Little systematic research on personality measures has been directed at investigating whether the Big Five are predictors of counterproductive behaviors such as absenteeism, accidents, deviant behaviors, and turnover. For example, published meta-analyses did not investigate whether the Big Five personality factors predicted these criteria. The results of the meta-analyses carried out here showed that conscientiousness predicted deviant behaviors and turnover, and extroversion, openness, agreeableness and emotional stability predicted the turnover criterion. However, none of the Big Five personality measures were found to be predictors of absenteeism or accidents. The implications of these findings for future research and practice are discussed.

Introduction

In the last ten years, several meta-analyses of the criterion-related validity of the Big Five personality dimensions carried out in America and Europe have shown that the Big Five are related to supervisory ratings of job performance and training success (Anderson and Viswesvaran 1998; Barrick and Mount 1991; Barrick, Mount and Judge 2001; Hough 1992; Hurtz and Donovan 2000; Salgado 1997, 2000). As a whole, these meta-analyses have found that conscientiousness and emotional stability are related to supervisory ratings of job performance and training success across occupational groups. In addition to this, extroversion, openness, and agreeableness have been found to be predictors for specific criteria. For example, Barrick and Mount (1991) found that extroversion predicted training success, and Barrick and Mount (1991) and Salgado (1997) found that openness to experience predicted training success. Additionally, Mount, Barrick and Stewart (1998) found that agreeableness was related to performance in jobs involving interpersonal interactions (conscientiousness and emotional stability were also found to be valid predictors in this meta-analysis). Other meta-analyses have been carried out to examine the criterion and construct validity of criterion-focused occupational personality scales (Ones and Viswesvaran 2001). This group of scales includes integrity tests, customer service scales, stress tolerance scales, and managerial potential scales. Evidence of criterion validity for predicting job performance has been found for integrity tests (Ones, Viswesvaran and Schmidt 1993), managerial potential scales (Ones, Hough and Viswesvaran 1998), and customer and service orientation scales (Frei and McDaniel 1998; Ones and Viswesvaran 1998). With regard to the construct validity of these scales, Ones (1993) has found that integrity tests are largely correlated with conscientiousness and, to a lesser degree, with agreeableness and emotional stability. These three personality dimensions were also found to be correlated with other criterion-focused personality scales (Ones and Viswesvaran 1998, 2001).

It is well known that job performance assessed as supervisory ratings and, to a lesser extent, training success are the two most investigated criteria in work settings. According to Lent, Auerbach, and Lewin (1971), between 1954 and 1966, 63% of validity coefficients of selection procedures were estimated using judgments by others (58.4% supervisory ratings and 4.6% peer evaluations) and 28% of validity coefficients were calculated using objective measures (production records = 3.6%; work samples = 0.5%; achievement tests = 12.4%; tenure = 3.5%; advancement = 5.8%; turnover = 1.2%, wages = 1.3%). Between 1980 and 1986, Landy (1989) found that 46% of validity studies used ratings, 21% used productivity measures, 5.9% used absenteeism records, 13% used turnover, 0.01% used accidents, and
12.7% used a variety of other measures as the criterion. In the case of validity studies of personality measures, the use of ratings to assess job performance may be more pervasive. For example, Barrick and Mount (1991) reported that proficiency measures were included in 68% (58% ratings) of the samples contributing data to their meta-analysis, training proficiency was used in 12% of the samples, and personnel data were available in 33% of samples. Moreover, they found that 85% of proficiency measures were job performance ratings and 90% of training success measures were training performance ratings. However, in this list of criterion categories one cannot find counterproductive work behaviors (e.g. theft, drug and alcohol use, destruction of property).

Recently, Sackett and DeVore (2001) have defined counterproductive behaviors as ‘any intentional behavior on the part of an organization member viewed by the organization as contrary to its legitimate interest’. In connection with this criterion, Sackett and DeVore (2001) have suggested that the counterproductive behaviors at work could be grouped into three categories: deviant behaviors (e.g. theft, drug and alcohol use), absenteeism (e.g. absences, lateness), and unsafe behaviors (e.g. accidents, injuries). Arguably, turnover may belong with absence-related behaviors. Some empirical results support this. For example, Koslowsky, Sagie, Krausz and Singer (1997) have meta-analyzed the relationship between lateness and turnover. They found a correlation of .27 for the turnover-lateness relationship. Additionally, Mitra, Jenkins and Gupta (1992) have found a correlation of .33 between absences and turnover. It appears that lateness, absenteeism and turnover are part of withdrawal behaviors at work.

To date, no systematic meta-analytic research of personality measures has been directed at investigating whether the Big Five are related to counterproductive work behaviors. For example, the published meta-analyses have not checked whether the Big Five personality dimensions predicted absenteeism, accidents, deviant behaviors, and turnover. A potential explanation for the lack of meta-analytic research using these criterion categories may be the small number of studies in which they were used as criteria in the early 1990s. For example, in the USA, Barrick and Mount (1991) were unable to conduct separate meta-analyses for absenteeism, turnover and tenure due to the small number of studies available. In Europe, Salgado (1997, 1998) also reported similar difficulties in carrying out independent meta-analyses for these criteria. Only the quantitative review by Hough (1992) has considered some counterproductive behaviors. Hough’s (1992) review included the criterion ‘irresponsible behaviors’, including measures of poor attendance, counterproductive behavior, disciplinary actions, not following directions, unauthorized absences, and drug and alcohol use on the job. However, Hough did not differentiate between different categories of counterproductivity. Furthermore, Hough (1992) only found four correlations for achievement and agreeableness, and two correlations for openness, each.

Nonetheless, there are currently three new developments which facilitate the goal of conducting separate meta-analyses for counterproductivity-related criteria, discussed above. First, in the field of personality, the Five Factor Model (FFM) has been consolidated as the most investigated and empirically supported model of personality (Goldberg 1995; Goldberg and Saucier 1995; Saucier and Ostendorf 1999; for critics of the FFM see, for example, Block 1995 and Eysenck 1992). Second, meta-analytic research has shown that the criterion validities of the Big Five are similar for the USA and Europe, allowing the integration of the American and European databases into one single database (Barrick et al. 2001). Third, given the positive meta-analytically established criterion-related validities for conscientiousness and emotional stability, during the last decade a large number of single studies using the Big Five personality dimensions have been carried out, using counterproductivity criteria. Consequently, the number of studies which can be meta-analyzed is larger.

The main goal of this study is to carry out a meta-analysis on the relationship between the Big Five and counterproductive behaviors at work. Based on the literature review, the following criteria will be considered in this research: absenteeism, accident rate, deviant behavior, and turnover. A description of the measures included in these criterion categories appears in Table 1. The results from prior meta-analyses (e.g. Barrick and Mount 1991; Barrick et al. 2001; Hough 1992; Mount et al. 1998; Ones 1993; Ones et al. 1993; Ones and...
Hypothesis: Agreeableness, conscientiousness and emotional stability will be valid predictors for all counterproductive behaviors.

Method

Search for Studies

Based on the goals of this research, a database was developed containing American validity studies as well as European validity studies. These studies had to meet two criteria in order to be included within the database: (a) to report on validity coefficients relating personality measures and counterproductivity; and (b) to report on applicant, employee or trainee samples, but not students. The search for American studies was made using three strategies. First, a computer search was conducted in PsycLit (January 1990–December 1999). Second, an article by article manual search was carried out in the Journal of Applied Psychology, Journal of Occupational and Organizational Psychology, Personnel Psychology, International Journal of Selection and Assessment, and Journal of Organizational Behavior.

Third, the reference section of articles obtained was checked to identify further papers. Finally, several well-known American researchers were contacted in order to obtain additional papers and supplementary information relating to published papers (e.g. complete matrix of correlation coefficients).

The strategy used to find European studies for the meta-analyses was similar to the strategy used to obtain American studies. In order to identify studies, a computer search using the PsycLit database was carried out (January 1990-December 1999). Second, a manual article-by-article search was conducted through European behavioral science journals which were most likely to present data on the validity of personality measures. Third, nine European publishers of psychological material were contacted for validity studies of personality instruments. Finally, 25 European researchers were contacted and asked for published and unpublished papers on the topic under study.

Combining the published and unpublished studies conducted in both America and Europe from 1990 to 1999, the final database contained 13 independent samples with absenteeism as the criterion, 9 with accidents, 17 with deviant behaviors, and 5 with turnover. As can be seen, there are a few correlations reported for some predictor-criterion combinations in the meta-analysis which could suggest that the data cannot allow sound conclusions. However, it should be taken into account that the stability of the estimate is mainly dependent on the sample sizes and the meta-analyses were carried out with sample sizes in the hundreds or even in the thousands in all cases. Furthermore, meta-analyses with a small number of correlations in some cells have been carried out when the area of investigation is theoretically relevant and important (see, for example, Ackerman and Heggestad 1997).

Procedure

Two researchers served as judges in classifying the personality scales into the Big Five personality factors, and the classification was made using two strategies. First, those studies in which inventories developed within the FFM had been used were identified and the scales from those inventories were assigned to each Big Five according to the paper author’s classification. This task was facilitated as a large number of validity coefficients were obtained using well-known questionnaires based on the five factor model, e.g. HPI (Hogan and Hogan 1995), NEO-PI-R (Costa and McCrae 1992), and PCI (Barrick and Mount 1993). The second strategy was used for the non-FFM based inventories and involved two steps. Firstly, each researcher was given a description of the Big Five as presented by Digman (1990), together with the descriptors provided by Costa and McCrae (1992) and Hogan and Hogan (1995). Second, each researcher was then given a list and a definition of the personality scales from each inventory. If the two researchers agreed on a dimension, the scale was coded in that dimension. A disagreement was solved by discussion until the researchers agreed on a dimension. The agreement between researchers (prior to the consensus) was .91, .90, .84, .87, .93 for emotional stability, extraversion, openness to experience, agreeableness, and conscientiousness, respectively. All scales were then assigned to a single Big Five factor. For each scale, only one overall validity coefficient was used. In situations with more than one coefficient for a Big Five, validities were averaged and this last value was used to calculate the validity of a composite for those scales, using the formula provided by Hunter and Schmidt (1990). In order to apply this formula, the average number of scales used to estimate each Big Five was used.

Frequently, in meta-analyses of validity coefficients, three statistical artifacts are taken into account when true validity is to be estimated. These artifacts are predictor and criterion unreliability and range restriction. In order to correct the observed validity for these artifacts, the most common strategy is to develop specific distributions.

Criterion Reliability

In the present research, the following measures were used as criteria: absenteeism, accident, deviant behavior, and
turnover. In order to obtain a reliability distribution of each criterion measure, three strategies were used: (a) previous meta-analyses reporting on the reliability of criterion measures were used as the main information source for the present meta-analysis; (b) large-sample single studies were consulted; and (c) original reliability generalization studies were carried out when meta-analyses or large-sample studies were lacking the necessary information (e.g. accidents). Thus, based on John’s (1994) meta-analysis, an average reliability of .67 (SD = .13) was used for absenteeism. Interestingly, a similar average reliability for absenteeism was also reported by Schmidt and Rader (1999), who found an average reliability of .64 (SD = .16). For accidents, a reliability of .45 (SD = .23) was used; based on a meta-analysis conducted with accident reliability coefficients. For deviant behaviors, the value used was .69 (SD = .09) based on Ones et al.’s (1993) meta-analysis. Based on Mathieu and Zajac’s (1990) meta-analysis, a value of .84 (SD = .05) was used for the turnover category. A summary of these criterion reliability distributions appears in Table 2.

**Predictor Reliability**

The reliability of predictors was estimated: (a) from the coefficients reported in the studies included in the meta-analysis; (b) using the coefficients published in the various questionnaire manuals; and (c) from I/O psychology articles in which these data were reported. For each personality dimension, a reliability distribution was estimated. The average reliabilities were .81, .79, .74, .76, and .81, for emotional stability, extraversion, openness, agreeableness, and conscientiousness, respectively. The predictor reliability estimates are only used to eliminate artifactual variability in the variability of validity coefficients because in personnel selection the interest is on the operational validity of the Big Five (validity coefficient corrected unreliability in the criterion and range restriction, but not unreliability in the predictor). Table 3 presents a summary of these artifact distributions.

**Range Restriction Distribution**

The distribution for range restriction values was based on: (a) range restriction coefficients obtained from the studies that reported both restricted and unrestricted standard deviations for personality scales; and (b) range restriction coefficients was obtained using the reported standard deviation in the study as the SD of the restricted sample and the standard deviations reported in test manuals as the unrestricted SD. This last strategy was examined by Sackett and Ostgaard (1994) for cognitive ability tests and by Ones and Viswesvaran (1999) for personality scales. According to these authors, the strategy of using national norms’ SDs is a warranted practice as they found that the SD of job applicants on personality measures is about 2 to 9% less than those based on the national norms. Following these strategies, five range restriction distributions were developed, one for each Big Five personality dimension. The average range restrictions were .76 (SD = .27), .78 (SD = .21), .83 (SD = .34), .78 (SD = .30), and .80 (SD = .26) for emotional stability, extraversion, openness, agreeableness and conscientiousness, respectively. A summary of these distributions appears in Table 4.

### Table 2. Summary of reliability distributions used for the Big Five personality dimensions

<table>
<thead>
<tr>
<th>Component</th>
<th>$r_{yy}$</th>
<th>SD</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absenteeism</td>
<td>.67</td>
<td>.13</td>
<td>John (1994)</td>
</tr>
<tr>
<td>Accidents</td>
<td>.45</td>
<td>.23</td>
<td>Original meta-analysis</td>
</tr>
<tr>
<td>Deviant behaviors</td>
<td>.69</td>
<td>.09</td>
<td>Ones et al. (1993)</td>
</tr>
<tr>
<td>Turnover</td>
<td>.84</td>
<td>.15</td>
<td>Mathieu and Zajac (1990)</td>
</tr>
</tbody>
</table>

### Table 3. Summary of reliability distributions used for the criterion categories

<table>
<thead>
<tr>
<th>Dimension</th>
<th>$r_{xx}$</th>
<th>SD</th>
<th>Number of coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Stability</td>
<td>.81</td>
<td>.08</td>
<td>52</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.79</td>
<td>.09</td>
<td>54</td>
</tr>
<tr>
<td>Openness to Experience</td>
<td>.74</td>
<td>.10</td>
<td>42</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.76</td>
<td>.08</td>
<td>50</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.81</td>
<td>.07</td>
<td>60</td>
</tr>
</tbody>
</table>
Results

Table 5 presents the results of the meta-analyses of the five personality dimensions for predicting counterproductive behaviors. Results in Table 5 are presented in criterion alphabetical order. It was hypothesized that emotional stability, agreeableness and conscientiousness would be predictors of all criterion types. However, a look at Table 5 shows that the hypothesis was not fully supported by the data.

The first criterion that appears in Table 5 is absenteeism. The results show that no Big Five dimensions were predictors of this criterion type, as their operational validity coefficients were all very small, ranging from $-0.06$ to $0.08$. Moreover, all 90% credibility values included zero, and therefore, not even in the case of extraversion, which showed an operational validity of $-0.08$, was it possible to conclude that, even minimally, there was small validity generalization. Consequently, with regard to the absenteeism criterion, the hypothesis was not supported.

The second criterion shown in Table 5 was the accident rate criterion. Similar to the absenteeism criterion, none of the Big Five were predictors of accident rates. Furthermore, the sizes of the operational validities were very small in all cases, ranging from $-0.09$ to $0.08$, and in all cases the credibility intervals contained zero. Accordingly, the data failed to support the hypothesis in this case.

The third criterion analyzed was deviant behavior. The findings showed that conscientiousness and agreeableness were valid predictors of the deviant behavior criterion and, additionally, showed validity generalization. The operational validity for conscientiousness was $0.26$ and $0.20$ for agreeableness. All the observed variability for these two dimensions was explained by statistical artifacts corrected for. These results partially supported the hypothesis.

The last criterion examined was turnover. Lack of turnover was predicted by all the Big Five personality dimensions. The best predictor of lack of turnover was emotional stability with an operational validity of $0.35$, followed by conscientiousness with an operational validity of $0.31$, and agreeableness with $0.22$. These results fully supported the hypothesis. These findings for turnover suggest that emotional stability, conscientiousness, and agreeableness are major determinants of turnover.

Discussion

This study follows a tradition established at the beginning of the last decade of using the Big Five personality dimensions as a taxonomy to study the relationships between personality and job-related behaviors. The findings of this meta-analysis suggest several relevant conclusions. First, conscientiousness was a generalizably valid predictor of deviant behaviors and turnover. Agreeableness was a generalizably valid predictor of deviant behaviors and turnover. Emotional stability, extraversion and openness were predictive of turnover.

Second, conscientiousness did not predict all the criteria used in this study. In fact, conscientiousness did not predict absenteeism and accident rate. In the case of accidents, a possible explanation for the results is that accidents are by definition out of the volitional control of individuals and conscientiousness is largely a volitional trait (e.g. conscientiousness assesses hard-working nature, persistence, dependability, responsibility, achievement). However, the same explanation may not hold for absenteeism due to the fact that this criterion is partially under the control of individuals.

Recently, Ones and Viswesvaran (1996b) have suggested a theory of conscientiousness at work, according to which highly conscientious individuals show greater productivity than less conscientious individuals because: (a) they spend more time on task(s) they are assigned; (b) they acquire greater job knowledge; (c) they set goals autonomously and persist in following them; (d) they go beyond role requirement in the workplace; and (e) they avoid counterproductive behaviors. Implicit in this theory is the fact that conscientious individuals are better workers than less conscientious people because they control their work-related behaviors.
Taken as a whole, these findings only partially supported the hypothesis stated, as conscientiousness was not a valid predictor of some criteria. The findings also supported the suggestion by Hough (1999) and Robertson and Callinan (1999) that general conscientiousness might not be a good predictor for some criteria.

Some limitations of this study must be noted. A first limitation is that, in some cases, the number of studies included in meta-analyses was small. A second limitation is that both FFM personality measures and non-FFM measures were clustered in order to carry out the meta-analyses. However, previous research has noted that the FFM-based measures may have larger validity than non-FFM based measures (Salgado 2000). A third limitation is that combinations of criteria-occupations-personality dimensions were not analyzed because the number of studies was too small.

The immediate future research agenda in this area should include the conducting of more primary studies. Also, additional primary studies as well as meta-analyses should be conducted in order to check if the sub-dimensions of the Big Five have more, equal or less operational validity than the broader dimensions. Until now, there has been no consensus with regard to the necessary specific sub-components of the Big Five and how well specific inventories assess such subcomponents. Recently, Saucier and Ostendorf (1999) showed that 18 sub-components define the broad personality factors. Emotional stability would be defined by irritability (low), insecurity (low), and emotionability (low). Extraversion would be defined by sociability, unrestraint, assertiveness, and activity. Openness to experience would be defined by intellect, imagination-creativity, and perceptiveness. Agreeableness would be defined by warmth-affection, gentleness, generosity, and modesty-humility. Finally, conscientiousness would be defined by orderliness, decisiveness, reliability, and industriousness.

Hough and Ones (2001) have also provided a working list

Table 5. Results of the meta-analyses of the Big Five alternative criteria combinations

<table>
<thead>
<tr>
<th>Personality dimension</th>
<th>K</th>
<th>N</th>
<th>(r_w)</th>
<th>SD_r</th>
<th>rho</th>
<th>SD_rho</th>
<th>%VE</th>
<th>90%CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absenteeism (Lack of)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Stability</td>
<td>12</td>
<td>2,491</td>
<td>-.03</td>
<td>.14</td>
<td>-.04</td>
<td>.19</td>
<td>26</td>
<td>.20</td>
</tr>
<tr>
<td>Extraversion</td>
<td>10</td>
<td>1,799</td>
<td>-.05</td>
<td>.03</td>
<td>-.08</td>
<td>.25</td>
<td>19</td>
<td>.24</td>
</tr>
<tr>
<td>Openness to Experience</td>
<td>8</td>
<td>1,339</td>
<td>-.00</td>
<td>.08</td>
<td>-.00</td>
<td>.00</td>
<td>106</td>
<td>.00</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>8</td>
<td>1,339</td>
<td>-.03</td>
<td>.06</td>
<td>-.04</td>
<td>.00</td>
<td>155</td>
<td>.04</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>10</td>
<td>2,155</td>
<td>.04</td>
<td>.10</td>
<td>.06</td>
<td>.10</td>
<td>52</td>
<td>-.07</td>
</tr>
<tr>
<td>Accidents (Lack of)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Stability</td>
<td>5</td>
<td>2,121</td>
<td>.04</td>
<td>.09</td>
<td>.08</td>
<td>.15</td>
<td>29</td>
<td>-.12</td>
</tr>
<tr>
<td>Extraversion</td>
<td>7</td>
<td>2,341</td>
<td>.02</td>
<td>.12</td>
<td>.04</td>
<td>.20</td>
<td>21</td>
<td>-.22</td>
</tr>
<tr>
<td>Openness to Experience</td>
<td>5</td>
<td>1,660</td>
<td>-.05</td>
<td>.07</td>
<td>-.09</td>
<td>.07</td>
<td>63</td>
<td>.02</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>4</td>
<td>1,540</td>
<td>.00</td>
<td>.06</td>
<td>.01</td>
<td>.04</td>
<td>86</td>
<td>-.05</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>6</td>
<td>2,094</td>
<td>.03</td>
<td>.08</td>
<td>.06</td>
<td>.10</td>
<td>52</td>
<td>-.07</td>
</tr>
<tr>
<td>Deviant Behavior (Lack of)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Stability</td>
<td>15</td>
<td>3,107</td>
<td>.04</td>
<td>.11</td>
<td>.06</td>
<td>.14</td>
<td>38</td>
<td>-.12</td>
</tr>
<tr>
<td>Extraversion</td>
<td>12</td>
<td>2,383</td>
<td>-.01</td>
<td>.14</td>
<td>-.01</td>
<td>.18</td>
<td>27</td>
<td>.23</td>
</tr>
<tr>
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<td>1,421</td>
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<td>.13</td>
<td>-.14</td>
<td>.14</td>
<td>38</td>
<td>.05</td>
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<tr>
<td>Agreeableness</td>
<td>9</td>
<td>1,299</td>
<td>.13</td>
<td>.09</td>
<td>.20</td>
<td>.02</td>
<td>98</td>
<td>.18</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>13</td>
<td>6,276</td>
<td>.16</td>
<td>.07</td>
<td>.26</td>
<td>.03</td>
<td>92</td>
<td>.18</td>
</tr>
<tr>
<td>Turnover (Lack of)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Stability</td>
<td>4</td>
<td>554</td>
<td>.25</td>
<td>.06</td>
<td>.35</td>
<td>.00</td>
<td>374</td>
<td>.35</td>
</tr>
<tr>
<td>Extraversion</td>
<td>4</td>
<td>554</td>
<td>.14</td>
<td>.11</td>
<td>.20</td>
<td>.09</td>
<td>66</td>
<td>.08</td>
</tr>
<tr>
<td>Openness to Experience</td>
<td>4</td>
<td>554</td>
<td>.11</td>
<td>.03</td>
<td>.14</td>
<td>.00</td>
<td>872</td>
<td>.14</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>4</td>
<td>554</td>
<td>.16</td>
<td>.08</td>
<td>.22</td>
<td>.00</td>
<td>148</td>
<td>.22</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>5</td>
<td>748</td>
<td>.23</td>
<td>.07</td>
<td>.31</td>
<td>.00</td>
<td>212</td>
<td>.31</td>
</tr>
</tbody>
</table>

Notes: K = number of independent samples; N = total sample size; \(r_w\) = observed validity; SD_r = standard deviation of observed validity; rho = validity corrected for criterion reliability and range restriction in predictor; SD_rho = standard deviation of rho; %VE = percentage of variance accounted for by artifactual errors; 90CV = 90% credibility value.
of sub-dimensions for the Big Five, along with a list of personality scales assessing each sub-dimension. I suggest these frames of sub-components of the Big Five for guiding future studies in which it can be tested whether or not the Big Five or the sub-components linked to criteria have larger operational validities. In a similar vein, future research should also compare the validities found for compound personality traits (e.g. composed of multiple Big Five dimensions or sub-dimensions) to those found for the Big Five here. Hough and Ones (2001) also offer a working list of compound traits and scales measuring them.

In sum, the present study has offered some meta-analytic evidence that personality measures are valid predictors of two additional categories of work-related behaviors: deviant behaviors and turnover. For other criteria (e.g. absenteeism and accidents), the potential reasons behind the null findings reported in this study will need to be explored. Some of these may include potential moderators of criterion-related validity, including nature of criterion measurement (organizational records, self-reports, etc.) and behavioral legitimacy (e.g. excused vs. unexcused absences).

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Note: * indicates studies included in the meta-analysis.

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