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Intervening through Conversations: How Instructions Influence Conversational Valence and Binge Drinking Determinants

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ABSTRACT

A promising avenue for health behavior change is to influence conversational valence, that is, the extent to which people talk negatively or positively about health behaviors. However, no research to date has experimentally manipulated conversational valence, thereby inhibiting conclusions about causal inferences. This study aims to fill this gap by investigating the influence of conversational valence instructions on perceived conversational valence and subsequent binge drinking determinants. College students (N = 138) read either negative or positive conversational valence instructions. Subsequently, dyads engaged in a 5-min conversation about drinking, before self-reporting perceived conversational valence and binge drinking determinants (i.e., attitudes, norms, perceived behavioral control, and intentions). Results revealed that valence instructions influenced binge drinking determinants via perceived conversational valence. Those instructed to talk negatively about binge drinking reported healthier binge drinking determinants than those instructed to talk positively. Furthermore, this effect on binge drinking determinants was mediated by perceived conversational valence. These findings demonstrate that conversational valence about health can be manipulated through simple instructions and confirm the idea that conversational valence is causally linked to binge drinking determinants. Thereby, these findings show the potential that interpersonal communication in general, and conversational valence instructions, in particular, have when integrated in health interventions.

Excessive alcohol consumption and binge drinking among college students remain important problems in today's society. Although it is well known that alcohol use and binge drinking lead to multiple negative consequences (such as brain and liver damage, aggression, abuse, and vandalism), many young people still drink a lot of alcohol (Bräker & Soellner, 2016; Geels et al., 2012). Considerable resources are spent on health campaigns aiming to discourage such unhealthy behaviors; however, these health campaigns show small effects at best and sometimes even produce null- or boomerang effects (Noar, 2006; Young et al., 2018). Research has shown that a promising avenue for health behavior change is to focus instead on social influence between peers through interpersonal communication (Jeong & Bae, 2018; Southwell & Yzer, 2007).

Interpersonal communication

In line with classic theories such as the two-step flow theory (Lazarsfeld, Berelson, & Gaudet, 1944) and the diffusion of innovations theory (Rogers, 1983), which emphasize the crucial role of interpersonal communication for spreading information, ample empirical evidence confirms that whether people talk about health topics (i.e., conversational occurrence) influences determinants of health behavior. For example, Van den Putte, Yzer, Southwell, De Bruijn, and Willemsen (2011) showed that discussing smoking cessation and anti-smoking campaigns was related to intentions to quit smoking. Similarly, in the context of alcohol consumption, it was shown that talking about alcohol and binge drinking was associated with binge drinking intentions and behaviors (Hendriks & de Bruijn, 2015; Hendriks, Van den Putte, De Bruijn, & De Vreese, 2014; Real & Rimal, 2007).

Aside from the relevance of conversational occurrence, research has shown that conversational valence (i.e., whether discussions are negative or positive) is also, if not more, important for the prediction of health behavior. That is, negative discussions about alcohol – compared to positive discussions – are related to lower binge drinking rates (Hendriks, Van den Putte, & De Bruijn, 2014, 2015; Scholz, Doré, Cooper, & Falk, 2019). This important role of conversational valence has also been shown in other health contexts such as vaccinations (Dunlop, Kashima, & Wakefield, 2010), smoking (Van den Putte et al., 2011), and condom use (Frank et al., 2012). Especially perceived conversational valence (i.e., how negative or positive people perceive their conversations to be), as opposed to more objectively measured conversational valence (e.g., assessed by independent coders), has been shown relevant in the prediction of health behavior determinants. That is, Hendriks et al. (2015) found that although objectively coded valence was related to perceived valence, perceived valence showed stronger relationships with health behavior determinants than objective valence. Therefore, the current study focused on perceived valence.

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Causal effects of conversational valence

Although previous studies on conversational valence have provided important insights into the relationship between conversational valence and drinking determinants (i.e., attitudes, norms, perceived behavioral control, and intentions toward drinking), most studies have employed correlational designs. This inhibits insights into the causality of effects. Indeed, the relationship between conversational valence and health determinants can also be bi-directional (Scholz et al., 2019; Slater, 2007). That is, a positive conversational valence about alcohol might for example lead to more positive drinking attitudes, but positive drinking attitudes can also lead to a more positive conversational valence. It is vital to understand the direction of effects, because theoretical models (e.g., Lazarsfeld et al., 1944; Rogers, 1983) often assume that conversations predict behavioral determinants, whereas in a health context there is no clear evidence of this causal order. The first aim of the present study was therefore to investigate whether there is a causal effect of conversational valence on binge drinking determinants by using an experimental design in which participants first received an instruction to discuss alcohol either positively or negatively, and next measuring their drinking determinants.

How to influence conversational valence?

Gaining insights into causal relationships between conversational valence and drinking determinants is vital both from a theoretical and from a practical point of view. If we know for sure that changes in conversational valence lead to changes in binge drinking intentions, then interventions can focus on changing conversational valence instead of targeting drinking behavior directly. In that case, it is important for practitioners to understand how they can elicit a healthy conversational valence. There is some evidence of boomerang effects in health campaigns, where campaigns accidentally led to unhealthy conversations which subsequently led to undesirable campaign effects. For example, David, Cappella, and Fishbein (2006) found that people who talked about anti-marijuana ads reported more pro-marijuana attitudes and norms compared to those who did not discuss the ads, presumably because the conversations were positive about marijuana use. This shows that it is important for campaign planners to understand how to elicit healthy and avoid unhealthy conversations.

As of yet, there is hardly any knowledge on *how* to elicit a healthy conversational valence. One exception is a study by Hendriks, Van den Putte, & De Bruijn (2014) that explored the influence of health campaign features on conversational valence in the context of alcohol use. This study revealed that frightening anti-binge drinking campaigns stimulated negative (i.e., healthy) conversations about alcohol. To elicit a healthy valence, this study thus suggests, one should use fear. However, ample evidence suggests that although fear appeals can be effective, the effects strongly depend on several moderating factors (e.g., level of fear, susceptibility, or self-efficacy; Rogers, 1975; Witte & Allen, 2000). Therefore, the use of fear to elicit healthy conversations and subsequent behavioral changes seems possible, but several factors need to be taken into account that might influence effects. A more direct way of influencing conversational valence, with fewer potential adverse side effects, may be to use explicit conversation instructions (e.g., "talk about the negative aspects of alcohol use"). To our knowledge, no studies to date have examined effects of such direct forms of communication on conversational valence and subsequent persuasion. The second aim of this study was therefore to test the influence of a simple set of valence instructions on conversational valence and subsequent binge drinking determinants. If effective, such valence instructions may be implemented directly into future interventions. In sum, our study has two goals: 1) to examine the causal effects of conversational valence instructions on binge drinking determinants and 2) to investigate the influence of conversational valence instructions on perceived conversational valence and subsequent binge drinking determinants.

Theory of planned behavior

We test these two aims in the context of the theory of planned behavior (TPB; Ajzen, 1991). The TPB is an extension of the Theory of Reasoned Action (Ajzen & Fishbein, 1980) and asserts that behaviors are predicted by intentions, which, in turn, are the result of attitudes (i.e., negative or positive evaluations of a specific behavior), norms (i.e., perceptions of social acceptance of a specific behavior), and perceived behavioral control (i.e., PBC: perceived control over and the ability to perform a specific behavior). In line with this theory, we assessed effects of valence instructions, and perceived conversational valence, on binge drinking attitudes, norms, and PBC, and we expected these variables to subsequently predict binge drinking intentions. This theory has been shown to be applicable to a wide range of behaviors (i.e., Armitage & Conner, 2001) and has been applied frequently and successfully in the context of alcohol consumption. For example, Cooke, Dahdah, Norman, and French (2016) conducted an extensive meta-analysis and showed that alcohol behaviors were strongly predicted by intentions. In turn, intentions were significantly related to all three predictors. Intentions were most strongly predicted by attitudes, followed by norms, and PBC.

The present study

Participants were randomly assigned to one out of two conversational valence instruction conditions (negative valence instruction or positive valence instruction) before engaging in a conversation about alcohol. Afterward, perceived conversational valence and binge drinking determinants were measured. Based on the aforementioned, we expect (see Figure 1):

H1: A conversational valence instruction to talk positively (vs. negatively) about alcohol and binge drinking leads to unhealthier binge drinking attitudes, norms, and PBC, which will subsequently lead to unhealthier intentions.

H2: A conversational valence instruction to talk positively (vs. negatively) about alcohol and binge drinking leads to a more positive perceived conversational valence toward alcohol and binge drinking.

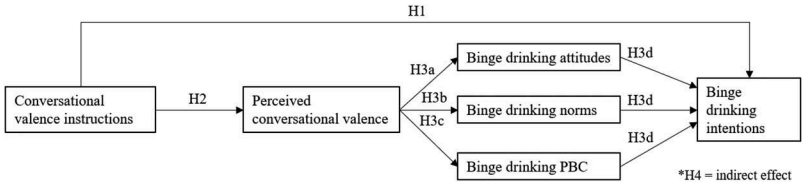

Figure 1. The study's hypotheses.

H3: A more positive perceived conversational valence toward alcohol and binge drinking is associated with unhealthier binge drinking attitudes (H3a), norms (H3b), and PBC (H3c), which subsequently lead to unhealthier intentions (H3d).

H4: There is an indirect effect of conversational valence instruction on binge drinking determinants via perceived conversational valence toward alcohol and binge drinking.

Method

Participants and design

Although 144 people participated in the study, 6 participants were excluded from the sample post-hoc because they did not fulfill the a priori age criteria (i.e., 16–30 years). Thus, 138 college students were included in the analyses (40 men, 98 women, M_{age} = 22.81, SD_{age} = 2.89, $range_{age}$ = 17–30 years). Dyads of participants were randomly assigned to one of the two experimental conditions (negative valence instruction; positive valence instruction). Dyads were familiar with each other and most were of the same gender (i.e., 71[1] women were part of women-only dyads, 15[1] men were part of men-only dyads, and 52 participants were part of mixed-gender dyads). The study was approved by the university's ethics committee.

Procedure

Participants were recruited at the cafeteria on the university campus. Here, people who were sitting together were asked to participate and come to the lab in dyads. After providing informed consent, these dyads were assigned to a negative or positive valence condition. Participants in both conditions read instructions on paper. The term binge drinking was first explained (i.e., defined according to Dutch guidelines as the consumption of four or more [for women] or six or more [for men] alcoholic beverages on one occasion), after which participants were instructed to talk about alcohol and binge drinking for 5 minutes (i.e., in line with Hendriks, De Bruijn, & Van den Putte, 2012). The exact instruction was: "Talk with your partner about the positive (negative) aspects of alcohol consumption and binge drinking. You can talk about consequences, personal experiences, known facts, or any other aspect you can think of."

Additionally, we tested two different variations of the instructions to examine whether the format of the instructions mattered. Specifically, we asked participants either to engage actively in the conversation by expressing their thoughts extensively or to engage more passively in the conversation by expressing their thoughts briefly. One potential hypothesis is that the instruction to express one's views extensively would yield more intensive discussions and stronger effects. Yet, alternatively one may expect that instructions to act more passively would be perceived as less forceful and therefore to lead to less reactance (Brehm, 1966) and, consequently, stronger effects. However, we found no differences in the effects of these two instruction formats. All analyses presented here control for this factor, but the inclusion or exclusion of this covariate did not change the main findings reported in the results.

After talking for 5 minutes, participants were brought to individual cubicles in which they answered a questionnaire on a PC. In this questionnaire perceived conversational valence and binge drinking determinants (i.e., attitudes, norms, PBC, and intentions toward binge drinking) were assessed. When participants finished, they were debriefed and rewarded with credits or 10 Euro.

Material and measures

Perceived conversational valence

In line with Hendriks, Van den Putte, and De Bruijn (2014, 2015), perceived conversational valence was measured as the mean of three items starting with "During the conversation, how negatively or positively have you spoken about … " (drinking alcohol; binge drinking; being drunk) measured on 7-point scales (1 = *very negative* – 7 = *very positive*, M = 3.84, SD = 1.40, α = .85).

Attitude

Attitude toward binge drinking was operationalized by averaging six items measured on 7-point scales starting with "If I would binge drink during the next 2 weeks, this would be … " (1 = *very negative* – 7 = *very positive*; 1 = *very harmful* – 7 = *very harmless*; 1 = *very unwise* – 7 = *very wise*; 1 = *very bad* – 7 = *very good*; 1 = *very unpleasant* – 7 = *very pleasant*; 1 = *very unsociable* – 7 = *very sociable*, M = 3.53, SD = 1.30, α = .91).

Norms

Subjective norms toward binge drinking were assessed as the mean of three statements measured on 7-point scales (1 = *completely disagree* –7 = *completely agree*), starting with "Most people who are important to me would … if I would binge drink in the next 2 weeks." (appreciate it; react positively toward it; accept it, M = 3.41, SD = 1.68, α = .91).

Perceived behavioral control

PBC regarding binge drinking was operationalized by averaging three statements measured on 7-point scales (1 = *completely disagree* – 7 = *completely agree)* starting with "If I would binge drink during the next 2 weeks … " (I would succeed in doing so; I could do that; this would be very easy for me, M = 4.17, SD = 1.92, α = .94).

Intention

Intention to binge drink was measured as the mean of three statements assessed on 7-point scales (1 = *very unlikely* – 7 = *very likely*), "I intend to binge drink during the next 2 weeks"; "I will try to binge drink during the next 2 weeks"; "I plan to binge drink during the next 2 weeks" (M = 2.50, SD = 1.63, α = .94).

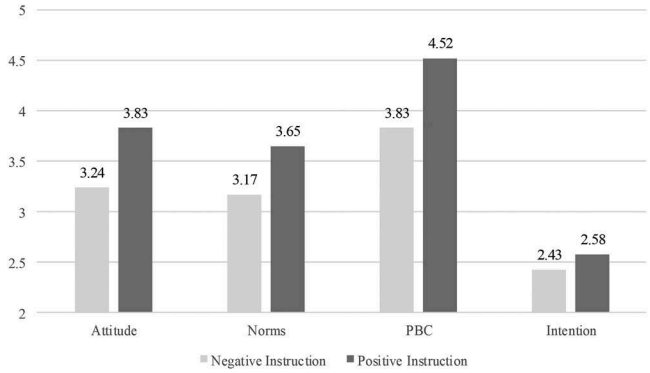

Figure 2. The binge-drinking determinants across the two valence instruction conditions.

Results[2]

Effect of valence instruction on binge drinking determinants

To investigate whether a positive conversational valence instruction leads to unhealthier binge drinking attitudes, norms, PBC, and subsequent intentions (H1), a MANOVA was conducted with valence instruction (negative versus positive) as independent variable and attitudes, norms, and PBC as dependent variables. The multivariate effect of valence instruction was not significant, F (3, 132) = 2.589, p = .056, Eta^2 = .056. However, looking at each binge drinking determinant separately, we found a significant effect of valence instruction on attitudes (F [1, 134] = 7.371, p = .007, Eta^2 = .052) and PBC (F [1, 134] = 4.657, p = .033, Eta^2 = .034). Participants who were instructed to talk about the positive consequences of alcohol showed more positive attitudes toward binge drinking (M = 3.83, SD = 1.32) and higher PBC (M = 4.52, SD = 1.86) as compared to those who received the instruction to talk about the negative consequences of alcohol and binge drinking ($M_{attitude}$ = 3.24, $SD_{attitude}$ = 1.22; M_{PBC} = 3.83, SD_{PBC} = 1.92). The effect on norms was not significant (F [1, 134] = 2.997, p = .086, Eta^2 = .022).

We also tested whether the conversational valence instruction influenced intention via attitudes, norms, and PBC (in line with the TPB; Ajzen, 1991) by using Hayes's PROCESS macro for SPSS (Model 4, Hayes, 2013) to conduct 5,000 bootstrapped resamples and derive a bias-corrected and accelerated (BCa) 95% confidence interval. Valence instruction (0 = negative, 1 = positive) was entered as independent variable; attitudes, norms, and PBC as mediators, and intention was used as dependent variable. All variables were standardized prior to analysis. Two significant indirect effects were found: an indirect effect of valence instruction on intention through attitude (β = 0.068, 95% CI [0.015, 0.160]) and through PBC (β = 0.028, 95% CI [0.002, 0.088]). The effect through norms was not significant (β = 0.053, 95% CI [−0.0003, 0.137]). Thus, H1 was largely supported. See Figure 2 for the mean scores of the binge drinking determinants across conditions.

Relationship between valence instruction and perceived conversational valence

To test whether a valence instruction that is positive (vs. negative) toward alcohol and binge drinking leads to a more positive perceived conversational valence (H2) an ANOVA was conducted with valence instruction as independent variable and perceived valence as dependent variable. The analysis revealed a significant effect of valence instruction on perceived valence (F [1, 134] = 81.104, p < .001, Eta^2 = .377). Participants who were instructed to talk about the positive consequences of alcohol and binge drinking reported a more positive valence (M = 4.69, SD = 1.27) than participants instructed to talk about the negative consequences (M = 2.98, SD = 0.93). Thus, H2 was supported.

Relationship between perceived conversational valence and binge drinking determinants

To investigate whether a more positive perceived conversational valence toward alcohol and binge drinking was related to unhealthier binge drinking attitudes, norms, PBC, and intentions (H3) three regression analyses were conducted with perceived valence as predictor and attitudes, norms, and PBC as outcome variables. Perceived valence was significantly and positively related to attitudes (β = 0.390, p < .001, SE = 0.073), norms (β = 0.411, p < .001, SE = 0.094) and PBC (β = .354, p < .001, SE = 0.110). We used PROCESS (Model 4, Hayes, 2013) to assess the relationship between perceived valence and intention through attitude, norms, and PBC. All variables were standardized prior to analysis. All indirect paths were significant. That is, perceived valence had a significant indirect relationship with intention via attitudes (β = 0.107, 95% CI [0 .031, 0.221]), norms (β = 0.146, 95% CI [0.086, 0.266]), and PBC (β = 0.051, 95% CI [0.004, 0.116]). Thus, in line with H3, a more positive perceived conversational valence about alcohol and binge drinking was related to more positive binge drinking attitudes, norms, PBC, and subsequent intentions.

Indirect effect of valence instruction on drinking determinants via perceived conversational valence

To test whether valence instruction had an indirect effect on binge drinking determinants via perceived conversational valence (H4) we used PROCESS (Model 6, Hayes, 2013) with valence instruction (0 = negative, 1 = positive) as independent variable, perceived valence as first mediator (a_1), binge drinking

attitudes (b_1), norms (b_2), and PBC (b_3) as second mediators, and intention as dependent variable. All variables were standardized prior to analysis. Two significant indirect effects were revealed. That is, the indirect effect of valence instruction via perceived valence and subsequently via attitudes (a_1b_1 = 0.071, 95% CI [0.017, 0.145]) was significant on intentions, and similar indirect effects were found via valence and norms (a_1b_2 = 0.058, 95% CI [0.017, 0.117]) on intentions. The indirect pathway via valence and PBC, however, was not significant (a_1b_3 = 0.006, 95% CI [−0.012, 0.027]). Thus, H4 was largely supported.

Discussion

This study aimed to determine whether conversational valence causally affects binge drinking determinants and to test the effect of valence instructions on perceived conversational valence and subsequent binge drinking determinants. The analyses reveal two main findings: First, conversational valence instructions influence binge drinking determinants. Second, conversational valence instructions influence perceived conversational valence, resulting in an indirect effect of valence instructions on binge drinking determinants via perceived valence.

The first main finding that binge drinking determinants are influenced by simple conversational valence instructions confirms previous research that interpersonal communication can predict health determinants (e.g., Southwell & Yzer, 2007), and in particular that a negative conversation about alcohol can lead to healthier drinking determinants (Hendriks, Van den Putte, & De Bruijn, 2014, 2015). We extend previous studies on conversational valence in an important way, because our current study is the first to experimentally manipulate conversational valence in a controlled lab setting. This is important because although empirical evidence and theoretical models (e.g., Lazarsfeld et al., 1944; Rogers, 1983) often assume that conversations cause changes in behavioral determinants, there has been no clear evidence of this causal order in a health context. Based on our findings, we can conclude with more certainty than before that conversational valence can *influence* determinants of health behaviors.

Although we show that conversational valence can causally affect health determinants, the reverse causal order (i.e., health determinants like attitudes predicting conversational valence) may also occur in real-life situations. That is, in line with our findings we expect conversations to have an effect on attitudes, norms, and intentions. However, we also believe it is plausible that how people discuss issues is influenced by their preexisting attitudes, norms, and intentions. In fact, we consider it to be likely that the relationship between conversational valence and health determinants is circular and/or reinforcing (i.e., in line with Slater's idea of reinforcing spirals, 2007; Scholz et al., 2019). Future research is needed to explore this potential bi-directional relationship.

The second main finding is that the valence instructions successfully influenced perceived conversational valence. Furthermore, we found that valence instruction influenced binge drinking determinants indirectly via perceived conversational valence. This is relevant for two reasons: First, it confirms the relevance of perceived conversational valence, which was manipulated by simple valence instructions, for health determinants. The importance of this self-perception of conversational valence is in line with Hendriks et al. (2015) who showed that a subjectively measured valence (based on self-report by participants) has an especially strong relationship with health determinants. Second, this finding is important for practitioners, because despite studies showing that a healthy conversational valence leads to more healthy behavioral determinants (e.g., Dunlop et al., 2010; Hendriks, Van den Putte, & De Bruijn, 2014, 2015; Van den Putte et al., 2011), almost no research to date has shown *how* to elicit such a healthy valence. This study shows that this can be quite easy: by simply instructing participants to talk in a certain way it is possible to trigger healthy conversations. Given that many college students engage in unhealthy drinking practices which is associated with myriad negative consequences (e.g., Geels et al., 2012), this study provides a potentially effective and cheap tool to decrease this unhealthy behavior.

Our results thus demonstrate that simple instructions can systematically influence characteristics of health-related conversations which may have profound implications for behavioral determinants and, ultimately, health behavior. As such, our findings may be of interest to several types of practical applications. We think two strategies might be beneficial when using our, or similar, instructions to decrease alcohol use. First, it is possible that conversation instructions might lead to feelings of reactance when applied too directly. Reactance occurs when individuals feel threatened in their personal freedom (e.g., when an instruction is too forceful) and they actively try to regain that freedom (e.g., by ignoring or counter arguing with the message; Brehm, 1966). As is arguably a big problem for all traditional health messages (including anti-alcohol campaigns; Ringold, 2002), such feelings of reactance may also occur as a consequence of too direct instructions to talk in a certain way. We therefore advise intervention planners to steer conversations in a subtle way, by also giving the individual a sense of freedom, for example by letting them decide what will be discussed precisely, with whom, or how. In essence, our instruction already has elements of this advice (e.g., by letting participants decide what consequences they want to talk about, as long as they are negative), potentially explaining the desirable effects found in this study. One could for example incorporate such conversation instructions in school-based interventions or interventions conducted in university's classrooms. Such interventions can consist of several exercises, and one of these could involve instructing participants to discuss the negative consequences of alcohol use (while leaving them free with whom or how precisely they want to discuss this).

A second strategy could be to create health messages in which the instruction to talk about negative consequences is included in a subtle way. An example could be a poster showing a comic in which people discuss alcohol in a negative way (through speech bubbles), including a message underneath the poster such as "Andrew says he could name 10 negative effects of binge drinking. Can you, and can your friends? Discuss these together". By posing such a question, instead of giving a statement, feelings of reactance are likely decreased and

persuasion is likely to be improved. Before implemented, however, these instructions should also be tested for different health contexts (e.g., smoking cessation or drug use), and they should be tested by measuring actual behaviors (instead of intentions). Furthermore, the instructions and the abovementioned potential translations to practice should be tested outside of the laboratory. Future research should therefore aim to examine how conversational valence can be manipulated using instructions in different settings and across different health domains.

Limitations

Despite its merits, this study also has limitations. First, we did not have a control condition in which no one spoke about alcohol, or in which people spoke in a neutral manner. This prevents us from stating whether positive valence instructions lead to unhealthy effects as compared to a default situation, or whether negative valence instructions lead to healthy effects. Considering the fact that health interventions are likely to use the negative valence instruction, future research is needed that compares a negative valence condition with a no conversation and/or neutral control condition.

Second, we measured conversational valence and binge drinking determinants through self-report. It is possible that participants gave socially acceptable answers and did not truthfully answer the questions regarding their conversations or binge drinking intentions. Although it has been argued that self-reported alcohol consumption measures can be reliable and valid (Del Boca & Darkes, 2003), and self-reported conversational valence measures have been linked with measures of objectively coded interpersonal communication (Hendriks et al., 2015), it is still important for future research to assess these constructs in more objective ways.

A third limitation is that we measured effects right after the conversation took place. Therefore, we cannot draw conclusions about the longevity of the effects of the conversation instructions. However, related work has identified significant relationships between interpersonal communication and drinking outcomes measured over the course of several weeks (Dunlop et al., 2010; Hendriks et al., 2014) and even several months (Van den Putte et al., 2011). It is not yet clear whether such potentially long-lasting effects could be due to a single individual conversation or reflect a chain reaction where one conversation leads to multiple others over time. Future research should aim to replicate our findings and explore their longevity. Thereby, it is important to track potential follow-up conversations triggered by an initial discussion.

A last limitation is that our sample consisted of significantly more women than men (i.e., 98 women and 40 men). Although there were no gender differences between our valence conditions (and such differences could therefore not have impacted our findings regarding valence instructions), it is possible that discussions between men and women are slightly different. For example, because men drink more than women (Wilsnack, Vogeltanz, Wilsnack, & Harris, 2000), it is possible that they generally find it easier to discuss the positive aspects of alcohol as compared to the negative aspects. Potentially, eliciting healthy conversations among women might be easier and more effective. Therefore, future studies should aim to have a more even distribution of men and women in their sample, and should further explore gender differences in interpersonal communication and effects of conversation instructions.

Conclusion

This study is the first to show the effects of manipulating, instead of measuring, conversational valence. By using instructions to engage in either positive or negative conversations about drinking, we were able to influence perceived conversational valence and subsequent binge drinking determinants. This study thereby shows the potential of interpersonal communication in general, and conversational valence instructions in particular, to enhance effects of health interventions.

Notes

1. The reason that these numbers are not even, is that six participants (who were in six cases part of a dyad) had to be excluded from the sample post-hoc because they did not fulfill the a priori age criteria. Please note however that the outcomes of the analyses described in the results remained the same even if we would have included these six participants.
2. Although there were no significant gender differences between the two valence conditions, there were significant differences in age. That is, in the negative valence condition participants were slightly younger (M= 22.16, SD= 2.82) than participants in the positive condition (M= 23.46, SD= 2.83), F (1, 136) = 7.348, p = .008. All described analyses were therefore also conducted with age as additional covariate. This did not change any of the results.

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