

Alcohol intake leads people to focus on desirability rather than feasibility

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Abstract According to alcohol myopia theory (Steele and Josephs in *Am Psychol* 45:921–933, 1990) intoxicated people disproportionately focus on the most salient aspects of a situation and ignore peripheral information. We investigated whether consuming alcohol leads people to disproportionately focus on the desirability rather than feasibility of important personal goals. Students named an important personal goal and then either consumed alcohol or a placebo. Thereafter, we asked them to freely think about their goal and to write down their thoughts and images. We content-analyzed students' elaborations with regard to what extent they focused on the goal's desirability and on its feasibility. Intoxicated students wrote more about aspects of desirability and less about aspects of feasibility than those who consumed a placebo. The results suggest that this effect is one mechanism by which alcohol intake leads people to feel committed to personal goals despite low feasibility of attaining these goals (Sevincer and Oettingen in *J Abnorm Psychol* 118:623–633, 2009).

Keywords Alcohol · Desirability · Feasibility · Expectations · Incentive value · Goal commitment · Content analysis

Introduction

Drinking alcohol makes people short-sighted; it prevents them, for instance, from anticipating negative consequences (Sayette et al. 1993) and may lead to a greater willingness to engage in risky behaviors (e.g., drunk driving; MacDonald et al. 1995). This phenomenon of short-sightedness is known as alcohol myopia. According to alcohol-myopia theory (Steele and Josephs 1990), intoxicated people no longer have the processing skills to attend to all the information in a situation. Instead they disproportionately focus on the aspects that are most salient (e.g., being home quickly) rather than on more remote aspects (e.g., having an accident). As a result, intoxicated people's responses are disproportionately influenced by the salient aspects.

Alcohol myopia

By allocating attention, acute alcohol consumption has an impact on thinking, feeling, and behavior (summaries by Giancola et al. 2010; Hull and Slone 2004). Alcohol intake led for instance to less negative attitudes towards drinking and driving, but only in situations where impelling cues (being home quickly) for engaging in drunk driving were salient. In situations where no such cues were present, intoxicated participants' attitudes did not differ from those of sober participants (MacDonald et al. 1995). Similarly, intoxicated participants were *more* willing to engage in unprotected sexual intercourse than sober participants, but only in situations where *impelling* cues (a seemingly trustworthy partner) for engaging in unprotected sexual intercourse were salient (MacDonald et al. 2000). In the same vein, intoxicated people behaved more aggressively than sober people only when salient provocative cues (e.g., an

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electric shock) were present (Giancola and Corman 2007; Taylor et al. 1979). Alcohol intake also affected causal inferences, leading to exaggeration of either situational or dispositional causes for behavior, depending on which factors were most salient (Herzog 1999).

Further evidence for the myopic effects of alcohol comes from research on alcohol intake and stress. Specifically, alcohol decreased anxiety when intoxicated persons were distracted from thinking about an anxiety-evoking stressor (e.g., by having them engage in an unrelated activity), but alcohol increased anxiety when intoxicated persons were not distracted from the anxiety-evoking stressor (attention-allocation model; Steele and Josephs 1988; Steele and Southwick 1985; Steele et al. 1986). In other words, alcohol either decreased or increased anxiety depending on the type of cue—either distracting or anxiety-evoking—that were made salient.

We investigated whether alcohol myopia also affects how people think about important personal goals. Specifically, we suspected that consuming alcohol leads people when thinking about their goals to disproportionately focus on aspects of desirability rather feasibility. And this focus on aspects of desirability may be a mechanism by which alcohol intake leads people to feel committed to important personal goals even though these goals may hardly be possible to attain.

In the above studies the salience of a particular set of external cues was experimentally manipulated. Items were constructed in such a way that for example either impelling or inhibiting cues were highlighted. Alcohol-myopic effects however can also occur when a particular set of cognitions becomes activated without external cue manipulation. For instance, because people have a need to view themselves positively, information that supports this view is highly accessible (e.g., Greenwald 1980). When people are thus asked to evaluate themselves, information that supports a positive view is likely to become salient in people's cognitions. Under the influence of alcohol, then, people tend to focus on the subset of self-knowledge that is most salient and to ignore other, more peripheral, information (which may contradict a positive self-view), thereby leading to even more favorable self-evaluations than when sober (ego-inflation; Banaji and Steele 1989). In the same vein, we suspected that because a goal's desirability is more salient to people than its feasibility, when people are asked to think about a personal goal alcohol intake leads them to disproportionately focus on the goal's desirability rather than on its feasibility.

Desirability and feasibility

Desirability and feasibility are two key variables that determine people's goal commitment with subsequent goal

striving and goal attainment (e.g., Ajzen 1985; Atkinson 1957; Hull 1943; Locke and Latham 2002; for summaries see: Bargh et al. 2010; Gollwitzer 1990). Goal commitment has been defined as "one's attachment to or determination to reach a goal" (Locke et al. 1988, p. 24) and predicts the persistence and intensity of goal striving. In contrast, desirability is commonly operationalized as people's judgments about the importance or attractiveness of attaining a goal (i.e., incentive value) and feasibility by people's judgments about the likelihood of attaining a goal (i.e., expectations; Gollwitzer 1990).

Judgments of incentive value may refer to a variety of aspects. For example, to the pleasantness of the consequences of attaining the goals such as feelings, events, material and nonmaterial gains, self- and other evaluations, improvements to one's current situation, or moving toward superordinate goals. They may also refer to the process of achieving the goals such as experiencing joy while pursuing them (Gollwitzer 1990; Heckhausen 1977). Finally, judgments of incentive value may refer to people's preferences, values, and motives (McClelland 1985).

Expectancy judgments may also refer to a variety of aspects. For example, they may refer to being able to perform relevant goal-directed behaviors (i.e., self-efficacy expectations; Bandura 1997), to outcomes of goal-directed behaviors (i.e., outcome expectations; Bandura 1997), and to specific desired outcomes (i.e., general expectations; Oettingen and Mayer 2002). Incentive value and expectancy judgments can be assessed by simply asking people to self-report how important it is to them that they will attain their goal, and how likely it is that they will attain their goal, respectively (Bandura 1997; Heckhausen 1977).

Desirability and feasibility, however, may also be assessed by the extent to which people, when asked to think about a specified goal, focus on aspects related to the incentive value and expectations, respectively. That is, when thinking about a goal, aspects related to incentive and expectation may be more or less accessible (Gollwitzer 1990). Therefore, we asked participating students to freely think about an important goal and to write down their thoughts and images. The written elaborations were then content-analyzed with respect to the degree to which students generated statements about aspects related to the incentive or expectation of attaining their goal.

The assessment of psychological processes by content analysis has a long tradition (Viney 1983; Wundt 1896). Content analysis has been applied, for example, to interpret responses on the Rorschach inkblot test (Elizur 1949) or to examine spontaneous thoughts during problem-solving ("think aloud protocol", Newell and Simon 1972). In alcohol research content-analysis has been used to investigate

intoxicated persons' responses on the Thematic Apperception Test (TAT; Kalin et al. 1965). In the TAT, people are asked to write down their spontaneous thoughts and images in response to a series of ambiguous pictures. Drinking alcohol increased the frequency of aggression-related and physical sex thoughts and decreased fear-anxiety related thoughts.

Salience of desirability and feasibility

Research suggests that when people think about or imagine a long-term goal, aspects related to incentive value are more salient to them than expectation-related aspects (Liberman and Trope 1998): Incentive-related aspects represent the end of people's actions, and convey *why* people engage in their actions. Expectation-related aspects refer to the obstacles on the way to goal attainment and the means of *how* people can overcome the obstacles (Oettingen et al. 2001; for an overview Oettingen 2012). Expectation-related aspects also convey whether one is capable of performing specific goal-directed actions and whether these actions lead to the desired outcomes (Bandura 1997). According to action identification theory (Vallacher and Wegner 1987) aspects related to why people engage in an action tend to become pre-potent over aspects related to whether and how people can attain the outcomes. Therefore, we suspected that when intoxicated people are asked to think about a personal goal, alcohol myopia should lead them to disproportionately focus on incentive-related rather than on expectation-related aspects.

An intoxicated undergraduate student who thinks about becoming an outstanding researcher, for example, may focus on the incentive (i.e., the pleasantness or attractiveness) of the events that he or she associates with being an outstanding researcher (e.g., being admired at conferences, making an important scientific contribution) rather than on aspects related to his or her expectation of realizing the events, such as that he or she did not yet participate in a research project and that only few people become distinguished scientists. Focusing on aspects of the incentive value in turn may lead people to feel committed to their goals even if expectations are low.

Alcohol and goal commitment

Indeed, Sevincer and Oettingen (2009) found that people under the influence of alcohol felt committed to attain important personal goals even though their expectations of successfully attaining them were low. Students named an important personal goal (e.g., starting a romantic relationship) and indicated their expectations. Thereafter, they either consumed alcohol or a placebo. Finally, students reported their commitment. Whereas sober students felt

strongly committed to goals for which they had high expectations and only weakly committed to goals for which they had low expectations, intoxicated students felt strongly committed to goals for which they had high expectations as well as to goals for which they had low expectations. Thus, when expectations were low, intoxicated students felt more committed than those who consumed a placebo.

The present research goes beyond the findings by Sevincer and Oettingen (2009) as they elucidate the mechanism behind the effect of alcohol on commitment. Why does consuming alcohol lead people to feel committed despite low expectations? We suspected that alcohol leads people in their free thoughts and images to disproportionately focus on incentive-related rather than on expectation-related aspects, such as the cumbersome steps of attaining their goal, and thereby may foster feelings of commitment. Of importance, here we also addressed an alternative explanation for the effect of alcohol intake on commitment. Specifically, alcohol might affect commitment by raising people's incentive value or/and expectancy judgments, rather than, as myopia theory would predict, affecting their focus on the incentive-related aspects and away from the expectation-related aspects.

The present research

Students named their currently most important goal regarding acquiring a desired future identity (e.g., "becoming a development aid worker"). We chose a goal from the identity domain because realizing their desired identity is highly important to people (Markus and Nurius 1986). Moreover, attempting to replicate the findings from Sevincer and Oettingen (2009) that alcohol intake leads people to feel committed to goals despite low expectations we asked students to indicate their expectations.

Students then either consumed alcohol or a placebo. We used an alcohol and a placebo condition, because we were interested in the effect of alcohol that stems from the pharmacological properties of alcohol rather than from the belief in having consumed alcohol. A meta-analysis by Hull and Bond (1986) indicated that the pharmacological effect of alcohol and the effect of the belief in having consumed alcohol are independent of one another. Therefore, Hull and Bond concluded that if one is primarily interested in the pharmacological effects of alcohol consumption, comparing an alcohol condition with a placebo condition is the most appropriate design.

After the beverage consumption we asked students to freely think about their identity goal and to write down their thoughts and images. As a measure of the extent to which students focused on incentive-related versus expectation-related aspects, we content analyzed students'

elaborations with regard to how many statements they generated about how desirable it would be to attain their identity goal rather than statements about the cumbersome process of actually attaining it. Thereafter, students self-reported their commitment to realizing their desired identity. We hypothesized that intoxicated students (vs. those who consumed a placebo) would write relatively more about aspects of incentive (i.e., desirability) than aspects of expectations (i.e., feasibility). In addition, when their expectations were low, intoxicated students should feel more committed than those who consumed a placebo.

We also wanted to address two alternative explanations: Alcohol may heighten students' judgments of incentive value or/and expectation and thereby lead them to feel more committed. In contrast, we postulate that alcohol turns people's thoughts toward incentive-related rather than expectation-related aspects, and thereby leads to heightened commitment. To address, these alternative explanations, we measured incentive value and expectancy judgments twice, before and a second time after students consumed their beverages and indicated their commitment.

Method

Participants

Participants were 82 undergraduate Psychology students (64 female and 18 male, M age = 23.65 years, SD = 4.31) at a large German university. The study was advertised on campus as an investigation of "alcohol and perception." To exclude students who consume alcohol at a high risk level we screened them by telephone with the Brief Michigan Alcoholism Screening Test (Pokorny et al. 1972). In addition, students reported their current drinking habits. Specifically, they indicated the frequency (number of drinking occasions per week) and quantity (number of standard drinks consumed per drinking occasion; Vogel-Sprott 1992) of their drinking. A standard drink is defined by the National Institute on Alcohol Abuse and Alcoholism (NIAAA, n.d.) as any drink that contains about 18 ml of absolute alcohol, for example a standard bottle (355 ml) containing beer of 5 % alcohol. Only students who were at least 18 years of age and not on medication were allowed to participate. Female students took a pregnancy test prior to the experiment to objectively ascertain that they were not pregnant. The study was approved by the ethics commission of the German Medical Association. We asked students to abstain from eating for at least 4 h and from drinking alcohol for at least 12 h prior to the experiment; students were also requested to refrain from driving themselves to the experiment. They received course credit.

Procedure

Experimental sessions took place after 12:00 pm. Students were run individually and completed the experiment on a computer. The experimenter informed the students about the experimental procedure and students signed the consent form. Students' weight and height were taken.

Incentive value and expectancy judgments: Baseline

We first asked: "Which personal goal related to a specific desired identity would you like to achieve? Which identity goal is presently most on your mind?" (students named, e.g., "caring husband" and "being recognized as a talented musician"). We then measured students' judgments about their goal's incentive value and their expectations of attaining it (Klinger 1975; Heckhausen 1977). Specifically, we asked "How important is it to you that you will attain your identity goal?" and "How likely do you think it is that you will attain your identity goal?", respectively. The 7-point answer scales ranged from 1 (*not at all*) to 7 (*very*).

Beverage administration

We then randomly assigned students to one of the two conditions: alcohol and placebo. All students were told that they would receive alcohol. The experimenter mixed the drinks in sight of the students. Students in the alcohol condition saw their drinks being mixed from a tonic bottle and a bottle labeled "vodka" that contained 40 % vodka (Moskovskaya). Students in the placebo condition saw their drinks being mixed from a tonic bottle and a bottle labeled "vodka" that contained decarbonated tonic. The amount of alcohol that students in the alcohol condition received was calculated individually for each student to result in a peak blood alcohol concentration (BAC) of .07 % (whole blood). We used a BAC calculator that estimated people's BAC on the basis of the Watson equation (Watson et al. 1981) considering gender, weight, height, and age (Schmidt, n.d.). The drinks were mixed in a ratio of five parts tonic and one part vodka; at this dilution people cannot reliably detect the presence of vodka (Marlatt et al. 1973). Students in the placebo condition received the respective amount of liquid. The experimenter added a squirt of lime juice and poured the beverages into four glasses. To enhance the credibility of the placebo, all glasses were sprayed with vodka from a perfume vaporizer prior to the start of the experiment. The experimenter instructed students to consume each drink within 10 min and stressed the importance of adhering to the 10 min rule.

While consuming their drinks students watched a neutral movie about photography (National Geographic Society 1979). During that period students were left alone in the laboratory room. A tone sounded every 10 min to prompt the students to

finish their current drink and start drinking the next. After students finished their last drink, the movie continued for another 20 min, allowing for the absorption of the alcohol (the movie had a total playtime of 60 min). Once the movie ended, we took a BAC reading with a breathalyzer (Draeger Alcotest 6510). Whereas students in the alcohol condition saw their actual BAC, for students in the placebo condition the breathalyzer was preset to read a random value of around .07 %.

Thought content: Aspects of incentive and expectation

To investigate how much students, when asked to think about their goal, focused on aspects of incentive and expectation, students saw the identity goal that they had named beforehand displayed on the computer screen and read the following instructions:

In the following we would like you to think about your identity goal. You are free to think about whatever aspects related to your identity goal come to your mind. Let the mental images pass by in your thoughts and do not hesitate to give your ideas free reign. Take as much time and space as you need to describe your thoughts and type them in the space below.

Students typed their thoughts into the designated space.

Segmentation of elaborations into statements Two independent raters blind to conditions divided students' written elaborations into statements. A statement was defined as a phrase consisting of no more than one subject-predicate-object-adverb sequence (Cousins 1989). For example, if a student wrote "I would like to become a politically active person who is aware of the environment and does voluntary work", this was segmented into three statements: a) I would like to become a politically active person b) who is aware of the environment c) and does voluntary work. The average agreement on the appropriate segmentation of the elaborations into statements was 95 %.

Coding of the statements Next, the raters coded each individual statement into one of the following three categories: (a) incentive-related, (b) expectation-related, and (c) other. Interrater agreement was 88 % ($\kappa = .80$).

The incentive-related aspects encompassed statements that described the named identity goal in further detail. Moreover, we included statements about positive consequences of attaining the goal (Heckhausen and Gollwitzer 1987). These could be feelings, events, material gains, nonmaterial gains, self-evaluations, evaluations by significant others, improvements to one's current situation, or progress toward some superordinate goals.

Furthermore, the category encompassed statements about enjoyable activities while pursuing the goal. Finally,

because the desired outcomes represent the ends of people's actions (Vallacher and Wegner 1987), we also included statements about the reasons why students pursue their specific desired identity. These were statements about relevant personal preferences, values, or motives (Atkinson 1957; McClelland 1985).

The expectation-related aspects encompassed statements about whether students felt capable to perform relevant actions to attain the identity (self-efficacy expectations; Bandura 1997), about whether the relevant actions indeed lead to goal attainment (outcome expectations; Bandura 1997), and about whether the identity goal can or will be attained (general expectations, Oettingen and Mayer 2002). In addition, because people estimate their expectations on the basis of their past experiences (Bandura 1997), we also included thoughts about past successes and failures. Moreover, because people's expectations depend on the extent to which they consider potential obstacles to goal attainment (Oettingen et al. 2001) and are able to resist temptations and distractions (Mischel and Patterson 1978), we included statements about possible obstacles, hindrances, and temptations. Finally, we included thoughts about plans or necessary actions to attain the identities (Gollwitzer 1990) and about possible events or external circumstances that influence the likelihood of attaining the identities.

Aspects categorized as other encompassed statements that neither referred to the identity goal nor to aspects of the incentive or expectation of attaining it, such as statements about the world or the self in general, about neutral events, or about the experimental situation. For an overview of the coding categories with examples from students' elaborations see Table 1.

Goal commitment

To assess students' commitment to realizing their desired identity, we used three items that successfully have been used in previous studies to assess commitment (Oettingen et al. 2001; Sevincer and Oettingen 2009). Specifically, we asked: "How disappointed would you feel if you did not attain your identity goal?", "How hard would it be for you if you did not attain your identity goal?", and "How determined are you to attain your identity goal?" Students indicated their answers on 7-point scales ranging from 1 (*not at all*) to 7 (*very*). As committed people are likely to show frustration when experiencing failure in their goal pursuit (Gollwitzer and Kirchhof 1998), the degree of felt disappointment when anticipating failure is a reliable indicator of commitment (Oettingen et al. 2001; Sevincer and Oettingen 2009; Wicklund and Gollwitzer 1982). Because the three items showed high internal consistency (Cronbach's $\alpha = .76$), we combined them into an index of commitment.

Table 1 Coding scheme with examples from students' statements*Incentive-related aspects*

Descriptions of the desired outcomes (“I would like to become a father who spends a lot of time with his children”, “becoming a well-read scholar”)

Positive consequences

Feelings (“I would feel happy”)
 Events (“I would meet many interesting people”)
 Material gains (“I would live in a big house”)
 Nonmaterial gains (“lots of spare time”)
 Self-evaluations (“I would be proud of myself”)
 Evaluations by significant others (“my parents would be proud of me”)
 Improvements of current situation (“not feeling lonely”)
 Progress toward superordinate goal (“I would lead a fuller life”)

Pleasant activities during the process of goal-pursuit (“training is fun”)

Reasons

Personal preferences (“I like working with children”)
 Values (“I place family above all else”)
 Motives (“it is important to me to help and support other people”)

Expectation-related aspects

Self-efficacy expectations (“I know I can work hard”)
 Outcome expectations (“If I put in enough time to study, I should pass the exam”).
 General expectations (“everything will work out fine”)
 Past experiences (“I had many arguments with my parents”)
 Obstacles, hindrances, and temptations (“my friends might call to take me out”)
 Plans/necessary actions (“I need to find a publisher for my writings”)
 External events or circumstances (“the employment situation might get worse”)

Other aspects

World in general (“poverty is a big problem in many countries”)
 Self in general (“I am the youngest of four siblings”)
 Neutral events (“The new semester starts next week”)
 Experimental situation (“I liked the movie”)

Incentive and expectancy judgments: Repeated measure

To address the alternative explanation that alcohol intake affects commitment by heightening incentive value or/and expectancy judgments, we measured both constructs a second time using the same items as before.

Manipulation check

Finally, to check the effectiveness of the placebo manipulation, we asked students to estimate the amount of alcohol consumed equivalent to bottles of beer (333 ml).

Furthermore, we asked: “How much did you feel the effects of the alcohol?” and “How high do you feel right now?” (Marczinski and Fillmore 2005). Students indicated their responses to each item by placing a mark on a 10 cm line, with the left side (0 cm) indicating *not at all* (*completely sober*, respectively) and the right side (10 cm) indicating *very much* (*as high as I have ever been*, respectively). The experimenter then thanked, and fully debriefed the students. We asked students to remain in the laboratory until their BAC dropped below .03 %. Students were given snacks and water during the time they remained in the laboratory and were encouraged to consume them. Before students left the laboratory we reminded them not to drive for at least 6 h after the experiment.

Results*Drinking habits*

Students' mean frequency of drinking was 1.44 ($SD = 1.12$) times per week with an average quantity per occasion of 3.52 ($SD = 1.93$) standard drinks. This yields an average consumption of 5.10 ($SD = 4.67$) standard drinks per week. Weekly alcohol consumption did not differ between conditions, $t(80) = .11$, $p = .91$, indicating that students of both conditions had comparable experiences with alcohol.

Blood alcohol concentrations

Students in the alcohol condition had a mean BAC of .071 % ($SD = .015$).

Manipulation check

When asked to estimate the amount of alcohol they had consumed equivalent to bottles of beer, one student in the placebo condition indicated not having consumed any alcohol. This student was excluded from the analyses. The remaining students in the placebo condition reported having consumed fewer bottles of beer ($M = 2.88$, $SD = 1.26$), feeling the effects of the alcohol less ($M = 3.13$, $SD = 1.61$), and feeling less high ($M = 2.23$, $SD = 1.63$) than those in the alcohol condition ($M = 3.85$, $SD = 1.55$; $M = 6.67$, $SD = 1.55$; $M = 5.11$, $SD = 2.22$; $t_s > 3.10$, $ps < .003$, $d_s > .70$). These findings are not unusual in studies that employ moderate to high alcohol doses (Martin and Sayette 1993). Given that all remaining students in the placebo condition reported some alcohol in their beverages, the placebo manipulation appeared credible for establishing the expectation of receiving alcohol.

Descriptive analyses

Mean incentive value and expectation of attaining the identity goal was 5.88 ($SD = 1.18$) and 4.99 ($SD = 1.30$), respectively, on the 7-point scale. Expectation and incentive correlated positively, $r = .58$, $p < .001$.

Content analysis of students' elaborations

We hypothesized that intoxicated students (vs. those who consumed a placebo) would generate relatively more statements related to aspects of incentive value than expectation. The mean number of statements students generated did not differ between the alcohol ($M = 7.20$, $SD = 3.82$) and the placebo condition ($M = 8.00$, $SD = 3.74$), $t(79) = .96$, $p = .34$, indicating that alcohol did not affect writing length. Across both conditions, on average students generated 3.83 ($SD = 2.70$) incentive-related, 2.11 ($SD = 1.88$) expectation-related, and 1.65 ($SD = 2.19$) other statements. The number of other statements did not differ between the alcohol ($M = 1.61$, $SD = 2.39$) and the placebo condition ($M = 1.70$, $SD = 1.99$), $t(79) = .19$, $p = .85$.

To obtain a measure for how much students focused on the goal's incentive relative to their expectations, we subtracted the number of expectation-related statements from the number of incentive-related statements. The higher this index, the more incentive-related than expectation-related statements students generated. The incentive-expectation statement index was greater in the alcohol ($M = 2.41$, $SD = 3.09$) than in the placebo condition ($M = 1.00$, $SD = 3.01$), $t(79) = 2.09$, $p = .04$, $d = .46$. This finding indicates that the difference between statements related to incentive value and expectations was greater in students who consumed alcohol than in those who consumed a placebo. For the mean number of incentive- and expectation-related statements in the alcohol and in the placebo condition see Fig. 1.

In students who consumed a placebo the incentive-expectation index was still positive and different from zero ($M = 1.00$, $SD = 3.01$), $t(39) = 2.10$, $p = .04$, $d = .33$, showing that students who consumed a placebo generated more incentive-related than expectation-related statements. Apparently, also in a sober state people generate more thoughts related to a goals' incentive than on their expectations of attaining it, but alcohol intake makes this difference even more pronounced.

Gender effects on statements of incentive relative to expectation

To investigate possible gender effects on the incentive-expectation index, we conducted a 2 (condition) \times 2 (gender) ANOVA on the incentive-expectation index. The

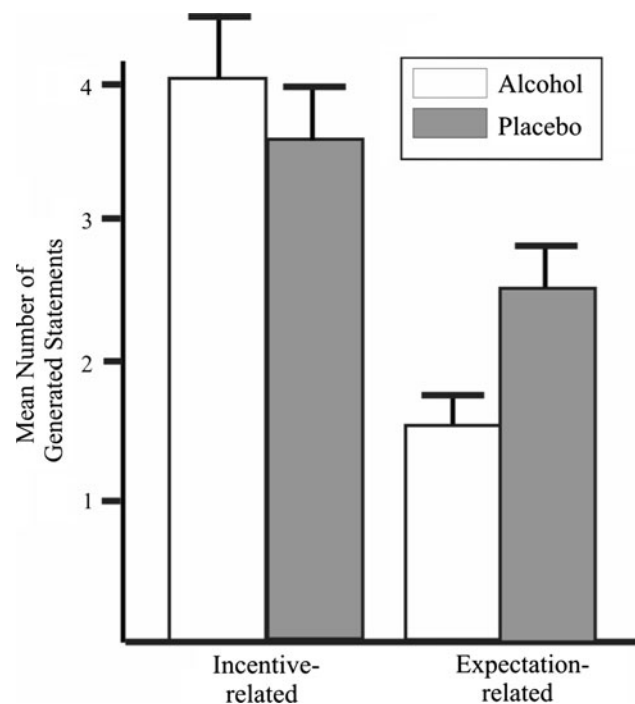


Fig. 1 Mean number of generated statements ($\pm SE$) about the incentive value versus the expectation of attaining the desired identity goal in the alcohol condition and the placebo condition

overall pattern did not change. We did not observe any main or interaction effects with gender, $F_s < .99$, $p_s > .32$.

Goal commitment

Trying to replicate the findings of Sevincer and Oettingen (2009) that intoxicated students feel committed despite low expectations, we computed a GLM with commitment as dependent variable, condition as fixed between subject factor, and the continuous expectation measure as well as the interaction of condition by expectation as independent variables (Aiken and West 1991). We observed a main effect of expectation, $F(1,75) = 12.53$, $p = .001$, $\eta_p^2 = .14$, and the predicted interaction effect of Condition \times Expectation, $F(1,75) = 2.80$, $p < .05$, $\eta_p^2 = .04$. When expectations were low, students in the alcohol condition tended to feel more committed than those in the placebo condition, $t(77) = 1.77$, $p = .08$, $\eta_p^2 = .04$. When expectations were high, commitment did not differ between the alcohol and the placebo condition, $t(77) = 1.09$, $p = .28$. Thus, we replicated that alcohol intake leads people to feel committed despite low expectations (Fig. 2).

Gender effects on commitment

To investigate possible gender effects, we repeated the GLM analyses adding gender into the model. The overall

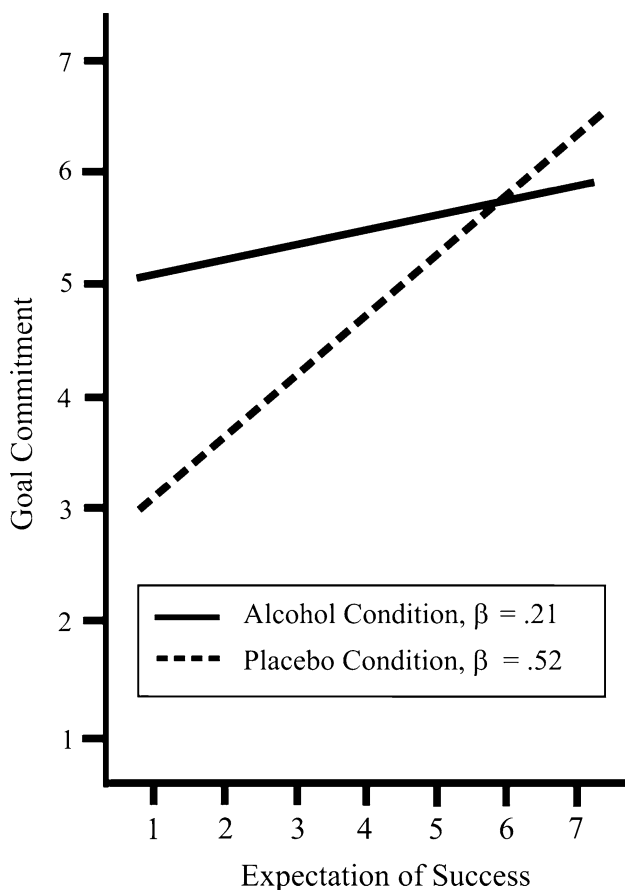


Fig. 2 Regression lines depict the relation between expectations and commitment as a function of condition. $*p < .05$

pattern did not change. We did not observe any main or interaction effects with gender, $F_s < .74$, $p_s > .39$.

Statements of incentive relative to expectation as mediator

We suspected that people's focus on incentive- rather than expectation-related aspects of a goal may be a mechanism by which alcohol intake leads people to feel committed despite low expectations. To investigate this moderated mediation hypothesis, we followed the principles of Muller et al. (2005) see also Kappes and Shrout (2011). Muller et al. (2005) propose to start with predicting the dependent variable (commitment) with a model that includes the independent variable (expectations), the moderator (condition: alcohol vs. placebo), their interaction term, the mediator (incentive-expectation index), and the moderator–mediator interaction term (condition \times incentive-expectation index). The coefficient for the independent variable–moderator interaction term in this equation is then compared to the same coefficient from the model that predicted the outcome with only the independent variable, moderator, and their interaction. For the elaborate model we observed a nonsignificant condition

by expectation interaction effect that was smaller ($b = -.12$), than that in the initial model ($b = -.17$), and non-significant, $F(1,73) = 1.57$, $p = .21$. This finding indicates that the interaction effect of alcohol and expectations on commitment was fully mediated by the number of generated incentive- relative to expectation- related statements.

Changes in incentive value and expectancy judgments as alternative processes

To examine whether alcohol increases students' perceived incentive value or their expectations, we computed a 2×2 mixed ANOVA on incentive value and expectations, respectively, with measurement time (before vs. after the beverage consumption) as within-subject factor and condition (alcohol vs. placebo) as between-subject factor. For incentive value, we did not observe any main or interaction effects, $F_s < 2.09$, $p_s > .15$, indicating that alcohol intake did not change the goals' perceived incentive value. For expectations, we observed a main effect of time, $F(1,79) = 7.51$, $p = .008$, $\eta_p^2 = .09$, indicating that across both conditions expectations increased after the beverage consumption (before: $M = 4.99$, $SD = 1.30$, after: $M = 5.31$, $SD = 1.08$). Of importance, there was no interaction effect of expectations by condition, $F(1,79) = .36$, $p = .55$, indicating that consuming alcohol did not differentially affect expectations than consuming a placebo.

Discussion

Intoxicated students generated more statements about the incentive value of their identity goal relative to statements about their expectations of attaining their goal than students who consumed a placebo. Apparently, consuming alcohol leads people to disproportionately focus on how desirable it would be to attain their goals rather than on whether it is likely to attain them. Notably, all students, even those who consumed a placebo tended to think more about aspects of incentive value than of expectations. This pattern supports the idea that in a sober state, a goal's desirability is more salient to people than its feasibility. Because of the myopia alcohol intake entails, however, intoxicated people disproportionately shift their attention on the goal's desirability and away from its feasibility.

In addition, we replicated the findings from Sevincer and Oettingen (2009) that intoxicated students feel committed despite low expectations. Of importance, the interaction effect of alcohol and expectations on commitment was mediated by how much students generated incentive-related relative to expectation-related statements. The overall pattern thus extends the research by Sevincer and Oettingen (2009) by elucidating the mechanism for why

alcohol leads people to feel committed despite low expectations. The findings suggest that alcohol leads people in their thoughts and images to disproportionately focus on desirability-related relative than feasibility-related aspects of their goals.

Moreover, here we addressed one alternative explanation that has not been examined by Sevincer and Oettingen (2009), namely that the observed effect of alcohol on commitment is unlikely due to alcohol-induced changes in the perceived incentive value of students' goals. Alcohol did not alter incentive value. This finding supports our conclusion that alcohol leads people to feel committed because it leads them to disproportionately focus on aspects of their goals' desirability (vs. feasibility) rather than changing their respective judgments or beliefs. Finally, we also replicated the finding that alcohol neither changed students' expectations of attaining their goals (Sevincer and Oettingen 2009). Intoxicated students' commitments thus are unlikely due to overestimated expectations.

Alcohol use

People consume alcohol for many reasons (Cox and Klinger 2011). By inflating people's self-evaluations, alcohol intake may bring people for example mentally closer to their ideal selves (Banaji and Steele 1989). According to Banaji and Steele (1989) this may be one reason why people consume alcohol. Much in the same way, our results imply that by leading people to attend to their goals' desirability rather than to their feasibility, alcohol intake may bring people mentally closer to important personal goals. This may be another reason why people consume alcohol. Moreover, this effect of alcohol might be particularly attractive for people who pursue goals that are highly important to them but are unlikely to be realized. Future research could investigate whether people with low expectations of attaining personally important goals are more liable to risky alcohol consumption than people with high expectations.

Implications for everyday life

Goal commitment and well-being

Commitment to attain personal goals is important for well-being and mental health. People who are committed to goals report enhanced well-being and greater life-satisfaction than those who are not committed (Emmons 1986). When people, however, are unable to attain goals they feel committed to, they may experience disappointment, hopelessness, depression, dysphoria, and aggression (Klinger 1975; Strauman and Higgins 1987). Furthermore, commitment to unrealizable goals may deplete people (ego-depletion; Muraven and

Baumeister 2000) and lead to accumulated failures that undermine self-efficacy for subsequent goal pursuits (Bandura 1997). One way to overcome these negative consequences is to let go from the unfeasible goals (Klinger 1975). Our research implies that by making people focusing away from the feasibility of their goals, ongoing alcohol consumption may interfere with this disengagement process.

Goal striving over time

One may ask whether intoxicated people's commitments affect their goal striving behavior over time once they are sober again. In Sevincer and Oettingen (2009) we measured goal-related actions in the 2 weeks after the experiment. Despite feeling committed during the experiment, once sober again, intoxicated participants did not follow up on their commitments. These findings imply harmful consequences of alcohol consumption for interpersonal relationships. For example when a person while intoxicated talks about her commitments to support others or attain difficult goals (e.g., help a friend in need or become a famous musician) and later does not act accordingly: Repeated behavior of this kind may have detrimental effects for the person's self-evaluation and for evaluation by others who may attest her low credibility and trustworthiness.

Limitations and future research

Design and sample

Here we were interested primarily in the pharmacological effect of alcohol on how people think about personal goals. To investigate whether even the belief of having consumed alcohol affects goal-related thoughts, one may run a full balanced placebo design with a no-alcohol condition (participants believe consuming no alcohol and consume no alcohol) and an antiplacebo condition (participants believe consuming no alcohol but consume alcohol) in addition to the alcohol and placebo conditions. In their summary on experimental designs in alcohol administration research Martin and Sayette (1993) conclude however that because of various problems associated with establishing and verifying participants' beliefs of having consumed or not having consumed alcohol when the actual beverage content indicates otherwise (e.g., experimenter demand), at moderate to high alcohol doses, no design can fully disentangle the pharmacological effects from the belief effects.

Moreover, Vogel-Sprott and Fillmore (1999) highlight the importance to distinguish between three different belief effects: The belief of having (vs. not having) consumed alcohol, the belief about the subjective effects of alcohol, and the belief about the environmental consequences of

alcohol consumption. Finally, we recruited too few male participants (18 or 22 %) to reliably examine gender differences in alcohol effects on commitment. Future research may recruit a more balanced sample.

Behavioral indicators of commitment

We assessed students' commitment by self-report only. Future research may assess commitment by behavioral indicators to investigate whether intoxicated people focusing away from the feasibility of potential outcomes has immediate behavioral effects. One domain in which considering low feasibility is especially important is gambling. Many studies suggest that alcohol intake promotes risky gambling (e.g., Crouce and Corbin 2010). Future research could explore whether one mechanism by which alcohol intake promotes gambling is by causing people to disproportionately attend to the desirability of the potential outcomes (hitting the jackpot) rather than on their low probability.

Myopic effects caused by cognitive dysregulation

We suspected that our finding that alcohol leads people to think more about desirability (vs. feasibility), is due to the higher salience of desirability compared to feasibility (Vallacher and Wegner 1987). One alternative explanation, however, would be that thinking about feasibility may involve more complex cognitions and require more mental resources as well as mental effort than thinking about desirability (Achtziger et al. 2009; Oettingen et al. 2001; review by Oettingen 2012). Because alcohol impairs higher order cognitive functions and cognitive control (e.g., Fillmore and Van Selst 2002; Kirchner and Sayette 2003), future research may examine whether impairment in these processes might have lead participants to focus more on desirability.

Methodological implications

Future research may use the presented coding scheme to investigate effects of alcohol on thoughts about the desirability and feasibility of goals in other life domains than the identity domain, for example, of goals in the interpersonal domain (e.g., “starting a romantic relationship”) or the achievement domain (e.g., “learning a new language”). Future research may also use a modified coding scheme to investigate effects of alcohol on thoughts about other concepts than desirability and feasibility. For instance, research may explore whether effects of alcohol intake on aggressive behavior are mediated by intoxicated people's disproportionate focus on revenge-related concepts (see Gallagher and Parrott 2011, for a related approach).

Commitment when low feasibility is salient

Our study suggests that because the aspects of desirability are more likely to be salient than aspects of feasibility intoxicated person's commitment is disproportionately influenced by desirability. However, in a situation where low feasibility was more salient than aspects of desirability, alcohol-myopia theory would predict that intoxicated people disproportionately attend to the low feasibility (summary by Giancola et al. 2010). Consequently, in such a situation intoxicated people should actually feel less committed to their goals than sober people. To test this idea, Sevincer et al. (2011) asked students to name an important personal goal that they judged unlikely to be attained. Thereafter, students either consumed alcohol or a placebo. Participants' low expectations were either made explicitly salient by highlighting them in a questionnaire or implicitly salient by subliminal priming. As predicted, when the low expectations were either explicitly or implicitly made salient intoxicated students felt less committed than students who consumed a placebo. This finding indicates that intoxicated people commit to important personal goals according to which information (desirability or feasibility) is most salient.

Conclusion

People under the influence of alcohol feel committed to personally important goals even if their expectations of successfully reaching the goals are low. The present research replicates these findings. Of importance, it suggests that alcohol consumption evokes this unreasonable goal commitment because the myopia that alcohol intake entails leads people to focus on their goals' desirability rather than on aspects of how to attain them.

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