Self-Expression While Drinking Alcohol: Alcohol Influences Personality Expression During First Impressions

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Abstract

People are motivated to be perceived both positively and accurately and, therefore, approach social settings and adopt means that allow them to reach these goals. We investigated whether alcohol consumption helps or hinders the positivity and accuracy of social impressions using a thin-slicing paradigm to better understand the effects of alcohol in social settings and the influence of alcohol on self-expression. These possibilities were tested in a sample of 720 participants randomly assigned to consume an alcohol, placebo, or control beverage while engaged in conversation in three-person groups. We found support for the hypothesis that alcohol (compared with placebo or control) increased the positivity of observers' personality expression, but did not find support for the hypothesis that alcohol increased the accuracy of personality expression. These findings contribute to our understanding of the social consequences of alcohol consumption, shedding new light on the interpersonal benefits that alcohol can foster.

Any casual observer of human behavior can attest to the fact that alcohol is frequently consumed in social settings and is most often consumed without negative incident. Many observers would add that alcohol consumption often produces social benefits. Yet, the potential for alcohol to contribute to negative social consequences looms large. For example, imagine a situation in which Victoria is planning to attend a social gathering with new colleagues and is considering whether or not she should consume alcohol at the party. This is the first time she will meet her new colleagues, and she would like the encounter to go well. She would like her colleagues to leave with both an accurate and a positive impression of her. Would consuming moderate amounts of alcohol facilitate or hinder her success in achieving these dual goals? The aim of the present research is to address these questions by investigating whether consumption of alcohol in a social situation with unacquainted others leads a person to be perceived more or less positively and accurately.

Testing these hypotheses is important because the results have implications for the costs and benefits of alcohol consumption in social settings. People want to be perceived both accurately and positively (Goffman, 1959; Swann, 1983) and, therefore, approach social settings and adopt means that allow them to reach these goals (McKenna & Bargh, 1999;

Orehek & Human, 2017). Whether alcohol consumption facilitates or hinders this pursuit is of central importance, especially in light of the ubiquity of alcohol consumption across a wide swath of social contexts. Being perceived positively and accurately in first impression interactions has been associated with enhanced relationship development (Human & Biesanz, 2011a; Human, Carlson, Geukes, Nestler, & Back, 2018; Human, Sandstrom, Biesanz, & Dunn, 2013). In fact, accuracy predicts relationship development independently of (and just as strongly as) positive first impressions (Human et al., 2018; Human et al., 2013) and is also linked to greater psychological well-being (Human & Biesanz, 2011b; Human, Biesanz, Finseth, Pierce, & Le, 2014). When a person is perceived accurately, others are able to recognize the person's needs, to be responsive to their needs, and to

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anticipate the person's responses to their own actions (Human & Biesanz, 2013; Reis & Shaver, 1988). Therefore, knowing whether alcohol facilitates or hinders both the positivity and accuracy of social impressions would allow us to better understand the effects of alcohol in social settings and would fill an important gap in knowledge concerning the influence of alcohol on self-expression.

Research on thin slices—defined as less than 5 min of behavioral observation (Ambady, Bernieri, & Richeson, 2000)—has found that people are surprisingly accurate when making judgments of other people based on a small set of information (Ambady & Rosenthal, 1992). For example, thin slices have generated accurate impressions of target personality based on facial photographs (Berry, 1990; Borkenau, Brecke, Möttig, & Paelecke, 2009; Naumann, Vazire, Rentfrow, & Gosling, 2009), social media profiles (Back et al., 2010; Tskhay & Rule, 2014; Vazire & Gosling, 2004), tweets (Orehek & Human, 2017; Qiu, Lin, Ramsay, & Yang, 2012), material displayed in offices and bedrooms (Gosling, Ko, Mannarelli, & Morris, 2002), videos of participants reading prepared text (Borkenau & Liebler, 1993, 1995; Lippa & Dietz, 2000), short videos of participants carrying out a variety of behaviors alone or with another person (Borkenau, Mauer, Riemann, Spinath, & Angleitner, 2004), and short presentation of videotaped interactions of dyads (Carney, Colvin, & Hall, 2007; Funder & Colvin, 1988; Funder & Sneed, 1993). One advantage of a thin-slicing approach is that it involves no previous knowledge about a person and often removes contextual information, while also allowing many ratings to be made in a relatively short period of time. This approach allowed us to investigate whether first impressions made from thin slices are more accurate and/or positive when a target person is drinking than when they are not drinking. Using thin slices allowed us to have the same set of observers rate a large sample of targets and to keep observers unaware of whether the targets were drinking alcohol.

Cautionary Tales of Alcohol Consumption

Perusing the available professional perspectives on alcohol consumption would lead to a quick cautionary note for Victoria. A large body of research warns of the potential downsides of alcohol consumption, including impaired cognitive and psychomotor function (Hindmarch, Kerr, & Sherwood, 1991), executive functions (Guillot, Fanning, Bullock, McCloskey, & Berman, 2010; Weissenborn & Duka, 2003), attentional capacity (Dougherty, Marsh, Moeller, Chokshi, & Rosen, 2000; Steele & Josephs, 1988), inhibitory control (Abroms, Fillmore, & Marczinski, 2003; Abroms, Gottlob, & Fillmore, 2006; Field, Wiers, Christiansen, Fillmore, & Verster, 2010), prospective memory (Leitz, Morgan, Bisby, Rendell, & Curran, 2009), and

perceptions of risk (Fromme, Katz, & D'Amico, 1997). Research has also found that alcohol consumption leads to increased risk taking (Lane, Cherek, Pietras, & Tcheremissine, 2004; Sayette, Kirchner, Moreland, Levine, & Travis, 2004), need for cognitive closure (Webster, 1993), misperception of others' intentions (Abbey, 1982), and aggression (Bushman & Cooper, 1990; Cherek, Steinberg, & Manno, 1985). In line with the perspective that alcohol undermines performance, researchers have suggested that alcohol consumption can serve as a self-handicapping strategy (Jones & Berglas, 1978; Tucker, Vuchinich, & Sobell, 1981). It would seem from this body of work that if Victoria decides to consume alcohol, she is treading on thin ice. If she consumes alcohol, she may suffer from serious cognitive impairments with important negative social consequences. A well-meaning advisor may be wise to warn of these potential downsides to alcohol consumption. Specifically, it seems that these impairments may reduce the likelihood that a person would be perceived accurately and positively when drinking because alcohol causes a set of psychological changes that are both different from her normal functioning (reducing accuracy) and reflect social impairment (reducing positivity).

Potential Benefits of Alcohol Consumption

A search for professional perspectives on the social benefits of alcohol consumption also returns a set of potential positive outcomes that would facilitate her social goals. Jean Jaques Rousseau asserted that "A drunk mind speaks a sober heart." This statement, captured by the Latin phrase *in vino veritas*, articulates the lay theory that alcohol leads people to express their true self. This point of view is optimistic regarding the consequences of alcohol consumption for positive and accurate self-expression. It suggests that alcohol facilitates the expression of whoever a person truly is. When strangers engage in conversation, they often hold back, experience social anxiety, and allow their inhibitions to prevent them from showing their true selves (Aiken, Human, Alden, & Biesanz, 2014; Hull, 1981; Hull, Levenson, Young, & Sher, 1983). Rousseau's notion, then, suggests that alcohol may diminish this self-doubt and grease the wheels for accurate self-expression.

Indeed, previous research suggests that alcohol serves as a social lubricant by increasing gregariousness on the part of the actor. This perspective suggests a specific change in behavior—toward gregariousness—that is optimistic with respect to the likely influence of alcohol consumption on social interactions. It suggests that alcohol increases a normatively positive behavior that is likely to endear the actor in the eyes of social interaction partners and observers. Consistent with this perspective, research has shown that alcohol consumption can increase self-disclosure (Caudill, Wilson, & Abrams, 1987; Monahan & Lannutti, 2000), can

decrease social anxiety (Hull, 1981; Sayette, 2017; Sher, 1987; Steele & Josephs, 1990), and consistently increases extraversion, including a gregariousness facet subscale (Winograd, Littlefield, Martinez, & Sher, 2012; Winograd, Steinley, & Sher, 2014; Winograd, Steinley, Lane, & Sher, 2017). In addition, research has found that alcohol can increase happiness and sociability (Abe, 1968; Babor, Berglas, Mendelson, Ellingboe, & Miller, 1983; Kirchner, Sayette, Cohn, Moreland, & Levine, 2006; Martin, Earleywine, Musty, Perrine, & Swift, 1993; Sayette et al., 2012), helping behaviors (Steele, Critchlow, & Liu, 1985), generosity (Lynn, 1988), and social bonding (Kirchner et al., 2006), and decrease negative emotional responses to social stressors (Sayette, Smith, Breiner, & Wilson, 1992). Thus, it seems that alcohol may also have the potential to increase social cohesion and reduce anxiety (increasing positivity) and could facilitate self-disclosure and intimacy (increasing accuracy).

The Present Research

The aim of the present research was to investigate whether alcohol consumption increases (a) the perceived positivity of personality displays, and (b) (in)accuracy of personality displays with respect to one's typical self-reported (and, presumably, sober) personality. We predicted that alcohol consumption (vs. either placebo beverage consumption, in which participants were led to believe their nonalcoholic beverage contained alcohol, or consumption of a nonalcohol control beverage, in which participants were truthfully informed that their beverage contained no alcohol) would (a) increase positivity of drinking targets' personality expression and (b) increase accuracy of drinking targets' personality expression. Although our a priori predictions suggest that alcohol will increase positivity and accuracy, it is important to note that much of the available research on alcohol's effects would suggest the reverse prediction based on the assumption that alcohol impairs psychological and social functioning.

Our hypotheses and alternative possibilities were tested using the videotaped interactions from a study conducted by Sayette and colleagues (2012). In that study, participants engaged in conversations in three-person groups composed of strangers in a laboratory setting while consuming either alcohol, placebo, or nonalcohol control beverages. Sayette and colleagues (2012) found that people drinking in three-person groups (vs. placebo or control) smiled more, expressed less negative affect, were more talkative, and experienced more feelings of social bonding with one another. The current study added to this research by collecting an entirely new set of observer ratings specifically designed to test the current hypotheses and examined a set of social consequences that have important implications for understanding social drinking. For the present study, independent nondrinking observers blind to participants' drinking condition rated

participants' personalities, allowing us to examine the extent to which alcohol consumption influences judgments of others' stable patterns of thought, emotion, and behavior (Funder, 2012).

The present questions are important to study because, while Sayette and colleagues demonstrated that people themselves felt more bonded to their interaction partners, it is not known how those behaviors and feelings would translate to impressions made by outside observers. A group of people drinking may smile, laugh, and feel close to one another, but an important additional consideration is how outside observers may perceive such interactions. Do the benefits of alcohol consumption reported in Sayette and colleagues (2012) paper result in the additional social benefit of being perceived more positively and accurately by observers, or do they instead come with the social cost of reduced positivity and accurately on the part of observers? For example, the findings from Sayette and colleagues (2012) suggest that Victoria would enjoy her experience of drinking with her drinking companions, but they do not tell us whether a nondrinking colleague in the room would view her more or less positively. Furthermore, the original study was unable to examine the novel question of whether drinking alcohol would influence how accurately a person was perceived, which to our knowledge has not been examined in any prior work.

The use of the videotaped interactions from previous work offers several specific advantages. First, it allowed us to have seven new raters observe and rate the behavior of 720 targets, resulting in 5,040 unique impressions. Second, the behavioral displays represent rich and naturally occurring interactions in a carefully controlled laboratory environment. Third, the interactions have already been found to have social benefits inside the drinking group, so testing potential social costs and benefits with respect to impressions made on outside observers is particularly important.

The accuracy and positivity of observers' personality impressions were assessed using Social Accuracy Modeling procedures (Biesanz, 2010; Human & Biesanz, 2011a). The Social Accuracy Model allows for a direct and robust test of this hypothesis by allowing us to examine the extent to which observers' ratings of personality reflect (a) distinctive accuracy (Biesanz, 2010; Cronbach, 1955; Furr, 2008), defined by their correspondence to the target's unique, self-reported personality profile, and (b) normativity, defined by their correspondence to the average personality profile. Forming more distinctively accurate impressions refers to understanding a target's unique ordering of characteristics. For example, across traits, it could reflect recognizing that Victoria is more talkative than considerate and more considerate than tense, compared with most people, for example. Within a trait, it could reflect recognizing that Victoria is more talkative than solitary and more solitary than cheerful, compared with most people.

In line with past work (e.g., Carlson, 2016; Human et al., 2013; Orehek & Human, 2017), we used normativity as one

index of positivity given strong evidence that the average personality profile is highly socially desirable in nature (Borkenau & Zaltauskas, 2009; Edwards, 1957; Leising, Locke, Kurzius, & Zimmermann, 2016; Rogers & Biesanz, 2015; Zimmermann, Schindler, Klaus, & Leising, 2018); indeed, this association is so strong it has been termed the normative-desirability confound (see Wood & Furr, 2016, for review).[1] For example, most people tend to report being higher on extraversion, agreeableness, conscientiousness, and openness, and lower on neuroticism, and this patterning of traits is generally rated as being highly socially desirable (e.g., John & Robins, 1993; Rogers & Biesanz, 2015). Thus, forming more normative impressions on average across traits could reflect viewing Victoria as more considerate than talkative and more talkative than tense, as most people report being (and desire others to be), thereby also implying more positive impressions. Within a given trait, forming a more normative impression of Victoria's extraversion, for example, could reflect viewing her as more talkative and cheerful than solitary, and, by extension, as more extraverted. As a second indicator of the positivity of personality impressions, we also directly compared the mean levels of observer ratings of each trait across conditions. That is, if Victoria is drinking, is she viewed as more extraverted, on average across items, than Anna, who is abstaining?

Overall, then, we examined whether alcohol consumption predicted the positivity and accuracy of observer ratings on average across the Big-5 personality dimensions and for each of trait separately. Of note, the positivity and accuracy of personality impressions can be independent of one another (e.g., Funder & Colvin, 1997; Gagné & Lydon, 2004), thereby allowing for the possibility that alcohol consumption could increase both how positivity and accurately an individual is perceived.

Method

Participants

As reported elsewhere (Sayette et al., 2012), data were collected from 720 participants (360 men, 360 women; 83% White, 11% Black, 2.5% Asian, 1% Latino, 2.5% other) between the ages of 21 and 28 years. To examine effects of alcohol, 240 three-person groups held conversations after being randomly assigned to either the alcohol, placebo, or nonalcohol control condition. Each group was composed of individuals who were previously unacquainted. Sex composition was held constant across drinking conditions, such that in each condition, 20 groups were composed of each possible sex composition (0 females and 3 males, 1 female and 2 males, 2 females and 1 male, 3 females and 0 males).

Seven independent observers viewed videotapes of the group interactions and rated participant personality. All seven observers were undergraduate students (aged 19-22 years). Six of the observers were female and one was male.

Two were of East Asian descent, one of Southeast Asian Descent, and four were Caucasian.

Materials and Procedure

Participants arrived at the laboratory individually and first completed measures of their personality. After confirming that participants were unacquainted with one another, they came together in three-person groups to consume their beverages. Participants consumed their beverages together while engaged in a video-recorded free conversation over a 36-min period. Participants were unaware of the recording during the study and were informed that the true purpose of the study was to examine their responses to subsequent tasks. They were told that the cameras were present to allow the experimenters to monitor their beverage consumption from another room. All participants were informed of the video recordings following the study and consented to their use in research. They were seated equidistant to one another around a circular table in chairs positioned to allow for unobstructed videotaping. They were asked to remain seated and not to talk about their intoxication levels or the content of their beverages. Save for these instructions, they were free to talk about whatever they wanted.

Participant personality. Participants completed the NEO (neuroticism–extraversion–openness)–Five Factor Inventory (FFI; Costa & McCrae, 1992). This measure contains 60 items with response options ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). Five subscales were assessed with 12 items each, though responses to only five from each scale were examined in the current study to correspond to observer ratings: Neuroticism ($\alpha = .71$), Extraversion ($\alpha = .73$), Openness ($\alpha = .77$), Agreeableness ($\alpha = .63$), and Conscientiousness ($\alpha = .80$).

Beverage administration. Alcohol dosing followed guidelines used in previous research (e.g., Kirchner et al., 2006; Sayette, Martin, Perrott, Wertz, & Hufford, 2001). All beverages were prepared in front of participants. Alcoholic beverages were administered at a 0.82-g/kg dose for males and a 0.74-g/kg dose for females by mixing one part 100-proof vodka and 3.5 parts cranberry juice cocktail. This procedure resulted in a blood alcohol content (BAC) following the 36-min interaction period of about 0.06% ($SD = 0.012$) in the alcohol condition. To maintain a reliable placebo condition, participants in that condition were told that they would be consuming alcohol and their drink was poured in the exact same manner as in the alcohol condition, except that the vodka bottle contained flattened tonic water. In addition, the experimenter smeared participants' glasses with vodka before they were brought into the room to provide taste and smell cues to make the deception more believable. In this study, and in prior research (Martin & Sayette, 1993; Sayette et al., 2001), these procedures reliably led participants to think that they

had consumed alcohol. Participants in the control condition were told that they would not consume alcohol and were given cranberry juice cocktail. For each of three consecutive 12-min periods, participants were provided with a cup containing one third of their beverage and were asked to consume it within 12 min at a steady pace (for additional details, see Sayette et al., 2012).

Video ratings. During the 36-min interaction, four cameras recorded participant behavior. One camera was fixed on each of the three group members' faces, while a fourth camera shot the entire group from a longer distance. Using Observer Video-Pro software (Version 5, Noldus Information Technology), these videos were aligned such that group members' data were time synchronized.

Analyses of the videotaped interactions and self-reported perceptions among the interaction partners have been reported elsewhere (Sayette et al., 2012). For the present study, we presented seven independent observers with a four-panel screen in which they could view the last 3 min of the conversation with each of the four camera angles displayed in a synchronous manner. That is, observers viewed the camera angle with the full group shot in one panel, while seeing the individual group members' faces on the remaining panels of a 17-inch flat screen monitor (quad-split view). Observers watched the video clips in a private room with the door closed and listened to the audio using headphones. Observers were blind to drinking condition and were instructed not to discuss the videos with one another.

We chose to have participants watch a thin-slice segment of the videotaped interaction, which comprised the last 3 min of the conversation for several reasons. First, each observer watched all 240 videos and rated the personality of each person in each video. Thus, we wanted to keep the clips short enough to make this task feasible. Second, we wanted to capture a period of time in which participants in the alcohol condition would be maximally intoxicated. Finally, previous research has successfully used similar length videos to assess personality using the NEO–FFI (Borkenau et al., 2004; Oltmanns, Friedman, Fiedler, & Turkheimer, 2004).

These seven independent observers—blind to beverage condition—watched the final 3 min thin slice of the 36-min interaction and rated each person on each of the Big-5 dimensions. To keep the task as brief as possible while maintaining reliability of personality measurement, we used a total of 25 items from the NEO–FFI completed by participants, with five items representing each of the five factors. The five items were selected based on their factor loading to the subscale (McCrae & Costa, 2004) and inclusion of at least one reverse-keyed item on each subscale in effort to keep the scales somewhat balanced. Interrater reliability on average across items was good, mean intraclass correlation (ICC) $(2, k) = .57$, though it ranged from excellent for items that were more readily observable, such as those related to extraversion (e.g., "S/he really enjoys talking to people";

Table 1. Interrater Agreement and Mean Impressions as a Function of Beverage Condition.

Trait	Interrater agreement (ICC)		
	Alcohol	Control	Placebo
Extraversion	.78***	.75***	.83***
Neuroticism	.09	.00	.08
Agreeableness	.53***	.48***	.54***
Conscientiousness	.37***	.43***	.29***
Openness	.25***	.36***	.40***

Note. ICC = intraclass correlation $(2, k)$.
***$p < .001$.

mean ICC for extraversion = .80) to poor for less observable traits, such as items related to neuroticism (e.g., "When s/he's under a great deal of stress, sometimes s/he feels like s/he's going to pieces"; mean ICC for neuroticism = .06). Interrater agreement was significant for each trait except neuroticism and was quite consistent for each trait across conditions (see Table 1). None of the raters disproportionately contributed to lower reliability and therefore we retained all raters for analyses.

Data Analytic Procedure

For our main analyses, we employed Social Accuracy Model procedures (Biesanz, 2010; Human & Biesanz, 2011). This analytic strategy is uniquely suited to test these hypotheses as it allows the simultaneous assessment of both normativity and accuracy of personality expression. Social Accuracy Model estimates a crossed-random effects model where, at Level 1, each observers' personality ratings on each item were predicted by both (a) the average participant self-report on each *item* (providing an assessment of the normativity of impressions) and (b) each participant's unique self-report on each *item* (providing an assessment of distinctive accuracy). Negatively keyed items were not reverse-coded prior to analysis. Both distinctive accuracy and normativity were allowed to vary randomly as a function of the participant and rater. Modeling random effects as a function of drinking group did not substantially alter the pattern of results and introduced convergence issues so these were not included in the final models. We estimated models for all 25 items simultaneously, to obtain estimates of normativity and accuracy on average across all traits, and for the five items from each of the Big 5 separately to examine trait-specific effects.

To examine whether consuming alcohol influenced the normativity and accuracy of personality expression relative to control and placebo, we took a dummy coding approach with alcoholic-beverage condition as the reference group. We created two dummy-coded variables indicating whether the participant was in the control-beverage condition (Control: 0 = no; 1 = yes) or placebo-beverage condition (Placebo: 0 = no; 1 = yes). Both variables were then included, at Level 2 of the

model, as simultaneous predictors (moderators) of the normativity and accuracy slopes, thereby providing simultaneous tests whether levels of normativity and accuracy in the alcohol condition differ from both the control and placebo conditions. As such, a significant, negative interaction coefficient for the Control variable predicting the normativity slope would indicate that participants in the control-beverage condition were viewed significantly less normatively than participants in the alcoholic-beverage condition. Similarly, a significant, negative interaction coefficient for the Control variable predicting the accuracy slope would indicate that participants in the control-beverage condition were viewed significantly less accurately than participants in the alcoholic-beverage condition. Parallel interpretations can be made for the Placebo variable.

We utilized R (R Development Core Team, 2016) and the lme4 package (Bates, Mächler, Bolker, & Walker, 2015) for all analyses; sample R code for primary analyses can be found in the *Supplementary Online Materials*. Effect size estimates are not provided for the overall levels of accuracy and normativity as there is not an established method for obtaining these for these Level-1 effects. However, effect size estimates and confidence intervals (CIs) are provided for all comparisons of accuracy and normativity across conditions. Given the large sample size, CIs were estimated using the confint function with the Wald method in the lme4 package. To confirm the robustness of this approach for the present data, results were compared with bootstrapped CIs using 500 parametric resamples for a subset of models and were highly similar.

Results

Mean-Level Differences

Before examining the Social Accuracy Model, we first examined whether observers' ratings of participants' trait levels differed significantly across conditions with multilevel regression models in which observers' mean trait ratings of each target were predicted by the two dummy-coded condition variables, allowing intercepts to vary randomly by participant and rater. Of note, participants who were drinking alcohol tended to be viewed as significantly more extraverted than those in both the control and placebo conditions (see Table 2). Furthermore, participants who were drinking alcohol were also rated as significantly less neurotic compared with participants in the placebo condition, but not compared with participants in the control condition. Participants in the alcohol condition were not viewed significantly differently from those in the control or placebo conditions in terms of their mean levels of agreeableness, conscientiousness, and openness. Thus, these analyses provide initial evidence that the personalities of participants' who were consuming alcohol were viewed more positively, primarily on extraversion and partially on neuroticism.

We also ran models with the control condition as the reference group to compare it with the placebo condition. Participants in the placebo condition were viewed as significantly less extraverted, $b = -.06$, $d = -1.17$, $z = -2.13$, $p = .03$, and significantly more neurotic, $b = .03$, $d = .51$, $z = 2.81$, $p = .005$, compared with participants in the control condition (see Table 2 for other traits).

Normativity and Accuracy

Average levels of normativity and accuracy. On average across all trait items and conditions, participants were viewed significantly in line with the normative personality profile, $b = .54$, $z = 5.75$, $p < .0001$, and with their distinctive self-reported personality profiles, $b = .04$, $z = 4.57$, $p < .0001$. Levels of normativity and accuracy were also significant for each Big 5 trait, all ps $< .05$, on average across conditions. Overall, then, observers tended to view participants highly normatively and were also able to detect their unique self-reported traits, though levels of normativity were substantially higher than accuracy, as would be expected and consistent with past research using similar video-perceptions paradigms to assess distinctive self-other agreement and normativity (e.g., Biesanz & Human, 2010; Human, Biesanz, Parisotto, & Dunn, 2012).

Influence of alcohol on normativity. Did drinking alcohol influence how normatively participants were viewed? Table 3 presents the levels of normativity within each condition and comparisons between the alcohol-beverage condition and the control- and placebo-beverage conditions. As can be seen in Table 3, participants were viewed highly in line with the normative profile in the alcohol-beverage condition overall and for each trait, all ps $< .01$, especially agreeableness, for which observer ratings almost perfectly matched the patterning of the normative profile. Of note, the levels of normativity were significantly higher in the alcohol-beverage condition on average across traits and for extraversion, neuroticism, and agreeableness, compared with the control-beverage condition. Similarly, the levels of normativity were significantly higher in the alcohol-beverage condition on average across traits and when examining extraversion, neuroticism, agreeableness, and openness separately, compared with the placebo-beverage condition. Given the highly socially desirable nature of the normative profile, this indicates that participants who had consumed alcohol were viewed more positively, compared with those who had not consumed alcohol. Thus, both the mean-level difference and normativity analyses suggest that people consuming alcohol are viewed as more extraverted and less neurotic, while the normativity analyses further suggest that consuming alcohol may also enhance how agreeable, open, and conscientious people are perceived to be, suggesting this is a more sensitive approach. Taken together, these analyses provide converging evidence that the

Table 2. Mean Impressions of Each Trait as a Function of Alcohol Consumption Condition.

Trait	All conditions M (SD)	Alcohol M (SD)	Control M (SD)	Control versus alcohol d [95% CI]	Placebo M (SD)	Placebo versus alcohol d [95% CI]	Placebo versus control d [95% CI]
Extraversion	3.29 (.49)	3.37 (.47)	3.28 (.48)	−1.63** [−2.71, −0.56]	3.22 (.52)	−2.80*** [−3.87, −1.73]	−1.17* [−2.24, −0.10]
Neuroticism	2.78 (.33)	2.77 (.33)	2.77 (.32)	−0.12 [−0.48, 0.24]	2.79 (.34)	0.39* [0.03, 0.75]	0.51** [0.15, 0.87]
Agreeableness	2.79 (.44)	2.79 (.43)	2.79 (.45)	0.01 [−0.13, 0.14]	2.79 (.44)	−0.003 [−0.14, 0.13]	0.01 [−0.13, 0.14]
Conscientiousness	3.30 (.42)	3.30 (.43)	3.30 (.42)	0.10 [−0.78, 0.98]	3.31 (.41)	0.20 [−0.68, 1.08]	0.10 [−0.78, 0.98]
Openness	2.87 (.46)	2.88 (.47)	2.87 (.45)	−0.10 [−0.43, 0.23]	2.86 (.46)	−0.26 [−0.59, 0.07]	0.15 [−0.48, 0.18]

Note. CI = confidence interval.
*p < .05. **p < .01. ***p < .001.

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Table 3. Levels of Normativity Overall and as a Function of Beverage Condition.

Trait	All conditions b (SE)	Alcohol b (SE)	Control b (SE)	Control versus alcohol d [95% CI]	Placebo b (SE)	Placebo versus alcohol d [95% CI]	Placebo versus control d [95% CI]
All traits	.53*** (.093)	.59*** (.094)	.54*** (.094)	−0.23* [−0.43, −0.03]	.47*** (.094)	−0.46*** [−0.66, −0.26]	−0.23* [−0.44, −0.03]
Extraversion	.25** (.078)	.40*** (.039)	.20* (.086)	−0.89*** [−1.43, −0.37]	.15† (.086)	−1.08*** [−1.61, −0.55]	−0.18 [−0.72, 0.35]
Neuroticism	.45*** (.123)	.51*** (.129)	.43*** (.129)	−0.35** [−0.62, −0.09]	.42** (.129)	−0.41** [−0.68, −0.15]	−0.06 [−0.33, 0.20]
Agreeableness	.90*** (.133)	.99*** (.134)	.89*** (.134)	−0.44** [−0.74, −0.14]	.84*** (.134)	−0.68*** [−0.98, −0.39]	−0.25 [−0.54, 0.05]
Conscientiousness	.63** (.200)	.62** (.205)	.68*** (.203)	0.30 [−0.21, 0.80]	.59** (.203)	−0.15 [−0.66, 0.36]	−0.45 [−0.96, 0.06]
Openness	.41** (.125)	.45*** (.127)	.42*** (.127)	−0.13 [−0.52, 0.26]	.36** (.127)	−0.43* [−0.82, −0.04]	0.30 [−0.69, 0.09]

Note. b = unstandardized regression coefficient; d = effect size estimate; CI = confidence interval.
† =p < .10. *p < .05. **p < .01. ***p < .001.

personalities of those consuming alcohol tend to be viewed more normatively.

We also ran models with the control condition as the reference group to compare it with the placebo condition. Participants in the placebo condition were viewed significantly less normatively than participants in the control condition, on average across all traits, $b = -.05$, $d = -.23$, $z = -2.26$, $p = .02$, but not on any individual traits, all ps > .08 (see Table 3 for each trait). Thus, in line with the mean differences seen above, this indicates that placebo beverage may have led individuals to behave less rather than more normatively.

Influence of alcohol on accuracy. Did drinking alcohol also influence how accurately participants were viewed? Table 4 presents the levels of accuracy within each condition and comparisons between the alcohol-beverage condition and the control- and placebo-beverage conditions. Alcohol consumption had less of an impact on the accuracy of self-expression. In the alcohol-beverage condition, levels of accuracy were significant overall and for neuroticism, conscientiousness, and openness, all ps < .05, but not for extraversion or agreeableness, ps > .17 (see Table 4). These nonsignificant levels of accuracy for extraversion may have been driven by alcohol consumption, as participants in the placebo-beverage condition were seen with significantly greater accuracy than those in the alcohol-beverage condition. Thus, accurately perceiving extraversion may be more difficult when an individual is consuming alcohol, at least relative to those who think they are consuming alcohol but are not. Overall, then, alcohol consumption generally did not influence accurate self-expression, with the possible exception of hindering accuracy on extraversion.

There were also significant differences between accuracy in the control versus placebo condition, such that participants in the placebo condition were seen more accurately on their extraversion, $b = .13$, $d = .88$, $z = -2.58$, $p = .01$, but less accurately on agreeableness, $b = -.07$, $d = -.47$, $z = -2.72$, $p = .007$ (see Table 4 for other traits).

Discussion

Overall, consuming alcohol (as compared with placebo or control) in a group formation setting led individuals to be seen as possessing more positive personality traits, but not more accurately on their personality traits, by outside observers. In particular, when examining mean-level differences in ratings, people who consumed alcohol were rated as more extraverted and less neurotic. Furthermore, people who consumed alcohol were consistently seen more normatively on extraversion, neuroticism, and agreeableness, which, given the nature of the normative profile, further indicates that consuming alcohol promotes being viewed in a more extraverted and less neurotic manner, as well as more agreeable. Thus, the viewpoint that alcohol increases how sociable, warm,

and at ease one appears was supported. This is in line with the findings that alcohol promotes more positive social behavior and more positive and less negative affect (Fairbairn & Testa, 2017; Kirchner et al., 2006; Sayette et al., 2012; Winograd et al., 2017; Winograd et al., 2014) and is consistent with common lay alcohol outcome expectancies (e.g., Brown, Christiansen, & Goldman, 1987; Fromme, Stroot, & Kaplan, 1993). These results are also consistent with findings that people commonly choose to consume alcohol as a means of facilitating social motives (e.g., Kuntsche, Knibbe, Gmel, & Engels, 2005).

These findings are novel in demonstrating that such behaviors in turn lead outside observers to attribute these positive behaviors to these individuals' personalities, suggesting targets' alcohol consumption is influencing observers' stable attributions regarding these targets' thoughts, emotions, and behaviors. Being viewed in a more normative manner in first impression contexts has been linked to being liked more (Human & Biesanz, 2011) and greater liking and interaction frequency over time (Human et al., 2018; Human et al., 2013), providing further support for the idea that light to moderate alcohol consumption in social settings where others are drinking may have positive social consequences.

On average across traits and conditions, observers formed distinctively accurate impressions of participants' personalities—viewing them in line with their unique, self-reported personalities. This is in line with past work using similar video-perception paradigms and accuracy indicators (e.g., Biesanz & Human, 2010; Human et al., 2012) and the broader thin-slicing and personality impressions literature that suggests that accurate impressions can be formed on the basis of minimal information (Ambady et al., 2000; Ambady & Rosenthal, 1992; Back et al., 2010; Berry, 1990; Borkenau et al., 2009; Borkenau & Liebler, 1993, 1995; Borkenau et al., 2004; Carney et al., 2007; Funder & Colvin, 1988; Funder & Sneed, 1993; Gosling et al., 2002; Lippa & Dietz, 2000; Naumann et al., 2009; Orehek & Human, 2017; Qiu et al., 2012; Tskhay & Rule, 2014; Vazire & Gosling, 2004), though with a much larger sample of targets than typical and novel stimuli involving individuals having a naturalistic interaction with multiple new acquaintances. Further in line with past research, on average across conditions, traits that are generally considered more observable in such getting-acquainted settings, such as extraversion and openness, tended to be seen more accurately (and with greater interrater agreement) than traits that are generally considered less observable, such as neuroticism and agreeableness (e.g., Funder & Dobroth, 1987; John & Robins, 1993).

This study was the first to compare first impressions formed from thin slices of targets who were drinking alcohol to targets who were not drinking. Consuming alcohol did not consistently impact the accuracy of personality impressions. Thus, the notion that alcohol brings forth one's true self was not supported in this study. In fact, the only significant effect of alcohol consumption on accuracy was a negative effect on

Table 4. Levels of Accuracy Overall and as a Function of Alcohol Consumption Condition.

Trait	All conditions b (SE)	Alcohol b (SE)	Control b (SE)	Control versus alcohol d [95% CI]	Placebo b (SE)	Placebo versus alcohol d [95% CI]	Placebo versus control d [95% CI]
All traits	.04*** (.008)	.04*** (.012)	.04*** (.012)	−0.04 [−0.25, 0.17]	.04** (.012)	−0.02 [−0.23, 0.19]	0.02 [−0.19, 0.23]
Extraversion	.08*** (.021)	.05 (.036)	.03 (.036)	−0.15 [−0.82, 0.51]	.15*** (.036)	0.69* [0.20, 1.38]	0.88*** [0.21, 1.54]
Neuroticism	.03** (.009)	.03* (.012)	.02† (.012)	−0.05 [−0.23, 0.13]	.03** (.012)	0.04 [−0.14, 0.22]	0.09 [−0.09, 0.27]
Agreeableness	.03* (.012)	.02 (.019)	.06*** (.019)	0.25 [−0.07, 0.60]	−.01 (.019)	−0.19 [−0.54, 0.14]	−0.47** [−0.80, −0.13]
Conscientiousness	.07*** (.017)	.09*** (.028)	.06* (.028)	−0.18 [−0.72, 0.34]	.05† (.028)	−0.24 [−0.78, 0.27]	−0.07 [−0.60, 0.46]
Openness	.05** (.017)	.05* (.020)	.05* (.020)	0.004 [−0.26, −0.27]	.04* (.020)	−0.03 [−0.30, 0.23]	−0.04 [−0.30, 0.23]

Note. b = unstandardized regression coefficient; d = effect size estimate; CI = confidence interval.
† =$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

the accuracy of perceptions of extraversion. Specifically, consuming alcohol resulted in being perceived less accurately on extraversion relative to those consuming a placebo beverage. One reason for this decrease in accuracy for extraversion may be because of the large effect that alcohol had on the positivity of perceptions of extraversion, a finding echoed in another, recent experimental study which found robust differences in multiple extraversion facets between individuals consuming alcohol versus a control beverage in a social context (Winograd et al., 2017). Although accuracy and positivity can be independent of one another (e.g., Funder & Colvin, 1997), when positivity gets very high, variability in ratings is likely reduced, which may in turn come to hurt accuracy, as reduced variability in observer ratings will limit the extent to which these ratings can correlate with the validity measure. Nevertheless, the effect was quite small and did not emerge for the comparison between the alcohol- and control-beverage conditions, so must be interpreted with caution.

The more consistent pattern was that alcohol did not greatly impact how accurately participants were seen. Given the large sample size and sensitive analytical approach, it is unlikely we lacked sufficient power to detect even small effects of alcohol consumption on accuracy. Thus, moderate alcohol consumption does not appear to foster accurate self-expression. Just as importantly, though, moderate alcohol consumption does not appear to hinder accurate self-expression. This conclusion might be quite reassuring to observers who do not want to be led astray, and to alcohol consumers, who are likely motivated to be seen accurately or at least in line with their self-views (Goffman, 1959; Swann, 1983). Furthermore, being viewed accurately can also have positive social consequences, independent of being viewed positively (Human et al., 2018; Human et al., 2013). Thus, consuming alcohol may benefit relationship development by promoting the positivity of observers' impressions, without detracting from the benefits of accuracy, except perhaps in the case of extraversion. Returning to our opening example, Victoria may then choose to consume some alcohol at her gathering, which might increase how positively her new colleagues view her, without greatly reducing how accurately they view her.

Nevertheless, it is possible that alcohol consumption would have a stronger influence on accuracy with longer exposure to new acquaintances and in other social contexts, such as in first date settings and with existing acquaintances. In addition, obtaining alternative accuracy validation measures, such as close-other reports, is an important next step. Although self-reports are a common accuracy validity measure, they are not without flaws (see Vazire, 2010 for detailed discussion). Furthermore, it is possible that alcohol consumption could lead one to behave more in line with how one typically acts with close others but not necessarily more in line with one's self-views, increasing informant-other agreement without increasing self-other agreement. Indeed,

although close, others usually agree with self-reports regarding an individual's personality, agreement is unlikely to be perfect and can vary systematically as a function of the trait characteristics, such as desirability and observability (Funder & Colvin, 1997; Vazire, 2010; Winograd et al., 2014). Future research should also investigate the influence of alcohol consumption on aspects of the self beyond Big 5 personality traits, such as motives and values.

In this study, participants completed self-reports of their personality prior to the beverage administration. The hypothesis being tested here is whether they would behave more in line with those self-reports while drinking than not. If so, then the data would be consistent with the in vivo veritas hypothesis. If not, then the data would be inconsistent with in vivo veritas hypothesis. In fact, we did not find evidence for the in vivo veritas hypothesis. An alternative approach to the in vivo veritas hypothesis would suggest that because personality is accurately expressed while drinking, then self-reports of personality while drinking would be more accurate depictions of one's true self. Although the present research could not examine this possibility, future research could examine whether self-reports of one's own personality while sober and while drinking are differentially associated with behavior patterns and other indicators of one's personality.

Reconciling these findings with the many apparent psychological impairments caused by alcohol consumption, it is possible that these impairments may actually have positive effects in some social contexts and in the short-term. Hull and colleagues suggested that alcohol consumption reduces self-awareness because of reduced inhibitory control and executive functioning (Hull, 1981; Hull et al., 1983). Although self-awareness is important for adhering to social norms (e.g., avoiding aggressiveness, Hull & Van Treuren, 1986), it can also inhibit expression of a true and normative personality by fostering self-doubt and self-criticism (Hull, 1981). Thus, alcohol consumption may reduce self-awareness, and therefore may lead to positive social consequences in situations in which such reduction in self-awareness is unlikely to elicit harmful counter-normative behavior. One such social situation occurs when strangers interact in safe—albeit potentially socially awkward—settings. Such settings provide people with the challenge of overcoming social anxiety and awkwardness, while restricting the range of potential likely counter-normative behaviors (e.g., aggression) to a minimum (Fairbairn & Sayette, 2014).

It is important to note that these results are likely limited to the low-to-moderate levels of alcohol that participants consumed in this study. Higher levels of alcohol consumption could certainly carry more negative than positive social consequences for individuals, perhaps leading them to be seen less positively and also less accurately (though even here heavier participants drank as much as five or six standard alcoholic drinks in just 36 min). Furthermore, there may be some individuals for whom consuming alcohol would have more negative (or positive) consequences for both the

accuracy and positivity of personality impressions. Finally, these positive short-term social consequences of alcohol consumption may reinforce drinking behavior and could therefore contribute to the development of alcohol use disorders (Sayette, 2017; Sher, 1987).

The observers in the current study were not informed whether participants were consuming alcohol or not; though this helps to ensure that it is participant behavior and not observer expectations that drove the effects, it does mean that knowledge of whether another person is consuming alcohol or not could alter the pattern of results. Whether beliefs about the influence of alcohol on personality would strengthen or temper the pattern of results is unclear, but this is an important question as in daily life observers often do know whether or not others are consuming alcohol. In addition, all our coders were sober when rating the videos, while in the real world such perceptions likely occur with individuals who are sober as well as intoxicated. It would be interesting to extend this research in the future using both sober and intoxicated raters.

Previous research found that personality trait ratings are more strongly intercorrelated when making ratings of others than the self (Beer & Watson, 2008), and that observer ratings of personality after watching behavior had a simpler factor analytic structure than self-ratings tend to have (Leising & Bleidorn, 2011). It is possible that in the present study the participant self-reports had a more complex structure and were less intercorrelated than the observer ratings. However, due to the small sample of seven raters in this study, we were not able to investigate the factor analytic structure of observer ratings or compare them with self-reports. Another interesting question is whether the gender configuration of the groups influenced personality displays. Future research could explore these possibilities.

Conclusion

We found support for the hypothesis that during group formation, alcohol (as compared with placebo or control) reliably increased the positivity of personality expression, but did not find support for the hypothesis that alcohol increased the accuracy of personality expression. These findings therefore contribute to our understanding of the social consequences of alcohol consumption, shedding more light on the interpersonal benefits that alcohol can foster. Future research would benefit from examining the psychological and behavioral mechanisms linking alcohol consumption to more positive personality expression and by investigating whether these patterns replicate in different social settings (e.g., first dates, professional contexts), at different levels of alcohol consumption, and for longer term inter- and intrapersonal outcomes.

Note

1. To verify this interpretation within the current study, we collected social desirability ratings from a separate set of 22 observers who rated the extent they found it "highly desirable or positive" if a person possessed each trait. This social desirability profile was highly correlated with the normative profile, $r(24) = .71$, $p < .0001$, and using this profile instead of the normative profile yielded a highly similar pattern of results. Although past work has included both the normative and socially desirable profiles within the same models in an effort to disentangle these constructs (e.g., Rogers & Biesanz, 2015; Zimmermann, Schindler, Klaus, & Leising, 2018), in the current study, including both did not result in a clear pattern of results, suggesting the profiles were too overlapping to meaningfully separate. Given that the normative profile was based on a much larger set of ratings ($N = 717$) and has been more commonly used in past research, we therefore utilized the normative profile in our models as a joint indicator of forming normative and positive impressions.

Supplemental Material

Supplemental material is available online with this article.

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