Let's talk about alcohol: The role of interpersonal communication and health campaigns
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Citation for published version (APA):
Chapter 3

Talking about alcohol consumption: Health campaigns, conversational valence, and binge drinking intentions

This chapter is published as:
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Abstract

Although research has shown that whether people talk about health issues influences health campaign effects, no evidence exists on whether conversational valence fulfills a mediating role within health campaign effects. In the context of alcohol consumption, this two-wave experimental research studies the effects of exposure to an anti-alcohol message on conversational valence about alcohol. Furthermore, it is investigated whether conversational valence subsequently affects alcohol consumption intentions. Eighty-four undergraduate students, in dyads, were randomly assigned to one of two conditions (anti-alcohol message versus no alcohol message exposure). A baseline measure of the intention to refrain from binge drinking was assessed in advance. Two weeks later, half of the participants were exposed to an anti-alcohol message, after which all pairs engaged in a conversation about alcohol and binge drinking followed by an assessment of conversational valence and again the intention to refrain from binge drinking. An indirect effect of health message exposure on the intention to refrain from binge drinking through conversational valence was revealed. When participants viewed an anti-alcohol message, they reported significantly more negative conversations about alcohol. Subsequently, a more negative conversational valence about alcohol increased the intention to refrain from binge drinking. These findings suggest that conversational valence is relevant for health campaign effects. By demonstrating that health messages can influence the valence of conversations, important implications arise in terms of health promotion. Future research should focus on how to design effective health campaigns that are able to guide conversational valence in the desired direction.
Over the past years, the percentage of young adults that binge drink continues to remain the same (Wechsler et al., 2002) and at times even increases (Naimi et al., 2003) despite considerable efforts to reduce this excessive consumption of alcohol. In 2001 in the United States, 26% of the respondents between 18 and 20 years and 32% of the respondents between 21 and 25 years reported to binge drink at least once a month, whereas in 1993 this was respectively 23 and 30% (Naimi et al., 2003). Similar results have been found in the United Kingdom (Jefferis, Power, & Manor, 2005), the Netherlands (Rodenburg, Spijkerman, Van den Eijnden, & Van de Mheen, 2007), and other western countries (Hibell et al., 2009). These numbers are alarming because excessive drinking has been linked to many adverse outcomes, such as impaired brain development (Crews et al., 2000), aggressive and abusive behaviors (Hughes et al., 2008), increased odds of alcohol addiction at a later age (Grant & Dawson, 1997), and other substance abuse (Batel et al., 1995). Given the fact that binge drinking among young adults is a prevalent problem and has severe consequences, it is important to discourage this excessive consumption of alcohol. The current study aims to further our understanding of effective anti-alcohol interventions.

An often employed strategy to discourage alcohol abuse and binge drinking is social marketing (e.g., Kotler, Roberto, & Lee, 2002), for example, by using mass-mediated persuasive messages. The effects of such health campaigns are often measured in terms of outcomes variables, such as attitudinal or behavioral change (Hornik, 2002). However, health campaigns can have more subtle and indirect effects on these outcomes by influencing intervening variables within the message - behavior link. The relevance of investigating indirect pathways within media effects has been emphasized by many researchers who claim that the relationship between independent and dependent variables can only be fully understood when intervening variables are also taken into account (Holbert & Stephenson, 2003; Preacher & Hayes, 2004).

An intervening variable that could be especially important in the context of anti-alcohol messages and alcohol consumption is interpersonal communication, given the fact that young adults often consume alcohol in social contexts and may discuss the topic of alcohol consumption as well as anti-alcohol messages relatively frequently (Beck et al., 2008; Pavis et al., 1997). The idea that whether a health issue is discussed influences health campaign effects was also stressed by classic theories such as the diffusion of innovations theory (Rogers, 1983) and the two-step flow theory (Lazarsfeld et al., 1944), emphasizing that interpersonal communication plays a crucial mediating role in spreading the information provided by a message. This was confirmed by a recent study of Van den Putte et al. (2011) who demonstrated that exposure to a health campaign augmented the
number of discussions about smoking cessation and anti-smoking campaigns, and, in turn, these conversations increased the intention to quit smoking. Other studies have produced similar results (e.g., Geary et al., 2007; Southwell & Yzer, 2007).

Aside from whether people discuss health-related topics, the (negative or positive) valence of such conversations influences determinants of health behavior as well. For instance, a study by Dunlop et al. (2010) on attitudes and intentions toward the HPV vaccine showed that participants who had positive conversations about the vaccine revealed more positive attitudes and intentions toward the vaccine later on as compared to those who had negative discussions. Moreover, conversational valence is more strongly related to health behaviors and related social cognitive constructs as compared to the mere frequency of conversations or the specific conversation partner (e.g., Van den Putte et al., 2010).

Despite the fact that whether people discuss a health topic has been shown to be a relevant intervening variable for social marketing effects, conversational valence as a mediator within the health message - health behavior relationship has not yet been examined. We argue that a health campaign can not only prompt discussions but can also influence the valence of such conversations. Health campaigns may steer the valence of the conversation in a direction that is more negative about unhealthy behavior, given the fact that many health messages aim to reduce unhealthy conduct by stressing the negative consequences of unhealthy behavior. Ample examples of such campaigns exist, such as the Dutch anti-alcohol campaign "Alcohol destroys more than you would like" ("Drank maakt meer kapot dan je lief is", 2009) and the "Know your limits" anti-alcohol campaign in the United Kingdom (2009-2010). By guiding the valence of the conversation toward a healthier one, such anti-alcohol messages may indirectly elicit more healthy behavioral determinants of alcohol consumption.

To our knowledge, only Dunlop et al. (2010) investigated the potential role of health message exposure as predictor of conversational valence. Their findings suggest that exposure to a narrative health message (versus a health message in another format) influences the valence of conversations regarding the topic of the persuasive message one week later. However, whether conversational valence subsequently influenced health outcome measures, such as behavioral intentions, was not investigated. Therefore, it was not formally tested whether conversational valence mediates the effects of the health message on health outcomes, whereas it is important to directly test the significance of indirect effects (Preacher & Hayes, 2004).

We intend to add to these previous findings by formally testing the mediating role of conversational valence within the health message - health outcome link. Thus, the main goal of the present study is to examine whether
exposure to an anti-alcohol message predicts conversational valence and whether this valence, in turn, influences binge drinking intentions. Based on the aforementioned, we expect:

H1. Health message exposure indirectly influences the intention to refrain from binge drinking through conversational valence.

H2. Participants exposed to an anti-alcohol message talk more negatively about alcohol consumption as compared to participants not exposed to such a message.

H3. Conversational valence about alcohol is inversely related to the intention to refrain from binge drinking. This entails that when the conversational valence about alcohol consumption becomes more negative, the intention to refrain from binge drinking increases.

Method

To select a suitable anti-alcohol message for the main study, we conducted a pilot study. An ethical committee examined a detailed description of the procedure of the pilot and main study and provided ethical approval of both studies.

Pilot study

During the pilot study (N = 40) participants were asked to rate the effectiveness of several existing anti-alcohol messages. Perceived message effectiveness was measured through items such as “I thought this video was effective” and “I thought this video was convincing” (Dillard et al., 2007; Fishbein et al., 2002). Moreover, after watching the videos, participants in the pilot were told that they had to wait in a waiting room with another participant for a few minutes until the next phase of the study started. This gave them the opportunity to chat with each other. Unknown to these participants, the conversations were recorded and it was coded whether one of the anti-alcohol ads was discussed. Participants signed a standard form in which they gave permission for a wide range of data gathering techniques, including questionnaires and camera recordings. The video that was perceived as most effective and that initiated most interpersonal
communication was selected for the present study. The latter was an important requirement because participants in the main study needed to feel comfortable to talk about the video and topic. Furthermore, participants indicated to have never seen this anti-alcohol ad before. The selected anti-alcohol video was part of the “Know Your Limits” anti-binge drinking campaign in the United Kingdom (2009 - 2010). The message shows a young woman who, just before going out, smears her make-up, rips her dress, and vomits in her hair. After this, she considers herself ready to go out and walks out the door. The video ends with the message “You wouldn’t start a night out like this, so why end it that way?”

Main study

Participants and design. Eighty-four Dutch undergraduate students (63 women) at the University of Amsterdam participated in a two-wave experimental study ($M_{age} = 22.54$, $SD_{age} = 1.65$). We chose to focus on students because they are especially inclined to binge drink (Wechsler et al., 1994). Participants, who were classmates, voluntarily registered as part of an obligatory course for which they received course credits (i.e., one tenth of the course grade could be earned by participating). Students that did not participate could still achieve the highest possible end grade for the course by other means. Participants enrolled in dyads and were randomly assigned, by means of a computer program, to one of two conditions (anti-alcohol message exposure versus no alcohol message exposure). Randomization was successful as no significant differences in terms of age, gender, or baseline intention were found between the two message conditions (All $p > .427$, all $F < 0.64$).

Materials and procedure. Intention. The intention to refrain from binge drinking was assessed at baseline through an online survey (T0) and after message exposure (T1; 2 weeks later) as the mean of three statements (“I intend to not binge drink during the next two weeks”, “I plan to not binge drink during the next two weeks”, and “I will try to not binge drink during the next two weeks”) which could be answered on 7-point scales (1 = very unlikely to 7 = very likely; $M_{T0} = 3.69$, $SD_{T0} = 2.01$, $\alpha_{T0} = .98$; $M_{T1} = 3.48$, $SD_{T1} = 1.97$, $\alpha_{T1} = .99$).

Health message exposure. Two weeks after the baseline assessment, participants arrived in dyads at the research lab and were randomly assigned to one of the two conditions. Each participant individually watched five short videos on a PC, resembling a commercial break, to approximate a more real to life situation.
The videos were, respectively, an iPod commercial, a public service announcement about publishing personal information on the Internet, a chewing gum commercial, a DIY-store commercial, and a telephone company commercial. For the purpose of the present study, half of the participants were randomly exposed to a sixth message. This was the anti-alcohol message, based on the pilot study, shown as the fourth message.

**Interpersonal communication.** After watching the videos, the two participants were brought to a different chamber, resembling a living room, where they were instructed to discuss the topic of "alcohol and binge drinking" with each other. This instruction was given to all participants, both in the anti-alcohol message and no alcohol message condition. To assess the external validity of the experimental manipulation of the conversation, participants rated their agreement with several statements about the perceived realism of the conversation (i.e., "The conversation was realistic", "The conversation was not forced", "How I conversed was similar to how I normally converse", "The conversation went the same as conversations normally do") on 7-point scales (1 = do not agree at all to 7 = agree completely). Given the fact that the mean realism score, based on the four items, was above mid scale (M = 4.85, SD = 1.14), the conversation was considered as normal, realistic, and not forced. Participants were monitored during the conversation by a hidden camera to ensure that the discussions focused on alcohol and binge drinking. In five conversations, the experimenter re-entered the room to guide the participants back on topic when the participants had started talking about something else. Using this factor (interruption versus no interruption) as control variable in all analyses did not influence the results as described later on; therefore, it was decided to report all analyses without addition of this control measure.

**Conversational valence.** After discussing the topic for five minutes, the participants were brought back to their individual PCs where they were asked to answer another survey. Intention (T1) was again assessed. Moreover, conversational valence was measured through three questions (i.e., "How negative or positive have you spoken during the conversation about drinking alcohol", "How negative or positive have you spoken during the conversation about binge drinking", and "How negative or positive have you spoken during the conversation about being drunk"), that could be answered on 7-point scales (1 = very negative to 7 = very positive). The scores on these three questions were averaged so that the total score would reflect a general measure of conversational valence with higher
scores indicating more positive conversations about alcohol consumption 
\((M = 4.42, SD = 1.02, \alpha = .73)\).

**Results**

The mean scores and standard deviations of key variables in the study can be found in Table 3.1. To investigate whether health message exposure affected the valence of the conversation, a univariate ANOVA was conducted with conversational valence as dependent variable and health message exposure (no/yes) as independent variable. A significant effect of health message exposure on conversational valence was revealed, \(F(1, 82) = 5.75, p = .019, \eta^2 = .07\), observed power = .66. Participants who were exposed to the anti-alcohol message reported more negative conversations about alcohol \((M = 4.16, SD = 0.99)\) as compared to those not exposed to the anti-alcohol ad \((M = 4.68, SD = 1.00)\), \(d = .52\) (i.e., a medium effect size according to Cohen, 1992), thereby confirming H2.

<table>
<thead>
<tr>
<th>Variable</th>
<th>(M)</th>
<th>(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention T0</td>
<td>3.69</td>
<td>2.01</td>
</tr>
<tr>
<td>Intention T1</td>
<td>3.48</td>
<td>1.97</td>
</tr>
<tr>
<td>Conversational valence</td>
<td>4.42</td>
<td>1.02</td>
</tr>
<tr>
<td>Perceived realism</td>
<td>4.85</td>
<td>1.14</td>
</tr>
</tbody>
</table>

To explore the effect of conversational valence on the intention to refrain from binge drinking, a linear regression analysis was conducted with intention (at T1) as dependent variable, and intention (at T0) and conversational valence as independent variables. All variables were standardized prior to the analysis. Conversational valence was significantly and inversely related to intention at T1 \((\beta = -.23, p = .010, \text{ observed power } = .76)\), indicating that when the conversational
valence about alcohol was more positive, the intention to refrain from binge drinking decreased. Thus, H3 was supported.

To examine whether health message exposure had an indirect effect on intention through conversational valence, bootstrap analyses were conducted with 5,000 resamples and a bias corrected and accelerated (BCa) 95% confidence interval (CI), using Preacher and Hayes’ (2008) INDIRECT macro for SPSS. All variables were standardized prior to the analysis. The bootstrap analysis revealed a significant indirect effect of health message exposure through conversational valence on the intention to refrain from binge drinking at T1, controlled for intention at T0, 95% CI [.01, .16], point estimate = .05, thereby supporting H1. In line with H2 and H3 as well as the aforementioned analyses, exposure to the anti-alcohol message (0 = no alcohol message, 1 = anti-alcohol message) induced a more negative conversational valence about alcohol ($\beta = -.25, p = .020$, observed power = .67) and a more negative conversational valence about alcohol was subsequently significantly related to an increase in the intention to refrain from binge drinking ($\beta = -.22, p = .022$, observed power = .66), see also Figure 3.1.

![Figure 3.1. The indirect effect of health message exposure on the intention to refrain from binge drinking through conversational valence, controlled for intention at T0, based on a bootstrap analysis.](image)

**Discussion**

Considering the prevalence of binge drinking as well as the damaging consequences of binge drinking for individuals (e.g., Jennison, 2004; Naimi et al., 2003), there is a strong need to develop successful interventions directed at this particular behavioral problem and its related social cognitive determinants. The present study addressed this issue by investigating whether an anti-alcohol message
has an indirect effect on binge drinking intentions by influencing the valence of conversations about the campaign topic. First, the results revealed that exposure to an anti-alcohol message induced a more negative conversational valence about alcohol. Second, a more negative conversational valence about alcohol was related to a greater intention to refrain from binge drinking. Third, anti-alcohol message exposure had a significant indirect effect on the intention to refrain from binge drinking through conversational valence. Thereby our three hypotheses were confirmed.

These findings indicate that, apart from the mediating role of whether people talk (e.g., Geary et al., 2007; Van den Putte et al., 2011), the valence in which people discuss health issues also functions as an intervening variable between health campaign exposure and relevant persuasion outcomes. Thus, health messages have the ability to not only trigger conversations but to also influence conversational valence and subsequent behavioral intentions. The present study is the first to formally reveal this indirect effect and suggests, in line with previous findings (e.g., Dunlop et al., 2010; Van den Putte et al., 2010), that not only whether people speak about health issues but also the manner in which people speak can influence health intentions. Moreover, the current study is the first to demonstrate the relevance of conversational valence in the context of alcohol consumption and binge drinking, a health issue that seems particularly prone to social discussion (Pavis et al., 1997).

Importantly, we show that health message exposure influences conversational valence. We provide two potential explanations for this finding. First, we argue that the health message, by emphasizing and consequently priming the negative consequences of alcohol consumption, steered the conversation in a more healthy direction. Given the fact that the conversations occurred shortly after exposure to the anti-alcohol message, the valence of the message may have been more accessible in working memory than other cognitive constructs, such as past experiences (for more information on recency effects, see Higgins, 1996). Second, health messages, such as the anti-alcohol message that we used, often aim to induce negative emotions, like fear, disgust, or sadness (Cohen et al., 2007) and such emotional appeals have been shown to spark conversations (e.g., Hafstad & Aarø, 1997). Potentially, such emotional cues are not only able to elicit conversations but can also affect the valence of these discussions. However, because these underlying processes were not the focus of the current research, we can neither confirm nor reject these explanations. Further studies should shed more light on the underlying processes of the health message - conversational valence link.
Talking about alcohol consumption

The present findings further our understanding of effective anti-alcohol campaigns, and social marketing in general (Gordon, McDermott, Stead, & Angus, 2006; Kotler et al., 2002), by stressing the relevance of conversational valence for alcohol consumption intentions. By using messages that steer the valence of conversations toward desirable healthy conversations, healthy intentions can be induced, improving the overall effectiveness of health campaigns and health promotion attempts. The most important implication for social marketing is that eliciting positive conversations about healthy conduct can be beneficial. We suggest that policy makers and health campaign planners should be aware of the role of conversational valence and should try to use messages that stimulate healthy conversations. This begs the question of which (types of) health messages are able to elicit such desirable healthy conversations. Are messages that focus on the negative effects of unhealthy conduct most likely to induce healthy conversations (for instance by increasing the accessibility of negative consequences) or are messages that focus on the positive effects of healthy behavior more able to do so? Or are messages that use specific emotive appeals especially effective and, if so, which specific emotion is most likely to elicit a healthy conversational valence? These important issues need to be addressed in future research, so that the most effective messages can be used to stimulate healthy conversations and consequently healthy intentions.

Several limitations must be noted in relation to the present research. First, we utilized intention, rather than behavior, as the main dependent variable. Even though theoretical models of human behavior (e.g., Ajzen, 1991) postulate intentions as the most proximal determinant of behavior, also in the context of alcohol consumption (Marcoux & Shope, 1997; Norman & Conner, 2006), we did not measure actual binge drinking behaviors. Thus, it is unsure whether the effects of conversational valence on alcohol intentions can be transferred to similar changes in alcohol consumption. Future research should investigate binge drinking behaviors to explore the relevance of conversational valence for actual conduct.

Second, we examined the influence of a non-voluntary conversation that lasted only five minutes and that followed immediately after exposure to the health message. The predictors and consequences of this particular conversation may differ from a real-life conversation because such a conversation may be more spontaneous and more personally relevant and involving. Although our participants talked with someone they were friendly with and stated that they experienced the conversation as realistic, normal, and not forced, our results should be interpreted in light of the specific experimental setting that was used. Future research should examine the role of conversational valence within health campaign effects in a more realistic setting, to ensure that the same processes are at work in real to life...
Third, several relevant content characteristics of the conversation were not measured in the current study (such as whether participants expressed their emotions during the discussion) while they may determine the influence of the conversation (e.g., Mendolia & Kleck, 1993; Rimé et al., 1991). Future studies should explore these aspects in more detail. Fourth, the participant group in the present study was relatively small and consisted primarily of female students. This particular group is not entirely representative for the actual population. Therefore, future research should replicate our findings among a larger, more diverse, and more representative group.

Despite these drawbacks, the present study provides some important insights. Talking about health, and specifically the valence of conversations, affects health intentions. Most importantly, this valence can be influenced by exposure to a health message. Although more research is needed to explore real life conversations and actual behaviors, this study suggests that health promotion researchers and practitioners need to take conversational valence into account when studying the effects of health messages on persuasion outcomes and when designing health campaigns.