Linking Big Five Personality Domains and Facets to Alcohol (Mis)Use:
A Systematic Review and Meta-Analysis

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Preregistration of the study plan and study-level data for the present meta-analysis are archived in the Open Science Framework online repository at <https://osf.io/ezwkm/>.

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Abstract

Aims: The goal of this investigation was to synthesize (un)published studies linking Big Five personality domains and facets to a range of alcohol use outcomes. Meta-analyses were conducted to quantify the unique associations between alcohol use outcomes and each Big Five personality domains over and above other domains. Within each domain, meta-analyses also were conducted to examine the unique contribution of each personality facet in alcohol use outcomes. **Methods:** Systematic literature reviews were performed in PsycINFO and PubMed using keywords related to alcohol use and personality. Peer-reviewed and unpublished studies were screened and coded for the meta-analyses. Eighty independent samples were subjected to correlated effects meta-regressions. **Results:** Over and above other Big Five personality domains, both conscientiousness and agreeableness were negatively correlated with alcohol consumption, risky/hazardous drinking, and negative drinking-related consequences. Facet-level analyses indicated that deliberation and dutifulness were uniquely associated with alcohol (mis)use over and above other conscientiousness facets, and compliance and straightforwardness were uniquely associated with alcohol (mis)use over and above other agreeableness facets. Extraversion—namely excitement seeking—was correlated with alcohol consumption, whereas neuroticism—namely impulsiveness and angry hostility—was correlated with negative drinking-related consequences. **Conclusions:** Personality characteristics are robust correlates of alcohol (mis)use. Examining relevant narrowband traits can inform mechanisms by which personality affects drinking behaviors and related problems, and ways to enhance clinical interventions for alcohol use disorder. Gaps in this literature and future research directions are discussed.

Short Summary

Meta-analytic results revealed that greater conscientiousness and agreeableness were consistently linked to lower levels of alcohol consumption, risky/hazardous drinking, and negative drinking-related consequences when accounting for other Big Five personality domains. Meta-regression analyses identified robust personality facets that likely underlay the associations between alcohol (mis)use and conscientiousness, agreeableness, extraversion, and neuroticism.

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Half of the world's population consume alcohol in a given year (WHO, 2016). In the United States, 70% of adults report past-year alcohol consumption and 30% of the population meet criteria for alcohol use disorder (AUD) across the lifetime (Grant et al., 2017). Yet, less than 10% of Americans with AUD seek or complete alcohol treatment (NIAAA, n.d.). Without treatment, natural recovery (i.e., abstinence or low-risk drinking) can take up to 11 years (Sobell et al., 2000). Alcohol misuse can exacerbate other mental health conditions including depression, and is linked to adverse personal and societal consequences (e.g., liver diseases, premature deaths) (NIAAA, n.d.). Considering the health impact of alcohol (mis)use, it is important to identify robust determinants of alcohol consumption, problematic drinking, and negative drinking-related consequences.

Alcohol misuse and other internalizing and externalizing symptomatology often co-occur; personality traits are considered to be fundamental determinants of alcohol use outcomes (Castellanos-Ryan et al., 2016; Ellingson et al., 2016). Particularly, the Big Five personality traits have received the most empirical attention. Research has shown how each of the Big Five domains is correlated with alcohol (mis)use (Malouff et al., 2007). Still, it is relatively unclear the degree to which these personality traits are associated with drinking-related outcomes over and above one another, and which personality facets drive the associations between the broader domains and alcohol (mis)use. Our study was aimed to provide a systematic review of (un)published studies linking Big Five personality domains and facets to a range of alcohol use outcomes.

Big Five Personality Traits and Alcohol (Mis)Use

Alcohol consumption and drinking-related problems are multiply determined. Per a motivational model of alcohol use, individuals' decision to consume alcohol is influenced by genetic and biochemical vulnerabilities, personality predispositions, sociocultural and environmental factors, and expectations about the roles of alcohol (Cox & Klinger, 1988). Researchers have conceptualized personality traits not only as intermediate phenotypes of genetic influences of alcohol (mis)use (Oreland et al., 2018), but important drivers for motivations to drink and the mannerism in drinking. Personality-targeted interventions have shown feasibility and utility in preventing alcohol misuse and other addictive behaviors (Newton et al., 2016; O'Leary-Barrett et al., 2016). Although associations between personality and alcohol (mis)use have been examined in participants recruited across countries (e.g., North America and Europe), across age cohorts, and in predominantly White samples, sexual minority individuals, university students, and workers (Hakulinen et al., 2015; Liu et al., 2009; Livingston et al., 2015; Mushquash et al., 2014; Raynor & Levine, 2009), findings have been mixed regarding the magnitude of these associations.

Five Factor Model of Personality

The Five Factor Model (FFM) is the most empirically supported model of personality (Costa & McCrae, 1992; Goldberg, 1990). FFM is a hierarchical structure with broadband and narrowband personality characteristics measured at the domain and facet level, respectively (McCrae et al., 1998). Within the FFM, the Big Five traits include neuroticism (tendency to experience negative emotions and/or thoughts), extraversion (tendency to be sociable, energetic, dominant, and experience positive emotions), openness (degree of intellectual, artistic, and experiential curiosity), agreeableness (tendency to get along with others and be cooperative), and conscientiousness (tendency to be responsible, reliable, organized, and follow rules or social

norms). Big Five domains are linked to childhood temperament (Rothbart, 2007), demonstrate high levels of self-other agreement (Connelly & Ones, 2010), tend to replicate across cultures (McCrae et al., 1998; but see De Raad & Peabody, 2005), and are relatively stable over adulthood (Donnellan et al., 2015; Roberts et al., 2006). Big Five personality domains also have demonstrated robust correlations with important life outcomes including physical health, job performance, and psychopathology (e.g., Ozer & Benet-Martínez, 2006; Roberts et al., 2007). Relative to domains, personality facets represent more nuanced characterizations of individual differences. Facets can provide incremental validity in predicting life outcomes over and above their respective domains (e.g., Anglim & Grant, 2016). Nevertheless, it remains unclear the extent to which each Big Five domain uniquely contributes to alcohol (mis)use over and above the other domains, and which facets within each domain drive the associations between domains and alcohol use outcomes.

Possible Pathways Linking Personality to Alcohol (Mis)Use

Individual differences in personality are considered important factors that underlie people's propensity to experience certain emotions, and motivations to alter and achieve desirable affective states; these emotions and motives in turn affect drinking-related outcomes (Cooper et al., 2000; Cox & Klinger, 1988). Distinctive etiological pathways are implicated in the associations between Big Five personality traits and alcohol (mis)use. For example, neuroticism-affiliated traits showed relatively stronger correlations with coping-motivated drinking, whereas extraversion-affiliated traits showed relatively stronger correlations with social reasons to drink (Cooper et al., 2015; Kuntsche et al., 2006). Although some research suggested that neuroticism was associated with hazardous drinking by way of negative emotions and coping motives (e.g., Chinneck et al., 2018), there has been no consistent support for this

mechanism in cross-sectional or longitudinal research (Armeli et al., 2000; Ebbert et al., 2018). Less studied than extraversion- and neuroticism-affiliated traits, evidence indicated that lower levels of conscientiousness and agreeableness were linked to greater hazardous drinking because individuals were more likely to “give in” to antisocial alcohol consumption and were less likely to adopt adult roles and responsible conduct (e.g., Lee et al., 2015). Despite conceptual foundations, existing findings from separate studies do not paint a clear, comprehensive picture about how Big Five personality traits are associated with various alcohol use outcomes.

Need for An Updated Research Synthesis

Two published meta-analytic reviews have synthesized research on Big Five personality and alcohol (mis)use. The systematic review by Malouff et al. (2007) contained 20 published studies and examined the correlations between each personality domain and a range of alcohol use and treatment outcomes (e.g., drinker status, consumption). Another meta-analysis by Kotov et al. (2010) estimated the associations between Big Five personality and AUD classification (and other psychological disorders); however, this study did not consider other aspects of drinking behaviors and consequences. Whereas these existing reviews summarized the associations linking each personality domain and alcohol use outcomes, it was unknown how neuroticism, extraversion, openness, agreeableness, and extraversion were associated with alcohol (mis)use over and above one another. Additionally, neither of the published meta-analyses examined alcohol (mis)use and Big Five personality facets. This gap is important because facet-level analyses can clarify which components of each Big Five domain drive the association with alcohol use behaviors, thereby providing insight into potential mechanisms that contribute to alcohol (mis)use (Naragon-Gainey & Simms, 2017). The two existing reviews also only included published research; the possible effects of publication bias were unclear. Finally,

many new studies have emerged in the past 10 years; hence, an updated, comprehensive review of the published and unpublished research is needed to examine the links between alcohol (mis)use and the Big Five traits. In this study, we aimed to (1) quantify the associations between alcohol use outcomes and Big Five personality domains, and facets, and (2) identify study and participant characteristics that might moderate these associations.

Method

Literature Search, Screening, and Data Extraction

Best practices for systematic reviews and meta-analyses were followed (Pigott & Polanin, 2019). Study design and methodological procedures were registered and archived in the Open Science Framework repository (<https://osf.io/egzpc/>; <https://osf.io/5agtn>), using a template from the PROSPERO International Prospective Register of Systematic Reviews. The PRISMA flowchart shows our procedures for literature search, screening, and data extraction (see Figure 1). We conducted two rounds of literature searches in 2017 and 2020 using PsycINFO and PubMed.¹ Search terms included (*personality AND alcohol*), (*(big 5 OR big five OR five factor model OR FFM) AND (alcohol OR drinking)*). Personality-related keywords also included Big Five domains (e.g., *neuroticism*) and facets (e.g., *irritability, sociability*), and traditional FFM measures (e.g., *NEO Personality Inventory, Big Five Inventory*).² Records were included if they (1) were peer-reviewed articles, book chapters, or theses/dissertations, (2) contained quantitative data measuring alcohol (mis)use or alcohol treatment outcomes, and Big Five personality domains and/or facets, and (3) were written in English. Studies that did not assess personality

¹ The first search was conducted during February-March 2017 to collect records of peer-reviewed articles published prior to January 2017. The second search was conducted during February-March 2020 to collect records of peer-reviewed articles published between February 2017 and March 2020, and book chapters and unpublished theses/dissertations available to date.

² See supplemental materials for a complete list of search terms, which also served as eligibility criteria for the meta-analysis.

using traditional Big Five personality measures were excluded. Studies were excluded if alcohol use outcomes were not disaggregated from other substance use outcomes. We did not limit studies to any research designs.

Search results were managed in Zotero; duplicated records were consolidated, and all study records were exported into Microsoft Excel spreadsheets for screening and coding. To capture the grey literature and reduce selection bias in our comprehensive review, we solicited unpublished data from researchers via email and on four academic listservs for personality and/or alcohol researchers. To determine the eligibility for our meta-analyses, article titles and abstracts were evaluated in primary screening whereas full texts were evaluated in secondary screening. All study team members screened 40 abstracts during training to ensure interrater reliability. Abstracts were then divided randomly among six study team members, who independently conducted primary screening. Each record was screened by two study team members and the first author randomly screened 10% of the abstracts for verification. We included abstracts for full-text screening if they were deemed eligible by both coders. We also included abstracts for further evaluation in the secondary screening stage if they were coded differently across study team members. Study records that met inclusion criteria for full-text screening were divided among two study team members, and the first author screened them independently. The first and third authors extracted study information for data analysis. Screening and coding occurred iteratively. Study team members met regularly to address possible systematic variability in the inclusion and exclusion decisions; discrepancies were resolved through discussions.

Effect sizes in the form of Pearson's correlation coefficients, zero-order odds ratios, and comparative group descriptive statistics (e.g., means and standard deviations) were extracted for

analyses. (Semi)-Partial correlations were not included. Among study records that met inclusion criteria but did not report zero-order effect sizes, we requested such information and solicited unpublished data from corresponding authors. Information about the study, sample characteristics, and effect sizes linking Big Five traits with alcohol use outcomes was recorded into an Excel codebook and a Comprehensive Meta-Analysis (CMA) datafile. Data from 80 independent samples were included in our analyses.

Data Analyses

Data analyses were conducted in CMA and in *R* using *metafor* and *robumeta* packages.³ All retrieved effect sizes were converted into Fisher's *z* scores for analyses, and then converted to Pearson's *r* coefficients for interpretation. Using CMA, we conducted preliminary univariate meta-analysis to assess the bivariate correlation between each personality domain/facet and alcohol consumption, hazardous drinking, and negative drinking-related consequences. Each study contributed multiple effect sizes for the correlation of each Big Five domain with at least one outcome. Given the within-study effect size dependencies, we used robust variance estimation (RVE) to specify the effect size models (Hedges et al., 2010; Tipton, 2015).

We fit random-effects, correlated effects models assuming a correlation (ρ) of 0.8 between effect sizes in each study and examined the results' sensitivity to different ρ values.⁴ We fit a meta-regression model to estimate the association between each Big Five domain and each outcome, controlling for all other domains. The meta-regression model was a no-intercept effect size model with dummy codes for each Big Five domain:

³ Interested readers may refer to: Viechtbauer, W. (2010). Conducting meta-analyses in *r* with the *metafor* package. *Journal of Statistical Software*, 36(3), 48, and Fisher, Z., Tipton, E., & Zhipeng, H. (2017). Package '*robumeta*.' Retrieved from <https://cran.r-project.org/web/packages/robumeta/robumeta.pdf>

⁴ We were unable to use a correlated, hierarchical effects model (CHE) because of the imbalance in the number of effect sizes per study.

$$z_{ij} = x_{ij}\beta + u_j + e_{ij}$$

where z_{ij} is the Fisher's z estimate i from study j , x_{ij} is a row vector of dummy codes for each Big Five domain with no intercept term, and β is a vector of regression coefficients for each Big Five domain. The error term, e_{ij} , is the sampling error with $E(e_{ij})=0$, and the $\text{Var}(e_{ij})$ is the sampling variance of z_{ij} . The error term u_j is the variance in the effect size parameters not accounted for by the covariates. The correlated effects model assumes intercorrelated effect estimates within studies (assumed $\rho=0.8$) but uncorrelated effect estimates from different studies.

Finally, we conducted meta-regression analyses to examine the degree to which participant and study-level characteristics explained between-study variability in the associations between personality traits and alcohol (mis)use. Participant characteristics associated with mean age and percentage of women were entered as covariates in each meta-regression model containing Big Five domains. Study-level characteristics associated with assessment interval, personality measurement, and sampling type (university versus others (e.g., community, clinical)) were entered as covariates in a separate set of meta-regressions. Although assessment of study quality is common in meta-analyses concerning interventions and other randomized controlled trials, similar criteria to evaluate study quality as a potential source of bias are not applicable for our investigation. Our investigation contained observational data with similar study characteristics and designs, and well-validated measures of personality and common indicators of alcohol use. Thus, we did not apply guidelines used to evaluate the quality of experimental studies.

Results

Table 1 summarizes key information from each study sample (see supplemental materials for references). We extracted study and sample characteristics and 1,345 individual effect sizes

linking personality and alcohol (mis)use from 64 study records published during 1994-2020 and unpublished datasets. Data came from 63,074 participants across 80 independent samples ($N_{range}=30-10,094$; median $M_{age}=21.1$; M_{age} range=9.6-68.9; median 62.4% women). Participants were recruited from primarily college ($k=41$) and community ($k=24$) settings; few focused on clinical samples ($k=6$). Studies were conducted using English predominantly ($k=53$) and in North American and European countries (e.g., $k=40$, United States and Canada; $k=6$, Spain; $k=5$, United Kingdom and Scotland). US/Canadian samples were predominantly White (median 75.4%, limited variability across studies). There were 48 samples reporting effect sizes pertaining to alcohol consumption, 16 to hazardous/risky drinking, and 38 to negative drinking-related consequences.⁵ The NEO Inventories ($k=52$), the Big Five Inventory ($k=11$), and the International Personality Item Pool (IPIP; $k=7$) were the most common instruments used to assess personality domains (and facets when appropriate). Although 19 samples used a longitudinal design, only 8 of them yielded prospective associations between personality and alcohol (mis)use.

Associations Between Personality and Alcohol (Mis)Use

Table 2 summarizes results from the correlated effects meta-regressions with all Big Five domains in the model. Over and above other Big Five traits, conscientiousness (consumption $r=-.155$, $p<.001$; risky/hazardous drinking $r=-.153$, $p<.001$; negative consequences $r=-.155$, $p<.001$) and agreeableness (consumption $r=-.092$, $p<.001$; risky/hazardous drinking $r=-.095$, $p=.032$; negative consequences $r=-.117$, $p<.001$) were negatively associated with all three alcohol use outcomes. Additionally, extraversion was associated with greater alcohol

⁵ Alcohol consumption included drinking status, frequency of drinking/drunkenness in any specified periods, quantity of standardized alcoholic beverages or volume of alcohol. Risky and hazardous drinking included whether or not individuals engaged in binge drinking and its frequency. Negative drinking-related consequences included personal or social problems associated with alcohol use, and alcohol use disorder diagnoses.

consumption ($r = .165, p < .001$) and neuroticism with greater negative drinking-related consequences ($r = .110, p = .001$). Overall patterns of results in correlated effects meta-regressions were similar to the results from univariate meta-analyses (see Table S1 for results from 105 separate meta-analyses linking each Big Five personality trait to each alcohol use outcome).

Table 3 summarizes results from correlated effects meta-regressions testing which personality facet(s) might drive the associations between their respective domains and alcohol consumption, and negative drinking-related consequences.⁶ Over and above other facets of conscientiousness, deliberation ($r = -.182, p = .023$), dutifulness ($r = -.111, p = .015$), and order ($r = -.082, p = .016$) were statistically significantly associated with alcohol consumption. In terms of agreeableness, straightforwardness ($r = -.156, p = .005$), compliance ($r = -.104, p = .014$), and modesty ($r = -.059, p = .015$) were uniquely linked to alcohol consumption over and above other facets. Adjusting for all other facets of extraversion, only excitement seeking was a statistically significant correlate of alcohol consumption ($r = .211, p = .009$). Finally, impulsiveness was the only statistically significant neuroticism facet that correlated with consumption ($r = .158, p = .027$), although domain-level meta-regression showed nonsignificant unique association between neuroticism and alcohol consumption. With regard to negative drinking-related consequences, all six facets of conscientiousness were statistically significant correlates in the meta-regression model. Results indicated that the association between agreeableness and negative drinking-related consequences was uniquely accounted for by straightforwardness ($r = -.128, p = .037$) and compliance ($r = -.107, p = .044$). Furthermore, negative drinking-related consequences were statistically significantly correlated with four facets of neuroticism:

⁶ There were only two study samples that contributed to facet-level correlations pertaining to risky/hazardous alcohol use; thus, we were unable to conduct the meta-regression analyses for this outcome.

impulsiveness (N5; $r = .195$, $p = .010$), angry hostility (N2; $r = .136$, $p < .001$), depression (N3; $r = .107$, $p = .010$), and vulnerability (N6; $r = .102$, $p = .016$).

Moderator Analyses

Table 4 summarizes the results regarding whether sample and study design characteristics explained the variability in the associations between personality domains and alcohol (mis)use. We found that sample mean age, percent women, concurrent measurement (yes versus not), personality instrument (NEO Inventories versus other instruments), and sample type (university students versus others) did not account for statistically significant between-study variability in the associations among personality domains and alcohol use outcomes. Some of the meta-regression models included only 14 independent samples; hence, our moderator analyses likely were underpowered. Moderator analyses were not performed in meta-regressions correlating personality facets and alcohol use outcomes, given the small number of samples contributing to these effect sizes.

Discussion

Our study synthesized research on the associations between Big Five personality traits and alcohol use outcomes. This investigation was the only comprehensive meta-analytic review that included published and unpublished data, examined the unique associations of each Big Five domain over and above the others, and explored facet-level correlations with alcohol (mis)use. Furthermore, our use of RVE analyses adjusted for within-study effect size dependence. Across Big Five domains, lower levels of conscientiousness and agreeableness were the most robust unique predictors of alcohol consumption, risky/hazardous drinking, and negative drinking-related consequences. Over and above conscientiousness and agreeableness, extraversion was another unique predictor of alcohol consumption whereas neuroticism was a unique predictor of

negative drinking-related consequences.

Some of our observed patterns concerning conscientiousness corroborated results in previous meta-analyses on alcohol use, and health behaviors in general (Hakulinen et al., 2015; Malouff et al., 2007). People who are conscientious are less prone to engage in risky and problematic drinking; they also may be more likely to monitor their alcohol consumption and mannerism in drinking. For example, people who are more planful and self-disciplined are more likely to engage in protective behavioral strategies that reduce negative drinking-related consequences (Martens et al., 2009). Furthermore, individuals higher in conscientiousness likely are more deterred from hazardous alcohol use because of its potential adverse impact on their life obligations and goals (Gates et al., 2016).

Agreeableness has been an understudied correlate of alcohol use outcomes, and other psychopathology symptoms (Lynam & Miller, 2019). Considering alcohol to be a societally controlled psychoactive substance, it was reasonable that we observed negative associations between agreeableness and alcohol (mis)use. On the one hand, individuals with greater antagonistic tendencies may disregard social norms, and therefore consume alcohol more frequently or intensely despite negative personal/social consequences. On the other hand, alcohol misuse may lead to individuals becoming less straightforward regarding their alcohol use because of shame and/or fear of judgment (Farber, 2020). Thus far, the directionality in the correlations between agreeableness-related traits and alcohol (mis)use is unclear because most studies relied on concurrent measurements of personality and drinking outcomes. More research is needed to examine how agreeableness-related traits may present as vulnerabilities and/or consequences of normative and problematic drinking.

Although the meta-analysis by Malouff et al. (2007) did not identify a robust correlation

between extraversion and overall alcohol involvement, we found that extraversion—namely excitement seeking—might promote higher levels of alcohol consumption. Prior research showed that university students who were more extraverted might be more likely to gravitate toward physical environments and social affiliations that promoted greater alcohol use (e.g., Greek fraternities and sororities) (Park et al., 2008). Yet, extraversion and social-environmental contexts that reinforce positive affect may not pose risk for negative drinking-related consequences. Consistent with existing knowledge, neurotic vulnerabilities are robustly linked to drinking problems. For example, individuals who engage in coping-motivated drinking are prone to experience negative affect, have limited adaptive coping strategies, and endorse positive expectancies about the effects of alcohol (Armeli et al., 2000; Blevins et al., 2016). Our results revealed that the impact of neuroticism may be driven by low tolerance for frustration and stress, anger, and depression, but not necessarily anxiety-proneness.

It is worth noting that the Big Five facets that demonstrated unique associations with alcohol (mis)use coincided with the multiple dimensions of disinhibition/impulsivity, including lack of planning and persistence, and tendency to seek new and exciting experiences, and positive and negative urgency (Coskunpinar et al., 2013). Our results corroborated with research demonstrating the promise of personality-targeted prevention and treatment programs for alcohol misuse. Specifically, interventions that focus on disinhibition, negative affectivity, and sensation seeking have been shown to reduce odds of alcohol consumption and severity of hazardous drinking in youth (Conrod et al., 2013; Newton et al., 2016; O’Leary-Barrett et al., 2016). Our results suggested additional facets that would be helpful in personality-targeted interventions.

Limitations and Future Research

Most studies included in this meta-analysis focused on (White) university students

drinking in Western sociocultural contexts. Relatively little is known about how Big Five traits are associated with drinking-related outcomes in other segments of the population and cultural contexts. The current number of samples and small between-study variability in their characteristics likely limited our statistical power in exploring moderator effects in the associations between Big Five personality and alcohol use outcomes. Future research should examine the equivalence of existing personality instruments across groups and cultures (e.g., Lui et al., 2019), and consider broadband and narrowband personality traits in alcohol (mis)use in understudied and marginalized populations.

There is research demonstrating the clinical relevance of Big Five traits in treatment for various forms of psychopathology (e.g., Bagby et al., 2008; Papamalis, 2020). Despite our planned scope, our meta-analysis did not contain studies that assessed the links between personality and alcohol treatment outcomes. Additionally, there were more investigations focusing on personality domains than on facets. Except one (unpublished) study sample, all facet-level information came from the NEO Inventories and the IPIP-NEO. This observation is not surprising, given that other faceted measures have not been available until recently (Watson et al., 2017). Unlike the Big Five domains, however, there is no consensus in the number or makeup of traits at the facet level. It also is worth noting that alcohol use outcomes and interactions between traits may differ at the person level. For example, the positive link between extraversion and alcohol consumption may be reduced by high levels of conscientiousness but accentuated by low levels of conscientiousness (Kinnunen et al., 2012). Future research can benefit from tapping narrowband traits and using person-centered approaches to describe how alcohol use outcomes might be affected by the interplay of multiple personality facets (Bucher & Samuel, 2020).

Finally, our results were based on almost exclusively observational designs and self-reported data (with the exception for the use of clinical diagnoses by trained professionals). Our systematic review also revealed that there were many more cross-sectional than prospective investigations in the current literature. Hence, meta-analyzed correlational estimates do not indicate causal relations linking personality and drinking outcomes. The etiological relevance of personality traits to alcohol use outcomes and the mechanisms that underlie their associations can vary across between-person and within-person levels (Mackinnon et al., 2014). Scientific understanding of the possible effects of personality on alcohol (mis)use would be advanced by more (intensive) longitudinal studies.

To conclude, conscientiousness and agreeableness were the most robust correlates of alcohol (mis)use over and above other Big Five traits. Extraversion was uniquely correlated with alcohol consumption whereas neuroticism was uniquely correlated with negative drinking-related consequences. Our examination of facets helped deepen scientific understanding of what might underlie the associations between Big Five domains and alcohol (mis)use. Reducing individuals' negative affectivity, negative urgency, and sensation seeking, and enhancing individuals' behavioral and cognitive patterns associated with deliberation, dutifulness, order, and compliance may be important avenues to pursue in the prevention and treatment of AUD.

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Data Availability: Data used for the present meta-analyses are available for public access in the Open Science Framework repository (<https://osf.io/ezwkm/>).

Table 1*Characteristics and Effect Size Information of Study Samples Included in the Meta-Analysis (n = 80)*

Study	N	M _{age}	Age Group	% F	Ctry	% White (USA only)	Sample	Study Design (ES Type)	Language	Personality Measure (D/F)	Alcohol Variable
Arbeau (2009)	81	21.5	Emerging/ Young adult	56.0	CAN	N/A	College	Cross-sectional (Concurrent)	English	NEO-FFI (D)	Hazardous use
Baldasaro et al. (2013)	1261	29.1	Emerging/ Young adult	NR	USA	52.0	Community	Longitudinal (Concurrent)	English	Mini-IPIP (D)	AUD diagnosis
Beijers et al. (2014)	2033	NR	Middle adult	100	NLD	N/A	Clinical	Longitudinal (Concurrent)	NR	NEO-FFI (D)	Frequency Drink status
Benjamin & Wulfert (2005)	343	19.6	Emerging/ Young adult	40.0	UK	N/A	College	Cross-sectional (Concurrent)	English	Other (D)	Frequency
Bogg et al. (2016)	355	20.5	Emerging/ Young adult	51.2	USA	42.8	College	Cross-sectional (Concurrent)	English	BFI (D)	Frequency Average quantity
Bratko et al. (unpublished)	732	18.6	Youth/ Adult	57.0	HRV	N/A	Community	Cross-sectional (Concurrent)	Non-English translation	NEO-FFI (D)	Frequency
Brown (2004)	129	40.6	Adult	58.1	USA	0	Community	Cross-sectional (Concurrent)	English	NEO-PI-R (D&F)	AUD diagnosis
Brown et al. (2017)	110	NR	Adult	0.0	CAN	N/A	Community	Cross-sectional (Concurrent)	English	NEO-FFI (D)	Negative consequences
Butkovic & Dopudj (2017)	249	NR	Youth/ Adult	0.0	HRV	N/A	Community	Cross-sectional (Concurrent)	English	IPIP-50 (D)	Frequency
Chassin et al. (2004)	757	26.6	Emerging/ Young adult	48.1	USA	74.6	Community	Longitudinal (Concurrent & Prospective)	English	NEO-FFI (D)	AUD diagnosis QF
Clark et al. (2012)	142	21.2	Emerging/ Young adult	69.0	UK	N/A	College	Cross-sectional (Concurrent)	English	NEO-FFI (D)	Quantity

Table 1, cont. Study	<i>N</i>	<i>M</i> _{age}	Age Group	% F	Ctry	% White (USA only)	Sample	Study Design (ES Type)	Language	Personality Measure (D/F)	Alcohol Variable
Creswell et al. (2019)	1295	44.6	Adult	52.7	USA	83.5	Community	Cross-sectional (Concurrent)	English	NEO-PI-R (D&F)	AUD diagnosis
Dash et al. (2019)	3785	32.0	Adult	64.0	AUS	N/A	Community	Cross-sectional (Concurrent)	English	NEO-PI-R (D)	AUD diagnosis
Davis et al. (2020)	2082	31.8	Adult	63.9	AUS	N/A	Community	Cross-sectional (Concurrent)	English	NEO-PI-R (D)	AUD diagnosis
de Moor et al. (2011) S1	3999	41.8	Middle adult	0.0	NLD	N/A	Community	Longitudinal (Concurrent)	NR	NEO-FFI (D)	Negative consequences
de Moor et al. (2011) S2	6291	41.8	Middle adult	0.0	NLD	N/A	Community	Longitudinal (Concurrent)	NR	NEO-FFI (D)	Negative consequences
Donadon & Osorio (2016)	220	53.8	Middle adult	0.0	BRA	N/A	Clinical	Cross-sectional (Concurrent)	Non-English translation	NEO-FFI-R (D)	AUD diagnosis
Donovan (2009)	250	20.2	Emerging/Young adult	67.2	USA	83.6	College	Cross-sectional (Concurrent)	English	BFI (D)	Average quantity
Eensoo et al. (2005) S1	331	33.0	Middle adult	0.0	EST	N/A	Community	Cross-sectional (Concurrent)	NR	NEO-PI (F)	Negative consequences
Eensoo et al. (2005) S2	331	33.0	Middle adult	0.0	EST	N/A	Community	Cross-sectional (Concurrent)	NR	NEO-PI (F)	Negative consequences
Gallego et al. (2018) S1	120	13.7	Youth	51.6	SCT	N/A	Grade school	Cross-sectional (Concurrent)	English	NEO-PI-3 (D)	Frequency Quantity (weekend)
Gallego et al. (2018) S2	221	13.5	Youth	54.8	ESP	N/A	Grade school	Cross-sectional (Concurrent)	Non-English translation	NEO-PI-3 (D)	Quantity (weekend)
Goldstein & Flett (2009)	138	18.9	Emerging/Young adult	70.3	CAN	N/A	College	Longitudinal (Concurrent)	English	TIPI (D)	Negative consequences Binge frequency Average quantity

Table 1, cont. Study	<i>N</i>	<i>M</i> _{age}	Age Group	% F	Ctry	% White (USA only)	Sample	Study Design (ES Type)	Language	Personality Measure (D/F)	Alcohol Variable
Gotham et al. (1997) S1	124	21.2	Emerging/ Young adult	0.0	USA	95.0	College	Longitudinal (Concurrent & Prospective)	English	NEO-FFI (D)	Frequency
Gotham et al. (1997) S2	164	21.2	Emerging/ Young adult	100.0	USA	95.0	College	Longitudinal (Concurrent & Prospective)	English	NEO-FFI (D)	Frequency
Hadesman (2003)	128	34.1	Adult	5.5	USA	41.3	Clinical	Cross- sectional (Concurrent)	English	NEO-FFI (D)	Negative consequences
Hair & Hampson (2006)	178	20.3	Emerging/ Young adult	100.0	UK	N/A	College	Cross- sectional (Concurrent)	English	BFI (D)	QF
Huhra (2008)	500	41.9	Adult	4.6	USA	18.4	Clinical	Longitudinal (Concurrent & Prospective)	English	NEO-PI-R (D)	Hazardous use
Ibáñez et al. (2015)	361	15.2	Youth	58.7	ESP	N/A	Grade school	Cross- sectional (Concurrent)	Non- English translation	NEO-PI-R (F)	Negative consequences Binge frequency Quantity (weekday and weekend) Negative consequences
Joseph et al. (2013)	91	30.6	Middle adult	0.0	IND	N/A	Community	Cross- sectional (Concurrent)	English	Other (D)	Negative consequences
Kanafani (2015)	181	21.4	Emerging/ Young adult	39.0	LBN	N/A	College	Cross- sectional (Concurrent)	NR	NEO-FFI-3 (D)	Frequency QF
Kashdan et al. (2005) S1	222	19.0	Emerging/ Young adult	100.0	USA	87.6	Community	Cross- sectional (Concurrent)	English	NEO-FFI (D)	Quantity Quantity
Kashdan et al. (2005) S2	199	19.0	Emerging/ Young adult	0.0	USA	87.6	Community	Cross- sectional (Concurrent)	English	NEO-FFI (D)	Quantity
Kuntsche et al. (2008)	2090	23.5	Emerging/ Young adult	64.1	CHE	N/A	College	Cross- sectional (Concurrent)	Non- English translation	NEO-FFI (D)	Binge frequency Quantity

Table 1, cont. Study	<i>N</i>	<i>M</i> _{age}	Age Group	% F	Ctry	% White (USA only)	Sample	Study Design (ES Type)	Language	Personality Measure (D/F)	Alcohol Variable
Kwapil et al. (2008)	204	20.2	Emerging/ Young adult	77.5	USA	71.4	College	Cross- sectional (Concurrent)	English	NEO-PI-R (D&F)	Negative consequences, AUD diagnosis, Frequency Frequency
Lac & Donaldson (2019)	433	19.0	Emerging/ Young adult	43.0	USA	62.0	College	Cross- sectional (Concurrent)	English	BFI (D)	
Lac & Luk (2018)	505	19.1	Emerging/ Young adult	69.9	USA	62.8	College	Longitudinal (Concurrent)	English	BFI (D)	Frequency
Lefkowitz et al. (2018)	739	18.4	Emerging/ Young adult	49.3	USA	44.7	College	Cross- sectional (Concurrent)	English	IPIP (D)	Frequency
Little et al. (2013)	941	NR	Youth	55.5	AUS	N/A	Community	Longitudinal (Concurrent & Prospective)	English	Other (D)	Negative consequences Frequency Risky drinking AUD diagnosis
Littlefield et al. (2011)	2904	NR	Emerging/ Young adult	100.0	USA	NR	Community	Cross- sectional (Concurrent)	English	NEO-PI (D)	
Loose et al. (2018)	690	NR	Youth/ Emerging adult	68.3	FRA	N/A	Mixed	Cross- sectional (Concurrent)	Non- English translation	BFI (D)	Hazardous use
Loose et al. (2019)	549	22.0	Emerging/ Young adult	71.6	FRA	N/A	Community	Cross- sectional (Concurrent)	Non- English translation	BFI (D)	Hazardous use
Luchetti et al. (2018a)	5380	44.4	Adult	58.2	ITA	N/A	Community	Cross- sectional (Concurrent)	NR	NEO-PI-R (D&F)	Quantity
Luchetti et al. (2018b)	10094	68.9	Adult	58.8	USA	82.9	Community	Longitudinal (Concurrent & Prospective)	English	Other (D)	Negative consequences
Luht et al. (2018)	483	15.3	Youth	54.0	EST	N/A	Community	Longitudinal (Concurrent & Prospective)	Non- English translation	Other (D&F)	Frequency

Table 1, cont. Study	<i>N</i>	<i>M</i> _{age}	Age Group	% F	Ctry	% White (USA only)	Sample	Study Design (ES Type)	Language	Personality Measure (D/F)	Alcohol Variable
Martin (2011)	181	20.9	Emerging/ Young adult	70.7	USA	78.3	College	Cross- sectional (Concurrent)	English	BFI (D)	Negative consequences QF
Martin & Sher (1994) S1	222	21.3	Emerging/ Young adult	0.0	USA	85.5	College	Longitudinal (Concurrent)	English	NEO-FFI (D)	AUD diagnosis
Martin & Sher (1994) S2	246	21.3	Emerging/ Young adult	100.0	USA	85.5	College	Longitudinal (Concurrent)	English	NEO-FFI (D)	AUD diagnosis
Martin et al. (2015)	153	19.7	Emerging/ Young adult	100.0	USA	81.0	College	Cross- sectional (Concurrent)	English	TUPI (D)	Negative consequences Binge frequency
Martin et al. (2020) S1	513	19.9	Emerging/ Young adult	69.0	USA	75.0	College	Cross- sectional (Concurrent)	English	BFI (D)	Negative consequences Binge frequency
Martin et al. (2020) S2	391	20.7	Emerging/ Young adult	63.0	PRT	N/A	College	Cross- sectional (Concurrent)	Non- English translation	BFI (D)	Negative consequences Binge frequency
McAdams & Donnellan (2009)	385	NR	Emerging/ Young adult	66.4	USA	72.8	College	Longitudinal (Concurrent)	English	IPIP-NEO (D&F)	Negative consequences Quantity
Mercado (2013) S1	1143	23.4	Emerging/ Young adult	73.8	USA	0.0	College	Cross- sectional (Concurrent)	English	NEO-PI-R (D)	AUD diagnosis
Mercado (2013) S2	323	21.1	Emerging/ Young adult	71.9	MEX	N/A	College	Cross- sectional (Concurrent)	Non- English translation	NEO-PI-R (D)	AUD diagnosis
Merenäkk et al. (2003) S1	581	9.6	Youth	52.2	EST	N/A	Grade school	Cross- sectional (Concurrent)	Non- English translation	Other (D)	Frequency
Merenäkk et al. (2003) S2	591	15.4	Youth	56.0	EST	N/A	Grade school	Cross- sectional (Concurrent)	Non- English translation	Other (D)	Frequency
Mezquita et al. (2010)	521	20.0	Emerging/ Young adult	76.0	ESP	N/A	College	Cross- sectional (Concurrent)	Non- English translation	NEO-FFI (D)	Negative consequences QF

Table 1, cont. Study	<i>N</i>	<i>M</i> _{age}	Age Group	% F	Ctry	% White (USA only)	Sample	Study Design (ES Type)	Language	Personality Measure (D/F)	Alcohol Variable
Mezquita et al. (2015)	738	23.3	Adult	63.7	ESP	N/A	Mixed	Cross-sectional (Concurrent)	Non-English translation	NEO-PI-R (D)	Negative consequences Quantity (weekday and weekend)
Motos Selles et al. (2015)	123	18.2	Emerging/ Young adult	56.8	ESP	N/A	College	Cross-sectional (Concurrent)	Non-English translation	NEO-FFI (D)	Negative consequences Quantity
Müller et al. (2008)	176	41.3	Middle adult	26.1	DEU	N/A	Clinical	Longitudinal (Concurrent)	Non-English translation	NEO-FFI (D)	Drink status
Musgrave-Marquart et al. (1997)	161	20.8	Emerging/ Young adult	64.0	USA	97.0	College	Cross-sectional (Concurrent)	English	NEO-PI-R (D)	Quantity
Nagy et al. (2017)	229	14.3	Youth	52.0	DEU	N/A	Grade school	Cross-sectional (Concurrent)	Non-English translation	BFI-25 (D)	Frequency Binge frequency
Ortet et al. (2017)	262	25.7	Emerging/ Young adult	61.7	ESP	N/A	College	Longitudinal (Concurrent)	Non-English translation	NEO-PI-R (D&F) Other (D)	Quantity
Paunonen et al. (2001) S1	112	19.0	Emerging/ Young adult	0.0	CAN	N/A	College	Cross-sectional (Concurrent)	English	NEO-FFI (D)	Quantity
Paunonen et al. (2001) S2	192	19.0	Emerging/ Young adult	100.0	CAN	N/A	College	Cross-sectional (Concurrent)	English	NEO-FFI (D)	Quantity
Paunonen et al. (2003) S1	170	19.8	Emerging/ Young adult	53.5	CAN	N/A	College	Cross-sectional (Concurrent)	English	NEO-FFI (D)	QF
Paunonen et al. (2003) S2	92	19.4	Emerging/ Young adult	53.3	UK	N/A	College	Cross-sectional (Concurrent)	English	NEO-FFI (D)	QF
Paunonen et al. (2003) S3	101	24.2	Emerging/ Young adult	74.3	DEU	N/A	College	Cross-sectional (Concurrent)	Non-English translation	NEO-FFI (D)	QF

Table 1, cont. Study	<i>N</i>	<i>M</i> _{age}	Age Group	% F	Ctry	% White (USA only)	Sample	Study Design (ES Type)	Language	Personality Measure (D/F)	Alcohol Variable
Paunonen et al. (2003) S4	105	22.4	Emerging/ Young adult	86.7	FIN	N/A	College	Cross-sectional (Concurrent)	Non-English translation	NEO-FFI (D)	QF
Peterson et al. (2005)	30	21.9	Emerging/ Young adult	0.0	NR	NR	College	Cross-sectional (Concurrent)	English	NEO-FFI (D)	Frequency Average quantity
Ruiz et al. (2003)	200	20.7	Emerging/ Young adult	50.5	USA	77.0	College	Cross-sectional (Concurrent)	English	NEO-PI-R (D&F)	Negative consequences QF
Rush et al. (2009)	208	18.5	Emerging/ Young adult	57.0	USA	53.3	College	Cross-sectional (Concurrent)	English	NEO-FFI (D)	Binge status
Sadikaj & Moskowitz (2018)	60	41.3	Adult	NR	CAN	N/A	Community	Cross-sectional (Prospective)	English	NEO-PI-R (F)	Quantity
Srivastava et al. (2016)	200	33.4	Middle adult	0.0	NR	NR	Clinical and Control	Cross-sectional (Concurrent)	English	NEO-PI-R (D&F)	AUD diagnosis
van Schoor et al (2008)	165	20.9	Emerging/ Young adult	47.0	EU & AUS	N/A	College	Cross-sectional (Concurrent)	English	BFPQ (D)	Negative consequences QF
Walsh et al. (2012)	145	19.5	Emerging/ Young adult	69.0	USA	70.0	College	Longitudinal (Concurrent & Prospective)	English	NEO-FFI (D)	Negative consequences AUD diagnosis Frequency
Watson et al. (unpublished)	438	45.0	Adult	66.2	USA	44.8	Community	Cross-sectional (Concurrent)	English	NEO-PI-3 (D&F) FI-FFM (D) HEXACO (D)	Negative consequences AUD diagnosis Hazardous use Binge status
Winograd et al. (2012)	988	18.2	Emerging/ Young adult	50.0	USA & CAN	85.0	College	Cross-sectional (Concurrent)	English	IPIP (D)	
Winograd et al. (2014)	374	18.4	Emerging/ Young adult	57.0	USA & CAN	84.0	College	Cross-sectional (Concurrent)	English	IPIP (D)	Negative consequences Binge frequency

Table 1, cont. Study	<i>N</i>	<i>M</i> _{age}	Age Group	% F	Ctry	% White (USA only)	Sample	Study Design (ES Type)	Language	Personality Measure (D/F)	Alcohol Variable
Zhao (2014)	140	27.6	Adult	73.0	USA	75.7	Graduate student	Cross- sectional (Concurrent)	English	IPIP-NEO (D)	Frequency Quantity

Note. *n* = number of independent study samples. *N* = study sample size. See supplemental materials for cited references. NR = not reported. N/A = not applicable. Mixed = multiple types of samples. %F = percent of women in the sample. Ctry = study's country of origin: AUS = Australia, BRA = Brazil, CAN = Canada, CHE = Switzerland, DEU = Germany, ESP = Spain, EST = Estonia, FIN = Finland, FRA = France, HRV = Croatia, IND = India, ITA = Italy, LBN = Lebanon, MEX = Mexico, NLD = the Netherlands, PRT = Portugal, SCT = Scotland, UK = United Kingdom, USA = United States. %White = percent of White participants in the sample (only applicable to U.S. studies). Personality measure: D = domains; F = facets. BFI = Big Five Inventory; BFI-25 = 25-item adaptation of Big Five Inventory; BFPQ = Big Five Personality Questionnaire; FI-FFM = Faceted Inventory of the Five-Factor Model; HEXACO = HEXACO Personality Inventory-Revised; IPIP = International Personality Item Pool; IPIP-NEO = International Personality Item Pool Representation of the NEO-PI-R; IPIP-50 = International Personality Item Pool-50; Mini-IPIP = Mini International Personality Item Pool; NEO-PI = NEO Personality Inventory; NEO-FFI = NEO Five-Factor Inventory; NEO-FFI-3 = NEO Five-Factor Inventory-3; NEO-PI-R = NEO Personality Inventory-Revised; NEO-PI-3 = NEO Personality Inventory-3; Other = Other measures developed or modified by researchers; TIPI = Ten-Item Personality Inventory. Alcohol variable: AUD = alcohol use disorder; QF = drinking quantity x frequency.

Table 2*Summary of Correlated Effects Meta-Regression Results Linking Big Five Personality Domains to Alcohol (Mis)Use*

Personality Domain	<i>n(k)</i>	τ^2	<i>z</i> (SE)	<i>t</i> (<i>df</i>)	<i>p</i>	<i>r</i>	95% CI
<u>Alcohol Consumption</u>	46(272)	0.010					
Neuroticism			-0.023(0.016)	-1.45(28.5)	.158	-0.023	[-0.056, 0.010]
Extraversion			0.167(0.025)	6.76(28.6)	< .001	0.165	[0.116, 0.214]
Openness			0.019(0.018)	1.03(27.0)	.310	0.018	[-0.018, 0.055]
Agreeableness			-0.092(0.022)	-4.23(28.8)	< .001	-0.092	[-0.136, -0.048]
Conscientiousness			-0.156(0.022)	-7.22(31.0)	< .001	-0.155	[-0.197, -0.111]
<u>Risky/Hazardous Drinking</u>	14(75)	0.008					
Neuroticism			-0.006(0.041)	-0.15(9.33)	.882	-0.006	[-0.097, 0.085]
Extraversion			0.065(0.032)	1.99(9.71)	.075	0.065	[-0.008, 0.136]
Openness			-0.035(0.045)	-0.77(6.75)	.467	-0.035	[-0.142, 0.073]
Agreeableness			-0.095(0.036)	-2.63(7.56)	.032	-0.095	[-0.178, -0.011]
Conscientiousness			-0.155(0.024)	-6.48(10.18)	< .001	-0.153	[-0.205, -0.101]
<u>Negative Drinking Consequences</u>	33(261)	0.010					
Neuroticism			0.111(0.031)	3.59(25.6)	.001	0.110	[0.047, 0.173]
Extraversion			0.007(0.026)	0.29(26.7)	.778	0.007	[-0.046, 0.061]
Openness			-0.006(0.040)	-0.14(22.0)	.889	-0.006	[-0.089, 0.078]
Agreeableness			-0.118(0.030)	-3.88(23.9)	< .001	-0.117	[-0.178, -0.055]
Conscientiousness			-0.156(0.031)	-5.07(26.7)	< .001	-0.155	[-0.216, -0.093]

Note. *n* = number of study samples. *k* = number of effect sizes. τ^2 = variance component for the regression model. *z* = unstandardized coefficients in meta-regressions. *r* = meta-regression coefficients transformed to the correlation metric. Effect sizes in bold are statistically significantly different from zero. 95% CI = 95% confidence intervals for the meta-regression coefficients. For all analyses, within-study effect size correlation (ρ) was set to be 0.8. Sensitivity analyses using ρ values of 0.0, 0.2, 0.4, 0.6, 0.8, and 1.0 did not affect the standard error—hence precision—of the meta-regression coefficients.

Table 3

Summary of Correlated Effects Meta-Regression Results Linking Big Five Personality Facets to Alcohol Consumption and Negative Drinking-related Consequences

Personality Facet	<i>n(k)</i>	τ^2	<i>z</i> (SE)	<i>t</i> (<i>df</i>)	<i>p</i>	<i>r</i>	95% CI
<u>Alcohol Consumption</u>							
Neuroticism	8(61)	0.009					
N1 Anxiety			-0.081(0.035)	-2.35(5.87)	.058	-0.081	[-0.165, 0.004]
N2 Angry Hostility			0.031(0.027)	1.15(5.61)	.296	0.031	[-0.036, 0.097]
N3 Depression			-0.023(0.026)	-0.89(5.87)	.410	-0.023	[-0.086, 0.04]
N4 Self-Consciousness			-0.088(0.047)	-1.86(5.87)	.113	-0.088	[-0.202, 0.028]
N5 Impulsiveness			0.159(0.054)	2.93(5.87)	.027	0.158	[0.025, 0.285]
N6 Vulnerability			-0.050(0.032)	-1.57(5.87)	.168	-0.050	[-0.128, 0.028]
Extraversion	7(60)	0.019					
E1 Warmth			0.099(0.064)	1.54(5.96)	.176	0.098	[-0.059, 0.250]
E2 Gregariousness			0.130(0.056)	2.31(5.96)	.061	0.129	[-0.008, 0.262]
E3 Assertiveness			0.045(0.032)	1.42(5.96)	.207	0.045	[-0.033, 0.123]
E4 Activity			0.022(0.056)	0.39(5.96)	.708	0.022	[-0.114, 0.158]
E5 Excitement Seeking			0.214(0.056)	3.83(5.96)	.009	0.211	[0.077, 0.338]
E6 Positive Emotions			0.039(0.042)	0.92(5.96)	.393	0.038	[-0.064, 0.140]
Openness ^a	6(54)	0.012					
O1 Fantasy			-0.009(0.044)	-0.20(4.94)	.848	-0.009	[-0.121, 0.103]
O2 Aesthetics			-0.045(0.033)	-1.36(4.94)	.232	-0.045	[-0.131, 0.041]
O3 Feelings			0.003(0.035)	0.09(4.94)	.939	0.003	[-0.087, 0.094]
O4 Actions			0.044(0.047)	0.94(4.94)	.389	0.044	[-0.077, 0.164]
O5 Ideas			-0.006(0.024)	-0.24(4.94)	.820	-0.006	[-0.069, 0.057]
O6 Values			0.068(0.056)	1.22(4.94)	.276	0.068	[-0.075, 0.209]
Agreeableness	7(60)	0.004					
A1 Trust			-0.011(0.020)	-0.56(5.57)	.600	-0.011	[-0.060, 0.038]
A2 Straightforwardness			-0.157(0.035)	-4.52(5.57)	.005	-0.156	[-0.239, -0.070]
A3 Altruism			-0.065(0.038)	-1.72(5.57)	.141	-0.065	[-0.158, 0.029]
A4 Compliance			-0.105(0.030)	-3.52(5.57)	.014	-0.104	[-0.177, -0.031]
A5 Modesty			-0.059(0.017)	-3.47(5.57)	.015	-0.059	[-0.101, -0.017]
A6 Tender-Mindedness			-0.069(0.030)	-2.32(5.57)	.062	-0.069	[-0.142, 0.005]

Personality Facet (cont.)	<i>n(k)</i>	τ^2	<i>z</i> (SE)	<i>t(df)</i>	<i>p</i>	<i>r</i>	95% CI
Conscientiousness	7(60)	0.014					
C1 Competence			-0.047(0.044)	-1.07(5.93)	.327	-0.047	[-0.154, 0.061]
C2 Order			-0.082(0.025)	-3.32(5.93)	.016	-0.082	[-0.142, -0.021]
C3 Dutifulness			-0.111(0.033)	-3.41(5.93)	.015	-0.111	[-0.189, -0.031]
C4 Achievement Striving			-0.086(0.052)	-1.65(5.93)	.150	-0.085	[-0.209, 0.041]
C5 Self-Discipline			-0.054(0.039)	-1.40(5.93)	.211	-0.054	[-0.147, 0.040]
C6 Deliberation			-0.185(0.060)	-3.06(5.93)	.023	-0.182	[-0.321, -0.037]
<u>Negative Drinking Consequences</u>							
Neuroticism	10(86)	0.005					
N1 Anxiety			0.061(0.022)	2.79(6.62)	.029	0.061	[0.009, 0.113]
N2 Angry Hostility			0.137(0.025)	5.38(6.62)	.001	0.136	[0.078, 0.195]
N3 Depression			0.108(0.030)	3.58(6.62)	.010	0.107	[0.036, 0.178]
N4 Self-Consciousness			0.035(0.031)	1.15(6.62)	.289	0.035	[-0.038, 0.108]
N5 Impulsiveness			0.197(0.042)	4.67(3.92)	.010	0.195	[0.079, 0.306]
N6 Vulnerability			0.102(0.032)	3.22(6.62)	.016	0.102	[0.026, 0.176]
Extraversion	9(80)	0.015					
E1 Warmth			-0.042(0.026)	-1.63(5.95)	.155	-0.042	[-0.104, 0.021]
E2 Gregariousness			0.038(0.046)	0.83(5.95)	.441	0.038	[-0.075, 0.149]
E3 Assertiveness			-0.025(0.033)	-0.77(5.95)	.470	-0.025	[-0.104, 0.055]
E4 Activity			-0.046(0.034)	-1.38(5.95)	.217	-0.046	[-0.128, 0.036]
E5 Excitement Seeking			0.049(0.073)	0.68(3.62)	.540	0.049	[-0.159, 0.253]
E6 Positive Emotions			0.044(0.069)	0.63(5.95)	.550	0.044	[-0.125, 0.210]
Openness ^a	5(66)	0.004					
O1 Fantasy			-0.008(0.034)	-0.26(3.88)	.812	-0.009	[-0.103, 0.086]
O2 Aesthetics			-0.060(0.033)	-1.79(3.88)	.149	-0.060	[-0.152, 0.034]
O3 Feelings			0.017(0.016)	1.06(3.88)	.351	0.017	[-0.028, 0.062]
O4 Actions			0.050(0.040)	1.24(3.88)	.283	0.050	[-0.063, 0.161]
O5 Ideas			-0.071(0.036)	-1.98(3.88)	.120	-0.071	[-0.169, 0.029]
O6 Values			0.016(0.031)	0.52(3.88)	.630	0.016	[-0.070, 0.102]
Agreeableness	6(72)	0.010					
A1 Trust			-0.053(0.026)	-2.04(4.95)	.097	-0.053	[-0.119, 0.014]
A2 Straightforwardness			-0.128(0.045)	-2.83(4.95)	.037	-0.128	[-0.240, -0.011]

Personality Facet (cont.)	<i>n(k)</i>	τ^2	<i>z</i> (SE)	<i>t(df)</i>	<i>p</i>	<i>r</i>	95% CI
A3 Altruism			-0.071(0.035)	-2.04(4.95)	.098	-0.071	[-0.159, 0.019]
A4 Compliance			-0.108(0.040)	-2.70(4.95)	.044	-0.107	[-0.208, -0.005]
A5 Modesty			0.059(0.066)	0.89(4.95)	.413	0.059	[-0.110, 0.224]
A6 Tender-Mindedness			0.018(0.064)	0.29(4.95)	.787	0.018	[-0.145, 0.180]
Conscientiousness	7(78)	0.003					
C1 Competence			-0.155(0.032)	-4.89(5.57)	.003	-0.154	[-0.230, -0.076]
C2 Order			-0.090(0.021)	-4.29(5.57)	.006	-0.090	[-0.142, -0.038]
C3 Dutifulness			-0.199(0.028)	-7.09(5.57)	.001	-0.196	[-0.262, -0.128]
C4 Achievement Striving			-0.127(0.018)	-7.12(5.57)	.001	-0.126	[-0.170, -0.082]
C5 Self-Discipline			-0.110(0.020)	-5.54(5.57)	.002	-0.110	[-0.159, -0.060]
C6 Deliberation			-0.196(0.039)	-5.05(5.57)	.003	-0.194	[-0.290, -0.099]

Note. All facet data came from study samples that used either the NEO Inventories or the International Personality Item Pool measures. *n* = number of study samples. *k* = number of effect sizes. τ^2 = variance component for the regression model. *z* = unstandardized coefficients in meta-regressions. *r* = meta-regression coefficients transformed to the correlation metric. Effect sizes in bold are statistically significantly different from zero. 95% CI = 95% confidence intervals for the meta-regression coefficients. Sensitivity analyses using ρ values of 0.0, 0.2, 0.4, 0.6, 0.8, and 1.0 did not affect the standard error—hence precision—of the meta-regression coefficients.

^a The degrees of freedom were smaller than five for the meta-regressions concerning openness facets, hence the effect size estimates might not be reliable.

Table 4*Summary of Moderator Analysis by Participant and Study Characteristics in Correlated Effects Meta-Regressions*

Personality Variable	<i>n(k)</i>	τ^2	<i>z</i> (SE)	<i>t</i> (<i>df</i>)	<i>p</i>	<i>r</i>	95% CI
Participant-Level Moderators							
<u>Alcohol Consumption</u>	42(239)	0.013					
Neuroticism			-0.024(0.017)	-1.40(25.49)	.174	-0.024	[-0.059, 0.011]
Extraversion			0.174(0.027)	6.42(25.29)	< .001	0.172	[0.117, 0.225]
Openness			0.017(0.018)	0.91(24.43)	.374	0.167	[-0.021, 0.055]
Agreeableness			-0.095(0.024)	-3.91(25.40)	< .001	-0.095	[-0.145, -0.045]
Conscientiousness			-0.159(0.025)	-6.46(27.59)	< .001	-0.158	[-0.207, -0.108]
Mean <i>M_{Age}</i>			-0.001(0.001)	-0.46(4.17)	.670	-0.001	[-0.004, 0.003]
Mean % Women			0.001(0.001)	1.16(10.68)	.272	0.001	[-0.001, 0.002]
<u>Risky/Hazardous Drinking</u>	13(64)	0.009					
Neuroticism			0.006(0.041)	0.14(7.55)	.892	0.006	[-0.090, 0.102]
Extraversion			0.029(0.027)	1.10(7.88)	.305	0.029	[-0.033, 0.09]1
Openness			-0.038(0.029)	-1.31(6.77)	.233	-0.038	[-0.106, 0.031]
Agreeableness			-0.092(0.045)	-2.05(6.77)	.080	-0.092	[-0.196, 0.015]
Conscientiousness			-0.165(0.028)	-5.97(8.19)	< .001	-0.164	[-0.22,5 -0.101]
Mean <i>M_{Age}</i>			-0.001(0.000)	-3.77(1.82)	.074	-0.001	[-0.002, 0.000]
Mean % Women			0.002(0.001)	3.38(1.52)	.112	0.002	[-0.001, 0.005]
<u>Negative Drinking Consequences</u>	28(214)	0.018					
Neuroticism			0.115(0.038)	3.04(21.15)	.006	0.114	[0.036, 0.191]
Extraversion			-0.012(0.028)	-0.45(22.00)	.658	-0.012	[-0.070, 0.045]
Openness			0.002(0.042)	0.05(19.38)	.959	0.002	[-0.086, 0.091]
Agreeableness			-0.109(0.394)	-2.79(20.35)	.011	-0.109	[-0.189, -0.028]
Conscientiousness			-0.159(0.037)	-4.32(22.40)	< .001	-0.158	[-0.231, -0.083]
Mean <i>M_{Age}</i>			-0.002(0.002)	-1.11(3.05)	.345	-0.002	[-0.009, 0.004]
Mean % Women			0.001(0.001)	1.39(10.48)	.193	0.001	[-0.001, 0.003]
Study-Level Moderators							
<u>Alcohol Consumption</u>	46(272)	0.012					
Neuroticism			-0.019(0.020)	-0.98(28.25)	.337	-0.019	[-0.060, 0.021]
Extraversion			0.173(0.022)	7.99(24.85)	< .001	0.171	[0.128, 0.214]

Personality Variable (cont.)	<i>n(k)</i>	τ^2	<i>z</i> (SE)	<i>t</i> (<i>df</i>)	<i>p</i>	<i>r</i>	95% CI
Openness			0.024(0.020)	1.19(24.88)	.245	0.024	[-0.017, 0.064]
Agreeableness			-0.087(0.024)	-3.63(24.91)	.001	-0.087	[-0.136, -0.038]
Conscientiousness			-0.151(0.028)	-5.49(26.87)	< .001	-0.150	[-0.204, -0.094]
Interval			-0.009(0.017)	-0.54(5.51)	.609	-0.009	[-0.053, 0.034]
Personality Scale			-0.008(0.019)	-0.42(36.21)	.678	-0.008	[-0.047, 0.031]
Sample Type			< 0.001(0.018)	0.03(33.90)	.979	< 0.001	[-0.036, 0.037]
<u>Risky/Hazardous Drinking</u>	14(75)	0.011					
Neuroticism			-0.014(0.041)	-0.33(3.89)	.756	-0.014	[-0.128, 0.101]
Extraversion			0.062(0.023)	2.65(4.11)	.056	0.062	[-0.002, 0.126]
Openness			-0.031(0.033)	-0.95(4.43)	.392	-0.031	[-0.118, 0.056]
Agreeableness			-0.088(0.036)	-2.42(4.43)	.067	-0.088	[-0.183, 0.009]
Conscientiousness			-0.151(0.023)	-6.62(3.95)	.003	-0.150	[-0.211, -0.087]
Interval			-0.035(0.044)	-0.81(2.02)	.503	-0.035	[-0.218, 0.150]
Personality Scale			-0.059(0.029)	-2.03(7.98)	.077	-0.059	[-0.125, 0.008]
Sample Type			0.041(0.024)	1.66(3.07)	.194	0.041	[-0.036, 0.117]
<u>Negative Drinking Consequences</u>	33(261)	0.013					
Neuroticism			0.080(0.039)	2.02(19.46)	.057	0.080	[-0.003, 0.161]
Extraversion			-0.023(0.039)	-0.61(19.25)	.552	-0.023	[-0.104, 0.057]
Openness			-0.028(0.052)	-0.54(17.92)	.597	-0.028	[-0.137, 0.082]
Agreeableness			-0.136(0.024)	-3.23(18.69)	.005	-0.135	[-0.221, -0.047]
Conscientiousness			-0.181(0.034)	-5.31(19.17)	< .001	-0.180	[-0.248, -0.110]
Interval			-0.003(0.034)	-0.10(3.47)	.928	-0.003	[-0.103, 0.096]
Personality Scale			-0.015(0.028)	-0.53(18.25)	.602	-0.015	[-0.073, 0.044]
Sample Type			0.074(0.039)	1.92(21.70)	.068	0.074	[-0.006, 0.153]

Note. *n* = number of study samples. *k* = number of effect sizes. τ^2 = variance component for the regression model. *z* = unstandardized coefficients in meta-regressions. *r* = meta-regression coefficients transformed to the correlation metric. Effect sizes in bold are statistically significantly different from zero. 95% CI = 95% confidence intervals for the meta-regression coefficients. For all analyses, within-study effect size correlation (ρ) was set to be 0.8. Sensitivity analyses using ρ values of 0.0, 0.2, 0.4, 0.6, 0.8, and 1.0 did not affect the standard error—hence precision—of the meta-regression coefficients. Mean *M_{age}* and mean % women values were mean centered in each analysis. Interval = effect sizes measured concurrently (0) vs prospectively (1). Personality scale = NEO Inventories (0) vs other instruments (1). Sample type = university students (0) vs other samples (1). In analyses with *df* ≤ 5, excluding covariates did not change the patterns of the results.

Figure 1

PRISMA Flowchart Summarizing the Processes in Literature Searches, Screening, and Data Extraction

BIG FIVE PERSONALITY & ALCOHOL USE: META-ANALYSIS

Online Supplemental Materials

List of keywords used in literature searches:

general personality	Personality AND alcohol personality AND drinking big 5 AND alcohol big 5 AND drinking big five AND alcohol big five AND drinking five factor model AND alcohol five factor model AND drinking FFM and alcohol FFM and drinking
personality domains	extraversion AND alcohol extraversion AND drinking surgency AND alcohol surgency AND drinking neuroticism AND alcohol neuroticism AND drinking emotion* stability AND alcohol emotion* stability AND drinking openness AND alcohol openness AND drinking intellect AND alcohol intellect AND drinking agreeableness AND alcohol agreeableness AND drinking conscientiousness AND alcohol conscientiousness AND drinking dependability AND alcohol dependability AND drinking honesty-humility AND alcohol honesty-humility AND drinking
measurement tools	NEO personality inventory AND alcohol five factor model rating form AND alcohol structured interview for the five factor model AND alcohol big five inventory AND alcohol ipip-neo AND alcohol hexaco personality inventory AND alcohol california psychological inventory-big five AND alcohol trait descriptive adjectives AND alcohol
personality facets	sociability AND alcohol irritability AND alcohol rumination-compulsiveness AND alcohol perceptiveness AND alcohol industriousness AND alcohol reliability AND alcohol decisiveness AND alcohol generosity AND alcohol (anxiety OR fearfulness), AND alcohol (anger OR angry hostility), AND alcohol depression AND alcohol

BIG FIVE PERSONALITY & ALCOHOL USE: META-ANALYSIS

facets (cont.)

- self-consciousness AND alcohol
- (impulsiveness OR immoderation), AND alcohol
- vulnerability AND alcohol
- (friendliness OR warmth), AND alcohol
- (gregariousness OR liveliness), AND alcohol
- assertiveness AND alcohol
- activity AND alcohol
- "excitement seeking" AND alcohol
- (cheerfulness OR "positive emotions"), AND alcohol
- (imagination OR fantasy OR creativity), AND alcohol
- ("artistic interests" OR aesthetics), AND alcohol
- (emotionality OR feelings), AND alcohol
- (adventurousness OR actions), AND alcohol
- (intellect OR ideas), AND alcohol
- (liberalism OR values), AND alcohol
- trust AND alcohol
- (morality OR straightforwardness) AND alcohol
- altruism AND alcohol
- (modesty OR humility), AND alcohol
- (sympathy OR "tender-mindedness"), AND alcohol
- (self-efficacy OR competence), AND alcohol
- order* AND alcohol
- dutifulness AND alcohol
- "achievement striving" AND alcohol
- self-discipline AND alcohol
- (cautiousness OR deliberation OR diligence), AND alcohol
- sincerity AND alcohol
- fairness AND alcohol
- "greed avoidance" AND alcohol
- dependence AND alcohol
- sentimentality AND alcohol
- "social self-esteem" AND alcohol
- "social boldness" AND alcohol
- forgiveness AND alcohol
- gentleness AND alcohol
- flexibility AND alcohol
- patience AND alcohol
- organization AND alcohol
- perfectionism AND alcohol
- prudence AND alcohol
- inquisitiveness AND alcohol
- unconventionality AND alcohol
- interstitial AND alcohol

BIG FIVE PERSONALITY & ALCOHOL USE: META-ANALYSIS

Table S1

Summary of Univariate Random-Effects Meta-Analytic Results Linking Each Big Five Personality Domain and Facet to Alcohol (Mis)Use

Personality Variable	<i>k</i>	τ^2	<i>z</i>	<i>Q_b</i> (<i>df</i>)	<i>p</i>	<i>r</i> [95% CI]
<u>Alcohol Consumption</u>						
Neuroticism	44	.007	-.48	317.88(43)	.634	-.007 [-.038, .023]
N1 Anxiety	7	.008	-1.89	29.70(6)	.059	-.078 [-.157, .003]
N2 Angry Hostility	8	.000	.36	2.98(7)	.719	.004 [-.019, .028]
N3 Depression	7	.002	-.86	11.41(6)	.391	-.002 [-.073, .028]
N4 Self-Consciousness	7	.005	-2.11	20.44(6)	.035	-.073 [-.140, -.005]
N5 Impulsiveness	7	.029	2.40	89.87(6)	.016	.165 [.031, .294]
N6 Vulnerability	7	.006	-1.31	23.68(6)	.190	-.049 [-.121, .024]
Extraversion	42	.009	7.04	374.73(41)	< .001	.123 [.089, .157]
E1 Warmth	7	.023	1.52	70.37(6)	.130	.093 [-.027, .211]
E2 Gregariousness	7	.032	1.80	96.87(6)	.072	-.129 [-.011, .264]
E3 Assertiveness	7	.002	1.76	11.48(6)	.078	.046 [-.005, .096]
E4 Activity	7	.006	.07	23.96(6)	.942	.003 [-.070, .076]
E5 Excitement Seeking	7	.025	3.28	78.52(6)	.001	.201 [.085, .328]
E6 Positive Emotions	7	.007	.66	24.82(6)	.507	.025 [-.049, .099]
Openness	30	.010	.94	294.04(29)	.345	.020 [-.021, .061]
O1 Fantasy	6	.008	-.48	25.61(5)	.629	-.021 [-.107, .064]
O2 Aesthetics	6	.002	-2.08	9.88(5)	.038	-.056 [-.109, -.003]
O3 Feelings	6	.010	-.05	30.32(5)	.958	-.002 [-.095, .090]
O4 Actions	6	.015	.76	42.25(5)	.448	.042 [-.066, .149]
O5 Ideas	6	.001	-1.17	8.24(5)	.243	-.028 [-.076, .019]
O6 Values	6	.027	1.04	74.32(5)	.297	.075 [-.066, .214]
Agreeableness	32	.005	-5.47	171.20(31)	< .001	-.084 [-.114, -.054]
A1 Trust	7	.001	-.01	8.02(6)	.989	-.000 [-.040, .039]
A2 Straightforwardness	7	.005	-4.31	21.38(6)	< .001	-.151 [-.218, -.083]
A3 Altruism	7	.004	-2.26	18.58(6)	.024	-.075 [-.139, -.010]
A4 Compliance	7	.006	-2.83	22.99(6)	.005	-.103 [-.174, -.032]
A5 Modesty	7	.000	-4.52	4.65(6)	< .001	-.054 [-.077, -.031]
A6 Tender-Mindedness	7	.003	-2.29	13.41(6)	.022	-.064 [-.119, -.009]
Conscientiousness	38	.013	-6.54	511.73(37)	< .001	-.136 [-.176, -.096]
C1 Competence	7	.011	-1.18	38.64(6)	.237	-.055 [-.146, .036]
C2 Order	7	.001	-4.21	7.55(6)	< .000	-.080 [-.117, -.043]
C3 Dutifulness	7	.010	-2.59	33.24(6)	.010	-.112 [-.195, -.027]
C4 Achievement Striving	7	.015	-1.82	49.62(6)	.069	-.095 [-.195, .007]
C5 Self-Discipline	7	.004	-2.07	16.95(6)	.039	-.065 [-.127, -.003]
C6 Deliberation	7	.037	-2.47	111.84(6)	.014	-.188 [-.328, -.039]
<u>Risky/ Hazardous Drinking^a</u>						
Neuroticism	15	.014	-.37	174.52(14)	.709	-.012 [-.078, .053]
N1 Anxiety	2	.001	2.64	1.46(1)	.008	.115 [.030, .199]
N2 Angry Hostility	2	.010	1.90	4.76(1)	.058	.149 [-.005, .296]
N3 Depression	2	.003	3.36	2.04(1)	.001	.172 [.072, .269]
N4 Self-Consciousness	2	.000	3.07	.66(1)	.002	.111 [.040, .181]
N5 Impulsiveness	2	.000	6.01	.45(1)	< .001	.215 [.146, .281]
N6 Vulnerability	2	.000	3.37	1.15(1)	.001	.130 [.055, .204]
Extraversion	14	.009	2.55	111.62(13)	.011	.071 [.016, .126]
E1 Warmth	2	.037	-.00	15.03(1)	.997	-.000 [-.270, .269]

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Personality Variable (Cont.)	<i>k</i>	τ^2	<i>z</i>	<i>Q(df)</i>	<i>p</i>	<i>r</i> [95%]
E2 Gregariousness	2	.011	1.19	5.17(1)	.235	.098 [-.064, .255]
E3 Assertiveness	2	.008	-.07	4.17(1)	.945	-.005 [-.149, .139]
E4 Activity	2	.013	-.23	6.06(1)	.822	-.020 [-.193, .154]
E5 Excitement Seeking	2	.000	5.98	1.00(1)	< .001	.214 [.145, .280]
E6 Positive Emotions	2	.020	-.16	8.55(1)	.875	-.017 [-.221, .189]
Openness	10	.006	-.97	49.72(9)	.333	-.028 [-.083, .028]
O1 Fantasy	2	.002	.60	1.58(1)	.549	.027 [-.062, .116]
O2 Aesthetics	2	.000	-1.55	.01(1)	.121	-.056 [-.127, .015]
O3 Feelings	2	.000	1.03	.73(1)	.304	.037 [-.034, .108]
O4 Actions	2	.000	-.00	.61(1)	.999	-.000 [-.071, .071]
O5 Ideas	2	.000	-1.28	.01(1)	.200	-.047 [-.117, .025]
O6 Values	2	.000	-.08	.73(1)	.940	-.003 [-.074, .068]
Agreeableness	11	.007	-2.79	66.40(10)	.005	-.081 [-.137, -.024]
A1 Trust	2	.017	-.70	7.31(1)	.482	-.069 [-.256, .123]
A2 Straightforwardness	2	.009	-2.46	4.45(1)	.014	-.186 [-.326, -.038]
A3 Altruism	2	.032	-.55	13.25(1)	.582	-.073 [-.320, .184]
A4 Compliance	2	.000	-4.29	1.06(1)	< .001	-.159 [-.229, -.087]
A5 Modesty	2	.000	.01	1.07(1)	.993	.000 [-.073, .074]
A6 Tender-Mindedness	2	.000	-.96	.81(1)	.339	-.035 [-.105, .036]
Conscientiousness	15	.003	-9.03	52.00(14)	< .001	-.172 [-.208, -.135]
C1 Competence	2	.011	-2.22	5.23(1)	.026	-.182 [-.224, -.022]
C2 Order	2	.002	-1.83	1.58(1)	.067	-.083 [-.171, .006]
C3 Dutifulness	2	.004	-2.60	2.48(1)	.009	-.148 [-.255, -.037]
C4 Achievement Striving	2	.000	-2.48	.06(1)	.013	-.090 [-.160, -.019]
C5 Self-Discipline	2	.000	-4.10	.22(1)	< .001	-.148 [-.216, -.078]
C6 Deliberation	2	.008	-3.27	3.88(1)	.001	-.230 [-.358, -.093]
<u>Negative Drinking Consequences</u>						
Neuroticism	38	.009	5.91	586.19(37)	< .001	.102 [.068, .135]
N1 Anxiety	8	.000	3.97	6.75(7)	< .001	.070 [.035, .105]
N2 Angry Hostility	8	.002	5.81	11.65(7)	< .001	.148 [.098, .196]
N3 Depression	8	.003	4.02	14.11(7)	< .001	.114 [.058, .168]
N4 Self-Consciousness	8	.004	1.09	17.40(7)	.275	.034 [-.027, .096]
N5 Impulsiveness	10	.015	4.01	53.66(9)	< .001	.175 [.090, .257]
N6 Vulnerability	8	.003	3.58	14.84(7)	< .001	.104 [.047, .160]
Extraversion	36	.005	.20	346.23(35)	.843	.003 [-.026, .032]
E1 Warmth	7	.003	-1.71	12.66(6)	.087	-.050 [-.106, .007]
E2 Gregariousness	7	.013	.73	36.35(6)	.465	.035 [-.060, .130]
E3 Assertiveness	7	.004	-.65	14.52(6)	.517	-.020 [-.081, .041]
E4 Activity	7	.003	-1.29	13.69(6)	.199	-.039 [-.097, .020]
E5 Excitement Seeking	9	.028	1.43	88.32(8)	.152	.085 [-.031, .199]
E6 Positive Emotions	7	.024	.79	60.73(6)	.432	.049 [-.073, .169]
Openness	27	.007	-.057	346.06(26)	.571	-.011 [-.048, .027]
O1 Fantasy	5	.004	-.06	8.49(4)	.956	-.002 [-.076, .072]
O2 Aesthetics	5	.002	-1.80	6.65(4)	.072	-.060 [-.125, .005]
O3 Feelings	5	.000	1.47	2.28(4)	.141	.037 [-.012, .087]
O4 Actions	5	.005	1.27	9.55(4)	.203	.051 [-.027, .129]
O5 Ideas	5	.003	-1.94	7.60(4)	.052	-.069 [-.138, .001]
O6 Values	5	.001	.46	5.69(4)	.647	.014 [-.046, .074]
Agreeableness	30	.013	-5.06	684.30(29)	< .001	-.116 [-.160, -.071]
A1 Trust	6	.000	-2.58	5.37(5)	.010	-.064 [-.113, -.016]

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Personality Variable (Cont.)	<i>k</i>	τ^2	<i>z</i>	<i>Q(df)</i>	<i>p</i>	<i>r</i> [95%]
A2 Straightforwardness	6	.008	-2.81	15.68(5)	.005	-.121 [-.204, -.037]
A3 Altruism	6	.003	-1.79	9.62(65)	.073	-.061 [-.126, .006]
A4 Compliance	6	.005	-2.84	12.20(5)	.005	-.108 [-.181, -.034]
A5 Modesty	6	.021	.96	35.34(5)	.338	.062 [-.065, .186]
A6 Tender-Mindedness	6	.018	.56	30.05(5)	.579	.033 [-.084, .149]
Conscientiousness	34	.010	-8.21	601.80(33)	< .001	-.153 [-.188, -.116]
C1 Competence	7	.004	-4.82	15.23(6)	< .001	-.152 [-.212, -.090]
C2 Order	7	.000	-4.04	6.30(6)	< .001	-.077 [-.113, -.039]
C3 Dutifulness	7	.003	-6.77	12.57(6)	< .001	-.193 [-.246, -.138]
C4 Achievement Striving	7	.000	-6.47	4.89(6)	< .001	-.117 [-.117, -.082]
C5 Self-Discipline	7	.000	-5.39	6.72(6)	< .001	-.107 [-.146, -.068]
C6 Deliberation	7	.007	-4.80	23.01(6)	< .001	-.184 [-.257, -.110]

Note. *k* = number of study samples/effect sizes. τ^2 = variance component for each univariate correlation analysis. 95% CI = 95% confidence intervals. Effect sizes in bold are statistically significantly different from zero.

^a Only two study samples yielded facet-level effect sizes for risky/hazardous drinking; these estimates are unlikely to be reliable.

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