

ALCOHOL BREEDS EMPTY GOAL COMMITMENTS

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ABSTRACT

Alcohol narrows individuals' perspectives on the most salient aspects of a situation and leads them to ignore peripheral information. We hypothesized that intoxicated individuals strongly commit to goals without considering their expectations of success, because alcohol leads them to focus on the desired outcomes rather than on the probability of attaining the outcomes. In Study 1, intoxicated participants strongly committed to goals despite bleak prospects for goal attainment. In Study 2, once sober again, participants did not follow up on their strong commitments. In Study 3, intoxicated participants disproportionally focused on the desired outcomes and this led them to strongly commit to their goals. Apparently, alcohol creates strong goal commitments by narrowing individuals' perspectives on the desired outcomes. However, intoxicated individuals' commitments are empty as they are not based on individuals' expectations of success and do not foster goal striving over time.

INTRODUCTION

Alcohol distorts people's minds in often unfavorable ways. Indeed, alcohol affects many social cognitive processes; for instance, person perception (Abbey, Zawacki, & McAuslan, 2000; Bartholow, Pearson, Gratton, & Fabiani, 2003; Jones, Jones, Thomas, & Piper, 2003), self-awareness (Hull, 1981; Hull, Levenson, Young, & Sher, 1983), self-evaluation (Banaji & Steele, 1989), decision making (MacDonald, Zanna, & Fong, 1995), social inferences (Herzog, 1999), social anxiety (DeBoer, Schippers, & van der Staak, 1993), appraisal of stressful information (Sayette, 1993; Sayette, Martin, Perrott, Wertz, & Hufford, 2001), anticipation of consequences (Fromme, Katz, & D'Amico, 1997; Sayette, Wilson, & Elias, 1993), as well as response generation and selection (Bartholow, Dickter, & Sestir, 2006; Ogle & Miller, 2004). However, whether alcohol affects goal commitment as one such cognitive process is less clear. Goal commitment strongly determines effort, persistence, and actual goal attainment. Therefore, if alcohol affects individuals' commitments to their goals it might have significant consequences for the success with which individuals attain their goals.

Goal Commitment

Goal commitment was defined by Locke, Latham, and Erez (1988) as "one's attachment to or determination to reach a goal, regardless of the goal's origin" (p.24). Other researchers have conceptualized goal commitment as urgency to pursue the goal (Brunstein, 1993), willingness to invest effort (Hollenbeck, Klein, O'Leary, & Wright, 1989), willingness to persist in goal striving (Austin & Vancouver, 1996), taking on responsibility for goal attainment (Oettingen, Pak, & Schnetter, 2001), interest in reaching the goal (Wicklund & Gollwitzer, 1982), or disappointment if the goal is not reached (Berger, 1988; Wicklund & Gollwitzer, 1982). According to Klinger (1975), individuals commit to their goals before they pursue their goals. Furthermore, the strength of commitment is a powerful predictor for the

strength of goal striving, i.e. the persistence and intensity with which individuals act toward realizing their goals.

For instance, goal commitment assessed by self-report predicted work performance of rehabilitation counselors (Renn, 2003), students' persistence/withdrawal rates at university (Allen & Nora, 1995; Pascarella & Terenzini, 1983), self-satisfaction with tennis performance (Theodorakis, 1996), group performance in a Human Resource Management course (Klein & Mulvey, 1995), performance on a computer skills test (Johnson, 2005), and self-reported progress in personal goal achievement (Brunstein, 1993). Moreover, a meta-analysis of 74 studies showed that commitment fosters goal striving (Klein, Wesson, Hollenbeck, & Alge, 1999).

Goal commitment can be measured by directly asking participants to indicate the strength of their commitments (e.g., "I am strongly committed to pursuing this goal"; Hollenbeck, et al., 1989). However, such direct measurements are particularly susceptible to individuals' tendency to present themselves in a positive light (self-representation bias; Greenwald, McGhee, & Schwartz, 1998). Therefore, researchers often use more unobtrusive measures to assess commitment. For instance, as strongly committed people are likely to show frustration when experiencing failure (Berger, 1988; Gollwitzer & Kirchhof, 1998), the degree of disappointment which participants feel when anticipating failure in goal attainment is a reliable indicator of commitment (Oettingen et al., 2001; Wicklund & Gollwitzer, 1982). The degree of disappointment people feel when anticipating failure in goal attainment was found to correlate with other measures of goal commitment (Oettingen, 2000, Study 1, Study 2).

What are the determinants of commitment? Most theories of motivation suggest that the strength of commitment depends on the perceived value of the goals (i.e., incentive value) and the likelihood of goal attainment (i.e., expectations of success; e.g., Ajzen, 1991;

Atkinson, 1957; Gollwitzer, 1990; Kruglanski, 1996; Locke & Latham, 2002; Vroom, 1964; summary by Oettingen & Gollwitzer, 2001). Incentive value refers to the degree of attraction individuals feel toward the desired outcomes, and expectations of success refer to individuals' judgments of the probability of attaining the outcomes. These judgments 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; Heckhausen & Heckhausen, 2008; Oettingen & Mayer, 2002; Rotter, 1954).

The present study investigates whether alcohol affects individuals' commitments to their goals. Because alcohol restricts individuals' perspective on the most salient aspects of a situation, we suspect that when thinking about their goals intoxicated individuals disproportionately focus on the desired outcomes rather than on the probability of attaining the outcomes. Therefore, alcohol should lead individuals to feel strongly committed to their goals irrespective of their expectations. Thus, whereas sober individuals should feel strongly committed to goals for which they have high expectations and weakly committed to goals for which they have low expectations, alcohol intoxicated individuals should feel strongly committed to goals for which they have high expectations as well as to goals for which they have low expectations.

Alcohol Myopia

We suspect that alcohol leads individuals to feel strongly committed to their goals irrespective of their expectations, because alcohol leads to a state of reduced cognitive processing capacity, known as alcohol myopia (Steele & Josephs, 1990). In this state individuals no longer have the processing skills to attend to all the information available in a situation. Instead they are likely to focus on the aspects that are most salient and to ignore

more peripheral aspects. This restriction of perspective is a crucial mechanism by which alcohol affects many social cognitive processes (Steele & Josephs, 1990).

For instance, alcohol led to less negative attitudes towards drinking and driving, but only in situations where impelling cues for engaging in drunk driving were salient. In situations where no such cues were present, intoxicated participants' attitudes towards drinking and driving did not differ from sober participants' attitudes (MacDonald et al., 1995). Similarly, intoxicated participants were *more* willing to engage in unprotected sexual intercourse than sober participants in situations where strong *impelling* cues for engaging in unprotected sexual intercourse were salient but were *less* willing to engage in unprotected sexual intercourse than sober participants when strong *inhibiting* cues were salient (MacDonald, Fong, Zanna, & Martineau, 2000). Finally, alcohol affected causal inferences, leading to exaggeration of either situational or dispositional causes for behavior, depending on which factors were most salient (Herzog, 1999).

In the above mentioned studies the salience of a particular set of external cues was experimentally manipulated. For example, items were constructed in such a way that either impelling or inhibiting cues were highlighted. However, alcohol-myopic effects also occur when a particular set of internal cognitions becomes highly activated without external cue manipulation. For instance, because people have a strong need to view themselves positively, information that supports this view is highly accessible in people's cognitions (e.g., Greenwald, 1980; Taylor & Brown, 1988). Thus, when people are asked to evaluate themselves, information that supports a positive view is likely to become salient in people's cognitions. In an intoxicated state then, individuals' narrowed perspective causes them 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 & Steele, 1989).

The Present Research

Following Banaji & Steele's (1989) approach that alcohol intoxicated individuals' narrowed perspective leads them to disproportionately focus on the set of cognitions that is most salient, we assume that when individuals think about their goals in an intoxicated state the alcohol-myopia leads them to focus on the outcomes that they desire to attain rather than on their expectations of attaining these outcomes. We do so, because goals are defined as internal representations of desired outcomes (Austin & Vancouver, 1996). Thus, when people are asked about their goals, what should become most salient on their minds are most likely the internal representations of the desired outcomes. In addition, the desired outcomes represent the ends of people's actions. As such they convey *why* people engage in their actions. Expectations refer to the means of *how* people can attain the desired outcomes (e.g., to judgments about whether one is capable of performing specific goal-directed actions and whether these actions lead to the desired outcomes; Bandura, 1997). According to goal subordination theories, there is a tendency for the superordinate *why* aspects of an action to become prepotent over the subordinate *how* aspects in people's cognitions (Lieberman & Trope, 1998; Vallacher & Wegner, 1987). Furthermore, Gollwitzer (1990) posits that people start their goal pursuits with imagining a wish (i.e., a desired outcome) before they deliberate about the probability of realizing their wish. .

Thus, when people are intoxicated, the alcohol-induced shortsightedness should cause them to disproportionately focus on the desired outcomes and to ignore more remote information about the probability of attaining the outcomes. For instance, an intoxicated person who thinks about becoming a famous musician is likely to focus on the events that he or she associates with being a famous musician (e.g., being on the front-cover of a magazine, giving a concert in front of a cheering crowd) but may ignore that in the past he or she was not successful in performing on stage, and that only very few people become famous

musicians. As a consequence, that person fails to integrate his or her expectations into his or her commitments.

Moreover, because the desired events attract individuals (Klinger, 1975) they can also be conceived as impelling cues for engaging in goal directed-behavior. When impelling cues were salient, intoxicated participants reported stronger intentions to engage in the respective behaviors than sober individuals (MacDonald et al., 1995; 2000). Thus, focusing on the desired events should urge intoxicated individuals to attain the desired outcomes. Therefore, thinking about the desired events in an intoxicated state should lead individuals to feel *strongly* committed towards reaching their goals irrespective of their expectations.

These considerations imply that even when prospects for goal attainment are bleak, intoxicated individuals feel *strongly* committed to their goals. In contrast, sober individuals should feel only *weakly* committed to their goals. Consequently, in light of low expectations, intoxicated individuals should feel *more* committed to their goals than sober individuals. However, when prospects for goal attainment are promising, intoxicated as well as sober individuals should feel strongly committed to their goals. Therefore, in light of high expectations, commitment between intoxicated and sober individuals should not differ.

STUDIES

Overview of Studies

Across three studies we examined the effect of alcohol on the relation between expectations and commitment to goals. In Study 1 we examined whether alcohol leads individuals to feel strongly committed to their goals irrespective of their expectations of attaining the goals. After participants named their most important interpersonal goal, they indicated their expectations. Thereafter, participants consumed either alcohol or a nonalcoholic beverage. Finally, participants indicated their commitments. We predicted that intoxicated participants feel strongly committed to their goals even though they have only low

expectations of attaining the goals. Study 2 investigated the implications of the hypothesized effect of alcohol on commitment for participants' goal striving over time. We used the same procedure as in Study 1. In addition, to assess participants' goal striving over time, after three weeks we asked them to indicate all actions they have undertaken for goal attainment since they took part in the experiment. We hypothesized that participants would feel strongly committed to their goals despite low expectations while intoxicated. However, once sober again, they would adjust their efforts for goal attainment to their low expectations. In Study 3 we examined the presumed mechanism for the effect of alcohol on commitment. Specifically, we investigated whether alcohol leads participants to focus on the desired outcomes rather than on information about the probability of attaining the outcomes and whether this leads them to feel strongly committed to their goals irrespective of their expectations. We used the same procedure as in Studies 1 and 2, but directly after participants consumed their beverages, we asked them to freely think about their goals. We predicted that participants who consumed alcohol would generate relatively more thoughts about the desired outcomes and relatively fewer thoughts about the probability of attaining the outcomes than participants who consumed a placebo. Furthermore, we hypothesized that the extent to which participants think about the desired outcomes would mediate the effect of alcohol on commitment.

Study 1: Effect of Alcohol on Goal Commitment

We first asked participants to name their currently most important interpersonal goal. We chose a goal from the interpersonal domain, because the need to form and maintain close relationships is a fundamental human motivation (Baumeister & Leary, 1995). Therefore, goals that are directed at forming or maintaining such relationships should be easily accessible as well as highly important. Next, we asked participants to indicate their expectations of attaining their goal. In addition, to investigate whether participants indeed

named goals that are highly important to them, we asked participants to indicate the incentive value of their goal.

Thereafter, we established three experimental conditions: Alcohol, placebo, and sober. Participants in the alcohol condition were told that they would receive alcohol and received alcohol. Participants in the placebo condition were told that they would receive alcohol but received a nonalcoholic beverage, and participants in the sober condition were told that they would receive a nonalcoholic beverage and received a nonalcoholic beverage. We chose this design, because (a) comparing the alcohol with the placebo condition allowed us to investigate the effect of alcohol consumption on commitment that stems from the pharmacological properties of alcohol while participants' beliefs of having consumed alcohol are held constant (participants of both conditions expect alcohol; Hull & Bond, 1986) and (b) comparing the placebo with the sober condition allowed us to investigate whether the hypothesized effects of alcohol on commitment could be caused only by participants' beliefs of having consumed alcohol (Assefi & Garry, 2003; Lang, Goeckner, Adesso, & Marlatt, 1975). In addition, (c) comparing the alcohol with the sober condition allowed us to investigate the effect of alcohol consumption on commitment under conditions that approach a drinking situation in real life.

Because Hull and Bond's (1986) meta-analysis showed that alcohol consumption and participants' beliefs in having consumed alcohol do not interact, our hypothesized effects of alcohol on commitment should not be influenced by whether participants who received alcohol believed that they received alcohol or not. Therefore, we did not include an antiplacebo condition, in which participants are told to receive a nonalcoholic beverage but receive alcohol. Finally, we assessed participants' commitments to their goals by asking them how disappointed they would feel if they were not to attain their goals (Oettingen et al., 2001; Wicklund & Gollwitzer, 1982).

Because we assumed that the hypothesized effects of alcohol on commitment result from a cognitive impairment caused by the pharmacological properties of alcohol, we predicted that only participants in the alcohol condition would feel strongly committed to their goals irrespective of their expectations, whereas participants in the other two conditions would feel committed to their goals in line with their expectations. Consequently, in light of low expectations participants in the alcohol condition should feel more committed to their goals than participants in the placebo and sober conditions; not so in light of high expectations.

Method

Participants and Design

Ninety-three undergraduate students (74 female and 19 male) at the University of Hamburg, with a mean age of 25.87 ($SD = 5.35$) years participated in this study, which was advertised as a study on “alcohol and perception.” Participants were required to be at least 18 years of age and were screened by telephone with the Michigan Alcoholism Screening Test (MAST; Selzer, 1971) to exclude participants who consume alcohol at a high risk level. In addition, only students who were not on medication and not pregnant were allowed to participate. The study was approved by the ethics commission of the German Psychological Association as well as by the German Medical Association. We asked participants to abstain from eating for at least 4 hours and from drinking alcohol for at least 12 hours prior to the experiment; participants were also requested to refrain from driving to the experiment. They received course credit for participation. We used three experimental conditions: Alcohol, placebo, and sober. Participants completed the experiment on a computer.

Procedure

Experimental sessions took place after 12:00 pm and participants were run individually. The experimenter informed the participants about the experimental procedure

and participants signed an informed consent form. Next, a research assistant took their weight, height, and an initial breathalyzer reading (Dräger Alcotest 6510).

Expectations of success. First, the computer program asked participants: “Which personal goal that is directed at starting or maintaining an interpersonal relationship is presently most on your mind?” (participants named, e.g., “start a relationship with a person I got to know” and “visit my brother in France”). To measure expectations, we asked “How likely do you think it is that you will attain your goal?” on a 7-point scale ranging from 1 (*not at all likely*) to 7 (*very likely*). To measure the incentive value of the goal we asked: “How important is it to you that you will attain your goal?” on a 7-point scale ranging from 1 (*not at all important*) to 7 (*very important*). According to Klinger (1975) and Heckhausen (1977) the subjective importance of goal attainment reliably indicates the incentive value of goals.

Beverage administration. We randomly assigned participants to one of the three conditions (alcohol, placebo, and sober). Participants of the alcohol and placebo conditions were told that they would receive alcohol whereas participants of the sober condition were told that they would receive a nonalcoholic beverage. The experimenter mixed the drinks from appropriate bottles in a graduated cylinder in plain sight of the participants. Participants of the alcohol condition saw their drinks being mixed from a tonic bottle and a bottle labeled “vodka” that contained 40% vodka (Moskovskaya). Participants of the placebo condition saw their drinks being mixed from a tonic bottle and a bottle labeled “vodka” that contained decarbonated tonic. Participants of the sober condition saw their drinks being poured from a tonic bottle only.

The amount of alcohol that participants in the alcohol condition received was calculated individually for each participant to result in a peak blood alcohol content (BAC) of .04%. To calculate the amount of alcohol, we used a BAC calculator that considered 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 individuals cannot reliably detect the presence of vodka (Marlatt, Demming, & Reid, 1973). Participants in the placebo and sober conditions 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, the glasses in the placebo condition were smeared with vodka prior to the start of the experiment. The experimenter instructed participants to consume each drink within 8 minutes and stressed the importance of adhering to the eight minute rule.

While consuming the four drinks participants watched a neutral movie about an art exhibition (Kabisch, 2002). During that period of time participants were left alone in the laboratory room. A tone sounded every 8 minutes to prompt the participants to finish their current drink and start drinking the next. After participants finished their last drink, the movie continued for another 15 minutes, allowing for the absorption of the alcohol (the movie had a total playtime of 47 minutes). Once the movie ended, we took a second BAC reading from participants in the alcohol and the placebo conditions. Whereas participants in the alcohol condition saw their actual BAC displayed, for participants of the placebo condition the breathalyzer was preset to read a random value of around .04%.

Goal Commitment. To measure how committed participants felt to their goal, the computer program asked participants: “How disappointed would you feel if you did not attain your goal?” on a 7-point scale ranging from 1 (*not at all disappointed*) to 7 (*very disappointed*). This item has been used in previous studies as an indicator of commitment (Oettingen, 2000; Oettingen, et al., 2001). Finally, we checked the effectiveness of the placebo manipulation in a postexperimental questionnaire. Specifically, we asked participants to estimate the amount of alcohol consumed equivalent to glasses of wine. The experimenter then thanked and fully debriefed the participants. We asked participants to remain in the

laboratory until their BAC dropped below .03% and encouraged them to contact us any time if they had further questions.

Results

Blood Alcohol Concentrations.

The initial BAC for all participants was 0%. Participants in the alcohol condition had a mean BAC of .038% ($SD = .015$) after the beverage consumption.

Manipulation Checks.

When asked to estimate the amount of alcohol they had consumed equivalent to glasses of wine, two participants in the placebo condition indicated not having consumed any alcohol. These participants were excluded from the analyses. The remaining participants in the placebo condition estimated having consumed fewer glasses of wine ($M = 1.62$, $SD = .96$) than participants in the alcohol condition ($M = 2.55$, $SD = 1.04$), $t(50) = 3.35$, $p < .01$. Given that all remaining participants in the placebo condition reported some alcohol in their beverages, the placebo manipulation appeared credible for establishing the expectation of receiving alcohol. Participants of the sober condition reported not having consumed any alcohol.

Descriptive Analyses

Mean expectation of attaining the goal was 4.54 ($SD = 1.47$) on the 7-point scale. Mean incentive value of the goal was 6.11 ($SD = 1.17$) on the 7-point scale, indicating that participants indeed named goals that were highly important to them. Mean expectation and incentive value did not correlate substantively ($r = .15$, ns). Mean commitment was 5.62 ($SD = 1.21$) on the 7-point scale.

Gender Effects

Expectations, incentive value, and commitment revealed no significant differences in gender, $t_s < 1.44$, ns . Therefore, we omit gender from further discussion.

Expectations-Commitment Link

To investigate whether expectations predict commitment in the alcohol, placebo, and sober conditions, we conducted simple regression analyses. As we predicted, expectations did not predict commitment in the alcohol condition, $F(1,28) = .004$, *ns*, but predicted commitment in the placebo condition, $F(1,26) = 11.04$, $p = .002$ (one-tailed)¹, as well as in the sober condition $F(1,31) = 6.02$, $p = .02$ (one-tailed; Figure 1).

To examine whether the slopes of the regression lines differ significantly from each other, we estimated a General Linear Model (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 the continuous expectation measure as independent variables (Aiken & West, 1991; Hardin & Hilbe, 2001). We observed main effects of condition, $F(2,85) = 3.33$, $p = .04$, and expectation, $F(1,85) = 11.51$, $p = .001$, as well as the predicted interaction effect, $F(2,85) = 2.88$, $p = .03$ (one-tailed). Planned comparisons revealed that the relation between expectation and commitment in the alcohol condition was weaker than in the placebo condition, $F(1,54) = 5.39$, $p = .01$ (one-tailed), and the sober condition, $F(1,59) = 3.39$, $p = .04$ (one-tailed), which did not differ from each other, $F(1,57) = .08$, *ns*. Because the expectancy-commitment link did not differ between the placebo and the sober conditions, we collapsed across these two conditions.

Moreover, presumably because they focus on the desired outcomes rather than on their expectations, intoxicated participants should feel *strongly* committed to their goals. Therefore, the effect of alcohol on commitment should manifest itself particularly in light of bleak prospects. Indeed, when expectations were low (expectations = 1), participants in the alcohol condition felt more committed than participants in the placebo/sober condition, $t(87) = 2.54$, $p = .005$ (one-tailed), but when expectations were high (expectations = 7), commitment between the alcohol and the placebo/sober condition did not differ, $t(87) = 1.64$, *ns*.

Controlling for participants' alcohol beliefs. Because participants in the placebo condition believed having consumed less alcohol than participants in the alcohol condition, to investigate to what extent the results are due to differences in participants' beliefs in having consumed alcohol, we repeated the above analyses controlling for participants' beliefs about the amount of alcohol consumed during the experimental procedure. Specifically, we entered participants' estimated alcohol consumption and estimated consumption by expectations into the regression equations (Hull & Bond, 1986). While the condition by expectation interaction remained significant, $F(1,77) = 3.05, p < .05$, neither the main effect of estimated consumption nor the interaction with expectation were significant, $F_s < 1.12, ns$, indicating that the effect of alcohol on the expectancy-commitment link was caused by the pharmacological properties of alcohol rather than by participants' belief in having consumed alcohol.

Controlling for incentive value and incentive value as a moderator for the effect of alcohol on the expectancy-commitment link. Finally, to assure that the results were not due to variations in the perceived value of the goals we repeated the above analyses entering incentive value as a main effect into the regression equations. The condition by expectation interaction remained significant, $F(2,83) = 5.53, p = .006$, indicating that our findings are not caused by differences in the perceived value of goals between participants.

In addition, to investigate whether the perceived value of the goals moderates the effect of alcohol on the expectancy-commitment link, we entered incentive, incentive by condition, incentive by expectation, and incentive by condition by expectation into the above analysis. The fact that we did not observe an interaction effect of incentive by condition by expectation, $F(2,78) = 1.13, ns$, indicates that the perceived value of the goals did not influence the effect of alcohol on the expectancy-commitment link.

Discussion

Participants in the alcohol condition felt strongly committed to their goals irrespective of their expectations, whereas participants in the placebo and sober conditions had their expectations incorporated in their commitments: They felt strongly committed to their goals when expectations were high and weakly committed to their goals when expectations were low. Importantly, intoxicated participants' not considering their expectations particularly played out when chances to attain the goals were grim: In light of low expectations participants in the alcohol condition felt more committed to their goals than participants in the placebo/sober condition, whereas in light of high expectations commitment did not differ between conditions. Thus, our results suggest that alcohol creates strong commitments in light of low expectations.

Implications for Goal Striving Over Time

What are the implications of our findings for goal striving when individuals are sober again? Would intoxicated individuals' strong commitments push them to pursue their goals intensively and persistently over time no matter of their low expectations? Or, on the other hand would intoxicated individuals refrain from pursuing their goals intensively and persistently over time and once they are sober adjust their efforts for goal attainment to their low expectations instead? To investigate whether intoxicated individuals' strong commitments would affect their goal striving over time, we conducted a second study. Because previous research focused on investigating the immediate effects of alcohol on behavior while participants were still under the influence of the drug, or on investigating the consequences of chronic alcohol consumption for behavior over time (summary by Hull & Slone, 2004), Study 2 fills a gap in alcohol research by investigating whether a one-time alcohol consumption may affect behavior over time even after the immediate effect of the alcohol has vanished.

Moreover, in Study 2 we wanted to replicate the results of Study 1 and address the following issues: First, Study 1 suggests that the observed effect of alcohol on commitment was not caused by participants' beliefs of having consumed alcohol; the placebo and the sober conditions did not differ in their high correlations between expectations and commitment. Rather, the observed effect was due to the pharmacological properties of alcohol; the relation between expectations and commitment was weaker in the alcohol than in the placebo condition. However, in Study 1 participants in the placebo condition believed having consumed less alcohol than participants in the alcohol condition. Although the effect of alcohol on the expectancy-commitment link did not change when participants' beliefs about the amount of alcohol consumed were controlled for, in Study 2, we increased our efforts to establish comparable beliefs in having consumed alcohol between the alcohol and placebo conditions by running a double-blind design to prevent the experimenter from unintentionally conveying any information regarding the beverage content to the participants.

Second, individuals who frequently consume alcohol may develop a tolerance towards alcohol (Vogel-Sprott & Fillmore, 1999). However, in Study 1 we did not assess participants' drinking habits. Therefore, in Study 2 we administered a Personal Drinking Habits questionnaire (Vogel-Sprott, 1992). We wanted to investigate whether the effect of alcohol on the expectancy-commitment link would be attenuated in participants who consume more alcohol in their every-day life as compared to participants who consume less alcohol.

Third, one may argue that intoxicated individuals feel strongly committed to their goals because alcohol leads individuals to misjudge their expectations rather than to ignore their expectations. In other words, intoxicated individuals may overestimate their chances of success and therefore feel strongly committed to their goals. In Study 1 we did not investigate whether alcohol alters participants' expectations. In Study 2 to examine whether the effect of alcohol on the expectations-commitment link was due to alcohol-induced changes in the mean

level of expectations we assessed expectations a second time after participants consumed their beverages and indicated their commitments.

Fourth, another alternative explanation for why intoxicated individuals feel strongly committed to their goals is that alcohol could increase the perceived value of the desired outcomes: Some studies suggested that alcohol leads to a positivity bias in information processing. For instance, alcohol increased participants' attractiveness ratings of faces (Jones, Jones et al., 2003). In another study, participants who consumed alcohol recalled more elating than depressing statements whereas the reverse was true for participants who consumed a placebo (Bruce, Shestowsky, Mayerovitch, & Pihl, 1999). However, in Study 1 we did not investigate whether alcohol alters the perceived value of the goals. In Study 2, to examine whether the observed effects of alcohol on the expectations-commitment link was due to alcohol-induced changes in the mean level of incentive value of the desired events we assessed incentive value a second time after participants consumed their beverages and indicated their commitments.

Fifth, although alcohol-myopic effects have been documented at BACs similar to participants' mean BAC in Study 1 (0,38%; e.g., Gross, Bennett, Sloan, Marx, & Juergens, 2001; Steele, Critchlow, & Liu, 1985, Study 1), reviews indicate that alcohol effects on social cognitive processes reliably occur at a BAC of about .05% (Koelega, 1995; Sayette, 1993). Therefore, in Study 2 we selected an alcohol dosage that would produce a mean BAC of at least .05%. This dosage appeared not to be too high for participants in the placebo condition to believe in having consumed alcohol (Rohsenow & Marlatt, 1981).

Finally, to examine whether our results bear up against different indicators of commitment, we added two more items to assess commitment. On the basis of Locke, Latham, and Erez's (1988) definition of goal commitment as individuals' attachment to or determination to reach their goals, in addition to our anticipated disappointment measure we

asked participants how hard it would be for them if they were not to attain their goals as well as how determined they felt to attain their goals.

Study 2: Effect of Alcohol on Goal Striving Over Time

Study 2 focused on how intoxicated individuals act towards realizing their goals once they are sober again. Specifically, we examined whether intoxicated participants' strong commitments would translate into concrete actions for goal attainment in the 3 weeks after the experiment. In Study 2, we used the same procedure as in Study 1. In addition, to assess participants' goal striving 3 weeks after the experiment, we asked participants to indicate all actions they had undertaken to realize their goals since they took part in the experiment. The number of actions individuals perform for goal attainment are a basic indicator of their involvement in goal striving (Kiesler, 1971; Wicklund & Gollwitzer, 1982). The same questions were used in previous studies to assess goal striving (Oettingen, et al., 2001; Wicklund & Gollwitzer, 1982). Moreover, a meta-analysis by Webb & Sheeran (2006) indicates that self-report measures are reliable indicators for goal striving.

Because commitment fosters goal striving (Klein et al., 1999) intoxicated individuals' strong commitments might urge them to act towards realizing their goals even after individuals have become sober. However, once the acute alcohol effects have vanished individuals are no longer in a state of shortsightedness that leads them to ignore their expectations. Instead, they have the cognitive capacity again to process the full range of information about the probability of goal attainment that is available to them. Therefore, we hypothesized that once they are sober, participants who consumed alcohol refrain from pursuing their goals in line with the strong commitments they held when they were intoxicated. Rather, they should adjust their efforts for goal attainment to reflect their expectations.

Participants who consumed a placebo were sober when indicating their commitments as well as when pursuing their goals. Hence, their commitments as well as their goal striving should be guided by their expectations. Therefore, we hypothesized that participants who consumed a placebo would pursue their goals in line with the commitments they reported directly after consuming their beverages.

In sum, we predicted that in line with Study 1 participants who consumed alcohol would feel strongly committed to their goals irrespective of their expectations, but once sober again they would pursue their goals in line with their expectations. Thus, because participants of both conditions were sober when pursuing their goals, expectations should predict goal striving across conditions. However, because participants of the alcohol condition were intoxicated when indicating their commitments, whereas participants of the placebo condition were sober, commitment should differentially predict goal striving in the alcohol and the placebo conditions. Specifically, commitment should *not* predict goal striving in the alcohol condition but should predict goal striving in the placebo condition.

Method

Participants and Design

Sixty-three undergraduate students (47 female and 16 male) at the University of Hamburg, with a mean age of 25.17 ($SD = 5.06$) years participated in this study, which was advertised as a study on “alcohol and perception.” Participants had to meet the same requirements as in Study 1 (being over 18, being not on medication, and being not pregnant) and were screened by telephone with the Brief Michigan Alcoholism Screening Test (BMAST; Pokorny, Miller, & Kaplan, 1972). The study was approved by the ethics commission of the German Psychological Association as well as by the German Medical Association. We asked participants to abstain from eating for at least 4 hours and from drinking alcohol for at least 12 hours prior to the experiment; participants were also requested

to refrain from driving to the experiment. They received course credit for participation.

Because in Study 1 the expectations-commitment link between the placebo and sober conditions did not differ, we omitted the sober condition in Study 2. Thus, there were only two experimental conditions: alcohol and placebo. Participants completed the experiment on a computer.

Procedure

We used the same procedure as in Study 1 with the following modifications: First, to assess participants' drinking habits, after signing the informed consent form participants completed the Personal Drinking Habits Questionnaire (Vogel-Sprott, 1992). This questionnaire yielded three measures of an individual's current drinking habits: (a) frequency (number of drinking occasions per week), (b) quantity (milliliters of absolute alcohol per kilogram body weight typically consumed during a single drinking occasion), and (c) duration (time span in hours of a typical drinking session).

Second, to ensure a double-blind administration of the beverages, prior to the start of the experiment a research assistant had prepared bottles labeled "vodka" in the room where the experiment took place. Whereas in the alcohol condition the prepared bottles contained 40% vodka (Moskovskaya), in the placebo condition the bottles contained decarbonated tonic water. Before mixing the drinks in plain sight of the participants, the experimenter, who was blind to the content of the bottles, told all participants that they would now receive an alcoholic beverage. We adopted this procedure from Abrams and Wilson (1983). A pretest showed that when mixing the drinks the experimenter could not reliably guess the content of the bottles.

Third, the amount of alcohol that participants in the alcohol condition received was calculated to result in a peak BAC of .05%. Accordingly, for participants in the placebo

condition the breathalyzer was preset to read a random value of around .05% at the second BAC reading.

Fourth, because of the higher alcohol dosage in Study 2 than in Study 1, we chose a slightly longer movie than in Study 1 to allow for the absorption of the alcohol. The movie was a documentary about Llamas (Arendt & Schweiger, 1991) and had a total playtime of 52 minutes.

Fifth, we added two more items to our commitment measure from Study 1. Specifically, like in Study 1, we asked participants: “How disappointed would you feel if you did not attain your goal?” We also asked: “How hard would it be for you if you did not attain your goal?”, and “How determined are you to attain your goal?” Participants indicated their answers on 7-point scales. All items were used in previous studies as indicators of commitment (e.g., Oettingen, 2000; Oettingen et al., 2001; Tubbs & Dahl, 1991). Because the three items showed good internal consistency (Cronbach’s $\alpha = .73$), we combined them into an index of commitment.

Sixth, to examine whether alcohol leads individuals to overestimate their expectations and whether alcohol increases the perceived value of the desired outcomes (two alternative explanations for why intoxicated participants feel strongly committed to their goals in light of bleak prospects) we assessed expectations and incentive value once more after participants had consumed their beverages and indicated their commitments. We measured expectations and incentive with the same items as in Study 1, namely “How likely do you think it is that you will attain your goal?” and “How important is it to you that you will attain your goal?”, respectively.

Eighth, to assess participants’ subsequent goal striving, 3 weeks after the experiment we sent out a questionnaire that participants were asked to answer within 3 days. Fifty-five participants (87 %) sent the follow-up form back on time. Participants were to list all actions

they had undertaken to attain their goals since they had participated in the experiment (participants named, e.g., “went out with some fellow students” and “talked to my boyfriend”). The number of actions participants listed was our indicator for participants’ involvement in goal striving. We debriefed participants in a final letter that explained in detail the purpose, hypotheses, and design of the experiment. Moreover, in the letter we encouraged participants to contact us any time if they had further questions.

Results

Drinking Habits

Participants’ mean frequency of drinking was 1.60 ($SD = .94$) times per week with an average quantity per occasion of .93 ($SD = .43$) ml absolute alcohol per kilogram body weight. This is equivalent to an average consumption of 3.48 ($SD = 1.74$) standard drinks per occasion for the whole sample. A standard drink is defined by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) as any drink that contains about 18 ml of absolute alcohol (i.e., e.g., a 355 ml bottle of 5% alcohol beer; NIAAA, n.d.). The mean duration of drinking was 4.59 ($SD = 1.87$) hrs. To obtain an estimate of how much alcohol participants consumed per week we multiplied frequency with quantity of drinking for each participant. On average, participants consumed 1.60 ($SD = 1.27$) ml absolute alcohol per kilogram body weight per week. This yields an average consumption of 5.86 ($SD = 4.66$) standard drinks per week for the whole sample. There were no significant differences between conditions in any measure, $t_s < 1.25$, ns , indicating that participants of both conditions had comparable experiences with alcohol consumption.

Blood Alcohol Concentrations

The initial BAC for all participants was 0%. Participants in the alcohol condition had a mean BAC of .052% ($SD = .013$) after the beverage consumption.

Manipulation Checks

When asked to estimate the amount of alcohol they had consumed equivalent to glasses of wine, two participants in the placebo condition and one participant in the alcohol condition indicated not having consumed any alcohol. These participants were excluded from the following analyses. On average participants in the placebo condition estimated having consumed 2.47 ($SD = 1.13$) glasses of wine and participants in the alcohol condition 2.65 ($SD = 1.08$) glasses of wine. There was no difference between conditions, $t(58) = .63$, ns . Thus, participants of the alcohol and placebo conditions had comparable beliefs regarding the alcohol content of their beverages.

Descriptive Analyses

Before the beverage administration, mean expectation of attaining the goal was 4.98 ($SD = 1.31$) on the 7-point scale. Mean incentive value was 6.08 ($SD = 1.14$) on the 7-point scale, indicating that participants indeed named goals that were highly important to them. Expectation before the beverage administration and incentive value correlated positively ($r = .37$, $p = .004$). After the beverage administration, mean expectation was at 5.05 ($SD = 1.50$) and mean incentive value was at 5.92 ($SD = 1.32$) of the 7-point scale. Expectation and incentive value after the beverage administration correlated positively ($r = .41$, $p = .001$). Finally, commitment after the beverage consumption had a mean of 5.02 ($SD = 1.37$) on the 7-point scale and on average participants had taken 3.21 ($SD = 1.90$) actions toward goal attainment within the following 3 weeks after the experiment.

Gender Effects

Expectations before and after the beverage administration, incentive value before and after the beverage administration, commitment, as well as number of actions taken revealed no significant differences by gender, $ts \leq 1.66$, ns . Therefore, we omit gender from further discussion.

Goal Commitment Directly After Beverage Consumption

Expectations-commitment link. We replicated the results from Study 1: expectations did not predict commitment in the alcohol condition, $F(1,29) = 1.09$, *ns*, but predicted commitment in the placebo condition, $F(1,27) = 39.53$, $p < .001$ (one-tailed; Figure 2). 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 the continuous expectation measure as independent variables revealed main effects of condition, $F(1,56) = 10.16$, $p = .002$, and expectation, $F(1,56) = 21.51$, $p < .001$, as well as the predicted interaction effect $F(1,56) = 8.28$, $p = .003$ (one-tailed), indicating that the relation between expectations and commitment was weaker in the alcohol condition than in the placebo condition.

Moreover, when expectations were low (expectations = 1), participants in the alcohol condition felt more committed than participants in the placebo condition, $t(56) = 3.23$, $p = .001$ (one-tailed). When expectations were high (expectations = 7), commitment did not differ between the alcohol and the placebo conditions, $t(56) = 1.56$, *ns*. Thus, we replicated the findings of Study 1 that intoxicated participants strongly commit to their goals irrespective of their expectations and that this effect particularly made a difference in light of low expectations.

Drinking habits as a moderator for the effect of alcohol on the expectancy-commitment link. To investigate whether the effect of alcohol on the expectancy-commitment link would be attenuated in participants who consume more alcohol in their every-day life as compared to participants who consume less alcohol, we repeated the above analysis entering the average amount of alcohol per kilogram body weight participants consumed per week in our GLM as a main effect, as an interaction with condition, as an interaction with expectation, as well as an interaction with condition and expectation. While the overall pattern of results did not change, neither the main effect of alcohol consumed per week nor the respective

interaction effects were significant, $F_s < .33$, *ns*. This indicates that participants' past experiences with alcohol consumption did not influence the effect of alcohol on the expectancy-commitment link.

Controlling for incentive value and incentive value as a moderator for the effect of alcohol on the expectancy-commitment link. Moreover, to assure that the results were not due to variations in the perceived value of the goals we repeated all key analyses entering incentive value as a main effect into the regression equations. The pattern of results stayed the same for all analyses. In addition, we carried out moderation analyses of incentive value for all key analyses in an analogous way as in Study 1. Specifically, we entered incentive, incentive by condition, incentive by expectation, and incentive by condition by expectation into the respective regression equations. We did not observe any significant interaction effects with incentive, $F_s < .64$, *ns*.

Changes in expectations and incentive as alternative processes. Finally, to examine whether the effect of alcohol on the expectancy-commitment link is due to changes in expectations or incentive value we computed 2 x 2 mixed ANOVAs on expectations and incentive, respectively. We entered measurement time (before vs. after the beverage consumption) as within-subject factors and condition (alcohol vs. placebo) as between-subject factors. We did not observe any significant interaction effects of condition, $F_s < .46$, *ns*, indicating that alcohol neither changed expectations nor incentive value.

Goal Striving in the 3 Weeks Following the Experiment

Expectations-goal striving link. To examine whether expectations before the beverage administration predict goal striving in the period 3 weeks after the experiment across conditions, we estimated a GLM with number of actions initiated toward goal attainment as dependent variable, condition as fixed between subject factor, and the continuous expectation measure as well as condition by the continuous expectation measure as independent variables.

We observed the predicted main effect of expectations, $F(1,48) = 10.25, p = .001$ (one-tailed). Neither the main effect of condition nor, importantly, the condition by expectation interaction were significant, $F_s < .15, ns$, indicating that indeed expectations before the beverage administration predicted goal striving after the experiment regardless of whether participants consumed alcohol or a placebo during the experiment.

Commitment-goal striving link. Consistent with our assumption that commitment differentially affects goal striving in the alcohol condition versus the placebo condition, commitment did not predict the number of actions initiated toward goal attainment in the alcohol condition, $F(1,27) = 1.14, ns$, but predicted the number of actions in the placebo condition, $F(1,21) = 10.60, p = .002$ (one-tailed). A GLM with number of actions as dependent variable, condition as fixed between subject factor, and the continuous commitment measure as well as condition by the continuous commitment measure as independent variables revealed a main effect of condition, $F(1,48) = 4.92, p = .03$, as well as the predicted interaction effect $F(1,48) = 7.58, p = .004$ (one-tailed), indicating that the relation between commitment and goal striving was weaker in the alcohol condition than in the placebo condition.

Goal Commitment as a Mediator for the Relation Between Expectations and Goal Striving in the Placebo Condition

Finally, we wanted to examine the extent to which commitment mediated the effect of expectations before the beverage administration on goal striving in participants who consumed a placebo. According to Baron and Kenny (1986), mediation is established if (a) the independent variable (IV; expectations) predicts the dependent variable (DV; goal striving), (b) the IV predicts the mediator (commitment), (c) the mediator predicts the DV over and above the effect of the IV, and (d) the effect of the IV on the DV is reduced when the effect of the mediator is controlled. Indeed, in the placebo condition expectations before

the beverage administration predicted the number of actions initiated for goal attainment, $t(21) = 2.13, p < .05$. Second, as previously shown, expectations predicted commitment, $F(1,27) = 39.53, p < .001$ (one-tailed) as well. Third, commitment predicted number of actions over and above the effect of expectations, $t(20) = 2.25, p = .04$. Fourth the link between expectations and number of actions was reduced to nonsignificance when commitment was entered into the respective regression, $t(20) = .50, ns$, indicating that commitment fully mediated the relation between expectations before the beverage administration and goal striving in the placebo condition (Figure 3, upper chart).

A complement to Baron and Kenny's (1986) approach to test mediation is the test of the significance of the indirect effect of the IV on the DV through the mediator. A bootstrap test (Preacher & Hayes, 2004) estimated the indirect effect of expectations on goal striving through commitment in the placebo condition to lie between .11 and 1.59 with 95% confidence, indicating that the indirect effect is significantly different from zero at $p < .05$ (Preacher & Hayes, 2004). Because, as previously shown, in the alcohol condition expectations before the beverage administration did not predict commitment (Baron and Kenny's second step for establishing mediation), commitment does not qualify as a mediator for the relation between expectations and goal striving in the alcohol condition (Figure 3, lower chart).

Discussion

Study 2 replicated the findings of Study 1: Alcohol lead participants to feel strongly committed to their goals even when chances to attain their goals were bleak. Moreover, Study 2 showed that once the effects of the alcohol have vanished, participants adjusted their efforts for goal attainment to their expectations: The number of actions initiated for goal attainment within the 3 weeks following the experiment depended on expectations across conditions. Importantly, although participants reported feeling strongly committed towards reaching their

goals while intoxicated, once participants were sober they did not act according to their strong commitments. These results suggest that commitments of low expectancy-individuals who consumed alcohol were empty. When intoxicated, participants reported feeling dedicated towards reaching their goals, but when it came to actually acting towards reaching their goals, they did not put their money where their mouth was.

In addition, in participants who consumed a placebo, commitment mediated the effect of expectations on goal striving. This finding is in line with previous research indicating that commitment mediated the effect of self-efficacy expectations on test performance (Johnson, 2005). Apparently, commitment functions as a mechanism for the effect of expectations on goal striving. That is, expectations determine goal striving via individuals' commitments to their goals.

Second, Study 2 substantiates the finding of Study 1 that the observed effect of alcohol on commitment stems from the pharmacological properties of alcohol rather than from participant's beliefs in having consumed alcohol. Whereas in Study 1, participants in the placebo condition estimated having consumed less alcohol than participants in the alcohol condition, in Study 2 participants in the placebo and alcohol conditions had comparable beliefs in having consumed alcohol. Therefore, Study 2 provides more compelling evidence that the observed effect of alcohol on commitment cannot be attributed to participants' beliefs in having consumed alcohol. This result is in line with Hull and Bond's meta-analysis (1986) indicating that the belief in having consumed alcohol has only minimal effects on self-reported internal states, but rather affects overt behaviors that deviate from social norms like aggressive or sexual behaviors (Lang et al., 1975; Lang, Searles, Lauerman, & Adesso, 1980). Moreover, the result is also in line with a meta-analysis by Steele & Southwick (1985) indicating that alcohol myopic effects cannot be explained by expectancy effects.

Third, participants' drinking habits did not influence the effect of alcohol on commitment. This result is in line with previous research in which alcohol tolerance effects were observed only in people who regularly drink very large amounts of alcohol (alcoholics; e.g., Chesher & Greeley, 1992). Moreover, alcohol tolerance effects in social drinkers were only found when a specific response was either rewarded, mentally rehearsed before drinking, or learned in an intoxicated state (summary by Vogel-Sprott & Fillmore, 1999).

Fourth, the observed effects of alcohol on commitment cannot be attributed to alcohol-induced changes in expectations because alcohol did not affect the absolute level of expectations; expectations before the beverage consumption did not differ from expectations after the beverage consumption in the alcohol and placebo conditions. Accordingly, intoxicated individuals feel strongly committed to their goals because they do not consider their expectations, not because they overestimate their expectations.

Fifth, the effects of alcohol on commitment neither can be attributed to changes in participants' perceptions of the value of the desired outcomes; incentive ratings before the beverage consumption did not differ from incentive ratings after the beverage consumption. Thus, rather than by increasing individuals' perceptions of the value of the desired outcomes, alcohol leads individuals to feel strongly committed to their goals because it presumably leads individuals to focus on the desired outcomes.

Sixth, Study 2 replicated the findings of Study 1 with a slightly higher alcohol dosage. In Study 2 alcohol affected participants' commitments at an average BAC of .052%. This finding is in line with previous research showing that alcohol affects cognitive processes around this BAC (e.g., Koelega, 1995; Sayette, 1993).

Finally, in Study 2 we replicated the findings of Study 1 that alcohol leads individuals to strongly commit to their goals, using a combination of different indicators to measure commitment. In line with Locke, Latham, and Erez's (1988) definition of goal commitment as

people's attachments to or determinations to reach their goals, our measure of commitment includes indicators of participants' attachment to their goals and their determination to reach their goals.

In Study 1 we established the phenomenon that alcohol leads individuals to strongly commit to goals irrespective of their expectations. Study 2 focused on the implications of our finding for goal striving over time. Study 3 aims at investigating a potential mechanism for the effect of alcohol on commitment, namely that alcohol leads individuals to focus on the desired outcomes rather than on information about the probability of attaining the outcomes.

Study 3: Focus on Desired Outcomes as a Mechanism for the Effect of Alcohol on Goal Commitment

In Studies 1 and 2 alcohol led participants to strongly commit to their goals irrespective of their expectations, presumably because the alcohol-myopia leads individuals to focus on the desired outcomes rather than on information about the probability of reaching the outcomes. However, it is yet unclear whether alcohol indeed leads individuals to focus on the desired outcomes. In Study 3 we used the same design and procedure as in Study 2. After participants consumed their beverages, we asked them to freely think about their goals and to write down their thoughts. We content analyzed participants' thoughts with regard to whether they focused on the desired outcomes themselves or on aspects related to the probability of attaining the outcomes. We hypothesized that participants who consumed alcohol would generate more thoughts about the desired outcomes and fewer thoughts about the probability of attaining the outcomes than participants who consumed a placebo. In addition, we suspected that making participants focus on the desired outcomes is a mechanism by which alcohol leads individuals to strongly commit to their goals irrespective of their expectations. Thus, we hypothesized that the moderator effect of alcohol on the expectancy-commitment link would be mediated by the extent to which participants think about the desired outcomes.

Moreover, in Studies 1 and 2 alcohol led individuals to strongly commit to goals in the interpersonal domain. However, it is yet unclear how far the findings are generalizable to other life domains. Therefore, in Study 3 we asked participants to name a goal from another domain. Specifically, we asked participants to name their ideal future self. We chose participants' ideal future self, because people strive to attain their ideal selves. Moreover, realizing their ideal selves is highly important to people and people think about their ideal selves a great amount of time (Higgins, 1987; Klinger, 1990; Markus & Nurius, 1986).

In addition, in Study 3 we wanted to replicate our results with yet another alcohol dosage. Therefore, we selected an alcohol dosage that would produce a mean BAC of about .07%. Furthermore, alcohol differentially affects people's moods and cognitions when the BAC is rising versus when the BAC is falling. For instance, the ascending limb of the BAC curve is associated with stimulation and greater impairment in memory, abstract reasoning, attention, and reaction time. The descending limb is associated with sedation and greater impairment in executive functioning (Earleywine & Erblich, 1996; Pihl, Paylan, Gentes-Hawn, & Hoaken, 2003; Söderlund, Parker, Schwartz, & Tulving, 2005). However, in Studies 1 and 2 we assessed participants' BAC only once after participants consumed their beverages. Therefore, to investigate whether participants' BAC was rising or falling while we assessed the dependent variables, in Study 3 we measured participants' BAC a third time at the end of the experiment.

Finally, in Studies 1 and 2, to test the effectiveness of the placebo manipulation we asked participants to estimate the amount of alcohol they consumed during the experiment. However, participants' estimates of their beverage content may be biased by demand characteristics (Rosenthal & Rosnow, 1975; Weber & Cook, 1972), that is, participants in the placebo condition may indicate having consumed alcohol because they complied with the experimenter's previous instructions about their beverage content rather because they truly

believed having consumed alcohol (Collins & Searles, 1988; Lyvers & Maltzman, 1991; Knight, Barbaree, & Boland, 1986, 1988). Therefore, to provide a more stringent manipulation check, in Study 3 we also assessed participants' subjectively felt alcohol effects. Specifically, we asked participants how much they felt the effect of the alcohol and how high they felt (Marczinski & Fillmore, 2005).

Method

Participants and Design

Eighty-two undergraduate students (64 female and 18 male) at the University of Hamburg, with a mean age of 23.65 ($SD = 4.32$) years participated in this study, which was advertised as a study on "alcohol and perception." Participants had to meet the same requirements as in Studies 1 and 2 (being over 18, being not on medication, and being not pregnant) and were screened by telephone with the BMAST (Pokorny et al., 1972). In addition, because in Study 3 we used a higher alcohol dosage than in Studies 1 and 2, female participants took a pregnancy test prior to the start of the experiment to objectively ascertain that they were not pregnant. The study was approved by the ethics commission of the German Psychological Association as well as by the German Medical Association. We asked participants to abstain from eating for at least 4 hours and from drinking alcohol for at least 12 hours prior to the experiment; participants were also requested to refrain from driving to the experiment. They received course credit for participation. We used two experimental conditions: alcohol and placebo. Participants completed the experiment on a computer.

Procedure

We used the same procedure as in Study 2 with the following modifications: First, to investigate whether alcohol leads participants to strongly commit to a goal in a different domain than the interpersonal domain, the computer program asked them to name their ideal future self. Participants read the following instructions:

Everyone has certain images, ideas, or goals of what he or she would like to become in life. These images, ideas, or goals are called ideal future selves. In this study we are interested in how people think about their ideal future selves. Which ideal future self is presently most on your mind?

Participants named for instance “caring husband” or “successful businesswoman”. To measure expectations, we asked “How likely do you think it is that you will attain your ideal future self?” on a 7-point scale ranging from 1 (*not at all likely*) to 7 (*very likely*). To measure incentive value we asked: “How important is it to you that you will attain your ideal self?” on a 7-point scale ranging from 1 (*not at all important*) to 7 (*very important*).

Second, to investigate whether participants’ BAC was rising or falling while they completed the dependent measures, we took a third BAC reading at the end of the experiment. Third, the amount of alcohol that participants in the alcohol condition received was calculated to result in a peak BAC of .07%. Accordingly, for participants in the placebo condition the breathalyzer was preset to read a random value of around .07% at the second and third BAC reading.

Fourth, because of the higher alcohol dosage in Study 3 than in the previous studies, we chose a slightly longer movie than in the previous studies to allow for the absorption of the alcohol. The movie was a documentary about photography (National Geographic Society, 1979) and had a total playtime of 60 minutes.

Fifth, to investigate whether participants focused on the desired outcomes (i.e., their ideal future selves) rather than on aspects related to the probability of attaining their ideal future selves, we asked participants to freely think about their ideal future selves. Participants saw the ideal future self that they had named beforehand displayed on the upper half of the computer screen and read the following instructions:

In the following we would like you to think about your ideal future self. You are free to think about whatever aspects related to your ideal future self 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.

Participants typed their thoughts into designated space in the lower half of the screen. To content-analyze participants' thoughts, two independent raters blind to conditions divided participants' written elaborations into single statements. A statement corresponded to each meaningful unit of information. The average agreement on the appropriate division for each elaboration was 95%. Next, the raters coded each individual statement into one of the following three categories: (a) outcome focused, (b) probability focused, and (c) neutral. Interrater agreement for the category coding was 85%.

The outcome focus category encompassed statements that described the ideal selves in further detail than when participants had named them beforehand. Moreover, because when people think about their ideal selves they often vividly envision having attained the desired outcomes (daydreams, Klinger, 1990; fantasies, Oettingen, & Mayer, 2002; outcome simulations, Taylor, Pham, Rivkin, & Armor, 1998), we included descriptions of participants' mental images related to having attained the ideal selves. In addition, because the desired outcomes represent the ends of people's actions (Liberman & Trope, 1998; Vallacher & Wegner, 1987), we also included statements about the reasons why participants pursue their specific ideal selves. These were statements about relevant personal preferences, values, or motives (McClelland, 1985), statements about the incentive value of the ideal selves (Atkinson, 1957), and statements about expected positive consequences of attaining the ideal selves (Heckhausen & Heckhausen, 2008), like positive feelings and events, material and nonmaterial gains, such as acquiring positive skills and character traits, or the abatement of negative aspects of one's current life.

The probability focus category encompassed deliberations about whether one is capable to perform relevant actions to attain the desired outcomes (self-efficacy expectations; Bandura, 1997) or has access to relevant means to attain the outcomes (agency-beliefs; Oettingen, Little, Lindenberger, & Baltes, 1994; Skinner, Chapman, & Baltes, 1988), thoughts about whether the relevant actions and means indeed lead to the desired outcomes (outcome expectations; Bandura, 1997; means-ends beliefs; Skinner et al., 1988), and statements about whether the specific outcomes can or will be attained in general (general expectations, Heckhausen & Heckhausen, 2008, Rotter, 1954; control beliefs, Skinner et al. 1988). In addition, because people estimate the subjective probability of attaining the outcomes primarily on the basis of their past experiences (Bandura, 1997), we also included thoughts about past successes and failures. Furthermore, we included thoughts about possible events or external circumstances that might influence the likelihood of goal attainment. Finally, because whether the desired outcomes will be attained strongly depends on the extent to which people have formed plans to attain the outcomes (Ajzen, 1991; Gollwitzer, 1999), the probability focus category also encompassed descriptions of plans how to attain the outcomes.

The neutral category encompassed statements that are ambiguously related to attaining the desired outcomes, like deliberations about which outcomes should be pursued, thoughts about potential negative consequences of attaining the desired outcomes, and ruminations about failure to attain the desired outcomes. In addition, the neutral category included thoughts that neither referred to the desired outcomes nor to the probability of attaining the outcomes, such as statements about the world or the self in general and statements about the experimental situation. For an overview of the coding categories with examples from participants' elaborations see Table 1.

For instance, one participant elaborated:

My goal is to become a successful therapist, because it is the job of my dreams and it is important to me to help other people with their problems. However, first, I have to finish my studies. Although I am optimistic about the future, I sometimes worry that my grades might not be good enough, that something unforeseen might happen, or that I do not possess the necessary mental toughness.

This elaboration was divided and coded as follows: “My goal is to become a successful Psychologist” (description of the desired outcome), “because it is the job of my dreams” (incentive value of the outcome), “and it is important to me to help other people with their problems” (personal preference, value, or motive), “However, first I have to finish my studies” (plan), “Although I am optimistic about the future (general expectation), “I sometimes worry that my grades might not be good enough (past failure/self-efficacy expectation/outcome expectation), “that something unforeseen might happen (possible event or external circumstance), “or that I do not possess the necessary mental toughness (self-efficacy expectation).

Sixth, to assess participants’ commitments to realizing their ideal selves, we used the same measures as in Study 2. Specifically, we asked: “How disappointed would you feel if you did not attain your ideal self?”, “How hard would it be for you if you did not attain your ideal self?”, and “How determined are you to attain your ideal self?” Participants indicated their answers on 7-point scales. Because the three items showed good internal consistency (Cronbach’s $\alpha = .77$), we combined them into an index of commitment.

Seventh, to check the effectiveness of the placebo manipulation, in addition to asking participants to estimate the amount of alcohol consumed equivalent to glasses of wine we assessed participants’ subjective alcohol effects. Specifically, we asked: “How much did you feel the effects of the alcohol?” and “How high do you feel right now?” (Marczinski & Fillmore, 2005). Participants 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 participants. We asked participants to remain in the laboratory until their BAC dropped below .03% and encouraged them to contact us any time if they had further questions.

Results

Drinking Habits

Participants' mean frequency of drinking was 1.44 ($SD = 1.12$) times per week with an average quantity per occasion of .88 ($SD = .48$) ml absolute alcohol per kilogram body weight. This is equivalent to an average consumption of 3.30 ($SD = 1.81$) standard drinks per occasion for the whole sample. The mean duration of drinking was 4.45 ($SD = 1.60$) hrs. On average, participants consumed 1.26 ($SD = 1.11$) ml absolute alcohol per kilogram body weight per week. This yields an average consumption of 4.79 ($SD = 4.38$) standard drinks per week for the whole sample. There were no significant differences between conditions in any measure, $t_s < 1.18$, *ns*, indicating that participants of both conditions had comparable experiences with alcohol. Furthermore, participants' drinking habits did not differ from the drinking habits of participants in Study 2 on any measure, $t_s < 1.41$, *ns*.

Blood Alcohol Concentrations

The initial BAC for all participants was 0%. Participants in the alcohol condition had a lower BAC ($M = .063\%$ $SD = .020$) directly after the beverage consumption than at the end of the experimental procedure ($M = .070\%$, $SD = .016$), $t(38) = 3.55$, $p = .001$. Thus, participants' BAC was still rising while we assessed the dependent variables.

Manipulation Checks

When asked to estimate the amount of alcohol consumed equivalent to glasses of wine, one participant in the placebo condition indicated not having consumed any alcohol.

This participant was excluded from the following analyses. The remaining participants in the placebo condition estimated having consumed fewer glasses of wine ($M = 2.88$, $SD = 1.26$), and indicated feeling the effects of the alcohol less ($M = 3.13$, $SD = 1.61$) and feeling less high ($M = 2.23$, $SD = 1.63$) than participants in the alcohol condition ($M = 3.85$, $SD = 1.55$; $M = 6.67$, $SD = 1.55$; $M = 5.11$, $SD = 2.22$; $ts > 3.10$, $ps < .003$). Because the three measures showed good internal consistency (Cronbach's $\alpha = .77$), we z-transformed them into an index of participants' beliefs in having consumed alcohol.

Descriptive Analyses

Before the beverage administration, mean expectation of attaining the ideal selves was 4.99 ($SD = 1.30$) on the 7-point scale. Mean incentive value was 5.88 ($SD = 1.19$) on the 7-point scale, indicating that attaining their ideal selves was indeed highly important to participants. Expectation before the beverage administration and incentive value correlated positively ($r = .58$, $p < .001$). After the beverage administration, mean expectation was at 5.31 ($SD = 1.08$) and mean incentive value was at 5.89 ($SD = 1.30$) of the 7-point scale. Expectation and incentive value after the beverage administration correlated positively ($r = .64$, $p < .001$). Finally, commitment after the beverage consumption had a mean of 5.43 ($SD = 1.15$) on the 7-point scale.

Gender Effects

Expectations, incentive value, and commitment revealed no significant differences by gender, $ts \leq 1.07$, ns . Therefore, we omit gender from further discussion.

Goal Commitment

Expectations-commitment link. We replicated the results from Studies 1 and 2: Expectations did not predict commitment in the alcohol condition, $F(1,39) = 1.81$, ns , but predicted commitment in the placebo condition, $F(1,36) = 13.09$, $p < .001$ (one-tailed; Figure 4). 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 the continuous expectation measure as independent variables revealed a marginal significant main effect of condition, $F(1,75) = 3.11, p = .08$, a significant main effect of expectation, $F(1,75) = 12.53, p = .001$, as well as the predicted interaction effect $F(1,75) = 2.80, p < .05$ (one-tailed), indicating that the relation between expectations and commitment was weaker in the alcohol condition than in the placebo condition.

Moreover, when expectations were low (expectations = 1), participants in the alcohol condition felt more committed than participants in the placebo condition, $t(75) = 1.77, p = .04$ (one-tailed). When expectations were high (expectations = 7), commitment did not differ between the alcohol and the placebo conditions, $t(75) = 1.09, ns$. Thus, we replicated our finding that intoxicated participants strongly commit to their goals irrespective of their expectations and that this effect particularly played out in light of low expectations.

Controlling for participants' alcohol beliefs. Because like in Study 1 participants in the placebo condition believed having consumed less alcohol than participants in the alcohol condition, to investigate to what extent the results are due to differences in participants' beliefs in having consumed alcohol, we repeated the above analyses entering participants' alcohol beliefs (the index of the estimated amount of alcohol consumed and the two subjective alcohol effects measures) and the interaction term of alcohol beliefs by expectations into the regression equations (Hull & Bond, 1986). While the condition by expectation interaction remained significant, $F(1,73) = 4.69, p = .04$, neither the main effect of alcohol beliefs nor the interaction effect of alcohol beliefs by expectation were significant, $F_s < 1.95, ns$. This further substantiates the findings of Studies 1 and 2 that the effect of alcohol on the expectancy-commitment link was caused by the pharmacological properties of alcohol rather than by participants' beliefs in having consumed alcohol.

Drinking habits as a moderator for the effect of alcohol on the expectancy-commitment link. To investigate whether the effect of alcohol on the expectancy-commitment link would be attenuated in participants who consume more alcohol in their every-day life as compared to participants who consume less alcohol we conducted moderator analyses of participants' drinking habits in an analogous way as in Study 2. Specifically, we entered the average amount of alcohol per kilogram body weight participants consumed per week into the respective regression equations as a main effect, as an interaction with condition, as an interaction with expectation, as well as an interaction with condition and expectation. We did not observe any significant main or interaction effects of drinking habits, $F_s < .60$, *ns*. Thus, like in Study 2 participants' past experiences with alcohol did not influence the effect of alcohol on the expectancy-commitment link.

Controlling for incentive value and incentive value as a moderator for the effect of alcohol on the expectancy-commitment link. Moreover, to assure that the observed effect of alcohol on the expectancy-commitment link was not due to variations in the perceived value of the goals, we repeated our key analysis entering incentive value as a main effect into the regression equation. The pattern of results stayed the same. In addition, we carried out moderator analyses of incentive value for our key analyses in an analogous way as in Studies 1 and 2. Specifically, we entered incentive, incentive by condition, incentive by expectation, and incentive by condition by expectation into the respective regression equations. We did not observe any significant interaction effects with incentive, $F_s < .43$, *ns*, indicating that like in Studies 1 and 2 participants' perceived value of the goal did not moderate the effect of alcohol on the expectancy-commitment link.

Changes in expectations and incentive as alternative processes. Finally, to examine whether the effect of alcohol on the expectancy-commitment link was due to changes in expectations or incentive value we computed 2 x 2 mixed ANOVAs on expectations and

incentive, respectively. We entered measurement time (before vs. after the beverage consumption) as within-subject factors and condition (alcohol vs. placebo) as between-subject factors. We did not observe any significant interaction effects of condition, $F_s < 2.09$, ns , indicating that like in Study 2 alcohol neither changed expectations nor incentive value.

Content Analysis of Participants' Thoughts

We hypothesized that intoxicated participants would generate relatively more statements referring to the desired outcomes (i.e., the ideal future selves) and relatively fewer statements referring to the probability of attaining the outcomes. We first counted the overall number of statements for each participant and the number of words used for each statement. Neither the overall number of statements nor the number of words in each statement differed between the alcohol ($M = 7.20$, $SD = 3.82$; $M = 11.15$, $SD = 6.09$) and the placebo conditions ($M = 8.00$, $SD = 3.74$; $M = 11.06$, $SD = 5.65$), $t_s < .96$, ns , indicating that alcohol did not affect participants' writing length. Participants generated 51.81% ($SD = 28.65$) outcome-focused statements, 28.30% ($SD = 22.80$) probability-focused statements, and 19.89% ($SD = 23.64$) neutral statements. Because the proportion of neutral statements did not differ between the alcohol (19.74%, $SD = 25.42$) and the placebo condition (20.03%, $SD = 21.98$), $t(79) = .06$, ns , we omitted the neutral statements in the following analysis.

To investigate whether participants who consumed alcohol generated relatively more outcome-focused statements and relatively fewer probability-focused statements than participants who consumed a placebo, we computed a 2 x 2 mixed ANOVA with condition (alcohol vs. placebo) as between-subject factor and relative number of statements (outcome focused vs. probability focused) as within-subject factor. We observed a significant main effect of statement, $F(1,79) = 22.06$, $p < .001$, as well as the predicted interaction effect of condition by statement, $F(1,79) = 5.70$, $p = .01$ (one-tailed). Planned contrasts revealed that participants who consumed alcohol generated relatively more outcome-focused statements (M

= 57.75 %, $SD = 30.03$) and relatively fewer probability-focused statements ($M = 22.51$ %, $SD = 20.85$) than participants who consumed a placebo ($M = 45.73$ %, $SD = 26.14$ and $M = 34.23$ %, $SD = 23.43$, respectively, $ts > 1.91$, $ps < .05$; one-tailed; Figure 5), indicating that alcohol indeed leads individuals to focus on the desired outcomes rather than on the probability of attaining the outcomes.

Focus on the Desired Outcomes as a Mediator for the Effect of Alcohol on Goal Commitment

Finally, we suspected that making participants' focus on the desired outcomes is a mechanism by which alcohol leads individuals to strongly commit to their goals irrespective of their expectations. To investigate whether the moderator effect of alcohol on the expectancy-commitment link is mediated by the extent to which participants focus on the desired outcomes we followed the principles of Baron and Kenny (1986) and Preacher, Rucker, and Hayes (2007). Our measure for how strongly participants focus on the desired outcomes was the proportion of outcome focused statements relative to the total number of generated statements.

First, as previously shown, condition and expectations interacted in predicting commitment, $F(1,75) = 2.80$, $p < .05$ (one-tailed). Second, condition and expectations also interacted in predicting the proportion of outcome-focused statements, $F(1,77) = 3.15$, $p = .04$ (one-tailed; Figure 6). Third, the proportion of outcome-focused statements predicted commitment over and above the condition by expectations interaction, $F(1,74) = 6.95$, $p = .005$ (one-tailed). Fourth, the condition by expectation interaction in predicting commitment was reduced to nonsignificance when the proportion of outcome-focused statements was entered into the respective regression, $F(1,74) = 1.49$, ns . Thus, the extend to which participants focused on the desired outcomes when thinking about their goals fully mediated the differential effect of expectations on commitment in the alcohol versus the placebo condition (Figure 7). A bootstrap test estimated the indirect effect of expectations by

condition on commitment through focus on the desired outcomes to lie between $-.40$ and $-.01$ with 95% confidence, indicating that the indirect effect is significantly different from zero at $p < .05$ (Preacher, Rucker, & Hayes, 2007).

Discussion

Study 3 replicated the finding of Studies 1 and 2 that alcohol leads individuals to feel strongly committed to their goals despite bleak prospects for goal attainment. In addition, Study 3 showed that alcohol leads individuals to focus on the desired outcomes rather than on the probability of realizing the outcomes: Participants who consumed alcohol generated more thoughts related to the desired outcomes and fewer thoughts related to the probability of attaining the outcomes than participants who consumed a placebo. Moreover, the proportion of thoughts related to the desired outcomes mediated the effect of alcohol on the expectancy-commitment link. Apparently, alcohol leads individuals to disproportionately focus on the desired outcomes and this leads them to feel strongly committed to their goals irrespective of their expectations. Furthermore, we replicated the results of Studies 1 and 2 with respect to a goal from a different domain. Specifically, with respect to attaining one's ideal future self.

Moreover, in the manipulation check of Study 3 participants who consumed a placebo indicated having consumed less alcohol, feeling the alcohol less, and feeling less high than participants who consumed alcohol. This result is in line with previous research showing that at BACs similar to the BAC we used in Study 3 ($.07\%$), participants in the placebo condition are unlikely to believe having consumed a comparable amount of alcohol as participants in the alcohol condition (Lapp, Collins, Zywiak, & Izzo, 1992; Rohsenow & Marlatt, 1981). However, when we controlled for participants' beliefs about the alcohol consumed in our key analyses, the condition by expectation interaction in predicting commitment remained significant. Thus, even though we used a more stringent manipulation check, Study 3 further supports the results of Studies 1 and 2 that there is a pharmacological effect of alcohol on the

expectancy-commitment link that is independent of participants' beliefs in having consumed alcohol.

Finally, in Study 3, participants' BAC was still rising when we assessed the dependent variables. Thereby, our finding that intoxicated participants strongly committed to reaching their goals is consistent with previous findings that the ascending limb of the BAC curve is associated with stimulation (Earleywine & Erblich, 1996; Pihl et al., 2003; Söderlund, et al., 2005). Further research is necessary to investigate whether alcohol leads individuals to strongly commit to goals while their BAC is falling.

GENERAL DISCUSSION

In three studies alcohol leaded participants to feel strongly committed to their goals irrespective of their expectations, and this effect particularly manifested itself when chances of goal attainment were bleak: Specifically, participants who consumed alcohol felt more committed to their goals than participants who consumed a placebo when prospects for goal attainment were low. However, when prospects for goal attainment were high alcohol consumption did not make a difference: Participants who consumed alcohol as well as participants who consumed a placebo felt strongly committed to their goals. Moreover, Study 2 suggests that the strong commitments in low-expectancy individuals who are intoxicated were empty, i.e. individuals reported strong commitments towards reaching their goals despite their low expectations, but once sober again they failed to act towards realizing the desired outcomes. Finally, Study 3 shows that one mechanism by which alcohol leads individuals to feel strongly committed to their goals irrespective of their expectations is by making individuals focus on the desired outcomes rather than on information related to the probability of attaining the outcomes.

In contrast to intoxicated participants' strong commitments, commitments of participants who consumed a placebo were grounded on participants' considerations about the

probability of attaining the goals. Thus, in sober individuals strong commitments derive from high expectations. High expectations have been consistently found to foster short-term and long-term goal striving as well as successful performance (e.g., Bandura, 1997; Oettingen & Mayer, 2002; Taylor & Brown, 1988). Importantly, Study 2 indicates that in sober individuals the pathway by which expectations influence goal striving over time runs via individuals' commitments to their goals; i.e. high expectations lead to strong commitments and strong commitments foster successful goal striving.

According to alcohol myopia theory alcohol leads individuals to disproportionately focus on the set of cognitions that is most salient, which in turn affects individuals' subsequent responses. Previous research investigated such alcohol myopic effects by first experimentally manipulating the salience of a particular set of external cues, then participants consumed alcohol, and finally the dependent variables were assessed (Herzog, 1999; MacDonald et al., 1995, 2000; Steele et al., 1985). In contrast, in Study 3 participants first consumed alcohol, then we measured the extent to which participants focus on a particular set of cognitions (the desired outcomes), and finally we assessed our dependent variable, commitment. This design allowed us to demonstrate that alcohol actually leads individuals to focus on the desired outcomes, which in turn affects individuals' commitments to their goals.

Unfeasible Goal Pursuits

Our finding that intoxicated individuals feel strongly committed to goals despite bleak prospects for goal attainment suggests that individuals who routinely consume alcohol may fail to abandon goals that cannot be attained. Thus, frequent alcohol consumption may keep persons mentally attached to goals that are unlikely to attain and in this way may impede them from looking for alternative goals. Moreover, our finding that once sober, individuals do not act according to their strong commitments implies that individuals who regularly consume

alcohol may not abandon their unfeasible goals but do not make efforts to attain their goals either.

Motivation to Drink

There are many reasons for why people use alcohol (Armeli, Carney, Tennen, Affleck, & O'Neil, 2000; Cooper, Frone, Russell, & Mudar, 1995; Cox, 1990; Gibbons & Gerrard, 1995; Hull, & Young, 1983; Leonard & Blane, 1999; Mohr et al., 2001). To name just one, Steele and Josephs (1990) suggested that by inflating their self-evaluations, alcohol brings people mentally closer to their ideal selves. This makes alcohol psychologically reinforcing, especially if the discrepancies between the real selves and the ideal selves are large and if they are important to people. Similarly, our findings imply that alcohol brings people mentally closer to their goals, especially if chances of attaining the goals are low and thus the psychological distance to goal attainment is large. Therefore, alcohol should be particularly reinforcing for people who hold goals that are highly important to them but very unlikely to be attained. Consequently, individuals who do not expect to attain their goals may be more at risk of using and abusing alcohol than those who expect to attain their goals.

Stopping Alcohol Consumption

Moreover, because alcohol may keep people mentally attached to unfeasible goals, individuals with low expectations may even get caught up in a vicious circle of alcohol consumption: They drink to have the illusion of being closer to their unfeasible goals and their drinking prevents them from looking for alternative goals. In addition, even if people feel strongly committed the goal to reduce their alcohol consumption (Palfai, 2006) while they are intoxicated, they still might refrain from taking the necessary steps to attain their goal (e.g., starting a therapy) once they are sober.

Implications for Social Behavior

Our findings also have implications for common social behaviors. For instance, when someone talks about his or her goals after consuming alcohol, this person might indicate being strongly committed towards reaching very difficult goals (e.g., becoming a famous musician). Although such a person might appear socially attractive at first glance, this kind of behavior may have negative effects for the person's long-term credibility if the person does not act accordingly to attain his or her goals. Thus, contrary to the folk suggestion that there is "truth in wine", talk that follows a few glasses of wine may merely be hot air.

Implications for Goal Research

Intoxicated individuals' strong commitments are most likely just a temporary product of the alcohol-induced shortsightedness that leads individuals to overlook their expectations. Consequently, when expectations are low intoxicated participants' strong commitments should vanish as soon as the acute alcohol effect wears off. Thus, individuals' commitments to their goals seem to be dynamic rather than fixed or relatively stable over time. Specifically, individuals' commitments may strengthen or weaken depending on the information about the probability of goal attainment that is available to individuals. Longitudinal research is needed to investigate the malleability or stability of individuals' commitments to their goals over time.

Limitations and Future Research

Although we showed that intoxicated individuals' strong commitments did not determine individuals' goal striving once they are sober again, we did not investigate whether thinking about personal goals while intoxicated has immediate behavioral consequences for participants' goal striving while they are still intoxicated. Further research could investigate whether intoxicated individuals' not considering their expectations has immediate behavioral effects while being intoxicated, for example in terms of increased risk-taking.

Moreover, our research suggests that intoxicated individuals strongly commit to their goals because their reduced cognitive processing capacity makes them focus on the outcomes and ignore information about the probability of reaching the outcomes. Future research could further investigate this mechanism for the effect of alcohol on commitment. For instance, one could use cognitive tasks (e.g., lexical-decision tasks, word-stem completion tests) to assess the accessibility (i.e., salience) of the desired outcomes in participants' cognitions. Furthermore, one could experimentally manipulate the salience of participants' expectations (e.g., by giving participants bogus information about the probability of goal attainment) to investigate whether focusing on low expectations may lead intoxicated individuals to actually feel less committed to their goals than sober individuals. One could also experimentally manipulate participants' cognitive processing capacity by other means than alcohol (e.g., by making participants cognitively busy; Gilbert, Pelham, & Krull, 1988; Herzog, 1999), to examine whether this is a general mechanism that leads individuals to not consider their expectations in their commitments. Finally, future research could investigate whether the use of a self-regulation strategy that makes people's expectations salient (e.g., by mentally contrasting a desired future outcome with obstacles in the present reality; Oettingen, 2000) can counteract the observed effects of alcohol on commitment and lead intoxicated individuals to consider their expectations when thinking about their goals.

Conclusion

Alcohol distorts people's minds in often unfavorable ways: The present research suggests that intoxicated individuals feel strongly committed to their goals even when prospects to attain these goals are bleak, because alcohol leads individuals to focus on the desired outcomes rather than on information about the probability of attaining the outcomes. Moreover, our findings suggest that intoxicated people's strong commitments in light of bleak prospects are empty commitments, because once sober again, people do not pursue their goals

in line with the strong commitments they reported when intoxicated. Or, to put it in a nutshell: People may indicate being determined to reaching their goals after having consumed alcohol, but once sober again they do not walk the talk.

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FOOTNOTES

¹We used one-tailed tests in analyses for which had a directional hypothesis. All other *p*-values are based on two-tailed tests.

TABLES

Table 1. *Coding Scheme for Participants' Statements*

Outcome-focused statements
<p>Descriptions of the desired outcomes (e.g., "I would like to become a father who can spend lots of time with his children", "a therapist who can help people with their problems").</p> <p>Mental images, fantasies, and daydreams related to having attained the desired outcomes. (e.g., "my boyfriend and me are sitting together at the beach watching the sunset", "I am singing in front of a cheering crowd").</p> <p>Reasons why to attain the outcomes, such as</p> <ul style="list-style-type: none"> - personal preferences, values, and motives (e.g., "my goal is to become a successful therapist, because it is important to me to help and support other people", "I want to become a teacher because I like working with children"). - statements about the incentive value of the desired outcomes (e.g., "making music is the greatest thing in the world", "being a professor is prestigious"). - positive consequences of attaining the desired outcomes, such as <ul style="list-style-type: none"> - feelings (e.g., "I would feel happy") - events (e.g., "I would meet many interesting people") - material gains (e.g., "I would earn a lot of money") - nonmaterial gains (e.g., "lots of spare time") <ul style="list-style-type: none"> - acquiring skills (e.g., "I would learn how to manage a company") - acquiring desirable character traits (e.g., "I would become more self-confident") - abatement of negative aspects of one's current life (e.g., "not feeling lonely anymore").

Probability-focused statements

Self-efficacy expectations/agency-beliefs (e.g., “sometimes I have difficulties to motivate myself”, “my parents give me financial support for my studies”).

Outcome expectations/means-ends beliefs (e.g., “learning Spanish would help me for my studies”, “If I have enough time to learn, I should pass the statistics test”).

General expectations/control beliefs (e.g., “I think that everything will work out fine”, “it will be difficult to become a successful layer”).

Past experiences (e.g., “I had many difficulties at school”, “I have always reached my goals”).

Potential events or external circumstances that influence the likelihood of goal attainment (e.g., “I could get sick”, “the situation on the job market might get worse”).

Plans about how the desired outcomes can be attained, (e.g., “first I finish my studies, then I will try to find a job as a therapist”, “I have to find a publisher for my writings”).

Neutral statements

Ambiguous statements

Reflections about which outcomes should be pursued (e.g., “I still have to find out what I want in life”, “I don’t know whether I really want to study Psychology”).

Thoughts of negative consequences of attaining the desired outcomes (e.g., “I would loose my personal freedom”, “I would not like being recognized in the street”).

Ruminations about failure to attain the desired outcomes (e.g., “If I do not become a doctor my parents will be disappointed”, “I am afraid of getting depressed if I do not get the job I want”).

Irrelevant statements

Statements about the world in general (e.g., “in modern societies peoples aspirations are strongly influenced by the mass media”, “poverty is a big problem in many countries”).

General descriptions of oneself or one’s current situation in life (e.g., “I am the youngest of four siblings”, “I am still living together with my parents”).

Deliberations about the experimental situation (e.g., “I wonder what this experiment is about”, “I don’t know what I should write”).

FIGURES

Figure Captions

Figure 1. Regression lines depict the link between expectations and commitment as a function of condition. * $p < .05$.

Figure 2. Regression lines depict the link between expectations before the beverage administration and commitment as a function of condition. * $p < .05$.

Figure 3. Relation between expectations before the beverage administration, commitment, and goal striving in the 3 weeks after the experiment in the placebo condition (upper chart) and the alcohol condition (lower chart). ^a Expectations predicting goal striving controlled for commitment. * $p < .05$.

Figure 4. Regression lines depict the link between expectations before the beverage administration and commitment as a function of condition. * $p < .05$.

Figure 5. Percentage of statements focusing on the desired outcomes and of statements focusing on the probability of attaining the outcomes in the alcohol and the placebo conditions. * $p < .05$.

Figure 6. Regression lines depict the link between expectations before the beverage administration and proportion of generated outcome-focused statements as a function of condition. * $p < .05$.

Figure 7. Mediating role of proportion of generated outcome-focused statements in explaining the interaction effect of condition by expectations on commitment. ^a Condition by expectations predicting commitment controlled for proportion of outcome-focused statements. * $p < .05$.

Figure 1

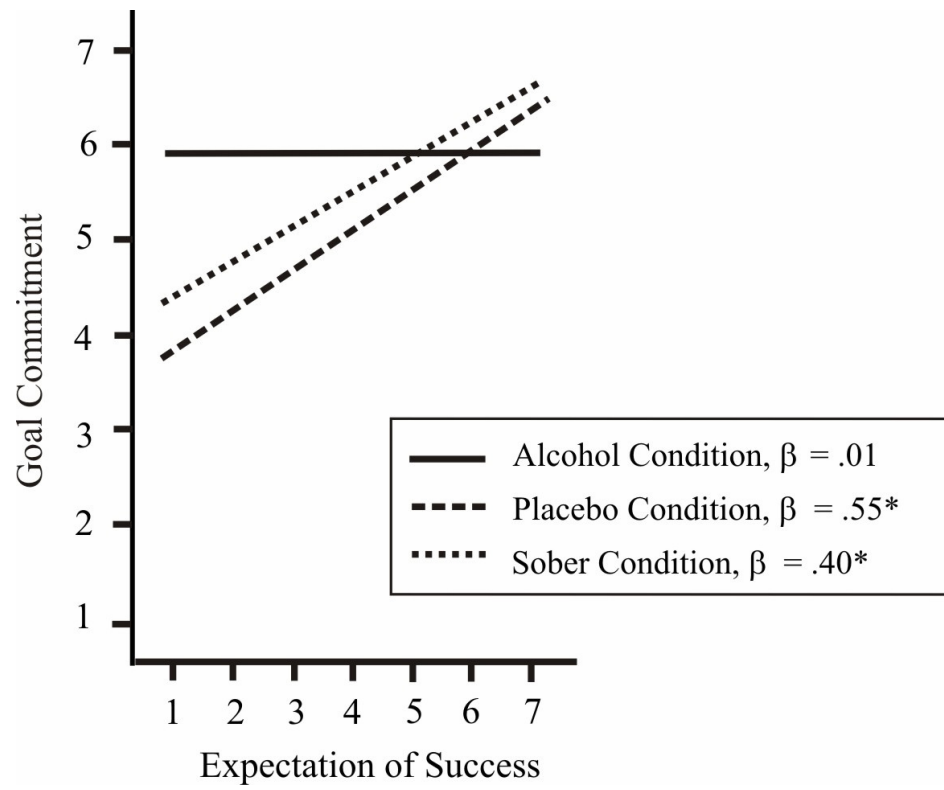


Figure 2

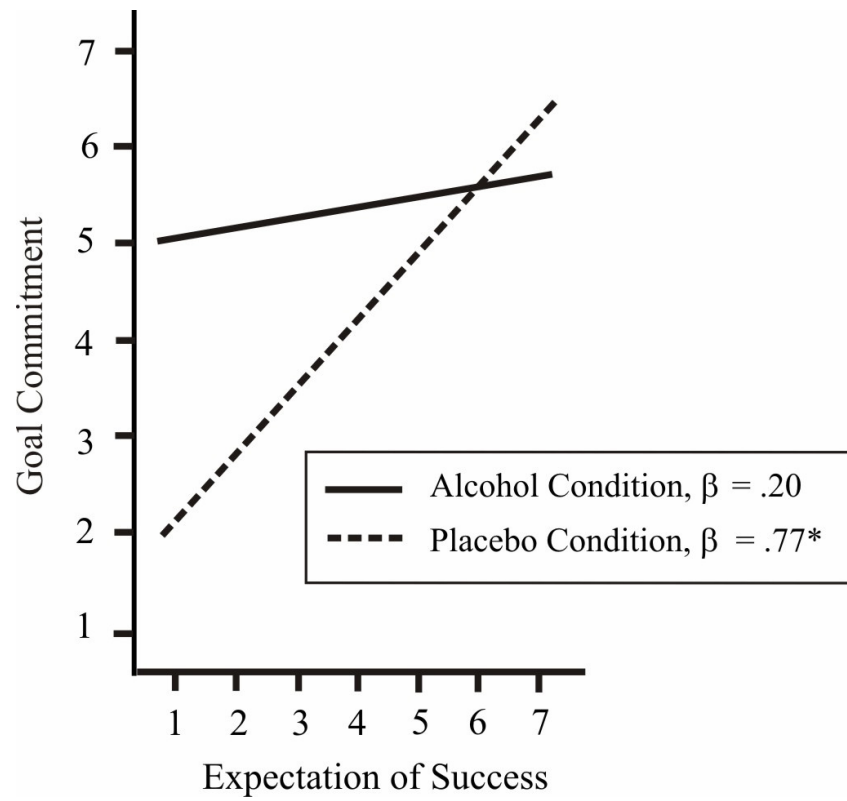


Figure 3

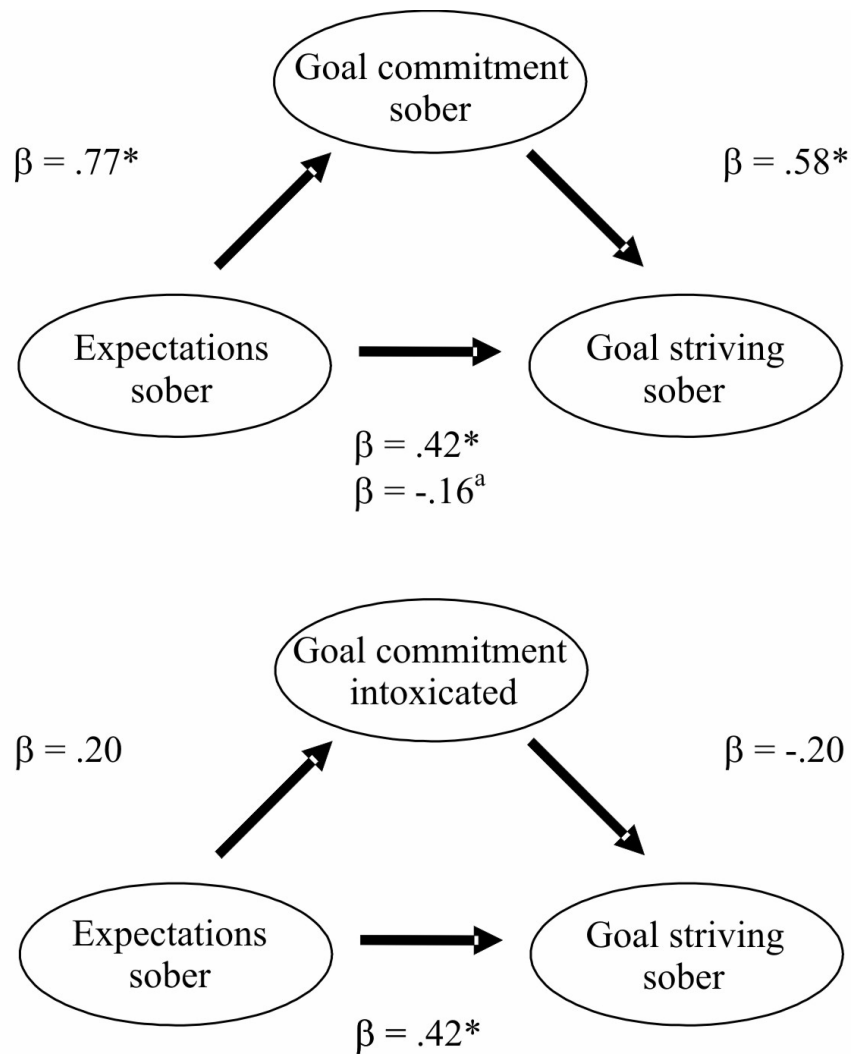


Figure 4

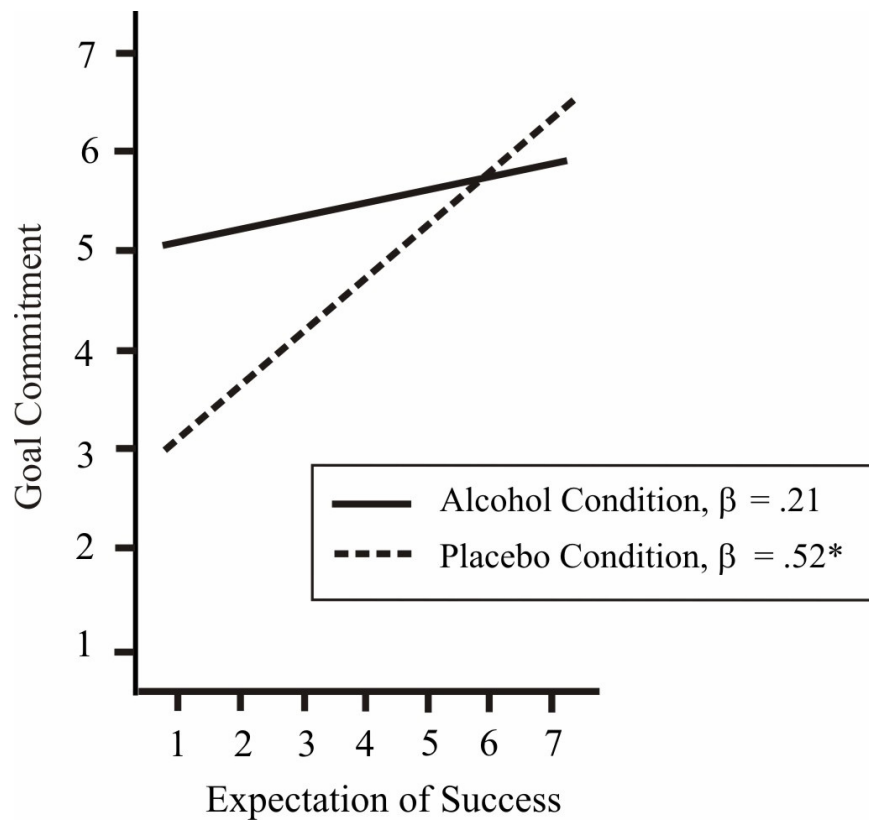


Figure 5

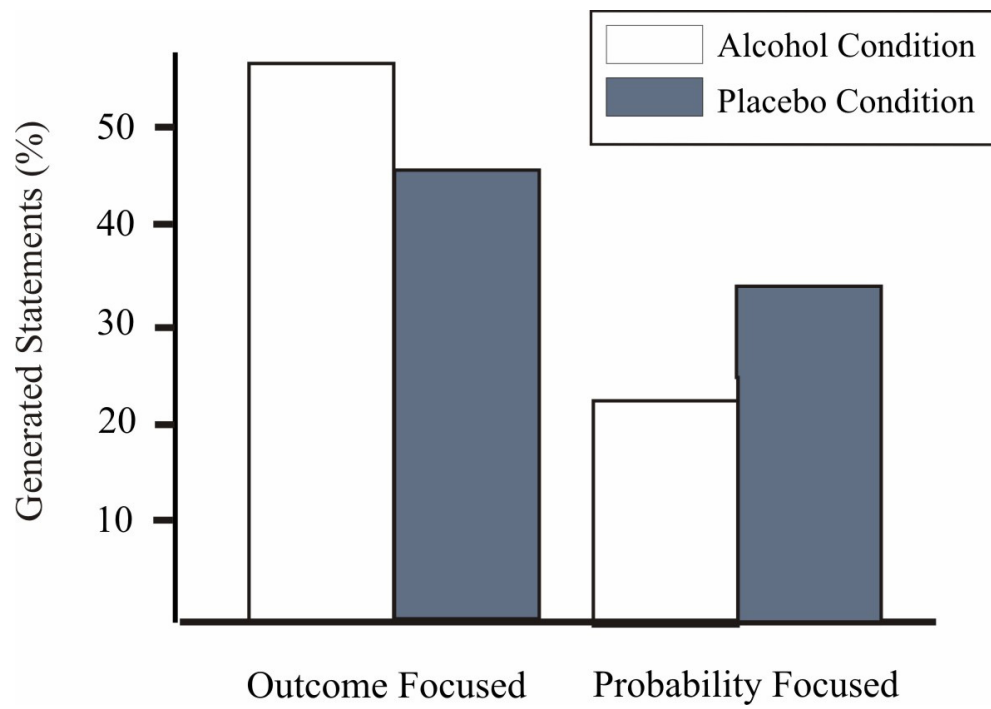
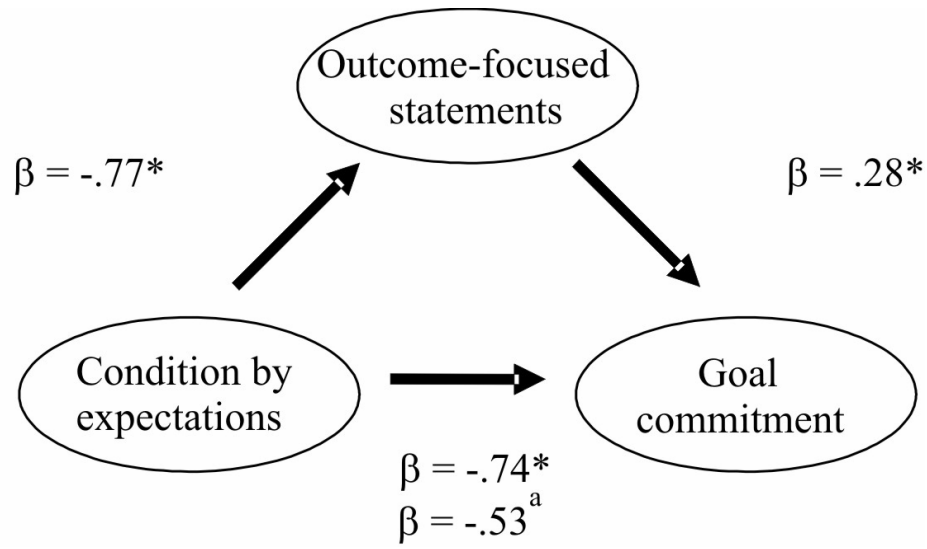


Figure 6



Figure 7



APPENDIX

Materials

Participant Information



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Postanschrift:

Psychologisches Institut II
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D-20146 Hamburg

Hamburg, den 22. Dezember 2008

Studie: „Alkohol und Wahrnehmung“

Projektleiter: Timur Sevincer

Teilnehmer-Information

Ziel des Experiments ist es zu untersuchen, wie sich der Konsum von Alkohol auf kognitive Prozesse auswirkt.

Der Versuch dauert 3 bis 4 Stunden. Zunächst werden Sie gebeten, Alkohol zu konsumieren (WodkaTonic). Dabei kann ein Blutalkoholwert von ca. 0,7 Promille erreicht werden. Währenddessen werden Sie einen Film sehen und anschließend werden wir Ihren Blutalkohol messen. Danach werden Sie an einem Computer einige Fragen beantworten und einen Fragebogen auf Papier mit Bleistift bearbeiten.

Eine vollständige Aufklärung über die Versuchsziele und Hypothesen des Versuchs erfolgt am Ende der Untersuchung.

Da bei der Einnahme von Alkohol auch bei Versuchsende noch ein Rest-Blutalkoholwert von über 0,5 Promille bestehen kann, weisen wir darauf hin, für eine Dauer bis zu sechs Stunden nach dem Experiment (bis sich der Alkohol vollständig abgebaut hat) nicht mit dem Auto oder Fahrrad am Straßenverkehr teilzunehmen.

Wir machen darauf aufmerksam, dass es bei einem Blutalkoholwert von 0,3 Promille bereits zu verkehrsrechtlichen Folgen kommen kann, wenn es alkoholbedingt zu Fahrfehlern kommt.

Wir weisen außerdem darauf hin, dass die Teilnahme an dem Experiment freiwillig ist und der Versuch zu jedem Zeitpunkt ohne Angabe von Gründen abgebrochen werden kann. Ferner kann die Einwilligung zur Verarbeitung von personenbezogenen Daten ohne Angabe von Gründen zurückgezogen werden.

Zu den Risiken bei einer Teilnahme an der Studie: Bei wahrheitsgemäßen Angaben (keine Einnahme von Medikamenten, keine bestehende Schwangerschaft, keine Einnahme von Rauschmitteln), sowie dem von den Versuchsleitern gebotenen Verhalten (keine Teilnahme am Straßenverkehr für bis zu sechs Stunden nach dem Experiment, Aufenthalt in den Laborräumen, bis der Blutalkoholwert unter 0,3 Promille gesunken ist), bestehen keine besonderen Risiken bei einer Teilnahme an der Studie.

Die Datenschutzbestimmungen des Bundesdatenschutzgesetzes finden in vollem Umfang Anwendung. Die während des Experimentes erhobenen personenbezogenen Daten werden von uns pseudonymisiert, (d. h. ohne Namensnennung) ausgewertet und nicht an Dritte weitergegeben.

Gemäß den Bestimmungen des § 4a Abs. (1) Bundesdatenschutzgesetz setzt die Einwilligung zur Verarbeitung von personenbezogenen Daten die Schriftform voraus.

Consent Form



Universität Hamburg

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Psychologisches Institut II
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Hamburg, den 22. Dezember 2008

Studie „Alkohol und Wahrnehmung“

Einverständniserklärung

Ich hatte Gelegenheit die Teilnehmerinformation genau durch zu lesen und auch dazu Fragen zu stellen. Ein Exemplar der Teilnehmerinformation/Einverständniserklärung ist mir zum Verbleib ausgehändigt worden.

Ich weiß, dass ich meine Einwilligung ohne Angabe von Gründen widerrufen kann, ohne dass mir daraus Nachteile entstehen.

Mir ist versichert worden, dass die Datenschutzbestimmungen des Bundesdatenschutzgesetzes in vollem Umfang Anwendung finden. Das bedeutet, dass die während des Experiments erhobenen, personenbezogenen Daten pseudonymisiert, (d. h. ohne Namensnennung) ausgewertet und nicht an Dritte weitergegeben werden.

Ich bin damit einverstanden, falls es der Versuchsablauf erfordert, eine Menge von ca. 0,7 Promille an Alkohol zu konsumieren.

Ich versichere, dass ich für eine Dauer bis zu sechs Stunden nach Beendigung des Experiments (solange, bis der Restalkohol vollständig abgebaut ist) nicht mit dem Auto oder Fahrrad am Straßenverkehr teilnehmen werde.

Datum:

(Versuchsleiter)

(Versuchsteilnehmer)

*Questionnaire Telephone Interview***Telefonfragebogen**Datum Telefongespräch: ..Tn-Code: Uhrzeit: :

Interviewer/in: _____

1. Demografische Daten1. Geschlecht: ☐ männlich ☐ weiblich2. Alter: Jahre

3. Was studieren Sie im Hauptfach? _____

4. Was studieren Sie im Nebenfach? _____

5. In welchem Semester sind Sie?

. Semester

6. Haben Sie schon an einem Experiment des Fachbereichs Psychologie teilgenommen?

☐ Ja ☐ Nein

6a. Wenn ja, an was für einem?

7. Muttersprache

☐ Deutsch ☐ Andere**2. Voraussetzungen zur Teilnahme**

1. Nehmen Sie gegenwärtig irgendwelche Medikamente ein? (Außer Pille, Vitaminpräparate)

☐ Ja ☐ Nein

1a. Wenn ja, welche?

2. Sind Sie schwanger?

☐ Ja ☐ Nein

BMAST

1. Haben Sie das Gefühl, dass Sie normal trinken? (Unter normal verstehen wir, dass Sie weniger oder genauso viel trinken wie die meisten anderen Menschen)

☐ Ja ☐ Nein

2. Meinen Ihre Freunde oder Verwandten, dass Ihr Alkoholtrinken normal ist?

☐ Ja ☐ Nein

3. Haben Sie einmal an einem Treffen einer Selbsthilfegruppe für Alkoholabhängige teilgenommen (z.B. Anonyme Alkoholiker, Blaues Kreuz, Freundeskreis Alkoholabhängiger, Guttempler)?

☐ Ja ☐ Nein

4. Haben Sie einmal einen Partner wegen Ihres Trinkens verloren?

☐ Ja ☐ Nein

5. Haben Sie wegen Ihres Trinkens einmal Probleme am Arbeitsplatz bekommen?

☐ Ja ☐ Nein

6. Haben Sie zwei oder drei Tage nacheinander Ihre Verpflichtungen in Ihrer Familie oder in Ihrer Arbeit vernachlässigt, weil Sie Alkohol getrunken haben?

☐ Ja ☐ Nein

7. Haben Sie sich einmal an jemanden um Hilfe gewandt wegen Ihres Alkoholtrinkens?

☐ Ja ☐ Nein

8. Waren Sie einmal in einem Krankenhaus wegen Ihres Alkoholkonsums?

☐ Ja ☐ Nein

9. Sind Sie schon einmal wegen Trunkenheit in Gewahrsam genommen worden?

☐ Ja ☐ Nein

10. Sind Sie schon einmal wegen Alkohol am Steuer von der Polizei am Weiterfahren gehindert worden?

☐ Ja ☐ Nein

Personal Drinking Habits Questionnaire

Fragebogen zu Trinkgewohnheiten

1. Seit wann trinken Sie regelmäßig Alkohol?

(a) seit _____ Monaten

(b) seit _____ Jahren

2. Wie oft trinken Sie Alkohol? (bitte nur eine Antwort angeben)

(a) nur zu besonderen Anlässen. _____ mal im Jahr.

(b) _____ mal im Monat

(c) _____ mal pro Woche

(d) _____ mal am Tag

3. Welches alkoholische Getränk bevorzugen Sie? _____

4. Welches alkoholische Getränk trinken Sie für gewöhnlich? _____

5. Wieviel Alkohol trinken Sie bei einer typischen Gelegenheit, bei der sie trinken (bitte nur eine Antwort angeben).

(a) Wein (in 0,2 l Gläsern) _____

(b) Bier (in 0,33 l Flaschen) _____

(c) Bier (in 0,5 l Gläsern) _____

(d) Schnaps (in 2 cl Gläsern) _____

6. Wie lange dauert eine typische Gelegenheit, bei der Sie Alkohol trinken?

(a) _____ Minuten

(b) _____ Stunden

(c) _____ Tage

*Postexperimental Questionnaire***Abschlussfragebogen**

1. Wie lange, schätzen Sie, hat das Experiment gedauert?

Stunden und Minuten

2. Bitte markieren Sie auf der Linie, wie lange Ihnen diese Zeitspanne aus persönlicher Sicht vorkam.

sehr kurz |-----| sehr lange

3. Können Sie sich denken, welches die Hypothesen des Experiments sein könnten?

☐ Ja ☐ Nein

3a) Wenn „ja“, welches sind ihrer Meinung nach die Hypothesen des Experiments?

4. Während des Experiments haben Sie an einem Computertest gearbeitet, bei dem Ihnen Fragen

zu persönlichen Anliegen gestellt wurden. Kam Ihnen irgendwas an dem Computertest bekannt vor?

☐ Ja ☐ Nein

4a) Wenn „ja“, was kam Ihnen bekannt vor?

4b) Wenn „ja“, woher kam es Ihnen bekannt vor?

5. Wie viel Alkohol, schätzen Sie, haben Sie konsumiert? (Angaben in Flaschen Bier – 0,33l)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6

Mailing Study 2

Tn-Code:

Bei dem Experiment vor 3 Wochen sind Sie gebeten worden, Ihr momentan wichtigstes Anliegen bei dem es um den Aufbau oder Erhalt einer *zwischenmenschlichen Beziehung* geht zu nennen und Sich zu merken.

An dem Experiment haben Sie teilgenommen am: _____, den ...

Heute ist _____, der ... (bitte ausfüllen)

Vergegenwärtigen Sie sich nun bitte den Zeitraum zwischen dem Tag vor ca. 3 Wochen, an dem Sie an dem Experiment teilgenommen haben und heute.

1. Was haben Sie seit der Teilnahme an dem Versuch vor ca. 3 Wochen unternommen, um der Erfüllung Ihres zwischenmenschlichen Anliegens näher zu kommen? Listen Sie bitte alle Schritte (Dinge, Aktionen) auf, die Sie in diesem Zeitraum unternommen haben, um Ihr Anliegen zu erreichen. Bitte geben Sie auch, so genau wie möglich an, wann Sie diese Schritte (Dinge, Aktionen) unternommen haben.

a) _____

Unternommen am: Tag: . Monat: . Jahr: .

b) _____

Unternommen am: Tag: . Monat: . Jahr: .

c) _____

Unternommen am: Tag: . Monat: . Jahr: .

d) _____

Unternommen am: Tag: . Monat: . Jahr: .

e) _____

Unternommen am: Tag: . Monat: . Jahr: .

f) _____

Unternommen am: Tag: . Monat: . Jahr: .

2. Markieren Sie bitte auf der Linie, wie viel Fortschritt Sie bei der Erfüllung Ihres zwischenmenschlichen Anliegens seit der Teilnahme an dem Versuch vor ca. 3 Wochen gemacht haben.

|-----|

keinen Fortschritt gemacht

Anliegen erfüllt

3. Ordnen Sie nun bitte Ihre Schritte (Dinge, Aktionen) von Frage 2 danach, wie schwer es Ihnen gefallen ist, sie auszuführen. Schreiben Sie ein „1“ neben den Schritt, der Ihnen am schwersten gefallen ist, eine „2“ neben den Schritt, der Ihnen am zweitschwersten gefallen ist, usw.

4. Wie enttäuscht wären Sie, wenn Ihr zwischenmenschliches Anliegen nicht in Erfüllung gehen würde?

überhaupt nicht 1 2 3 4 5 6 7 sehr

5. Wie schlimm wäre es für Sie, wenn Ihr zwischenmenschliches Anliegen nicht in Erfüllung gehen würde?

überhaupt nicht 1 2 3 4 5 6 7 sehr

6. Wie entschlossen sind Sie, ihr Anliegen zu erreichen?

überhaupt nicht 1 2 3 4 5 6 7 sehr

7. Für wie wahrscheinlich halten Sie es, dass Ihr zwischenmenschliches Anliegen in Erfüllung geht?

sehr unwahrscheinlich

sehr wahrscheinlich

1 2 3 4 5 6 7

8. Wie wichtig ist die Erfüllung Ihres zwischenmenschlichen Anliegens für Sie?

überhaupt nicht wichtig 1 2 3 4 5 6 7 sehr wichtig

Data Disc Content

Content	File Name
SPSS data file for Study 1	study1_data
SPSS syntax file for Study 1	study1_syntax
Computer program used in Study 1*	study1_program
SPSS data file for Study 2	study2_data
SPSS syntax file for Study 2	study2_syntax
Computer program used in Study 2*	study2_program
SPSS data file for Study 3	study3_data
SPSS file for content analysis data of Study 3	study3_contentanalysis_data
SPSS syntax file for Study 3	study3_syntax
Computer program used in Study 3*	study3_program

* to launch the computer program open program folder and click on STUDY.BAT