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Searching for Mr. Hyde: A five-factor approach to characterizing “types of drunks”

Rachel Pearl Winograd, Douglas Steinley, and Kenneth Sher

Department of Psychological Sciences, University of Missouri-Columbia, Columbia, SC, USA

Abstract

Some individuals “change” more dramatically than others when intoxicated, and the nature and magnitude of these changes can result in harmful outcomes. This study utilized reports ($N = 374$) of participants’ “typical” five-factor model (FFM) characteristics across sober and intoxicated states and assessed the degree to which these reports could be grouped into meaningful clusters, as well as the association of cluster membership with negative alcohol-related consequences. Results from finite mixture model clustering revealed a four cluster solution. Cluster 1, “Hemingway,” was the largest and defined by intoxication-related decreases in Conscientiousness and Intellect that were below average; Cluster 2, “Mary Poppins,” was defined by being high in Agreeableness when sober, decreasing less than average in Conscientiousness and Intellect and increasing more than average in Extraversion when drunk; Cluster 3, “Mr. Hyde,” reported larger drunk decreases in Conscientiousness and Intellect and smaller increases in Extraversion; Cluster 4, “The Nutty Professor,” was defined by being low in Extraversion when sober, increasing more than average in Extraversion and decreasing less than average in Conscientiousness when drunk. Cluster membership was associated with experiencing more alcohol consequences. These results support use of the FFM to characterize clinically meaningful subgroups of sober-to-drunk differences in trait expression.

Keywords

Alcohol consequences, drunk personality, drunk types, five-factor model

History

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Introduction

According to anecdotal reports, clinical lore and internet articles like “The 12 types of drunk people you’ll encounter at a bar,” “The 7 kinds of drunk people you’ll find at parties,” and “The 9 types of drunk people (and which one you may be!),” not all drinkers act the same when intoxicated. However, we have not been able to identify even a single empirical study designed to identify a “types of drunks.” Though work on “types of alcoholics” (e.g. type I and II; Cloninger, Bohman, & Sigvardsson, 1981) has found that dependent drinkers can differ in their typical levels of baseline personality traits (and may fall into personality clusters, such as a neurotic aim-related cluster and socio-neurotic cluster [Bühler & Bardeleben, 2008]), such findings do not touch on individuals’ differential expression of those traits while intoxicated, or how their intoxicated personality contributes to their behaviour when under the influence. Relatedly, extant research on acute intoxication largely focuses on specific effects (e.g. mood, aggressive behaviour, sexual arousal) and individual differences in their magnitude and expression, but not on personality traits more globally. For example, very early studies found that drinkers display more hostility and cognitive confusion (Babor, Berglas, Mendelson, Ellingboe, & Miller, 1983), increased thoughts

of physical aggression, sex, power and strength (Kalin, McClelland, & Kahn, 1965), and increased sociability and feelings of happiness (Abe, 1968; Freed, 1978) when under the influence of alcohol. More recent examinations have been laboratory-based and even more specific in their focus, targeting the effects of decreased inhibition (Miller, Hays, & Fillmore, 2012) and increased aggression (Giancola, 2000) that result in certain individuals from certain circumstances of intoxication. In addition to the study of these acute effects of alcohol, researchers have also proposed more general conceptualizations of the ways in which alcohol works to affect drinkers’ cognitions and behaviours. Perhaps one of the broadest was MacAndrew and Edgerton’s (1969) description of specific intoxication-related changes (described as one’s “drunken comportment”) as part of the universally accepted notion that people, in general, behave differently under alcohol’s influence, and that these differences are displayed and perceived within the unique context of one’s culture. Specifically, drunkenness can be considered a “time out” from typical sober behaviour, making it an excuse for people to act in ways that would otherwise be considered inexcusable. Another, perhaps complementary, explanation of intoxicated behaviours was put forth by Steele and Josephs (1990), and classifies three broad types of acute effects of alcohol:

example, of socially hesitant persons into friendly backslappers, or a person well informed about the health risks of promiscuity into a sexual risk taker; (b) *drunken self-inflation*, its ability to inflate our egos and enable us sometimes to view ourselves through rosier glasses; and (c) *drunken relief*, its ability, under some conditions, to relieve psychological stresses such as depression and anxiety. (p. 922)

These effects were couched within their broader cognitive-physiological theory of alcohol myopia, which suggests that alcohol intoxication leads to an interaction between short-sighted information processing and the cues present during the drinking episode. Specifically, the authors proposed that alcohol consumption results in a narrowing of perception, such that the drinker's attention becomes focused on the most salient factors in the environment, and, depending on the nature of those factors, the drinker's thoughts and actions can be influenced in various ways. However, as levels of intoxication increase beyond what is typically considered "moderate" levels of consumption, the contextual influences appear to wane with the direct effects of alcohol becoming more unconditional, at least with respect to emotional response (Donohue, Curtin, Patrick, & Lang, 2007).

Despite a considerable amount of work conducted on how alcohol "changes" particular aspects of our mood, affect, and behaviour, and the concepts of drunken comportment and alcohol myopia more generally, only recently have these changes been described under the more global heading of personality (Winograd, Littlefield, Martinez, & Sher, 2012; Winograd, Steinley, & Sher, 2014). Specifically, self and informant reports about how participants are when they are "typically drunk" yielded consistent results (across studies and informants) that individuals tend to increase in extraversion and emotional stability (the inverse of neuroticism) and decrease in agreeableness, conscientiousness and intellect when under the influence of alcohol. Additionally, low levels of drunken conscientiousness and emotional stability, over and above sober levels of these traits, were associated with experiencing more negative alcohol-related consequences within the last year. Though these studies were instrumental in establishing the validity of using the framework of personality (specifically, the Five-Factor Model of personality [FFM]; Digman, 1990; Goldberg, 1990; McCrae & Costa, 1987) to describe reported sober versus drunk differences in overall comportment, their focus was on group averages, not individual differences in the patterning of change across trait expression. This study builds upon our prior work establishing the FFM as a framework for describing variation in "drunk personality," as well as the work of others documenting alcohol's acute effects and how they vary across drinkers by determining the extent to which drinkers' drunk personalities fall into meaningful clusters, and how one's cluster membership is related to alcohol-related harms.

Methods

Participants and procedure

Participants were 374 undergraduates (187 "drinking buddy" pairs; mean age = 18.4 (SD = 0.74), 57% female, 84% White)

at a large, Midwestern University. Target participants (i.e. not the "drinking buddies") were recruited based on their response on a mass pre-test for an introductory psychology course (i.e. all participants who reported having a "drinking buddy" in the area who "knows what [they] are like when both sober and drunk" were e-mailed and asked to participate). Recruited (target) participants and their selected "drinking buddy" came to the laboratory, provided informed consent, and completed a 40-minute survey in separate rooms. Demographic characteristics, alcohol consumption patterns and alcohol-related consequences, and levels of sober and drunk factors were assessed. All participants (targets and buddies) were asked the same questions, allowing all participants' data (whether from targets or buddies) to be analysed and interpreted the same way.

Measures

Alcohol consumption

Binge drinking frequency was assessed using the item "In the past 30 days, how many times have you had *five or more* drinks at a single sitting?" Responses were on an 8-point scale, ranging from "I have not drank five or more drinks in the past 30 days" to "Every day." This item was included based on findings that drinking five or more drinks in a sitting is related to experiencing more alcohol-related harm, such as traffic fatalities (Yi, Williams, & Smothe, 2004), unsafe sexual activity, interpersonal problems and other negative consequences (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994). Typical quantity of alcohol consumed per drinking occasion was assessed using the item "In the past 30 days, when you were drinking alcohol, how many drinks did you usually have on any one occasion?" Responses were on a 10-point scale, ranging from "1 drink" to "12 or more drinks."

Alcohol-related consequences

Consequences were measured by the Young Adult Alcohol Problems Screening Test (YAAPST; Hurlbut & Sher, 1992), which assesses alcohol-related harms and alcohol use disorder (AUD) symptoms. This measure was developed for use in college students and contains items specifically relevant to this population (e.g. receiving a lower grade on an exam or paper because of your drinking; engaging in regrettable sexual situations) as well as items generally used to assess for AUD status and indicative of some degree of abuse or dependence (e.g. having the "shakes" after stopping or cutting down; wanting a drink first thing in the morning; having been fired from a job or suspended from school because of drinking). Responses were on a 5-point scale ("No, never," "Yes, but not in the past year," "1 time in the past year," "2 times in the past year," and "3+ times in the past year"), and responses to each item were dichotomized based on experience within the past year (0 = Not experienced within the past year; 1 = Experienced at least once within the past year) to better focus on recent behaviours. Analyses were conducted based on all consequence items (i.e. 27 items, $\alpha = 0.80$), with the total consequence variable representing the mean of participants' responses to all 27 items (note: nine

participants who did not respond to five items or more were coded as “missing” for the total consequence variable).

Five-factor measurement

The state-like expression of sober and drunk personality was assessed using a 50-item scale from Goldberg's International Personality Item Pool (IPIP; available at http://ipip.ori.org/New_IPIP-50-item-scale.htm [Goldberg, 1999]). Participants completed four versions, each containing ten items reflective of each of the five factors. They were given the following instructions, with modifications depending on if the particular report was measuring their typical sober or drunk state and pertained to themselves or their drinking buddy (the following example appeared above the measure of participants' self-reports of their own drunk personality):

Describe yourself as you are when you are typically DRUNK (i.e. under the influence of enough alcohol to notice any changes in thoughts, feelings, or behaviors). Describe yourself as you honestly see yourself when you're drinking, in relation to other people you know of the same sex as you are, and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence.

Indicate for each statement whether it is 1. Very Inaccurate, 2. Moderately Inaccurate, 3. Neither Accurate Nor Inaccurate, 4. Moderately Accurate, or 5. Very Accurate as a description of you.

Factor subscales across the four measures (of self-reported sober, self-reported drunk, informant-reported sober, and informant-reported drunk personalities) displayed good inter-item correlations. Regarding their own trait expressions when sober (coefficient alphas: Extraversion (E)=0.92; Agreeableness (A)=0.86; Conscientiousness (C)=0.85; Emotional Stability (ES the inverse of neuroticism)=0.87; Intellect (I)=0.80), regarding their own trait expressions when drunk (alphas: E=0.87; A=0.78; C=0.83; ES=0.82; I=0.82), regarding their buddy's trait expressions when sober (alphas: E=0.91; A=0.87; C=0.87; ES=0.88; I=0.83), and regarding their buddy's trait expressions when drunk (alphas: E=0.90; A=0.84; C=0.81; ES=0.88; I=0.81). Response options were on a 5-point Likert scale and ranged from “Very Inaccurate” to “Very Accurate.” One's value of each scale (e.g. Self-reported Sober Extraversion, Informant-reported Drunk Agreeableness) was determined by the mean of all ten items, and those who were missing on three or more on a particular scale were coded as “missing” for that scale. Goldberg's IPIP measure was selected because of its relatively low burden (necessary given that participants were asked to complete it four times), comprehensive coverage of the five factors, good predictive validity of health behaviours and interitem reliability within subscales (Goldberg, 1999), and public accessibility. Indeed, the field of personality research has recently placed increasing emphasis on the development and dissemination of measures with unrestricted availability in an effort to propel the field forward at a faster rate, with less cost to researchers

(Goldberg et al., 2006). Notably, items on this scale that may have initially appeared very “trait-like” or not applicable to intoxicated states (e.g. “Gets chores done right away” or “Am exacting at my work”) were retained in effort to maintain the original scale and avoid “cherry picking.”

Research questions and analytic strategy

The goals of this study were to assess the degree to which participants' reported sober and drunk five-factor personality characteristics could be grouped into meaningful person-centered clusters (i.e. “drunk types”) as well as to examine the association between cluster membership and negative alcohol-related consequences. In order to accomplish these goals, we performed finite mixture model clustering with the Mclust approach as described below and in Martinez, Martinez, and Solka (2004) and implemented in MATLAB 8.0 using participants' ($N=374$) self-reported sober FFM levels (i.e. the means of the ten items per factor, not the individual items themselves [e.g. a participant's drunk Extraversion score was their mean of the ten Extraversion items from the IPIP]) with the residuals of their drunk levels predicted by their sober levels (10 variables). It should also be noted that we ran the mixture model program using the informant-reported data (sober and drunk, as well as sober and drunk residuals) as well as the mean of the self and informant-reported sober and drunk data and did not obtain solutions of more than one cluster with these methods. Despite the lack of convergence when either incorporating informant reports or relying exclusively upon them, we believe that the most sensitive personality data are those derived from self-reports because of the covert nature of some of the thoughts, feelings and behaviours assessed.

The cluster approach using finite mixture modelling (McLachlan & Peel, 2000) can be thought of as a more general approach than either standard clustering approaches, such as k-means clustering, or latent profile analysis (Steinley, 2006). Specifically, finite mixture modelling is more general than both cluster analysis and latent profile analysis. In fact, both cluster analysis and latent profile analysis are special cases of the general finite mixture modelling approach. The advantage of a finite mixture modelling approach is the ability both to identify the number of groups and the nature of the within-class correlation structure. As detailed in Steinley and Brusco (2011), there are nine different classes of within-class correlation structures that can be compared. The approach in the current analysis fits all nine correlation structures across a range of clusters from one to eight, with the final chosen solution being that for which the correlation structure and the number of clusters yields the lowest Bayesian Information Criterion (BIC) globally.

Cluster membership was then used to predict both overall mean of past-year negative alcohol-related consequences, as well as each individual consequence. All analyses involving consequences were conducted in SAS 9.1 (SAS Institute, Inc., Cary, NC, 2004) using Proc Mixed to control for the nested structure of the data (i.e. dyad members enrolled in the study as “buddies” and therefore their data could not be treated as independent).

Results

Cluster solution

Based on the lowest BIC, it was determined that a four cluster solution was best fitting ($BIC = -6507.29$). This model was one where each cluster had a unique, diagonal covariance matrix (within-cluster variables were uncorrelated).

Description of clusters

Sober personality variables were considered definitive of a cluster if the mean level for that cluster was above or below one standard deviation of the overall sample mean, and residual drunk scores were considered definitive of a cluster if the mean level for that cluster had an absolute value of ≥ 0.20 . For descriptive purposes to highlight key aspects of alcohol-related transformations, we labelled our clusters as follows: Cluster 1, “Hemingway” (who was reputed to show minimal signs of intoxication despite prodigious drinking; Laing, 2014) was the largest ($n = 153$) and defined by smaller than average intoxication-related decreases in Conscientiousness and Intellect. Cluster 2, “Mary Poppins” (the ever-positive nanny of the screen production [notably gentler and more caring than her original depiction in P.L. Travers’ book]), ($n = 54$), was defined by those who are high in Agreeableness when sober and decrease less than average in Conscientiousness, Intellect, and Agreeableness when drunk; Cluster 3, “Mr. Hyde” (the sinister alter personality of Dr. Jekyll; Stevenson, 1886) ($n = 84$), reported large drunk decreases in Conscientiousness, Intellect, and Agreeableness; and Cluster 4, “The Nutty Professor” (the main character of two Disney films who is chemically transformed into a more extraverted character) ($n = 73$) was defined by being particularly low in Extraversion when sober but having a relatively large increase in Extraversion while drunk. Members of this

group also reported large intoxication-related decreases in Conscientiousness (See Table 1 for the means of personality variables by cluster and Table 2 for a summary of cluster characteristics).

The cluster names were based on personality variables only, since there was no association between cluster membership and frequency of binge drinking ($X^2(15) = 19.06$, $p = 0.21$), quantity typically consumed per drinking occasion ($X^2(15) = 22.42$, $p = 0.83$), or sex ($X^2(3) = 7.42$, $p = 0.06$). The mean frequency of binge drinking across all groups was between two and four times per month, and participants in all groups reported drinking an average of six drinks per drinking episode.

Association between Cluster Membership and Consequences

When accounting for the nested structure of the data, cluster membership was associated with experiencing more overall alcohol consequences within the last year (controlling for binge drinking and typical quantity consumed; $F(3,170) = 2.76$, $p < 0.05$). Examination of the model’s least-square means of consequences by cluster indicated that consequences were experienced in the following order: members of the Mr. Hyde cluster experienced the most, followed by those in the Hemingway cluster, The Nutty Professor cluster and the Mary Poppins cluster. Post-hoc pairwise comparisons indicated that the significant source of difference was between Mary Poppins and Mr. Hyde, with those in Mr. Hyde experiencing significantly more consequences than those in Mary Poppins ($t(-2.65)$, $p < 0.01$ [See Table 2 for mean values]). Follow-up analyses predicting specific consequences by cluster membership did not yield any significant results, suggesting those in the Mr. Hyde cluster possess a broad but nonspecific tendency to experience a range of alcohol-related problems.

Table 1. Means of the sober and drunk five factors and drunk residuals by cluster.

		Cluster				Overall sample
		1 “Hemingway” $n = 153$	2 “Mary Poppins” $n = 54$	3 “Mr. Hyde” $n = 84$	4 “The Nutty Professor” $n = 73$	
E	Sober	3.34 (0.71)	4.18 (0.57)	3.83 (0.59)	2.42 (0.74)	3.39 (0.89)
	Drunk	3.70 (0.64)	4.39 (0.44)	4.23 (0.47)	3.70 (0.79)	3.93 (0.68)
	Residual	-0.19 (0.41)	0.03 (0.30)	0.06 (0.31)	0.32 (0.64)	0
A	Sober	3.88 (0.40)	4.67 (0.23)	4.23 (0.42)	3.60 (0.90)	4.03 (0.63)
	Drunk	3.76 (0.39)	4.43 (0.25)	3.67 (0.55)	3.54 (0.67)	3.80 (0.56)
	Residual	0.05 (0.30)	0.24 (0.23)	-0.26 (0.45)	0.00 (0.48)	0
C	Sober	3.55 (0.66)	3.77 (0.84)	3.51 (0.78)	3.84 (0.65)	3.63 (0.73)
	Drunk	3.13 (0.54)	3.36 (0.71)	2.40 (0.59)	2.72 (0.79)	2.91 (0.72)
	Residual	0.26 (0.36)	0.37 (0.49)	-0.45 (0.43)	-0.31 (0.76)	0
E.S	Sober	3.25 (0.70)	3.81 (0.74)	3.41 (0.84)	3.17 (0.85)	3.36 (0.79)
	Drunk	3.44 (0.63)	3.91 (0.64)	3.46 (0.79)	3.42 (0.81)	3.51 (0.73)
	Residual	-0.01 (0.43)	0.12 (0.51)	-0.09 (0.44)	0.03 (0.78)	0
I	Sober	3.68 (0.50)	4.36 (0.29)	3.88 (0.37)	3.90 (0.73)	3.87 (0.55)
	Drunk	3.41 (0.45)	3.98 (0.44)	2.78 (0.49)	3.19 (0.79)	3.31 (0.65)
	Residual	0.23 (0.30)	0.34 (0.38)	-0.53 (0.41)	-0.13 (0.65)	0

E = Extraversion, A = Agreeableness, C = Conscientiousness, E.S. = Emotional Stability, I = Intellect. Sober = the means of self-reported sober levels of the five factors, by cluster; Drunk = the means of self-reported drunk levels of the five factors, by cluster; Residual = the means of the residuals of self-reported sober five factor levels predicting drunk five factor levels, by cluster. Highlighted cells represent notable deviations of that cluster from the overall sample mean (for Sober Levels, this corresponds to \pm one standard deviation, for Residuals this corresponds to an absolute value of ≥ 0.20).

Within-person magnitude of sober versus drunk differences

In order to determine the degree of difference between reports of sober and drunk personality traits (i.e. overall, how different is someone when he/she is drunk than when he/she is sober), we calculated within-person intra-class correlation coefficients (ICCs; Shrout & Fleiss, 1979) based on agreement between reports of all five factors when sober and drunk. Using ICC (3,1), which assesses absolute agreement and treats each participants' ratings of their personality traits as the only ratings of interest, results indicated that cluster membership is associated with sober versus drunk agreement (ICC) ($F(3,362) = 26.47, p < 0.0001$), with the Mary Poppins cluster having the highest ICC (0.60) and The Nutty Professor cluster having the lowest (0.05). However, ICC did not predict consequences ($F(1,361) = 1.46, p = 0.22$). Therefore, the magnitude of overall instability between one's reported sober and drunk personality was not associated with experiencing negative alcohol-related consequences; rather it is the nature of the specific form of instability that occurred.

Discussion

The primary purpose of this study was to assess the degree to which levels of sober and drunk personality traits can be grouped into meaningful clusters (i.e. "drunk types"), with the second aim being to examine the association between cluster membership and negative alcohol-related harms. Essentially we aimed to test the commonly-held lay assumption that multiple "types of drunks" exist and, if types emerged, determine if members of certain clusters were more likely to endorse symptoms of an AUD or alcohol-related consequences.

The finite mixture modelling procedure yielded four distinct clusters when self-reported sober FFM traits and self-reported residual drunk FFM traits were used as the input variables, and there was an overall association between cluster membership and consequences, despite no relationship between cluster membership and reported alcohol consumption patterns. The first group, labelled "Hemingway," was by far the largest and included those who reported only slightly changing when intoxicated. Specifically, members of this group reported decreasing less in Conscientiousness (e.g. being prepared, organized, prompt) and Intellect

(e.g. understanding abstract ideas, being imaginative) than the rest of the sample. Notably, two previous studies have found that, on average, these two factors reportedly decrease the most with intoxication (Winograd et al., 2012, 2014), so the moderate decreases demonstrated by this group make its members stand out as being "less affected" than drinkers in some of the other groups, much like the author Ernest Hemingway, who claimed that he could "drink hells any amount of whiskey without getting drunk" (Baker, 2003, p. 169). Additionally, this cluster was not associated with experiencing more alcohol-related consequences and therefore could be thought of as encapsulating the majority of drinkers who tend not to undergo drastic character changes or experience harms. The second cluster was labelled "Mary Poppins," and was composed of a small number of drinkers (approximately 14% of the sample) who are particularly Agreeable when sober (i.e. embodying traits of friendliness), and decrease less than average in Conscientiousness, Intellect, and Agreeableness when intoxicated. Accordingly, members of this cluster reported experiencing fewer overall alcohol consequences than those in the Mr. Hyde cluster (described next). The Mary Poppins group of drinkers essentially captures the sweet, responsible drinkers who experience fewer alcohol-related problems compared to those most affected. The third cluster, "Mr. Hyde," was defined by larger than average intoxication-related decreases in Conscientiousness, Intellect and Agreeableness. In other words, members of this group, much like the dark-sided Mr. Hyde, reported a tendency of being particularly less responsible, less intellectual, and more hostile when under the influence of alcohol than they are when they are sober, as well as relative to members of the other groups. In the significant model associating overall negative consequences with cluster membership, the Mr. Hyde cluster drove the association. This was the only cluster that was statistically more likely to experience alcohol consequences, suggesting that individuals in this group not only embody less savoury personality characteristics when drunk, but also incur acute harm from their drinking (e.g. experiencing a memory blackout; been arrested because of drunken behaviour; see Hurlurt & Sher, 1992, for a full list of YAAPST items). Members of the fourth and final cluster, labelled "The Nutty Professor," tended to be particularly introverted when sober but demonstrated a large increase in Extraversion and decrease in

Table 2. Summary of cluster characteristics.

Cluster	<i>n</i>	Name	% Male	Sober personality deviations from average	Residual drunk personality deviations from average	ICC	Adjusted mean (SE) of overall consequences
1	153	Hemingway	50%		+ Conscientiousness + Intellect	0.53	6.76 (0.27) _{ab}
2	54	Mary Poppins	37%	+ Agreeableness	+ Agreeableness + Conscientiousness + Intellect	0.60	5.80 (0.45) _a
3	84	Mr. Hyde	33%		– Agreeableness – Conscientiousness – Intellect	0.38	7.36 (0.37) _b
4	73	The Nutty Professor	48%	– Extraversion	+ Extraversion – Conscientiousness	0.05	6.40 (0.38) _{ab}

Means in the same column that do not share a subscript differ significantly $p < 0.01$. Means adjusted for binge drinking frequency and typical quantity of alcohol consumed.

Conscientiousness when drunk, relative to their sober levels of these traits. They also tended to report having the most overall discrepancy between their reported sober and drunk FFM traits, as indicated by the lowest ICC of the four clusters (0.05). Surprisingly, membership in this cluster was not associated with experiencing more alcohol-related consequences within the past year. So, although the personality change displayed by “The Nutty Professors” may be the most dramatic, this does not appear to be associated with elevated harm – at least in terms of the alcohol-related consequences assessed in this study. This is likely because their mean drunk levels of these traits, though vastly different from their sober means, were still in the normal range when compared to the means of participants in the other clusters (see Table 1 for drunk means).

Limitations

Though our findings successfully address a previously untouched area of research and yield empirical support for classifying “types of drunks” through self-reported personality variables, some limitations should be noted. First, our sample size, though considered large and adequate for many analytic approaches, was relatively small for discovering rare groups with multivariate analysis. Therefore, it is possible that more meaningful clusters would have emerged if our sample size had been larger. Moreover, it was comprised of mostly White, American College students, limiting the generalizability of the findings beyond this population. We are aware that use of a different sample (of older, severely alcohol-dependent individuals who mostly drink at home instead of out with friends, for example) would likely yield a different cluster structure, and therefore we do not attempt to extend or apply these findings beyond the college-aged drinkers who were studied. However, because the acute effects of alcohol can vary depending on the dose and context of a given drinking episode (as well as the salience of cues in the immediate environment [Steele & Josephs, 1990]), our instructions to report on one’s “typical” drunken experiences did not allow us to investigate differences in personality expression across different types of drunk situations. This is clearly a valuable direction for future work but was not among the objectives for this more foundational, exploratory study.

Second, our personality measure had ten items per factor, and therefore lacked detailed facet information, prohibiting us from classifying the ways in which peoples’ reported drunk personality expressions differ at a more highly resolved level of specific FFM component features. Third, because our “drunk types” were based on self-reported information, these reports may have been influenced by demand characteristics, personality-relevant alcohol outcome expectancies and other factors. However, it should be noted that even if expectancies were assessed, that would not provide directional information about the relationship between expectancies and intoxicated behaviours (specifically, do alcohol expectancies influence current behaviour, or does past behaviour shape current expectations about alcohol’s effects?). Additionally, the consistent associations that were found between cluster membership and alcohol consequences (for example, that those in the cluster with the largest negative personality

differences also reported experiencing the most alcohol-related consequences) suggest that the personality information reported is grounded in participants’ real drinking experiences, whether or not expectancies are influencing their reports. However, to address the above issues of limb effects and expectancies, objective measures of personality, obtained from trained raters viewing an experimental or naturalistic participant drinking session, would be valuable.

The fourth and perhaps most significant limitation is related to our strategy for determining the cluster structure – specifically, that only the self-reported and not the informant-reported information yielded distinct groups. Ideally, the informant-reported data would yield the same number and type of clusters and provide validation of the clusters from a multi-trait, multi-method perspective. However, we did not find this to be the case. Because our previous work (Winograd et al., 2014) demonstrated modest-to-moderate agreement between the self and informant-reported data, consistent with what is reported more generally in the personality literature (Oltmanns & Turkheimer, 2006), any explanation for the discrepancy in number of clusters revealed is, of necessity, speculative. It is possible, for example, that drinkers notice less change in others than they notice in themselves, as they are unable to experience the internal states of their drinking buddies and only have others’ outward expressions on which to base their impressions. Along those lines, it is also possible that self-reports are more reflective of the nuanced or even unexpected aspects of intoxicated transformations, whereas reports from informants may adhere more to stereotypical, “one size fits all,” perceptions of change. For such reasons, as noted earlier, self-reports typically represent the “gold standard” in assessing the personality domain both because the self is best positioned to report on internal states (i.e. thoughts and emotions) and covert behaviours, and has greater opportunity to be a consistent observer across situations and over time. Furthermore, it is possible that both self- and informant-reports were influenced by the salience of participants’ most recent drinking episodes, with particularly memorable behaviours or personality displays disproportionately colouring their reports of their “most typical” intoxicated personality. (However, one can also assume that these types of reports were randomly distributed throughout the sample and thus do not overly inflate the rates of certain personality traits over others.) Though the inability to replicate the cluster structure across informants represents a less robust phenomenon than if we had been able to demonstrate such replicability, we believe that incorporating observer reports in addition to self-reports adds strength to our methodology, highlights boundary conditions of our findings and raises the methodological bar for future investigations on this topic.

Conclusions and implications

Most would agree that the main problem with alcohol consumption – aside from the health complications that can result from excess use – is that some drinkers respond to intoxication in ways that cause harm. For example, some people are known to get angry and violent, careless and irresponsible, or weepy and inconsolable when drinking, and

that is often what earns them the label of being a “problem drinker.” However, until now, there has been no empirical investigation into the unique types of personality-like changes that people undergo when drinking, leaving the personality and alcohol research literature with few points of contact with lay perspectives and common folklore. Results from this study demonstrate that self-reported personality data do produce meaningful “types of drunks,” and that there is a certain type – what we have labelled the Mr. Hydres – that reports a particularly harmful transformation when intoxicated. Specifically, this group of people reports decreasing significantly in traits related to Agreeableness, Conscientiousness, and Intellect, and having more general symptoms of AUD and problems when under the influence. Though our previous work has demonstrated an association between aspects of alcohol-related personality change and negative consequences (Winograd et al., 2014), this study “narrowed down” the driving source of that association to a certain subset of drinkers.

These results, as well as the concept of “drunk personality” more broadly, hold promise for developing novel assessment-based and motivational interventions for problem drinkers. For example, clinicians could assess clients’ reported typical levels of their FFM personality traits for sober and drunk states, the alcohol-related consequences they have experienced, and their views of their ideal self, or how they aspire to be (Heidrich, 1999). Through the use of a personalized feedback intervention, the clinician could then discuss the traits that appear to change based on their report and the specific behaviours they have engaged in when under the influence. This information could be presented with the aim of developing discrepancies between the client’s current behaviour and how they see themselves or aspire to be. For example, the clinician might say something to the effect of the following: “According to your responses, you consider yourself a generally conscientious person and aspire to be even more responsible and vigilant, but you have also missed a number of days at work due to drinking and recently received an infraction for driving while intoxicated. Also, based on your responses about how you are when under the influence of alcohol, you fit within a cluster of drinkers who are defined by being particularly low in Conscientiousness, Intellect and Agreeableness when drunk. How do you reconcile all of this information?” From here, the clinician could use all the material for motivational enhancement or developing protective strategies from a harm-reduction approach. Essentially, the assessment of clients’ unique “drunk personality profiles” could provide a personalized link between their drinking episodes and the problems that result from them, and open the door for a tailored discussion about how their drinking, personality expression, and drunken behaviours are intertwined. However, because of the limitations noted earlier, we view the current paper as more of a “proof of concept” on the utility of adopting a person-based approach to studying “types of drunks” as a way of assessing global changes associated with intoxicated states. We see studies using more highly resolved facet-level information, objective measures of intoxication, broader sampling of drinkers, and larger samples as likely to provide more definitive typologies. Despite these limitations, we view the current effort as an important first step to characterizing the

wide variability in drunken comportment that is encoded in the views of lay persons, the recovery community, and treatment professionals.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

References

- Abe, K. (1968). Reactions to coffee and alcohol in monozygotic twins. *Journal of Psychosomatic Research*, 12, 199–203.
- Babor, T.F., Berglas, S., Mendelson, J.H., Ellingboe, J., & Miller, K. (1983). Alcohol, affect, and the disinhibition of verbal behavior. *Psychopharmacology*, 80, 53–60.
- Baker, C. (2003). *Ernest Hemingway, selected letters 1917–1961*. New York, NY: Simon and Schuster.
- Bühler, K.-E., & Bardeleben, H. (2008). Heuristic cluster analysis of alcoholics according to biographic and personality features. *Addiction Research and Theory*, 16, 453–473.
- Cloninger, C.R., Bohman, M., & Sigvardsson, S. (1981). Inheritance of alcohol abuse: Cross-fostering analysis of adopted men. *Archives of General Psychiatry*, 38, 861–868.
- Digman, J.M. (1990). Personality structure: Emergence of the five-factor model. *Annual review of psychology*, 41, 417–440.
- Donohue, K.F., Curtin, J.J., Patrick, C.J., & Lang, A.R. (2007). Intoxication level and emotional response. *Emotion*, 7, 103–112.
- Freed, E. (1978). Alcohol and mood: An updated review. *Substance Use and Misuse*, 13, 173–200.
- Giancola, P.R. (2000). Executive functioning: A conceptual framework for alcohol-related aggression. *Experimental and Clinical Psychopharmacology*, 8, 576–597.
- Goldberg, L. (1999). A broad-bandwidth, public-domain, personality inventory measuring the lower-level facets of several five-factor models. In I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality psychology in Europe* (Vol. 7, pp. 7–28). Tilburg, The Netherlands: Tilburg University Press.
- Goldberg, L.R. (1990). An alternative “description of personality”: The big-five factor structure. *Journal of Personality and Social Psychology*, 59, 1216–1229.
- Goldberg, L.R., Johnson, J.A., Eber, H.W., Hogan, R., Ashton, M.C., Cloninger, C.R., & Gough, H.G. (2006). The international personality item pool and the future of public-domain personality measures. *Journal of Research in Personality*, 40, 84–96.
- Heidrich, S.M. (1999). Self-discrepancy across the life span. *Journal of Adult Development*, 6, 119–130.
- Hurlbut, S.C., & Sher, K.J. (1992). Assessing alcohol problems in college students. *Journal of American College Health*, 41, 49–58.
- Kalin, R., McClelland, D.C., & Kahn, M. (1965). The effects of male social drinking on fantasy. *Journal of Personality and Social Psychology*, 1, 441–452.
- Laing, O.L. (2014). *The trip to Echo Spring*. New York: Picador.
- MacAndrew, C., & Edgerton, R. (1969). *Drunken comportment: A social explanation*. Chicago, IL: Aldine Publishing Company.
- Martinez, W.L., Martinez, A., & Solka, J. (2004). *Exploratory data analysis with MATLAB*. New York, NY: CRC Press.
- Mathworks. (2009). *Matlab*. Natick, MA: The Mathworks, Inc.
- McCrae, R.R., & Costa, P.T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*, 52, 81–90.
- McLachlan, G., & Peel, D. (2000). *Finite mixture modeling*. Wiley: New York.
- Miller, M.A., Hays, L.R., & Fillmore, M.T. (2012). Lack of tolerance to the disinhibiting effects of alcohol in heavy drinkers. *Psychopharmacology*, 224, 511–518.
- Oltmanns, T.F., & Turkheimer, E. (2006). Perceptions of self and others regarding pathological personality traits. In R.F. Krueger, & J.L. Tackett (Eds.), *Personality and psychopathology* (pp. 71–111). Guilford Press; New York.
- Shrout, P.E., & Fleiss, J.L. (1979). Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin*, 86, 420–428.
- Steele, C.M., & Josephs, R.A. (1990). Alcohol myopia: Its prized and dangerous effects. *American Psychologist*, 45, 921–933.

- Steinley, D. (2006). K-means clustering: A half-century synthesis. *British Journal of Mathematical and Statistical Psychology*, 59, 1–34.
- Steinley, D., & Brusco, M.J. (2011). Evaluating the performance of model-based clustering: Recommendations and cautions. *Psychological Methods*, 16, 63–79.
- Stevenson, R.L. (1886). *The strange case of Dr. Jekyll and Mr. Hyde*. New York: Scribner.
- Wechsler, H., Davenport, A., Dowdall, G., Moeykens, B., & Castillo, S. (1994). Health and behavioral consequences of binge drinking in college. *JAMA: Journal of the American Medical Association*, 272, 1672–1677.
- Winograd, R.P., Littlefield, A.K., Martinez, J.A., & Sher, K.J. (2012). The drunken self: The Five-Factor Model as an organizational framework for characterizing one's own drunkenness. *Alcoholism: Clinical and Experimental Research*, 36, 1787–1793.
- Winograd, R.P., Steinley, D., Sher, K.J. (2014). Drunk personality: Reports from drinkers and knowledgeable informants. *Experimental and Clinical Psychopharmacology*, 22, 187–197.
- Yi, H., Williams, G.D., & Smother, B.A. (2004). *Trends in alcohol-related fatal traffic crashes: United States, 1977–2002. Surveillance Report No. 69*. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism.