Alcohol Myopia

The two faces of alcohol myopia: Attentional mediation of psychological stress.
Josephs, Robert A. and Steele, Claude M.
Journal of Abnormal Psychology, Vol 99(2), May, 1990. pp. 115-126.
Abstract:

Two studies provided evidence that alcohol's relationship to psychological stress is indirect and is mediated by the allocation of attention. Study 1 found that, as the attentional demands of a distracting activity increased, so did alcohol's reduction of anxiety. Study 2 replicated this effect and found that a highly demanding activity could reduce anxiety even without alcohol. This study further implicated the role of attention in anxiety reduction by demonstrating a relationship between changes in anxiety and response latency to a secondary monitoring task. Finally, in both experiments, intoxicated subjects who did not perform any activity showed an increase in anxiety. From these data, we argue that alcohol affects psychological stress, to an important degree, through its ability, in conjunction with ongoing activity, to affect the amount of attention paid to stressful thoughts.

Alcohol myopia: Its prized and dangerous effects.
Steele, Claude M. and Josephs, Robert A.
American Psychologist, Vol 45(8), Aug, 1990. pp. 921-933.
Abstract:

This article explains how alcohol makes social responses more extreme, enhances important self-evaluations, and relieves anxiety and depression, effects that underlie both the social destructiveness of alcohol and the reinforcing effects that make it an addictive substance. The theories are based on alcohol's impairment of perception and thought—the myopia it causes—rather than on the ability of alcohol's pharmacology to directly cause specific reactions or on expectations associated with alcohol's use. Three conclusions are offered: (a) Alcohol makes social behaviors more extreme by blocking a form of response conflict. (b) The same process can inflate self-evaluations. (c) Alcohol myopia, in combination with distracting activity, can reliably reduce anxiety and depression in all drinkers by making it difficult to allocate attention to the thoughts that provoke these states. These theories are discussed in terms of their significance for the prevention and treatment of alcohol abuse.

Recollections of a robbery: Effects of arousal and alcohol upon recall and person identification.
Read, J. Don, et.al.
Law and Human Behavior, Vol 16(4), Aug, 1992. pp. 425-446.
Abstract:

One week after committing a simulated robbery while intoxicated or sober, each of 142 male university students recalled the event within a 'cognitive interview.' In Exp 1, alcohol consumption reduced the accuracy of recall of information about persons. In Exp 2, person identification (ID) suffered following the consumption of alcohol, but only when arousal was low. Higher levels of arousal appeared to minimize the negative impact of alcohol on encoding and recall. Alcohol impaired Ss' recollections of what they did. Data from Exp 2 supported the hypothesis that increased arousal reduces attention to peripheral sources of information. A similar hypothesis about the effects of alcohol received only mixed support because the Ss' behaviors reflected the 'alcohol myopia,' but their IDs of target persons did not. Manipulations at the time of retrieval of Ss' beliefs about how much alcohol had been consumed also altered accuracy of recall.

Alcohol intoxication and memory for events: A snapshot of alcohol myopia in a real-world drinking scenario.

Schreiber Compo, Nadja, et.al.

Abstract:

Alcohol typically has a detrimental impact on memory across a variety of encoding and retrieval conditions (e.g., Mintzer, 2007; Ray & Bates, 2006). No research has addressed alcohol's effect on memory for lengthy and interactive events and little has tested alcohol's effect on free recall. In this study 94 participants were randomly assigned to alcohol, placebo, or control groups and consumed drinks in a bar-lab setting while interacting with a 'bartender'. Immediately afterwards all participants freely recalled the bar interaction. Consistent with alcohol myopia theory, intoxicated participants only differed from placebo and control groups when recalling peripheral information. Expanding on the original hypervigilance hypothesis, placebo participants showed more conservative reporting behaviour than the alcohol or control groups by providing more uncertain and 'don't know' responses. Thus, alcohol intoxication had confined effects on memory for events, supporting and extending current theories.

Alcohol, emotion and attention: Revisiting the alcohol myopia theory.

Mocaiber, Izabela, et.al.

Psicologia: Reflexão e Crítica, Vol 24(2), Apr-Jun, 2011. pp. 403-410.

Abstract:

Among the known effects of alcohol on behavior, the modulation of cognitive functions (such as attention and memory), emotion, risk-taking and aggressive behavior are noteworthy. Here, we performed literature review in order to reinterpret alcohol effects on behavior according to the Alcohol Myopia Theory. According to this construct, there is a reduction of attentional resources during alcohol intoxication, which are primarily allocated to the most salient events in a given situation. The consequence is a hyperfocus directed to emotional situations when they are sufficiently relevant to grab attention, or a reduced attentional focus to emotional events in the presence of a relevant demanding task. The understanding of the mechanism mentioned above support the discussion of propositions toward the prevention of problems related to alcohol consumption. Importantly, the attentional allocation model provides inputs for a discussion on the scientifically-supported public health propositions aimed at preventing problems related to acute alcohol intoxication.

Effects of alcohol on sequential information processing: Evidence for temporal myopia.

Fleming, Kimberly A., et al.

Psychology of Addictive Behaviors, Vol 27(1), Mar, 2013. pp. 184-190.

Abstract:

Alcohol Myopia Theory (AMT) posits that alcohol restricts the focus of attention, such that behaviors are determined only by highly salient environmental cues. While AMT is most commonly understood in terms of spatial attention, the present study tested the effects of alcohol in the temporal domain of attention. Seventy-one participants consumed either a placebo beverage or one of two doses of alcohol (0.40g/kg or 0.80g/kg ETOH) before performing an auditory discrimination task while event-related potentials (ERPs) were recorded. Consistent with typical sequential effects, placebo participants showed increased P300 amplitude and slowed behavioral responses when the current target differed from the two-back tone. In contrast, alcohol caused increased P300 and response slowing when the target tone differed from the one-back tone. These findings suggest that alcohol increases the salience of more recently encountered information, consistent with the general tenets of AMT.

The effects of alcohol intoxication on attention and memory for visual scenes.
Harvey, Alistair J., et.al.
Memory, Vol 21(8), Nov, 2013. pp. 969-980.
Abstract:

This study tests the claim that alcohol intoxication narrows the focus of visual attention on to the more salient features of a visual scene. A group of alcohol intoxicated and sober participants had their eye movements recorded as they encoded a photographic image featuring a central event of either high or low salience. All participants then recalled the details of the image the following day when sober. We sought to determine whether the alcohol group would pay less attention to the peripheral features of the encoded scene than their sober counterparts, whether this effect of attentional narrowing was stronger for the high-salience event than for the low-salience event, and whether it would lead to a corresponding deficit in peripheral recall. Alcohol was found to narrow the focus of foveal attention to the central features of both images but did not facilitate recall from this region. It also reduced the overall amount of information accurately recalled from each scene. These findings demonstrate that the concept of alcohol myopia originally posited to explain the social consequences of intoxication (Steele & Josephs, 1990) may be extended to explain the relative neglect of peripheral information during the processing of visual scenes.

Heavy drinking, impulsivity and attentional narrowing following alcohol cue exposure.
Hicks, Joshua A., et.al.
Psychopharmacology, Vol 232(15), Aug, 2015. pp. 2773-2779.
Abstract:

Rationale: Research shows that alcohol-related stimuli have the propensity to capture attention among individuals motivated to consume alcohol. Research has further demonstrated that impulsive individuals are especially prone to this type of attentional bias. Recently, it is suggested that alcohol cue exposure can also produce a general narrowing of attention consistent with the activation of approach motivational states. Objective: Based on previous models of addiction and recent research on the activation of approach motivational states, we predicted that impulsive individuals would demonstrate a constriction of attentional focus in response to alcohol cue exposure. Methods: Participants (n = 392) completed a task assessing attentional breadth in response to alcohol and non-alcohol cues, followed by measures of alcohol use and impulsivity. Results: The findings revealed that impulsivity scores predicted narrowing of attentional scope following the presentation of alcohol cues for heavier drinkers but not for light drinkers. Conclusion: These results suggest that impulsive individuals who drink more heavily demonstrate a narrowing of attention in the presence of alcohol-related incentive cues. Implications for how these findings might account for the link between impulsivity and alcohol use and misuse are discussed.

Intoxicated witnesses: Testing the validity of the Alcohol Myopia Theory.
Crossland, Deborah, et.al.
Applied Cognitive Psychology, Vol 30(2), Mar-Apr, 2016. pp. 270-281.
Abstract:

In an assessment of the Alcohol Myopia Theory (AMT), the effects of alcohol on an eyewitness's recall of high-salience and low-salience details were investigated. In a laboratory, Study 1 participants watched a staged videoed theft whilst either sober (control

or placebo), above (MBAC = 0.09%) or below (MBAC = 0.06%) the UK drink-drive limit. A week later, a free recall and recognition tests were completed. Intoxication was not found to reduce recall accuracy using either recall task. In Study 2, whilst on a night out, participants watched the videoed theft with high (MBAC = 0.14%) or low (MBAC = 0.05%) blood alcohol concentrations (BACs). A week later, the free recall and recognition tests were attempted. High BACs were seen to impair recall when memory was assessed through free recall but not with the recognition test. Neither study found the attention narrowing predicted by AMT using either recall technique, although poor recall for low-salience details in all groups may have contributed to this result.

When alcohol narrows the field of focal attention.
Harvey, Alistair J.
The Quarterly Journal of Experimental Psychology, Vol 69(4), Apr, 2016. pp. 669-677.
Abstract:

The aim of this study was to measure the extent to which alcohol intoxication restricts the scope of attention in the visual field. A group of intoxicated (n = 31; mean BAC ≈ .08%) and placebo control (n = 31; mean BAC ≈ .00%) participants were required to correctly identify visual probes while performing two verbal categorization tasks: one designed to widen the scope of visual attention on to each stimulus word, the other to narrow attention on to the central letter of each word. Response times to surprise probes interpolated between categorization trials were measured and these catch trials could appear in any of the stimulus word letter positions. As predicted by alcohol myopia theory (AMT), which assumes that the drug narrows focal attention, intoxicated participants made slower responses than the sober controls to probes displayed in non-central letter positions, although right-field probe reaction times (RTs) were slower than those for left-field targets. This response asymmetry and the wider theoretical implications of these findings are discussed.

Booze cues and attentional narrowing: Neural correlates of virtual alcohol myopia.
Gable, Philip A., et.al.
Psychology of Addictive Behaviors, Vol 30(3), May, 2016. pp. 377-382.
Abstract:

Exposure to alcohol cues reduces the breadth of attentional scope, called 'virtual myopia.' Past researchers have suggested approach motivation as a possible mechanism that underlies this myopia in response to alcohol cues. We expanded on these findings in the current study by identifying the neural underpinnings of the relationship between attentional narrowing, approach motivation, and exposure to alcohol cues. Participants completed 64 trials that consisted of neutral or alcohol-related stimuli followed by a measure of attentional narrowing (i.e., Navons letter task). Electroencephalography (EEG) was recorded during the experiment to assess greater left frontal hemispheric asymmetry, a measure of approach motivation. Results revealed that alcohol cues led to greater 'virtual myopia' as measured by narrowed attentional scope. Greater left frontal activation to alcohol cues related to greater myopia, suggesting that approach motivation is associated with virtual myopia. Left frontal activation appears to be a neural correlate of cognitive narrowing related to approach motivation.

The effects of acute alcohol intoxication on the cognitive mechanisms underlying false facial recognition.
Colloff, Melissa F. and Flowe, Heather D.
Psychopharmacology, Vol 233(11), Jun, 2016. pp. 2139-2149.
Abstract:

Rationale: False face recognition rates are sometimes higher when faces are learned while under the influence of alcohol. Alcohol myopia theory (AMT) proposes that acute alcohol intoxication during face learning causes people to attend to only the most salient features of a face, impairing the encoding of less salient facial features. Yet, there is currently no direct evidence to support this claim.Objectives: Our objective was to test whether acute alcohol intoxication impairs face learning by causing subjects to attend to a salient (i.e., distinctive) facial feature over other facial features, as per AMT.Methods: We employed a balanced placebo design (N = 100). Subjects in the alcohol group were dosed to achieve a blood alcohol concentration (BAC) of 0.06 %, whereas the no alcohol group consumed tonic water. Alcohol expectancy was controlled. Subjects studied faces with or without a distinctive feature (e.g., scar, piercing). An old-new recognition test followed. Some of the test faces were 'old' (i.e., previously studied), and some were 'new' (i.e., not previously studied). We varied whether the new test faces had a previously studied distinctive feature versus other familiar characteristics.Results: Intoxicated and sober recognition accuracy was comparable, but subjects in the alcohol group made more positive identifications overall compared to the no alcohol group.Conclusions: The results are not in keeping with AMT. Rather, a more general cognitive mechanism appears to underlie false face recognition in intoxicated subjects. Specifically, acute alcohol intoxication during face learning results in more liberal choosing, perhaps because of an increased reliance on familiarity.

Alcohol and remembering a hypothetical sexual assault: Can people who were under the influence of alcohol during the event provide accurate testimony?

Flowe, Heather D., et.al.

Memory, Vol 24(8), Sep, 2016. pp. 1042-1061.

Abstract:

We examined the influence of alcohol on remembering an interactive hypothetical sexual assault scenario in the laboratory using a balanced placebo design. Female participants completed a memory test 24 hours and 4 months later. Participants reported less information (i.e., responded 'don't know' more often to questions) if they were under the influence of alcohol during scenario encoding. The accuracy of the information intoxicated participants reported did not differ compared to sober participants, however, suggesting intoxicated participants were effectively monitoring the accuracy of their memory at test. Additionally, peripheral details were remembered less accurately than central details, regardless of the intoxication level; and memory accuracy for peripheral details decreased by a larger amount compared to central details across the retention interval. Finally, participants were more accurate if they were told they were drinking alcohol rather than a placebo. We discuss theoretical implications for alcohol myopia and memory regulation, together with applied implications for interviewing intoxicated witnesses.

Testing Alcohol Myopia Theory: Examining the effects of alcohol intoxication on simultaneous central and peripheral attention.

Bayless, Sarah J. and Harvey, Alistair J.. Department of Psychology, University of Portsmouth,

Perception, Vol 46(1), Jan, 2017. pp. 90-99.

Abstract:

The effect of alcohol intoxication on central and peripheral attention was examined as a test of Alcohol Myopia Theory (AMT). Previous research has supported AMT in the context of visual attention, but few studies have examined the effects of alcohol intoxication on central and peripheral attention. The study followed a × 2 (alcohol treatment) × 2 (array size) 2 (task type) mixed design. Forty-one participants (placebo or intoxicated) viewed an array of four or six colored circles, while simultaneously counting

the flashes of a centrally presented fixation cross. Participants were instructed to prioritize flash counting accuracy. The subsequently presented colored probe matched the cued peripheral stimulus on 50% of trials. Flash counting and probe identification accuracy were recorded. There was a significant main effect of alcohol treatment on accuracy scores, as well as an alcohol treatment by task type interaction. Accuracy scores for the central flash counting task did not differ between treatment groups, but scores for peripheral probe identification were lower in the alcohol group. As predicted by AMT, alcohol impairment was greater for peripheral probe detection than for the central and prioritized flash counting task. The findings support the notion that alcohol intoxication narrows attentional focus to the central aspects of a task.

Alcohol increases inattentional blindness when cognitive resources are not consumed by ongoing task demands.

Harvey, Alistair J., et.al.

Psychopharmacology, Vol 235(1), Jan, 2018. pp. 309-315.

Abstract:

Rationale: Inattentional blindness (IB) is the inability to detect a salient yet unexpected task irrelevant stimulus in one's visual field when attention is engaged in an ongoing primary task. The present study is the first to examine the impact of both task difficulty and alcohol consumption on IB and primary task performance. Objectives: On the basis of alcohol myopia theory, the combined effects of increased task difficulty and alcohol intoxication were predicted to impair task performance and restrict the focus of attention on to task-relevant stimuli. We therefore expected increases in breath alcohol concentration to be associated with poorer primary task performance and higher rates of IB, with these relationships being stronger under hard than easy task conditions. Methods: This hypothesis was tested in a field study where alcohol drinkers in a local bar were randomly assigned to perform a dynamic IB task with an easy or hard visual tracking and counting task at its core (Simons and Chabris in Perception 28:1059–1074, 1999). Results: Increasing the difficulty of the primary task reduced task accuracy but, surprisingly, had no impact on the rate of IB. Higher levels of alcohol intoxication were, however, associated with poorer task performance and an increased rate of IB, but only under easy primary task conditions. Conclusions: Results are consistent with alcohol myopia theory. Alcohol intoxication depletes attentional resources, thus reducing the drinker's awareness of salient stimuli that are irrelevant to some ongoing primary task. We conclude that this effect was not observed for our hard task because it is more resource intensive, so leaves no spare attentional capacity for alcohol to deplete.

Two field studies on the effects of alcohol on eyewitness identification, confidence, and decision times.

Sauerland, Melanie, et.al.

Applied Cognitive Psychology, Vol 33(3), May-Jun, 2019. pp. 370-385.

Abstract:

In two field studies, bar tenants (Ns = 86 and 190, respectively) were successively approached by confederates C1 and C2 on a night out. Confederate C3 then presented participants with a six-person target-absent or target-present lineup concerning C1 or C2 (immediate test). Several days later, participants viewed a lineup regarding the confederate they had not attempted to identify earlier (C1/C2; delayed test). An immediate compared with a delayed, sober identification test did not increase the risk of a false identification decision. A blood alcohol concentration of 0.06–0.07% best discriminated accurate from inaccurate decisions. Choosers with a blood alcohol concentration ≤ 0.06% showed excellent calibration and little overconfidence, and their confidence was a strong indicator

of accuracy (i.e., good resolution). Choosers with a higher intoxication level displayed poor calibration and strong overconfidence. Nonchoosers were generally poorly calibrated. Combined analyses showed a negative effect of intoxication on one's ability to discriminate the target from nontargets.

Alcohol intoxication impairs eyewitness memory and increases suggestibility: Two field studies.

van Oorsouw, Kim, et.al.

Applied Cognitive Psychology, Vol 33(3), May-Jun, 2019. pp. 439-455.

Abstract:

Two field studies tested the effect of alcohol intoxication on memory for a live interaction at immediate, delayed, and repeated testing. In Study 1 (N = 86), one researcher presented bar tenants with (misleading) questions regarding a preceding interaction with another researcher. One week later, participants' memory was tested again. Study 2 (N = 189) added a delayed-testing only condition. We hypothesized intoxication to impair memory and enhance suggestibility and explored whether time of testing affected the outcome on these variables. In Study 1, intoxication reduced completeness and increased suggestibility. In Study 2, intoxication reduced completeness and increased suggestibility in delayed-only and repeated testing, compared with immediate testing. Sober participants benefited from repeated testing in Study 2, but not Study 1. Findings lend support for consolidation and decay theory and suggest that immediate (intoxicated) testing is preferable over delayed-only testing. Findings provide little support for alcohol myopia theory.

Observing alcohol myopia in the context of a trauma film paradigm: Differential recall of central and peripheral details.

Jaffe, Anna E., et.al.

Alcoholism: Clinical and Experimental Research, Vol 43(10), Oct, 2019. pp. 2203-2211.

Abstract:

Background: A major tenet of the alcohol myopia model is that intoxication results in a narrowing of attention to the most central environmental cues, at the cost of more peripheral information. Though long hypothesized, no known study of alcohol myopia has demonstrated differential immediate recall of central and peripheral cues using a standardized task. To address this gap, we conducted an alcohol administration study with a clear, standardized focus—a trauma film. Methods: Ninety-eight female social drinkers completed self-report measures, and then were randomized to consume a placebo beverage, a low dose of alcohol (mean breath alcohol concentration [BrAC] = 0.04%), or a high dose of alcohol (mean BrAC = 0.11%). Participants then moved to a staged room where they viewed a film clip depicting a sexual assault. After leaving the room, participants completed a written free recall task of the film and the room. Results: The distinction between recall of central and peripheral details was supported by confirmatory factor analysis. Consistent with the alcohol myopia model, relative to placebo, a high dose of alcohol led to impaired recall of peripheral (but not central) details. Although the interaction between BrAC and information type (central vs. peripheral) was not statistically significant, simple effects revealed a strong association between BrAC and peripheral information, and no association between BrAC and central information. Bolstering myopia as an explanation for our findings, neither central nor peripheral information correlated with self-reported tendencies to dissociate or distract oneself, or typical alcohol consumption or expectancies. Conclusions: Alcohol myopia can be observed through an immediate free recall task following a stressful film. Additional research is needed to continue evaluating dose-dependent differential recall in larger samples. This task may be

useful for clarifying the role of alcohol myopia in clinical phenomena, such as aggressive behavior and processing traumatic events.