Addiction Research and Theory, October 2014; 22(5): 363–370

ISSN: 1606-6359 print/1476-7392 online
DOI: 10.3109/16066359.2013.857661

informa
healthcare

Drowning your sorrows? Social exclusion and anger effects on alcohol drinking

Sharon Rabinovitz

School of Criminology, University of Haifa, Mount Carmel, Haifa, Israel

(Received 16 June 2013; revised 16 October 2013; accepted 17 October 2013)

This study was designed to examine whether social exclusion and anger affect alcohol consumption and value. Sixty participants who were excluded, provoked, and could then pour and consume beverages (labeled alcohol/juice), reported their perception of the beverages' value. Social exclusion increased the influence of anger provocation on alcohol drinking. When participants received a restricted amount of the beverages as an evaluative target, social exclusion and anger provocation interacted on ratings of the alcoholic-labeled beverage's hedonic value – when not anger-provoked, socially excluded participants wanted to drink more alcohol and were willing to pay more than socially accepted participants. Conversely, when provoked, the socially included participants reported higher hedonic value. Exclusion and anger increased alcohol consumption without conscious feelings of pleasure or other subjective liking report, and decreased objective indicators for the beverages' hedonic value (implicit liking–craving or willingness to pay for alcohol and wanting to drink more). When combined, exclusion and anger promote irrational drinking behavior. Implications regarding the involvement of alcohol in the non-conscious emotional responses to exclusion are discussed.

Keywords: *Anger, social exclusion, social rejection, alcohol, alcohol consumption, laboratory alcohol administration*

> The meetings of two personalities is like the contact of two chemical substances: if there is any reaction, both are transformed (Carl Gustav Jung, 1933, p. 49).

INTRODUCTION

Social ties are crucial for well-being and survival so any perceived threats to the social self – such as rejection – are likely to be distressing (Williams, 2009). Numerous studies have provided evidence of the immediate psychological impact of social exclusion, including heightened negative emotions, pro-social and antisocial responses (Boyes & French, 2009; Gerber & Wheeler, 2009; Williams, 2009). These emotions and responses have been observed when the rejection paradigm was applied as a direct experience (e.g. ostracism or rejection without mention, demarcated rejection) and when the rejection was specific to recalling past experiences (e.g. reliving rejection) (Gerber & Wheeler, 2009). Moreover, in a series of well-designed experiments, a hostile cognitive bias was found among excluded people (DeWall, Twenge, Gitter, & Baumeister, 2009).

Anger, hostility, and explicit anger manipulations increase alcohol-drinking behavior in both field and experimental reports. Anger was significantly associated with decreased self-control (Denson, Pedersen, Friese, Hahm, & Roberts, 2011) and with increased drinking (Leibsohn, Oetting, & Deffenbacher, 1994; Weiner, Pentz, Turner, & Dwyer, 2001), even in sixth graders (Nichols, Mahadeo, Bryant, & Botvin, 2008). Trait anger was found to be a predictor of craving for treated alcoholics (Litt, Cooney, & Morse, 2002), and anger was cited as a major trigger by 29% of relapsers during alcohol treatment (Marlatt & Gordon, 1985). Interventions focused on decreasing anger and

Correspondence: Sharon Rabinovitz, School of Criminology, University of Haifa, Mount Carmel, Haifa 31905, Israel.
E-mail: sharonrs123@gmail.com

depression helped to relapsed clients return to abstinence (Witkiewitz & Villarroel, 2009).

In two laboratory studies of the effects of anger on drinking, the findings were that when anger or frustration was provoked, there was an increase in hostility, depression, and alcohol consumption (Noel & Lisman, 1980; Pelham et al., 1997). However, because increased drinking was accompanied by increased depression, hostility, or anger could not be isolated as the sole determinant of drinking. Yet another recent study found that anger provocation increased women's consumption of non-alcoholic beer with no evidence of changed ratings of anxiety, depression, or positive affect (Morrison, Noel, & Ogle, 2012).

No research to date examined the impact of social exclusion on alcohol drinking or desirability. Yet previous research has shown that social rejection can cause deficits in self-control and attraction to rewarding stimuli (Stillman & Baumeister, 2013; Zhou, Vohs, & Baumeister, 2009). Rejected individuals were less likely to drink healthy yet bad-tasting beverages, consumed more unhealthy food, were less able to delay gratification (Blackhart, Nelson, Winter, & Rockney, 2011) and exhibited more self-destructive behaviors, such as unhealthy decision-making and risk-taking (Twenge, Catanese, & Baumeister, 2002). Additionally, rejected participants were more likely to display anger and to behave more aggressively (DeWall & Twenge, 2013).

The current study was designed to examine the combined effects of social exclusion and anger provocation on alcohol craving and drinking behavior. Drinking behavior consisted of pouring and consuming a beverage presented as alcohol and of a perception of the value of this beverage. The hypothesis was that automatic emotion-regulation processes caused by social exclusion will increase hedonic consumption of beverage presented as alcohol and perception of this beverage value *and* that anger provocation will have an additive effect.

METHOD

Participants and design

The participants were 60 students (28 men, 32 women, mean age = 25.3, SD = 3.8 years), in self-reported good health. All gave informed consent and participated voluntarily in individual sessions. There was no direct payment for participation. Instead, the participants' names were entered into a drawing for $100 (in local currency equivalence) at the completion of the study. All participants were social drinkers who scored below 7 on the Short Michigan Alcoholism Screening Test (Selzer, Vinokur, & Rooijen, 1975) ($M = 0.15$, SD = 0.60; range = 0–3). Social drinking was defined as consuming at least three to four drinks per occasion at least twice a month (Phillips & Giancola, 2008).

Participants were randomly assigned to a 2 (social exclusion and no exclusion) × 2 (anger provocation and no provocation) between-participants design. Men and women were equally distributed across the conditions, $\chi^2(3) = 3.1$, $p > 0.05$.

Women who participated in the study could not be pregnant or trying to conceive. Men and women had to report that they had no physical, medical, or psychological condition that contraindicated the use of alcohol, and that they have not had nor have current or past indicators of substance use disorders. In addition, when they called to schedule an appointment, participants were reminded that they would have to drink some alcohol as part of the experiment (so abstainers and non-alcohol drinkers were excluded) and that they must abstain from drugs and alcohol for 24 h and from tobacco products for 30 min prior to their experimental session. To minimize demand characteristics, participants received instructions via computer and recorded their ratings on an anonymous questionnaire, with the experimenter out of view. After the study, all participants were debriefed and thanked. The study was approved by the Ethics Review Board, Department of Criminology, Bar-Ilan University.

Materials and procedure

All tests took place in the afternoon (4–7 pm). Participants were asked to refrain from eating and drinking for 3 hours prior to the study, and adherence was assessed through self-report at the beginning of the experimental session. Upon arrival, participants completed a background questionnaire rating their motivational state and specifically, their current level of thirst (0 = *not at all*, 11 = *very thirsty*) and hunger (0 = *not at all*, 11 = *very hungry*). Next, participants were exposed to social-exclusion manipulation and to a provocation manipulation in a counterbalanced order. After both manipulations, participants tasted a small predetermined sample of four beverages (two were placebo beverages labeled as cranberry vodka and two were cranberry juice and were labeled as such) and rated it. Next, they were allowed to pour as much of the beverage as they wanted into a 250-ml cup and consume as much as they wanted.

Acute exclusion manipulation

Acute exclusion manipulation (Twenge, Baumeister, Tice, & Stucke, 2001) participants completed a personality questionnaire (the Eysenck Personality Questionnaire: Eysenck & Eysenck, 1975). To gain credibility, the experimenter gave an accurate assessment of the participant's extraversion score. Participants were randomly assigned to one of two conditions: (a) future alone and (b) future belonging. The experimenter informed future alone participants that they had a personality type in which they could anticipate ending up alone later in life, while future-belonging participants were told that they would have a future filled with positive and lasting relationships. This manipulation produces effects identical to manipulations in which people experience acute peer

rejection (DeWall, Maner, & Rouby, 2009; DeWall, Twenge et al., 2009; DeWall et al., 2011).

Provocation manipulation

Participants received a list of 15 anagrams, 11 of which were difficult. After 4.5 min, the research assistant took the anagram answer sheet for scoring and gave the participant a computer printout showing that most previous participants had gotten nearly all of the anagrams right. A few minutes later, the experimenter entered with the score, told the participant that his performance was unsatisfactory, and insulted him in an irritated tone of voice: ''We should probably just start all over, but to be perfectly honest with you, I don't want to waste my time.'' In the no-provocation condition, participants were given the anagrams and told that their performance was average. This manipulation had successfully increased anger and aggression in past experiments (Bushman, Bonacci, Pedersen, Vasquez, & Miller, 2005; Denson et al., 2011; Vasquez, Denson, Pedersen, Stenstrom, & Miller, 2005).

Manipulation checks

To assess emotional responses to the provocation manipulation, participants rated the degree to which they experienced each of several emotions as a result of the insult (i.e. angry, irritable, annoyed, depressed, happy and tired; $1 = \textit{not at all}$, $7 = \textit{extremely so}$; $\alpha = 0.89$). Participants also reported how they felt using the brief 30-item version of Profile of Mood States (POMS-Brief; McNair, Lorr, & Droppleman, 1992).

Drinking behavior and desirability

Drinking behavior measurement was similar to the Morrison et al. (2012) method. Drinking following the manipulations was assessed within the guise of a separate experiment: Participants were told that in the ''second'' experiment, Experimenter 2 was studying perceptions of the taste of different beverages. Each participant, in his or her turn, was given empty plastic cups and four chilled beverages in opaque 600-ml pitchers. The experimenter who gave out the cups and pitchers was blind to condition. Two pitchers were labeled cranberry vodka and two were labeled cranberry juice; however, the vodka-labeled beverage was, in reality, an isovolemic placebo beverage consisting of cranberry juice with 4 ml of alcohol. Another 4 ml were layered onto the juice in each glass and sprayed on the glass rim upon serving, for a total of 8 ml of alcohol in each glass. Participants tasted a small predetermined sample of the beverage and rated it. Using the procedures designed by Winkielman, Berridge, and Wilbarger (2005), participants in this experiment had 10 min to rate each beverage according to their willingness to pay (in local currency equivalence) for a hypothetical can of the beverage ($1 = \textit{10 cents}$, $10 = \textit{1 dollar}$); participants also rated the amount they wanted to drink ($0 = \textit{none}$, $1 = \textit{1–2 sips}$, $2 = \textit{half cup}$, $3 = \textit{1 cup}$, $4 = \textit{1 l}$, and $5 = \textit{2 l}$), and how the drink tasted ($0 = \textit{not delicious}$, $10 = \textit{extremely delicious}$). Ten minutes after the participants had received the full pitchers and the cups, the experimenter told them that if they had completed their ratings, they were welcome to ''finish any or all of the beverages you would like''. The experimenter then left the room, and returned 10 min later to collect the taste-rating sheets and any remaining beverage. The remainder of each participant's beverages (in ml) was measured and subtracted from the original amount to calculate how much he or she had consumed of each. Participants were debriefed, thanked, and dismissed.

RESULTS

Verification of anger provocation and exclusion manipulation

Participants in the provocation condition reported more anger–hostility ($M = 2.47$, $SE = 0.13$) regarding feedback on the anagram task than did those in the no-provocation condition ($M = 1.17$, $SE = 0.13$), $t(58) = -6.61$, $p < 0.001$. No other mood differences were found between the groups ($ps > 0.05$). These findings indicate that the provocation protocol was successful in that it specifically increased anger and hostility, without having a significant effect on other emotions.

We examined social-exclusion influence on mood in several ways. First, we analyzed a subset of positive items ($\alpha = 0.80$). Second, we analyzed a subset of negative items based on total scores of the three mood scales (tension–anxiety, depression–dejection, and anger–hostility) ($\alpha = 0.78$). Third, a cumulative total mood disturbance score was calculated based on total scores of the six mood scales ($\alpha = 0.83$). Exclusion influenced none of these mood scores when controlling for manipulation order to avoid anger-provocation effects (all $ps > 0.05$). None of the participants reported any suspicions regarding the manipulations when debriefed. An analysis of covariance [between-subjects factors: anger, social exclusion; covariate: order of manipulations] revealed no main effect of manipulations' order and no interaction between anger/exclusion and order (all $ps > 0.05$) on mood, drinking, or beverage desirability.

Beverage consumption

Amounts of ''cranberry vodka'' and cranberry juice consumed were analyzed to assess participants' choice of and intent to consume alcohol. Pseudo-alcohol preference over juice and consumption (in ml) was calculated by subtracting the amount of juice that each participant consumed from the amount of the placebo beverage labeled ''alcohol'' consumed. Data were analyzed using a 2 (provocation: anger provocation and no provocation) $\times$ 2 (Group: social exclusion and

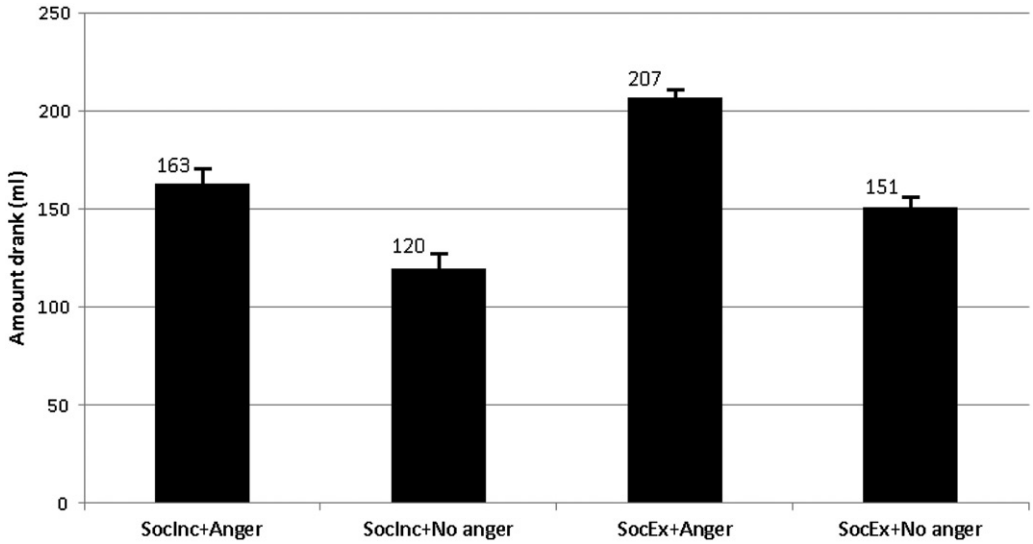

Figure 1. Amount of pseudo-alcoholic beverage consumed as a function of social exclusion and anger provocation ($M \pm SE$).

no exclusion) analysis of variance (ANOVA), which revealed a significant anger provocation by exclusion interaction, $F(1, 56) = 15.96$, $p < 0.01$, $\eta_p^2 = 0.22$. Decomposition of this effect indicated that exclusion significantly increased pseudo-alcohol drinking for anger-provoked $t(28) = 19.3$, $p < 0.01$ as well as for unprovoked participants $t(28) = 30.8$, $p < 0.01$ (Figure 1). This analysis also revealed a significant main effect of social exclusion, $F(1, 56) = 52.1$, $p < 0.001$, $\eta_p^2 = 0.90$. Participants in the social-exclusion condition ($M = 178.86$; SE = 1.16) consumed more alcohol-labeled beverage than did participants in the social-inclusion condition ($M = 141.5$; SE = 1.16). We also found a significant main effect of anger provocation, $F(1, 56) = 91.5$, $p < 0.001$, $\eta_p^2 = 0.94$. Participants in the anger-provocation condition ($M = 184.9$; SE = 1.16) consumed more alcohol-labeled beverage than did participants in the control condition ($M = 135.4$; SE = 1.16).

Beverages desirability

Willingness to pay

Willingness to pay for alcohol was calculated by subtracting the amount of money offered for a can of juice from that offered for a can of pseudo-alcohol. A significant anger-by-exclusion interaction was found $F(1, 56) = 14.5$, $p < 0.01$, $\eta_p^2 = 0.27$. This 2×2 ANOVA (exclusion: future alone *versus* future belonging; anger: provocation *versus* no provocation) also revealed a significant main effect of anger provocation $F(1, 56) = 9.6$, $p < 0.05$, $\eta_p^2 = 0.15$. Participants in the anger-provocation condition were willing to pay more ($M = 33.7$; SE = 1.4) than were participants in the control condition ($M = 27.7$; SE = 1.4). The main effect for social exclusion was not significant. Whereas social exclusion increased willingness to pay when manipulated without anger provocation ($M = 38.0$, SE = 2.2), exclusion + anger provocation reduced by almost 50% the willingness to pay ($M = 20.7$, SE = 1.5), $t(28) = 6.4$, $p < 0.001$. Anger provocation increased willingness to pay in future-belonging participants ($M = 46.7$, SE = 2.5) but reduced it in future-alone participants ($M = 20.7$, SE = 1.5) $t(28) = 8.82$, $p < 0.001$. Interestingly, no significant difference was found between participants in the control–control group (social inclusion + no anger provocation; $M = 17.3$, SE = 1.2) that reported the lowest willingness to pay, and the ratings of participants exposed to both social exclusion and anger provocation ($M = 20.7$, SE = 1.5) $t(28) = 1.72$, $p > 0.1$.

Wanting more beverage

The ANOVA revealed a significant anger-by-exclusion interaction $F(1, 56) = 13.07$, $p < 0.01$, $\eta_p^2 = 0.19$, with no significant main effect to either social exclusion or anger provocation. Socially excluded participants wanted to drink more alcohol ($M = 2.33$, SE = 0.3) than socially accepted participants ($M = 1.33$, SE = 0.3) when not anger-provoked $t(28) = 2.92$, $p < 0.01$; however, when provoked, socially accepted participants wanted to drink more ($M = 2.47$, SE = 0.2) than those excluded ($M = 1.6$, SE = 0.3) $t(28) = 2.24$, $p < 0.05$. If socially accepted, anger-provoked participants wanted to drink more alcohol ($M = 2.47$, SE = 0.3) than unprovoked participants ($M = 1.33$, SE = 0.3) $t(28) = -2.95$, $p < 0.01$. In contrast, if socially excluded, anger-provoked participants wanted to drink less alcohol ($M = 1.6$, SE = 0.3) than unprovoked participants ($M = 2.33$, SE = 0.3) $t(28) = 2.13$, $p < 0.05$. No significant difference was found between participants in the control–control group (social inclusion + no anger provocation) ($M = 1.33$, SE = 0.3) that reported the lowest level of wanting more of the beverage, and the ratings of participants exposed to both social exclusion and anger provocation ($M = 1.6$, SE = 0.3), $t(28) = -0.81$, $p > 0.1$.

Rating of liking

Neither social exclusion nor anger provocation influenced participants' ratings of liking or deliciousness of the beverages ($ps > 0.05$).

The results confirmed our hypotheses that social exclusion and anger provocation would alter alcohol consumption. In particular, social exclusion increased the influence of anger provocation on alcohol-drinking behavior so that participants poured more and drank more of a beverage presented as alcohol after exposure to both manipulations. When participants received a restricted amount of the beverages as an evaluative target, social exclusion and anger provocation interacted on ratings of the ''alcoholic'' beverage's hedonic value – willingness to pay and wanting to drink more. Socially excluded participants wanted to drink more alcohol and were willing to pay more than socially accepted participants when not anger-provoked; however, when provoked, an opposite pattern emerged and socially accepted participants wanted to drink more alcohol and were willing to pay more than those excluded.

DISCUSSION

As predicted, social exclusion not only increased pseudo-alcohol consumption, but increased the influence of anger provocation on pseudo-alcohol-drinking behavior. One possible explanation is that participants in the anger/exclusion condition felt the worst and then consumed the most rewarding beverage in order to relieve their negative mood state. However, socially excluded participants did not rate their mood as more fearful, sad, or hostile when compared with included counterparts, although they reported that they felt excluded and less accepted when debriefed. Similar change in drinking behavior with no change in conscious feelings was found by Winkielman et al. (2005) who showed that non-conscious positive affect promoted by subliminal smiles caused thirsty participants to consume more juice, so that possibly, acute social exclusion increases alcohol drinking by increasing non-conscious positive affect. By using complex real-world behavior with biological and social consequences (consumption of alcohol), the current experiment extend previous research (DeWall et al., 2011) that demonstrated social exclusion have non-conscious emotional effects using various cognitive measures. Whereas prolonged and acute ostracism (e.g. Cyberball) cited to produce strong explicit negative emotional responses in some studies (Gerber & Wheeler, 2009; Williams, 2009; Williams, Cheung, & Choi, 2000), most studies show that highly severe future-life social injury manipulation used in the current research not only blunted explicit emotional responses (Baumeister, DeWall, & Vohs, 2009; Blackhart, Nelson, Knowles, & Baumeister, 2009), but increased non-conscious positive affect (Baumeister, Twenge, & Nuss, 2002; Bernstein & Claypool, 2012; DeWall & Baumeister, 2006; DeWall et al., 2011) and thus sets in motion an automatic emotion-regulation process, as a kind of coping with threat mechanism (DeWall et al., 2011).

The findings of the present study are consistent with recent experimental results found in women (Morrison et al., 2012) and with past survey research, both of which suggest an association between anger and subsequent alcohol consumption (Ciesla, Dickson, Anderson, & Neal, 2011; Lonczak, Neighbors, & Donovan, 2007) and anger as a trigger for relapse (Marlatt & Gordon, 1985). These findings support the value of including anger-management protocols as part of alcohol-treatment programs (González-Prendes, 2008; Witkiewitz & Villarroel, 2009) as an alternative to targeting general diffuse negative affect.

In Winkielman et al.'s (2005) model, the incentive value of a drink to alleviate thirst can be transiently multiplied by a non-conscious affective manipulation. As in Winkielman's study, in the current study too, participants drank more when excluded, provoked, or primed with smiles. The current experiment shows that social exclusion influences the incentive salience of alcohol in a similar way. Incentive salience of a reward promotes approach toward and consumption of rewards.

Research has established that the ''liking'' (the hedonic impact of a reward) and ''wanting'' aspects of rewards are dissociable both psychologically and neurobiologically (Berridge, Robinson, & Aldridge, 2009). Variables tapping the beverage's hedonic value, such as ratings of beverage desirability – willingness to pay and wanting to drink more – demonstrate unconscious or implicit liking reactions to hedonic stimuli without conscious feelings of pleasure, as occurred after exclusion, brief display of a happy expression, or a very low dose of intravenous cocaine (Fischman & Foltin, 1992; Winkielman et al., 2005). This objective measure of liking reactions to rewards may sometimes provide more direct access to hedonic systems than subjective reports (Berridge et al., 2009). Indeed, in the current experiment as well as in Winkielman's study, non-conscious affective manipulations (anger, exclusion, or smiles, respectively) did not simultaneously influence ratings of more standard hedonic and sensory dimension of the beverages, such as deliciousness. Our results show that whereas social exclusion and anger act additively to increase the incentive salience of alcohol and prompt drinking behavior, a more complex interaction exist when these variables act on the hedonic aspects or liking of a drink presented as alcohol.

Socially excluded participants wanted to drink more pseudo-alcohol and were willing to pay more than socially accepted participants when not anger-provoked; these ratings are in accordance with pseudo-alcohol consumption in these conditions, and can be attributed to elevated non-conscious affect (Winkielman et al., 2005), to deficits in self-control and attraction to rewarding stimuli (Stillman &

Baumeister, 2013) and to strategically intelligible pattern found in rejected individuals (Baumeister, DeWall, Mead, & Vohs, 2008) of spending on a product that express messages of status and interpersonal appeal that might also provide comfort and relief from pain (see Jones, Corbin, & Fromme, 2001 for a detailed review on alcohol expectancies) caused by exclusion (MacDonald & Leary, 2005). However, when provoked an opposite pattern emerged. Remarkably, participants exposed to both social exclusion and anger provocation reported *very low* alcohol desirability, similar to control participants, but consumed the highest pseudo-alcohol amounts.

One possible explanation is that anger provocation heightened the previously found desire for money as a pain buffer in response to social rejection (Zhou et al., 2009). Anger disabled the tendency to use money as a tool to seek connections with others in response to rejection (Mead, Baumeister, Stillman, Rawn, & Vohs, 2011) and therefore reduced the willingness to pay for alcohol. But is it all about money? Rejected and angered individuals also wanted to drink less than other participants – how, then, can a drink be consumed more even if it is desired less? If we consider the ratings of beverage desirability – willingness to pay and wanting to drink more – as an *implicit* liking reactions to the hedonic stimuli without conscious feelings of pleasure; and consider the actual drinking of the pseudo-alcohol as an indication for the incentive salience of the beverage, the current findings are in line with the incentive sensitization theory of addiction. According to the theory, the neural systems that mediate the motivational process of incentive salience differ from the neural systems that mediate the pleasurable effects of drugs (liking). The incentive sensitization theory of addiction proposes that in susceptible individuals, the sensitization of incentive salience by drugs of abuse may generate compulsive urges to take more drugs, whether or not the same drugs are correspondingly liked, and thus contribute to addiction (Robinson & Berridge, 2008). Is it possible that the interaction between anger and exclusion temporarily increase the participant's susceptibility to irrational compulsive alcohol consumption? Future research should re-examine whether this finding is replicated with alcoholic beverages (and not a placebo), in different stages and patterns of alcohol use (e.g. binge; social *versus* heavy regular). Most importantly, future research should examine whether this finding is replicated in alcohol-dependence, which was linked recently to increased activation in brain areas eliciting social exclusion feelings (dACC-insula), and with impaired ability to inhibit these feelings (Maurage et al., 2012).

LIMITATIONS

The present study has several limitations. First, the current work focused exclusively on the threat of acute exclusion. Second, though the dependent measure chosen (''alcohol'' consumption) offer an objective and well-documented operationalization for drinking behavior, future research should employ other research tools to enable generalization of the current findings outside laboratory setting and replication in larger samples is advised. Furthermore, adherence to requirements for the experiment was assessed using self-reports; employing test of breath alcohol concentration or urine pregnancy/drug tests upon lab arrival could further validate the relationships found in the current study. Finally, we used a placebo drink and not alcohol. Although none of the participants reported any suspicions, conclusions must be drawn regarding intention to consume alcohol rather than actual alcohol consumption. Future studies should examine exclusion effect on real alcohol drinking and desirability.

Despite these limitations, the current study provides first insight regarding linkages between social exclusion, anger and alcohol desirability and consumption in social drinkers. Connecting with others may restore depleted social needs, which in turn, replenishes the resources required for self-regulation and allows individuals to regain capacity to control their behavioral and psychological responses when facing anger provocations (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007) and thus drink alcohol in a way that matches its desirability and not compulsively. Since social exclusion regularly observed in alcohol-dependence and influences its development and maintenance (Schomerus et al., 2011), prevention efforts may intervene on drinkers' social difficulties or on ways social drinkers deal with these difficulties, especially among adolescent drinkers, as peer relationships take on increasing importance and peer rejection becomes increasingly prevalent (Brown & Larson, 2009; Peake, Dishion, Stormshak, Moore, & Pfeifer, 2013) as well as binge drinking and risky behavior.

CONCLUSION

The current work indicates the importance of the relationship between social exclusion and anger on alcohol consumption. Our results suggest that exclusion and anger increase additively alcohol consumption (incentive salience) without conscious feelings of pleasure or other subjective liking report, and decrease objective indicators for the beverage's hedonic value (implicit liking–craving or willingness to pay for alcohol and wanting to drink more). Thus, the combined effects of exclusion and anger promote irrational drinking behavior.

Declaration of interest: The author reports no conflicts of interest.

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