). Therefore, the uncorrected findings should be interpreted with caution.

As can be seen in Table 3,[6] we found mainly weak masking and cancelation effects across the burnout scales. Moreover, these masking and cancelation effects were only consistently found for emotionality. In line with our prediction, Anxiety was descriptively always positively correlated to burnout and masked or canceled by Sentimentality and/or Dependence (this was the case in six out of the eight possible masking and cancelation effects across the four burnout scales). However, evidence regarding the role of fearfulness in comparison to sentimentality and dependence was mixed as only two out of the eight masking and cancelation effects were significant. Specifically, the positive relations of Fearfulness to Exhaustion and Overall Burnout were respectively masked and canceled by Sentimentality. These findings therefore suggest that of the negative emotionality facets only anxiety has a clearly different relation to burnout than the more interpersonally loaded facets of sentimentality and dependence. Whereas the relations of fearfulness were much less clearly differentiated from these other facets. Therefore, these findings suggest that anxiety may be particularly important in how work stressors are dealt with and/or perceived (e.g., as challenging or as overwhelming) whereas fearfulness seems less important.

Additionally, as predicted, liveliness was the extraversion facet that was sometimes masked by one or more facets. However, we did not obtain the predicted masking effect for Exhaustion but instead for Inefficacy and Overall Burnout. These relations were masked by relatively weaker, but still significant, correlations of Sociability and Social Boldness. Importantly, this finding shows that feeling energetic and optimistic is more relevant to burnout than (at least two of the three) social facets that are often considered as the core of extraversion (Ashton et al., 2002). Therefore, it seems likely that liveliness also is relevant for burnout as it may help in perceiving work demands in positive terms whereas the role of seeking out social interactions that would theoretically be more strongly related to sociability and social boldness seems less relevant to burnout than suggested in prior work (Bakker et al., 2014).

Moreover, Diligence was in most cases the conscientiousness facet that was weakly masked by the null relations of Prudence to Exhaustion, Inefficacy, and Overall Burnout. These were also the most robust finding of Study 1 that remained significant after corrections for multiple testing. It suggest that people high in diligence likely interpret stressors as challenges and therefore experience relatively few burnout symptoms whereas prudence seems unrelated to burnout. However, in contrast to our predictions, the relation of diligence was not clearly differentiated from those of perfectionism and organization in these masking effects.

Overall, the results of Study 1 suggest that there are some weak masking and cancelation effects of facets in the emotionality, extraversion and conscientiousness domains for the various burnout scales. However, we should reiterate that the current study had low power as most of these masking and cancelation effects disappeared after correcting for multiple comparisons. Therefore, the findings should be interpreted with caution.

6. Study 2

In order to replicate and extend our findings of Study 1, we conducted a pre-registered follow-up study. In this study we wanted to check whether our findings generalize to work-related burnout and to a different operationalization of burnout, namely, the Burnout Assessment Tool (BAT; Schaufeli et al., 2020). Notably, in Study 2 we recruited a more heterogenous sample in terms of occupations and ages and therefore expected (on average) that participants had selected and stayed in jobs that had a better fit with their personality profile (De Vries, 2016). Moreover, recruited a larger sample to increase our statistical power to also be able to pick up small statistical effects (i.e., $r = 0.10$; Funder & Ozer, 2019) as it is likely that fewer masking and cancelation effects were found in Study 1 due to a somewhat lower statistical power. The pre-registration can be found at https://aspredicted.org/blind.php?x=YRV_KJ4.

6.1. Methods

6.1.1. Participants and procedure

We recruited Dutch working adults using an ISO-certified panel in a two-wave study. During wave 1, 1115 respondents completed the HEXACO-208. All respondents were invited to participate one week later

[6] Note that we report the results of honesty-humility, agreeableness, and openness to experience of Studies 1 and 2 in the supplementary material as only few masking and cancelation effects were found in both studies. Moreover, none of these effects were replicated in Study 2.

Table 3
Study 1 masking and cancelation effects of the emotionality, extraversion, and conscientiousness domains and facets for the burnout scales (N = 151).

				z_{diff}			
Criterion	Domain (*r*)	Facet 1 (stronger *r*)	Facet 2 (weaker *r*)	$r_{f1\text{-}Cr} > r_{f2\text{-}Cr}$	$r_{f1\text{-}C} > r_{d\text{-}Cr}$	$r_{f2\text{-}C} < r_{d\text{-}Cr}$	Type
Exhaustion	E (0.17*)	Fearfulness (0.20*)	Sentimentality (−0.04)	2.18*	0.31	2.77**	Weak masking†
	E (0.17*)	Anxiety (0.24**)	Sentimentality (−0.04)	3.08**	1.22	2.77**	Weak masking†
	C (−0.21**)	Diligence (−0.24**)	Prudence (−0.02)	2.22*	0.48	2.28*	Weak masking†
Cynicism	E (−0.11)	Sentimentality (−0.16*)	Anxiety (0.03)	1.99*	0.69	2.14*	Weak cancelation†
Inefficacy	E (−0.04)	Sentimentality (−0.12)	Anxiety (0.10)	2.39*	1.12	2.21*	Weak cancelation†
	E (−0.04)	Dependence (−0.16*)	Anxiety (0.10)	2.91*	1.87	2.21*	Weak cancelation†
	X (−0.35**)	Liveliness (−0.41**)	Social boldness (−0.24**)	2.44*	1.16	2.15*	Weak masking†
	X (−0.35**)	Liveliness (−0.41**)	Sociability (−0.24**)	2.44*	1.16	2.01*	Weak masking†
	C (−0.27**)	Diligence (−0.34**)	Prudence (−0.02)	3.14**	1.09	2.93**	Weak masking
Overall Burnout	E (0.02)	Anxiety (0.17*)	Dependence (−0.07)	2.71**	2.38*	1.87	Weak cancelation†
	E (0.02)	Anxiety (0.17*)	Sentimentality (−0.13)	3.29**	2.38*	2.08*	Strong cancelation†
	E (0.02)	Sentimentality (−0.13)	Fearfulness (0.09)	2.09*	2.08*	0.83	Weak cancelation†
	X (−0.31**)	Liveliness (−0.37**)	Social boldness (−0.18*)	2.88**	1.71	2.20*	Weak masking†
	X (−0.31**)	Liveliness (−0.37**)	Sociability (−0.18*)	2.82**	1.71	1.96*	Weak masking†
	C (−0.30**)	Diligence (−0.35**)	Prudence (−0.04)	2.94*	0.72	2.95**	Weak masking

Note: > refers to stronger (< to weaker) correlation (whether positive or negative). Only relevant findings are reported with at least an absolute difference of $r \geq 0.10$ between two facets and/or a domain and a facet. * = $p < .05$, ** = $p < .01$, † = masking/cancelation effect no longer significant after correction for multiple comparisons using the Benjamini-Hochberg procedure. E = Emotionality, X = eXtraversion, C = conscientiousness. f1 = facet 1, f2 = facet2, d = domain, Cr = Criterion.

in wave 2 where they completed the BAT.[7]

In line with the pre-registration, we checked for noncompliant response patterns on the HEXACO-208 (Barends & De Vries, 2019). We dropped data of 22 wave 1 respondents from further analyses. For the current project we only analyzed data of respondents with complete wave 1 and wave 2 data. Therefore, the final sample consisted of 796 respondents (M_{age} = 44.83 years; *SD* = 12.25; 442 men; 354 women). That is, we had slightly more than the 779 respondents that were pre-registered. A sensitivity power analysis using G*Power 3.1.9.7 (Faul et al., 2007) indicated that we could detect small effects (i.e., $r = 0.10$; Funder & Ozer, 2019) with 80 % power with an alpha of 0.05 with two-tailed testing.

6.1.2. Measures

6.1.2.1. HEXACO-208. The HEXACO-208 questionnaire was the same as in Study 1, however, respondents could only complete the Dutch language version. The Cronbach alpha reliabilities of the domains were all 0.86 or higher and of the facets 0.65 or higher.

6.1.2.2. BAT. The BAT is a recently developed self-report instrument to assess burnout symptoms (Schaufeli et al., 2020). We used the Dutch language version tailored to the working population. The questionnaire measures four core subscales of burnout (exhaustion, mental distance, emotional impairment, and cognitive impairment) that are combined in an overall burnout scale.[8] The BAT consists of 33 items about how the respondent felt in the past week and was completed on a five-point Likert scale (1 = *never*; 5 = *always*). The items were not equally balanced across the burnout subscales as eight items were written to assess exhaustion, whereas all other core subscales were measured with five items each. Cronbach alpha reliabilities were all 0.86 or higher.

6.2. Results and discussion

Correlations of the burnout scales with the demographics, HEXACO domains, and HEXACO facets can be found in Table 4 (see Table S8 for the full correlation matrix). In this study, most of the domain-level correlations were consistent across the various burnout scales. Namely, Honesty-Humility, Extraversion, Agreeableness, and Conscientiousness were significantly negatively correlated to all burnout scales. Emotionality was positively correlated to all burnout scales, except for Mental Distance with which it had a null relation. Finally, Openness to Experience was generally not significantly correlated with any of the burnout scales, except for a positive correlation with Cognitive Impairment.

As in Study 1, most facets followed the same general direction of the domain. Again, descriptively, for all HEXACO traits there was always one facet-level correlation that was higher than the domain-level correlation. However, these descriptive differences were generally small as only six of them had a difference of $r \geq 0.10$. Notably, this was the case for all five correlations of anxiety with the burnout scales when compared to those of emotionality. Again, when we compared the multiple *R*'s of regression models including either the six HEXACO domains or the facet with the strongest zero-order correlation to a specific burnout scale per domain then it was clear that the combination of six facets again had higher multiple *R*'s (between 0.01 and 0.07) than the combination of the six domains for various burnout scales (see Tables S9-S13).

6.2.1. Masking and cancelation effects

To test the masking and cancelation effects, we conducted the same analyses as in Study 1 using the same criteria to present the results. However, the only change is that due to the higher statistical power of the current study, all reported masking and cancelation effects remained significant after corrections for multiple comparisons using the Benjamini and Hochberg (1995) procedure.

As can be seen in Table 5, we obtained many more masking and cancelation effects in Study 2 than in Study 1 and we also obtained more strong masking and cancelation effects. However, again, the majority of these masking and cancelation effects were weak. In line with our predictions, we found anxiety to be the most central facet of emotionality in relation to all burnout scales. Notably, its relation was strongly masked for exhaustion, emotional impairment, cognitive impairment, and overall burnout. Moreover, the relation of anxiety was canceled out by the other three emotionality facets for mental distance. Moreover, many of these masking and cancelation effects were strong. However, just as in Study 1, the findings showed that Fearfulness did not relate differently to burnout when compared with Sentimentality and Dependence and therefore was not involved in any masking or cancelation effects with these two facets.

Regarding extraversion, we now found the predicted masking effect

[7] We also collected data on their self-reported job demands and job resources and their work engagement. However, we do not report this data here nor in the supplemental files.

[8] Correlations of the secondary symptoms scale are reported in the supplemental files.

Table 4
Study 2 correlations between demographics, HEXACO domains and facets, and the burnout scales (N = 796).

	Exhaustion	Mental Distance	Emotional Impairment	Cognitive Impairment	Overall Burnout
Gender	0.10**	−0.03	0.07	0.07*	0.06
Age	−0.14**	−0.13**	−0.04	−0.14**	−0.14**
Honesty-Humility	−0.12**	−0.21**	−0.23**	−0.12**	−0.20**
Sincerity	−0.06	−0.08*	−0.18**	−0.09*	−0.12**
Fairness	−0.13**	−0.25**	−0.21**	−0.13**	−0.21**
Greed avoidance	−0.09*	−0.12**	−0.13**	−0.08*	−0.12**
Modesty	−0.07	−0.16**	−0.19**	−0.07	−0.14**
Emotionality	0.24**	0.03	0.19**	0.25**	0.21**
Fearfulness	0.09*	−0.01	0.05	0.09*	0.06
Anxiety	0.40**	0.22**	0.30**	0.37**	0.38**
Dependence	0.08*	−0.07*	0.11**	0.14**	0.08*
Sentimentality	0.13**	−0.07*	0.09**	0.12**	0.08*
eXtraversion	−0.34**	−0.34**	−0.26**	−0.32**	−0.37**
Social self-esteem	−0.37**	−0.36**	−0.32**	−0.35**	−0.41**
Social boldness	−0.16**	−0.17**	−0.14**	−0.19**	−0.20**
Sociability	−0.14**	−0.18**	−0.08*	−0.11**	−0.15**
Liveliness	−0.39**	−0.34**	−0.27**	−0.35**	−0.41**
Agreeableness	−0.16**	−0.14**	−0.23**	−0.16**	−0.20**
Forgiveness	−0.14**	−0.10**	−0.13**	−0.09**	−0.14**
Gentleness	−0.04	−0.06	−0.11**	−0.06	−0.08*
Flexibility	−0.13**	−0.15**	−0.18**	−0.15**	−0.18**
Patience	−0.15**	−0.11**	−0.28**	−0.17**	−0.21**
Conscientiousness	−0.07*	−0.16**	−0.16**	−0.21**	−0.18**
Organization	−0.07*	−0.08*	−0.09	−0.22**	−0.14**
Diligence	−0.11**	−0.24**	−0.15**	−0.23**	−0.21**
Perfectionism	0.06	−0.05	−0.03	0.02	0.00
Prudence	−0.09*	−0.11**	−0.20**	−0.16**	−0.16**
Openness to Experience	0.05	0.02	−0.02	0.10**	0.05
Aesthetic appreciation	0.06	−0.05	−0.00	0.08*	0.03
Inquisitiveness	0.00	0.00	−0.08*	0.03	−0.01
Unconventionality	0.05	0.13**	0.07*	0.13**	0.11**
Creativity	0.04	0.00	−0.02	0.05	0.02
Interstitial facets					
Altruism	−0.01	−0.18**	−0.12**	−0.04	−0.10**
Proactivity	−0.11**	−0.12**	−0.10**	−0.14**	−0.14**

Note. For gender, F = 0, M = 1.
* $p < .05$.
** $p < .01$.

of Liveliness for Exhaustion as its relation was masked by Sociability and Social Boldness. This same finding was also obtained when considering Emotional Impairment, Cognitive Impairment, and Overall Burnout. However, unexpectedly, this also was the case for Social Self-Esteem of which the relation to Exhaustion was also masked by the Sociability and Social Boldness facets. Moreover, our findings even showed that the masking effects of social self-esteem to burnout were more consistently masked by the weaker relations of sociability and social boldness to all the burnout scales. Therefore, these findings partially replicate our Study 1 findings that being energetic and optimistic (i.e., high liveliness) is more important than the social facets of extraversion. However, also people who are more self-confident and have a positive self-evaluation seem to experience less burnout as they are also likely not be affected to a great extent by stressors.

Regarding conscientiousness, we replicated our finding that diligence had the strongest relations to burnout as it was generally masked by one or more of the other facets for most burnout scales. The only exception was Emotional Impairment in which Diligence was not involved in any of the masking and cancelation effects. Interestingly however, the relation of Prudence was masked by null-relations of Perfectionism to both Exhaustion and Emotional impairment. However, this masking effect of prudence and exhaustion is opposite from our Study 1 finding where it had a null-relation. Therefore, it is questionable whether this finding is robust. However, the relation of prudence with emotional impairment seems logical as it may indicate that individuals low in prudence are less likely to control their emotional impulses at work.

7. General discussion

The current two studies aimed to add to the literature on HEXACO personality and burnout (De Vries et al., 2022; Evans et al., 2021; Hendrikx et al., 2024; Kannenberg, 2022; Răducu & Stănculescu, 2022) by investigating the domain and facet level correlations of the HEXACO personality traits and various burnout (sub)scales. Moreover, we investigated the masking and cancelation effects of HEXACO facets in the relation to the experience of burnout in students (Study 1) and working adults (Study 2).

First, in line with these prior studies, we found relatively consistent negative correlations between honesty-humility, extraversion, agreeableness, consciousness and the various burnout scales whereas the relation between emotionality and the burnout scales was more mixed as in about half of the relations there was a significant positive relation between emotionality and the burnout scales. Finally, openness to experience was generally unrelated to the various burnout scales.

Moreover, when considering the facets, we found that there was almost always one facet that had a descriptively stronger correlation to the various burnout scales than the domain to which the facet belonged. However, these differences were generally small as only in very few cases were these differences descriptively larger than $r = 0.10$, which is the interval that is used to distinguish between weak, medium and strong correlation coefficients (Funder & Ozer, 2019).

More formally, our masking and cancelation effects (De Vries et al., 2020) also agreed with the observation above as they were generally weak. Importantly, in most cases the difference was that one or more facets of a domain had a significantly lower correlation to burnout than the domain and another facet. However, in most of the cases the other

Table 5
Study 2 masking and cancelation effects of the emotionality, extraversion, and conscientiousness domains and facets for the burnout scales (N = 796).

				z_{diff}			
Criterion	Domain (*r*)	Facet 1 (stronger *r*)	Facet 2 (weaker *r*)	$r_{f1\text{-}Cr} > r_{f2\text{-}Cr}$	$r_{f1\text{-}C} > r_{d\text{-}Cr}$	$r_{f2\text{-}C} < r_{d\text{-}Cr}$	Type
Exhaustion	E (0.24**)	Anxiety (0.40**)	Fearfulness (0.09*)	8.55**	6.16**	4.68**	Strong masking
	E (0.24**)	Anxiety (0.40**)	Dependence (0.08*)	8.45**	6.16**	5.72**	Strong masking
	E (0.24**)	Anxiety (0.40**)	Sentimentality (0.13**)	7.04*	6.16**	3.90**	Strong masking
	X (−0.34**)	Social self-esteem (−0.37**)	Social boldness (−0.16**)	5.84**	0.95	6.60**	Weak masking
	X (−0.34**)	Social self-esteem (−0.37**)	Sociability (−0.14**)	6.16**	0.95	7.16**	Weak masking
	X (−0.34**)	Liveliness (−0.39**)	Social boldness (−0.16**)	7.84**	2.34*	6.60**	Strong masking
	X (−0.34**)	Liveliness (−0.39**)	Sociability (−0.14**)	8.34**	2.34*	7.16**	Strong masking
	C (−0.07*)	Diligence (−0.11**)	Perfectionism (0.06)	5.13**	1.08	4.28**	Weak masking
	C (−0.07*)	Prudence (−0.09*)	Perfectionism (0.06)	3.65**	0.42	4.28**	Weak masking
Mental Distance	E (0.03)	Anxiety (0.22**)	Fearfulness (−0.01)	6.38**	7.30**	1.28	Weak cancelation
	E (0.03)	Anxiety (0.22**)	Dependence (−0.07*)	7.67**	7.30**	3.58**	Strong cancelation
	E (0.03)	Anxiety (0.22**)	Sentimentality (−0.07*)	7.51**	7.30**	3.54**	Strong cancelation
	X (−0.34**)	Social self-esteem (−0.36**)	Social boldness (−0.17**)	5.50**	0.78	6.33**	Weak masking
	X (−0.34**)	Social self-esteem (−0.36**)	Sociability (−0.18**)	4.82**	0.78	5.56**	Weak masking
	C (−0.16**)	Diligence (−0.24**)	Organization (−0.08*)	4.22**	2.34*	3.03**	Strong masking
	C (−0.16**)	Diligence (−0.24**)	Perfectionism (−0.05)	5.80**	2.34*	3.67**	Strong masking
	C (−0.16**)	Diligence (−0.24**)	Prudence (−0.11**)	3.10**	2.34*	1.87	Weak masking
Emotional Impairment	E (0.19**)	Anxiety (0.30**)	Fearfulness (0.05)	6.87**	4.23**	4.36**	Strong masking
	E (0.19**)	Anxiety (0.30**)	Dependence (0.11**)	4.98**	4.23**	2.78**	Strong masking
	E (0.19**)	Anxiety (0.30**)	Sentimentality (0.09**)	5.36**	4.23**	3.44**	Strong masking
	X (−0.26**)	Social self-esteem (−0.32**)	Social boldness (−0.14**)	5.12**	2.11	4.30**	Weak masking
	X (−0.26**)	Social self-esteem (−0.32**)	Sociability (−0.08*)	6.48**	2.11	6.32**	Weak masking
	X (−0.26**)	Liveliness (−0.27**)	Social boldness (−0.14**)	4.34**	0.63	4.30**	Weak masking
	X (−0.26**)	Liveliness (−0.27**)	Sociability (−0.08*)	6.17**	0.63	6.32**	Weak masking
	C (−0.16**)	Prudence (−0.20**)	Organization (−0.09*)	2.28*	1.20	2.33*	Weak masking
	C (−0.16**)	Prudence (−0.20**)	Perfectionism (−0.03)	4.28**	1.20	4.30**	Weak masking
Cognitive Impairment	E (0.25**)	Anxiety (0.37**)	Fearfulness (0.09**)	7.68**	4.75**	4.84**	Strong masking
	E (0.25**)	Anxiety (0.37**)	Dependence (0.14**)	6.10**	4.75**	3.80**	Strong masking
	E (0.25**)	Anxiety (0.37**)	Sentimentality (0.12*)	6.46**	4.75**	4.44**	Strong masking
	X (−0.32**)	Social self-esteem (−0.35**)	Social boldness (−0.19**)	4.46**	0.84	4.90**	Weak masking
	X (−0.32**)	Social self-esteem (−0.35**)	Sociability (−0.11**)	6.43**	0.84	7.65**	Weak masking
	X (−0.32**)	Liveliness (−0.35**)	Social boldness (−0.19**)	5.24**	1.05	4.90**	Weak masking
	X (−0.32**)	Liveliness (−0.35**)	Sociability (−0.11**)	7.71**	1.05	7.65**	Weak masking
	C (−0.21**)	Organization (−0.22**)	Perfectionism (0.02)	5.80**	0.36	7.32**	Weak masking
	C (−0.21**)	Diligence (−0.23**)	Perfectionism (0.02)	7.37**	0.46	7.32**	Weak masking
Overall Burnout	E (0.21**)	Anxiety (0.38**)	Fearfulness (0.06)	8.83**	6.84**	4.44**	Strong masking
	E (0.21**)	Anxiety (0.38**)	Dependence (0.08*)	8.26**	6.84**	4.78**	Strong masking
	E (0.21**)	Anxiety (0.38**)	Sentimentality (0.08*)	7.96**	6.84**	4.55**	Strong masking
	X (−0.37**)	Social self-esteem (−0.41**)	Social boldness (−0.20**)	6.39**	1.46	6.71**	Weak masking
	X (−0.37**)	Social self-esteem (−0.41**)	Sociability (−0.15**)	7.21**	1.46	7.99**	Weak masking
	X (−0.37**)	Liveliness (−0.41**)	Social boldness (−0.20**)	7.12**	1.37	6.71**	Weak masking
	X (−0.37**)	Liveliness (−0.41**)	Sociability (−0.15**)	8.28**	1.37	7.99**	Weak masking
	C (−0.18**)	Diligence (−0.21**)	Perfectionism (0.00)	6.56**	1.34	5.75**	Weak masking

Note: > refers to stronger (< to weaker) correlation (whether positive or negative). Only relevant findings are reported with at least an absolute difference of $r \geq 0.10$. * = $p < .05$, ** = $p < .01$ (all masking and cancelation effects remain significant after conducting the Benjamini-Hochman procedure for multiple comparisons). E = Emotionality, X = eXtraversion, C = conscientiousness. f1 = facet 1, f2 = facet2, d = domain, Cr = Criterion.

facet was only descriptively stronger than the domain and in very few cases was the facet-level correlation significantly stronger than the domain-level correlation. The most consistent masking and cancelation effects were obtained within the extraversion, emotionality and consciousness domains across the various burnout scales. Particularly the masking and cancelation effects involving anxiety were generally strong, suggesting that focusing only on the emotionality domain scale may underestimate the relations of some of its facets with burnout.

Support for our hypotheses across and within the studies was mixed. Importantly, the predicted significantly stronger correlation of anxiety and fearfulness than sentimentality and dependence was only partially supported. Specifically, anxiety was consistently involved in strong masking and strong cancelation effects in Study 2 compared to all other emotionality facets. However, in the relatively underpowered Study 1, we only found this pattern of anxiety in its relation with exhaustion and overall burnout (and not always with all facets). Moreover, we generally did not find this relation for fearfulness as its relations were often much more similar to those of sentimentality and dependence than to those of anxiety. Therefore, it seems that worrying is much more important for burnout than being fearful. That is, this finding suggests that it is not general negative affect that is particularly important to burnout, but specifically the tendency to worry (cf. Alarcon et al., 2009).

We found partial support that liveliness was more central in the explanation of exhaustion than the other extraversion facets as this pattern was only found in Study 2 but only in comparisons to the rather weak correlations of the sociability and social boldness facets. Moreover, masking effects involving liveliness were found for other burnout scales in Study 1, namely, inefficacy and the overall burnout in Study 1. Similarly, in Study 2 these patterns were also found for emotional impairment, cognitive impairment and overall burnout. However, unexpectedly, social self-esteem also was involved in many of the Study 2 masking effects and its relations to the burnout scales were just as strong as those of liveliness and significantly stronger to those of social boldness and sociability. These latter two facets seem to generally capture the core of extraversion in the tendency to capture social attention (Ashton et al., 2002) whereas liveliness and social self-esteem seem to be more about having energy, being optimistic and having a positive self-evaluation. Therefore, it may be that when compared to general negative affect, general positive affect may be more important to burnout because positive affect may help people perceive stressors in a positive light and deal more adequately with demanding work situations.

In line with our prediction, diligence was also a relatively

consistently involved facet in masking effects of conscientiousness. However, it was not always clear from which other facet(s) it could be differentiated. In Study 1 it could only be differentiated from prudence and in Study 2 mainly from perfectionism. Therefore, this exact pattern is somewhat difficult to interpret. It does suggest, however, that diligence as the tendency to work hard and set ambitious goals (Ashton et al., 2004) is especially important in burnout as it may be related to perceiving stressors as challenges and adequately dealing with them (Alarcon et al., 2009). Nonetheless, more research is needed to further investigate these somewhat inconsistent masking and cancelation effects.

Finally, as reported in the supplemental files, very few masking and cancelation effects were found for honesty-humility, agreeableness, and openness to experience. Moreover, none of these few findings were consistent across the two studies and therefore we doubt whether they are robust. These findings suggest that the facets within these three domains have relatively consistent relations to burnout.

7.1. Theoretical and practical implications

There was a descriptive advantage of using personality facet level data when compared to only domain-level information given the many masking and cancelation effects that were obtained. That said, these differences were generally small (i.e., less than $r = 0.10$) and mainly involved a single facet that had a null or much weaker relation to burnout than other facets and the domain. Theoretically, this study adds to the accumulating evidence of the usefulness of considering facet-level personality data for organizational relevant outcomes (Pletzer et al., 2020, 2021), however, these gains for burnout seem somewhat modest.

Nonetheless, practically, personality information may be used to determine which individual potential employees and students are potentially at risk of developing burnout in personnel selection or counseling. Practitioners are recommended to also pay close attention to the facet level information if this is available as this may offer additional insights into the exact facet-level source of burnout when compared to information obtained from domain scores. Particularly the anxiety, diligence, liveliness, and social self-esteem facets seem to be relevant for the assessment of burnout proneness. In turn, high levels of anxiety, low levels of diligence, and low levels of liveliness and social self-esteem may be (partly) counteracted by other emotionality, extraversion, and conscientiousness facets. That is, practitioners are advised to use the facet-level personality information to help clients focus on their strengths in order to counteract potential weaknesses that may make a person susceptible to burnout.

7.2. Strengths, limitations, and directions for future research

A strength of the current studies is that we used different burnout measures and burnout subscales, which may imply that our findings are generalizable to various burnout measures and that they are not due to potential mono-operationalization biases. However, at the same time, this also poses a limitation as it makes direct comparisons between our two studies somewhat more difficult as the MBI-SS (Schaufeli et al., 2002) and BAT (Schaufeli et al., 2020) operationalize burnout subscales differently. Specifically, both instruments include an exhaustion scale and a withdrawal scale (i.e., cynicism in the MBI-SS and mental distance in the BAT) that are strongly correlated (De Beer et al., 2022). However, the BAT additionally includes cognitive and emotional impairment which is lacking in the MBI-SS. Comparatively, the MBI-SS includes an inefficacy scale that on theoretical grounds has been excluded from the BAT. Therefore, it is possible that a more consistent picture emerged in Study 2 because these burnout scales are more closely related to each other than the MBI-SS subscales as the latter scale may include a potentially less relevant burnout – inefficacy – scale (Schaufeli & Taris, 2005).

Moreover, most likely due to the lower statistical power in Study 1, few of the masking and cancelation effects remained significant when correcting for multiple comparisons. However, the larger Study 2 dataset allowed us to detect small statistical effects with sufficient power in a rather heterogenous sample and several masking and cancelation found in Study 1 were replicated in Study 2. Nonetheless, not all findings were consistent across the studies. This may reflect the different instruments as noted before, but potentially also that the studies targeted different populations (i.e., psychology students and the general workforce). Therefore, some differences may reflect differences between how personality may be related to burnout in these populations. Future meta-analytic research is needed to integrate the various relations between personality domains and facets and the burnout scales to further determine both the strength and consistency of masking and cancelation effects and to detect potential moderators such as the type of sample and instruments used.

Another limitation was that our studies employed cross-sectional designs and used self-report measures, possibly resulting in common-source and common-method biases (Podsakoff et al., 2003). However, in order to limit these effects, we separated the measurement of the personality and burnout in time with the Study 1 respondents completing the two questionnaires on average by more than three weeks apart and the Study 2 participants by one week. Additionally, various significant differences in the relations between domains and facets with burnout in both studies seem to negate the common-source and common-method concerns.

7.3. Conclusion

Our research adds to the growing body of literature relating personality to burnout. However, in contrast to prior research, we focused on personality facets instead of domains and showed that – frequently at least – one personality facet of a given domain had a significantly stronger correlation to burnout than other facets of the same personality domain – thereby masking or canceling the relation at the domain level. Therefore, although there is much value in considering the relations between personality domains and burnout, such research may underestimate the true relations between personality and burnout. At best, many of the domain-level relations are only weakly masked. At worst, some relevant relations can be overlooked when – at the domain level – personality facets cancel out each other's relations. We therefore call for more research into the role of masking and cancelation effects of personality facets in relation to impactful criteria such as burnout.

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CRediT authorship contribution statement

Ard J. Barends: Conceptualization, Formal analysis, Writing – original draft, Writing – review & editing. **Lena Gierse:** Formal analysis, Writing – original draft. **Reinout E. de Vries:** Writing – original draft, Writing – review & editing.

Declaration of competing interest

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Data availability

Data will be made available on request.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.paid.2024.112673.

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