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The Imbibing Idiot Bias:
Consuming Alcohol Can be Hazardous to Your (Perceived) Intelligence

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Abstract

Although alcohol consumption can impair cognition, we find that people over-generalize the association between alcohol and cognitive impairment when forming impressions of others. In the absence of any actual reduction in cognitive performance, people who hold an alcoholic beverage are perceived to be less intelligent than those who do not, a mistake we term the *imbibing idiot bias*. The bias is not driven by a belief that less intelligent people are more likely to consume alcohol. Instead, exposure to alcohol cues primes observers to expect cognitive impairment, and these expectations bias perceptions of people who consume alcohol.

Keywords: impression formation; impression management; conceptual consumption; person perception; alcohol

O God, that men should put an enemy in their mouths to steal away their brains!

—Cassio, *Othello*

What we consume influences the impressions we make on others (Berger & Heath, 2007, 2008; Gosling et al., 2002; Gosling, 2008). In this research, we examine how consuming alcohol influences how we are perceived. Of course, consuming alcohol may influence how we are viewed by changing our behavior. For example, after a few drinks, we may say or do something boorish, causing us to be viewed as unintelligent. However, separate from any influence on behavior, how does merely choosing to consume alcohol influence how we are perceived?

We hypothesize that choosing to consume alcohol can bias perceptions of the consumer's intelligence. Alcohol consumption and cognitive impairment frequently co-occur (e.g., Hull & Bond, 1986; Steele & Josephs, 1990), an association that has been illustrated for millennia in literature, cinema, bars, and homes. In fact, the relationship is likely to be so familiar that alcohol cues themselves may prime observers to expect cognitive impairment (Bargh, 2002). This is consistent with network models of memory, which suggest that when one concept is activated, closely related concepts become more cognitively accessible via a spreading activation process (e.g., Collins & Loftus, 1975).

Critically, expectations of cognitive impairment triggered by alcohol cues may act as a lens through which observers view individuals holding an alcoholic beverage (cf. Higgins, Rholes, & Jones, 1977; Srull & Wyer, 1979). This process may cause observers to judge individuals as less intelligent when they hold an alcoholic beverage than when they do not. We term this mistake the “imbibing idiot bias.” Given that perceptions of intelligence based on non-diagnostic cues can be influential (e.g., perceptions of intelligence inferred from pictures of

congressional candidates' faces predict election outcomes; Todorov et al., 2005), and that business is often conducted in informal settings involving alcohol (Schweitzer & Kerr, 2000), an imbibing idiot bias could prove costly. Thus, in this paper, we examine whether holding an alcoholic beverage biases perceived intelligence.

We also examine the process underlying this bias. Our thesis presumes that alcohol cues prime observers to expect cognitive impairment and to see it where it is not. An alternative explanation, however, is that observers believe that less intelligent people are more likely to consume alcohol. In fact, an episode of alcohol consumption is unlikely to be diagnostic of low intelligence. Some research has found no evidence of a link between IQ and drinking tendencies (Mortensen, Sorensen, & Gronbaek, 2005), while other research has found that moderate drinkers actually tend to perform better than non-drinkers on a range of cognitive tests (Elias et al., 1999; Stampfer et al., 2005). Nevertheless, observers may (wrongly) believe that alcohol consumption is diagnostic of low intelligence.¹ In what follows, we examine whether the bias is driven by beliefs about the diagnosticity of alcohol consumption or by primed expectations of cognitive impairment.

Finally, we examine the generality of the bias. Specifically, we examine whether observers' drinking tendencies influence their susceptibility to the bias. Previous research has demonstrated that non-drinkers and light-drinkers are more likely than moderate-drinkers and heavy-drinkers to believe that alcohol consumption leads to cognitive impairment (e.g., Leigh,

¹ To explore whether people think that consuming alcohol is diagnostic of intelligence, we asked 101 adults recruited from Amazon Mechanical Turk (45% female, mean age: 33), "Who do you think is more likely to drink alcoholic beverages on a regular basis: highly intelligent people or less intelligent people?" Participants could select one of three statements: "Highly intelligent people are more likely to drink alcoholic beverages on a regular basis," "Less intelligent people are more likely to drink alcoholic beverages on a regular basis," or "Highly intelligent people and less intelligent people are about equally likely to drink alcoholic beverages on a regular basis." A significant majority of participants (60%) indicated that highly intelligent people and less intelligent people are about equally likely to drink alcohol beverages on a regular basis ($p < .05$, sign test). The results suggest that most people believe that consuming alcohol is not diagnostic of intelligence.

1987). Thus, the association between alcohol and cognitive impairment may be strongest among non-drinkers and light-drinkers, which suggests that they will be the primary drivers of the bias.

Study 1

In Study 1, we asked participants (“observers”) to judge the intelligence of an actor (“target”) photographed holding an alcoholic beverage (wine), a non-alcoholic beverage (soda), or no beverage. We included a non-alcoholic beverage condition to examine whether any type of beverage jeopardizes perceived intelligence, or whether the bias is specific to alcoholic beverages. To examine whether alcohol selectively reduces perceived intelligence, we also asked observers to evaluate the target’s likeability.

Method

A total of 243 adults (61% female, mean age = 37) participated in a “Person Perception Study” in exchange for a small payment. We recruited participants via Amazon Mechanical Turk, a website validated by Paolacci, Chandler, and Ipeirotis (2010) and Buhrmester, Kwang, and Gosling (2011). We informed participants that they would view a photograph of a “junior-level manager.”

Participants then evaluated a photograph of an adult male in a suit and tie, drinking a glass of wine, a glass of soda (Coke), or nothing (see Appendix). Participants viewed the photograph for five seconds, and were then asked “To what extent do you think this person is intelligent?” and “To what extent do you think this person is likeable?” Perceived intelligence and likeability were rated on 1-7 scales, where 1 = *not at all* and 7 = *very much*. The photograph remained visible while participants made their ratings.

Results and Discussion

Participants perceived the target to be significantly less intelligent when drinking wine ($M = 5.43$) than when drinking soda ($M = 5.72$; $t(160) = 2.03$, $p < .05$) or when drinking nothing ($M = 5.75$; $t(160) = 2.24$, $p < .05$). Intelligence ratings did not differ significantly between the soda and no-drink conditions ($t(160) < 1$).

Type of drink did not influence perceived likeability. Likeability ratings did not differ significantly between the wine ($M = 4.07$) and soda conditions ($M = 4.27$; $t(160) = 1.06$, $p = .29$). Both means were significantly lower than the likeability mean in the no-drink condition ($M = 4.83$; both $ps < .01$), likely because the target in the no-drink condition had a slight smile and a more open body position (see Appendix), factors that stimulate liking (cf. Mehrabian, 1972). Importantly, body position was virtually identical in the wine and soda conditions, and cannot explain why perceived intelligence was significantly lower in the wine condition than in the soda condition.

Thus, we found that holding an alcoholic beverage selectively reduced perceived intelligence.

Study 2

Observers in Study 1 made judgments in the absence of information diagnostic of the target's intelligence. In Study 2, we examine whether the bias persists when there is evidence diagnostic of intelligence to consider. Specifically, observers watched a one-minute video of an actor making a persuasive argument. The actor consumed either an alcoholic or a non-alcoholic beverage while making his argument.

In Study 2, we also begin to disentangle two possible mechanisms underlying the imbibing idiot bias. Our thesis presumes that alcohol cues prime expectations of cognitive

impairment, and that these expectations bias subsequent perception of ambiguous targets.

Alternatively, people may believe that choosing to consume alcohol is diagnostic of low intelligence. For example, in Study 1, we may have observed the bias because observers think that having a glass of wine is diagnostic of low intelligence. To disentangle these alternative explanations, we manipulated whether the actor actively chose to consume an alcoholic beverage or merely accepted one after someone else chose it for him.

Method

We recruited 427 students (57% female) at a private northeastern university to participate in a series of experiments in exchange for \$10/hour. We introduced the experiment as a study designed to assess opinions toward comprehensive exams.

We informed participants that we recently approached several graduating seniors at a restaurant near campus and asked them to consider whether the university should require comprehensive exams prior to graduation. The seniors were presumably given a fact sheet about comprehensive exams and then asked to state their own opinion while being videotaped. We told participants that we would randomly select one of the videos and ask them to evaluate the speaker.

We told participants that, to thank each speaker, we paid them \$5 and bought them a drink. We varied who selected the drink (the speaker selected his own drink or the experimenter bought the same kind of drink for every speaker), as well as the type of drink (soda or a beer). (We filmed in a nondescript location – see Appendix – so that it would be unclear what most patrons would naturally choose to drink.) In the Forced Choice condition, we told participants:

We bought each person a [Coke / beer]. We approached this student before he had ordered a beverage and ordered the [Coke / beer] for him, which we paid for.

In the Free Choice condition, we told participants:

We bought each person a drink of their choice. We approached this student after he had ordered a [Coke / beer], which we paid for.

The experiment thus employed a 2 (Speaker Agency: Free Choice or Forced Choice) \times 2 (Drink Type: soda or beer) between-subjects design.

Participants then viewed a one-minute video of a male speaker making two arguments in favor of comprehensive exams. (Full stimuli are available from the authors on request.) We adapted these arguments from those used by Norton et al. (in press). Specifically, the speaker argued that undergraduates from institutions that implement comprehensive exams are more likely to get into law school and that peer schools have implemented comprehensive exams.

While making the arguments, the speaker held either a can of soda or a bottle of beer (see Appendix). Over the course of the video, the speaker took two sips of the beverage.

Following the video, we asked participants to indicate the extent to which they found the speaker's arguments persuasive, convincing, and thoughtful, as well as the extent to which they were "moved" by the speaker's arguments and the extent to which they were able to take the speaker seriously. Responses to each item were made on 1-7 scales, with higher responses indicating greater quality. We averaged the five responses to form an index of speaker persuasiveness ($\alpha = .88$).

Stimuli Pre-Test. Although our speaker was blind to our hypotheses, we pre-tested our stimuli to examine whether our speaker unconsciously behaved less intelligently when drinking beer. In the pre-test, 156 undergraduates from the same university listened to the audio from either the soda video or the beer video. These participants had no information about the beverages. After listening to the recording, participants rated the speaker on the index of speaker persuasiveness described above. There was no significant difference in speaker persuasiveness

between the beer and soda conditions (2.67 vs. 2.50; $p = .34$). This pre-test helps to rule out the possibility that the speaker spoke less persuasively when drinking beer.

Attention Check. After participants watched the video and evaluated the speaker, we asked them to recall what the speaker was drinking. Participants could select one of five options: Coke, Beer, Water, Other, or Don't Recall. We also asked participants to indicate who had selected the speaker's drink: the Speaker, the Scientist conducting the study, or Don't Recall.

Nearly all participants (99.5%) correctly recalled what the speaker was drinking ($p < .0001$, sign test). A significant majority (75%) also correctly recalled who selected the drink ($p < .0001$, sign test).

Results and Discussion

We focused our analyses on the 319 participants who correctly recalled what the speaker was drinking and who selected it. We conducted a factorial ANOVA treating the speaker persuasiveness index as the dependent variable, and Speaker Agency and Drink Type as independent variables. We found a significant main effect of Drink Type ($F(1,315) = 4.99$, $p < .05$). Specifically, the speaker's arguments were viewed as significantly less persuasive when the speaker was drinking beer than when the speaker was drinking soda (2.86 vs. 3.21; $t(317) = 2.46$, $p = .014$). There was no main effect of Speaker Agency ($F(1,315) = .19$, $p = .67$) and no interaction ($F(1,315) = .16$, $p = .69$).²

The results suggest that the imbibing idiot bias persists when evidence diagnostic of intelligence is available (in this case, a one-minute persuasive argument in favor of comprehensive exams). The results also suggest that the bias extends beyond evaluations of trait levels of intelligence, and can influence evaluations of specific arguments. Finally, because the

² The results do not substantively change if we include participants who failed the Attention Checks. In this analysis, we find a main effect of Drink Type ($F(1,423) = 3.38$, $p = .067$), no main effect of Speaker Agency ($F(1,423) = .03$, $p = .87$) and no interaction ($F(1,423) = .06$, $p = .81$).

bias persists when the target did not actively choose to consume alcohol, the results suggest that the bias may not be driven by beliefs about the type of people who choose to consume alcohol.

Study 3

In Study 3, we provide a stronger test of the process underlying the imbibing idiot bias. Specifically, we examine whether priming the concept of alcohol causes observers to judge targets (holding no beverage at all) as less intelligent. If the bias reflects a belief that less intelligent people are more likely to consume alcohol, we should observe no difference in judgments of the target's intelligence across priming conditions. However, if alcohol cues prime expectations of cognitive impairment, and these expectations bias subsequent perception of ambiguous targets, targets holding no beverage at all should be viewed as less intelligent when observers are primed with alcohol cues.

Method

We recruited 176 adults (63% female, mean age = 34) from Amazon Mechanical Turk to participate in a "Perception Study" in exchange for a small payment. We described the experiment to participants as consisting of two separate studies.

To manipulate whether participants were primed with the concept of alcohol, we adapted a method validated by Bartholow and Heinz (2006). Specifically, we informed participants that in "Study 1" they would evaluate print advertisements. Participants were either randomly assigned to view six alcohol-related ads (e.g., Stolichnaya vodka) or six neutral ads (e.g., Ritz crackers). To build credibility in our cover story, we asked participants to evaluate the extent to which each ad was "visually appealing" and likely to be "effective among its target audience." The ads we selected featured the product itself. None of the ads depicted people.

Next, we asked participants to complete “Study 2,” described as a pre-test of a photograph we planned to use in a future experiment. Participants then viewed a photograph of a male actor sitting at a table. The target in this experiment held no beverage (see Appendix), and the photograph of the target was the same across conditions. Participants rated the extent to which the target was “intelligent” and “likeable” on 1-7 scales, where 1 = *not at all* and 7 = *very much*.

Results and Discussion

Participants rated the target as less intelligent following the alcohol prime than they did following the neutral prime (4.44 vs. 4.77; $t(174) = 1.98, p < .05$). We found no difference in likeability ratings across the alcohol and neutral prime conditions (4.54 vs. 4.57; $t(174) < 1$). These results suggest that the imbibing idiot bias is not driven by beliefs about the type of people who choose to consume alcohol.

Study 4

In Study 4, we examine whether characteristics of observers moderate the magnitude of the imbibing idiot bias. Previous research has demonstrated that non-drinkers and light-drinkers are more likely than moderate-drinkers and heavy-drinkers to believe that alcohol consumption impairs cognition (Leigh, 1987). Thus, the association between alcohol and cognitive impairment may be strongest among non-drinkers and light-drinkers, meaning that the imbibing idiot bias may be driven primarily by people who drink infrequently. Study 4 investigates this hypothesis.

Method

We recruited 202 adults (54% female, mean age = 35) from Amazon Mechanical Turk. We informed participants that they would view a photograph of a “student who is about to graduate from college.”

Participants then evaluated a photograph of an adult male dressed casually, holding a bottle of beer or no beverage (see Appendix). Participants viewed the photograph for five seconds, and then rated the target’s perceived intelligence and likeability on 1-7 scales, where 1 = *not at all* and 7 = *very much*. The photograph remained visible while participants made their ratings.

Finally, to assess participants’ typical alcohol use, we asked “During a typical week, how often do you drink alcohol?” Responses were made on a 0-8 scale, where 0 = I do not drink alcohol, 1 = Once in a while, 2 = One day per week, ..., and 8 = Every day.

Results and Discussion

Consistent with our previous experiments, participants perceived the target to be significantly less intelligent when holding an alcoholic beverage than when holding no beverage (4.62 vs. 4.99, $t(200) = 2.69$, $p < .01$). Likeability ratings did not differ significantly between the alcoholic beverage and no beverage conditions (4.77 vs. 4.84, $t(200) = .42$, $p = .67$).

Next, we examined the influence of participants’ typical alcohol use. Alcohol use correlated positively and significantly with intelligence ratings when the target was holding an alcoholic beverage ($r(102) = .20$, $p < .05$). That is, the more the observer typically consumes alcohol, the less likely they are to commit the imbibing idiot bias. This pattern is consistent with the idea that the association between alcohol and cognitive impairment is strongest among non-drinkers and light-drinkers.

An alternative explanation could be that observers who drink infrequently view everyone, whether they are consuming alcohol or not, as less intelligent. However, alcohol use did not predict intelligence ratings when the target was holding no beverage ($r(96) = -.05, p = .64$), ruling out this alternative account.

Another alternative explanation could be that observers who drink infrequently view people who drink alcohol as more negative overall. If this is the case, then targets holding an alcoholic beverage should be viewed as both less intelligent and less likeable by observers who drink infrequently. However, alcohol use did not predict likeability ratings when the target was holding an alcoholic beverage ($r(102) = .08, p = .42$), ruling out this alternative account.

The results suggest that the imbibing idiot bias is driven primarily by people who drink infrequently. This does not occur because people who drink infrequently view everyone as less intelligent, or because they have a generally negative view of drinkers. Instead, the results are consistent with the idea that the association between alcohol and cognitive impairment is strongest among non-drinkers and light-drinkers.

General Discussion

The relationship between episodes of alcohol consumption and diminished cognitive performance is well-known. It is so familiar, in fact, that exposure to alcohol cues can cause people to judge others as less intelligent. The bias is observed in both the absence and presence of evidence diagnostic of intelligence and is observed for different types of alcoholic beverages (beer, wine). Exposure to alcohol cues causes observers to view targets, holding no beverage at all, as less intelligent, suggesting that the bias is not driven by a belief that less intelligent people are more likely to consume alcohol, but instead by expectation-driven evaluations of ambiguous

intelligence cues. While our results cannot entirely rule out that beliefs about the diagnosticity of alcohol consumption contribute to the bias (or that the bias is multiply determined), our results do indicate that beliefs about the diagnosticity of alcohol consumption are not a necessary component of the bias. Our results also reveal that the bias is primarily driven by observers who drink infrequently, consistent with the notion that the association between alcohol and cognitive impairment is strongest among non-drinkers and light-drinkers.

It is worth considering whether our results truly represent a bias. Previous research suggests that moderate drinking habits either do not correlate (Mortensen, Sorensen, & Gronbaek, 2005), or correlate positively (Elias et al., 1999; Stampfer et al., 2005), with intelligence. Thus, merely holding an alcoholic beverage (as in Studies 1 and 4) should not cause targets to be viewed as less intelligent people. Similarly, a rational account fails to explain why the same argument is judged to be less persuasive when the speaker takes two sips of an alcohol beverage rather than two sips of a non-alcoholic beverage (Study 2). The bias is most clearly established, however, in Study 3: merely priming observers with the concept of alcohol caused them to view targets, holding no beverage at all, as less intelligent.

Our work identifies a robust exemplar of “conceptual consumption” (Ariely & Norton, 2009), the tendency for the psychological effects of consumption to loom larger than the physical effects of consumption. Much prior conceptual consumption research has focused on how expectations influence the consumption experience (e.g., Lee, Frederick, & Ariely, 2006; Plassmann et al., 2008; Raghunathan, Naylor, & Hoyer, 2006; Shiv, Carmon, & Ariely, 2005). In contrast to the extant research, our work focuses on how expectations about the effects of consumption influence person perception.

Our work also contributes to the growing literature on alcohol and social cognition. Previous work in this area has focused on the “hostile perception bias,” which suggests that alcohol cues prime observers to interpret ambiguous behavior as hostile (Bartholow & Heinz, 2006; cf. Bègue et al., 2010; Friedman et al., 2007).³ The myriad ways in which alcohol might influence person perception, some of which may actually be positive, warrant additional research. But although there may be situations in which consuming alcohol helps the target make a better impression on others, note that in our work alcohol did not influence the target’s likeability. Instead, it selectively reduced the target’s perceived intelligence.

Future research could examine whether the bias we observe extends to other types of alcoholic beverages. We document the bias for the two most commonly consumed alcoholic beverages: beer and wine. Other types of alcohol that are more potent, such as distilled beverages (e.g., whisky), may elicit stronger expectations of cognitive impairment. Quite possibly, the bias we observe here may be stronger for other types of alcoholic beverages.

Additionally, the culture of the observer, or the cultural setting in which the observation is made, is likely to moderate this bias. The bias may be less pronounced in cultures where heavy drinking is more common, or at least less stigmatized.

Future work could also delve deeper into the influence of alcohol cues on persuasiveness. It is unclear, for example, precisely how the alcohol cue in Study 2 reduced the persuasiveness of the speaker’s argument. One possibility is that observers expected cognitive impairment and viewed the speaker’s arguments through that biased lens. Another possibility is that speakers who drink alcohol invite greater scrutiny of their arguments, consistent with prior work suggesting that arguments by routinely stereotyped sources (e.g., African Americans;

³ In a follow-up study, we found that alcohol diminishes perceived intelligence even when it does not influence perceived hostility, suggesting the imbibing idiot bias and hostile perception bias are separable. Data from this study can be obtained by contacting the authors.

homosexuals) elicit greater scrutiny (White & Harkins, 1994). The question is an important one as persuasion attempts are often made in the presence of alcohol (e.g., a job candidate promoting themselves over dinner, or a political candidate wooing voters at a bar).

It is worth considering whether evidence of other vices (e.g., holding a cigarette or a McDonald's bag) would also lead observers to judge targets as less intelligent. Unlike alcohol, episodes of smoking or eating fast food do not generally result in cognitive impairment. However, many people may believe that less intelligent people are more likely to smoke or eat fast food (in the U.S., at least). Thus, other vices may also reduce perceived intelligence, but for different reasons.

Prescriptively, our findings have relevance for individuals concerned with managing impressions of their intelligence. Alcohol plays an important role in many social and professional settings (Schweitzer & Kerr, 2000). People are often advised to limit their alcohol consumption in professional settings because of the potential for cognitive impairment (e.g., Capell, 2008). We identify a distinct factor that people should consider. Our work reveals that merely *holding* an alcoholic beverage can diminish perceived intelligence. If people in a position to be judged (e.g., job candidates at a dinner with their prospective employers) consider only the pharmacological effects of alcohol, they may order alcoholic beverages and consume them in moderation. Whether or not people avoid becoming intoxicated, merely choosing to consume alcohol may harm impressions others make of their intelligence (particularly when drinking with people who choose not to drink). Ultimately, what we drink may say more about us than we think.

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Appendix: Sample Stimuli

Study 1



Study 2 (Video screen shots)



Study 3



Study 4



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