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Mass Media as Alcohol Educator for Everyone? Effects of Portrayed Alcohol Consequences and the Influence of Viewers' Characteristics

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ABSTRACT

Many correlative and experimental studies indicate that the portrayal of alcohol in the mass media impacts viewers' alcohol expectancies, attitudes, and behaviors. Based on social cognitive theory, the portrayed consequences and the valence of the character experiencing these consequences are important to consider when investigating the portrayal of alcohol in the mass media. However, experimental studies manipulating character valence and consequences are scarce. This study presents an experimental examination of an adult sample, manipulating the occurrence of consequences (no consequences, positive consequences, and negative consequences), as well as character valence (a positive or negative character). We investigated the effects of media portrayals on positive and negative alcohol expectancies, as well as on attitudes toward alcohol. Furthermore, the moderating role of participants' level of alcohol consumption was considered. We found main effects only on the negative alcohol expectancies, supporting the differentiation of alcohol expectancies and attitudes. However, the valence of the depicted character did not moderate the impact of the portrayed consequences. Interaction effects of participants' individual levels of alcohol consumption and portrayals of consequences of alcohol consumption in the mass media were uncovered. This finding has important implications for further research and prevention efforts directed at risk groups.

Alcohol is a major contributor to more than 200 diseases, injuries, and other health conditions by exerting toxic effects on organs and tissues. The intoxication of consumers, which leads to “impairment of physical coordination, consciousness, cognition, perception, affect or behavior” can evoke dangerous situations that might have harmful consequences for individual, as well as public, health (World Health Organization [WHO], 2014, p. 5). However, according to WHO, around 8–10 liters of pure alcohol per capita are consumed per year in high-developed regions. Extant research has revealed that a factor responsible for the constantly high alcohol consumption rates is the omnipresence of alcohol in mass media. During an investigation of 24 movies for children, Ryan and Hoerrner (2004) found that 75% contain at

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least one exposure to alcohol. Analyzing teen movies, Stern (2005) indicated that 40% of major teen characters are shown drinking. Everett, Schnuth, and Tribble (1998) found alcohol references in 96% of the top-grossing movies. In television programming overall, alcohol has been found to be the most frequently portrayed food or drink (Mathios, Avery, Bisogni, & Shanahan, 1998), and research on television series has shown the presence of alcohol in between 86.7% and 90% of episodes (Coyne & Ahmed, 2009; Furnham, Ingle, Gunter, & McClelland, 1997; Van Hoof, de Jong, Fennis, & Gosselt, 2009).

Based on these insightful content analyses, several effect studies suggest a connection between alcohol-related behavior and exposure to entertainment media. For instance, in two survey studies with teenagers, Hanewinkel and colleagues stated exposure to depictions of alcohol in movies had an effect on drinking initiation (2014), as well as on increased binge drinking (2012). Osberg, Billingsley, Eggert, and Insana (2012) conducted a longitudinal study focused on college students' alcohol consumption. Among other insights, the authors found effects of exposure to college drinking movies (e.g., *The House Bunny* [Sandler & Wolf, 2008]) on the amount that respondents typically drink per week.

In the literature, the proclaimed media effects on an audience's drinking behavior are repeatedly explained by social cognitive theory (Bandura, 1969). This theory suggests that a vicarious learning effect can be induced by media exposure. Through the observation of a mediated character experiencing a reward or punishment for a specific behavior, viewers build attitudes toward this action and model their own behavior after it. However, to investigate whether the mechanisms proclaimed by social cognitive theory can be held accountable for media effects on alcohol-related cognitions and behaviors, experimental studies, which can unfold causal relationships, are needed. Only three studies thus far have experimentally manipulated the portrayed consequences of a certain action. These studies found an effect of negative and positive portrayals of alcohol in the stimulus movies on alcohol expectancies (de Graaf, 2013; Kulick & Rosenberg, 2001), as well as attitudes toward alcohol (Bahk, 1997; de Graaf, 2013) of the viewer.

We identified three research gaps in extant literature that must be addressed. First, survey studies showed that adolescents are clearly susceptible to media influences that present drinking behavior (see, Hanewinkel et al., 2012, 2014). de Graaf (2013) investigated media effects only on teenage viewers; Bahk (1997) and Kulick and Rosenberg (2001) worked with pure student samples. Student samples have been critically reviewed in communication science in the past due to generalizability, as student samples represent young, well-educated people (Meltzer, Naab, & Daschmann, 2012). In addition, students' alcohol consumption habits are hardly generalizable to the general population as students tend to drink more alcohol. O'Malley and Johnston (2002) stated that "college environments, and other factors associated with being a college student, are instrumental in increasing

alcohol use” (p. 38). Studies generally showed a decrease in alcohol consumption with age (e.g., Lundahl, Davis, Adesso, & Lukas, 1997; Moore et al., 2005; Stall, 1987). Whether the effects of mass media presentations of alcohol are generalizable for all age groups has, therefore, not been sufficiently addressed to date. Thus, to go beyond previous studies, we recruited a broad age group in the field. Sampling in the field allows researchers to reach heterogeneous populations and assess, which individual characteristics affect the perception of alcohol portrayals. Thus, the diversity in our sample allows us to generalize findings and to provide insights into how effects differ across population groups.

Second, media effects are highly dependent on viewers’ personal characteristics. A topic frequently controlled for in investigations of alcohol portrayals in the media is the viewer’s level of alcohol consumption (e.g., Anschutz, Van den Berg, de Graaf, & Koordeman, 2014; Russell, Russell, Boland, & Grube, 2014). However, experimental designs have not yet taken this individual characteristic sufficiently into account. Hence, in this study the participants’ behaviors regarding alcohol consumption was assessed.

Third, the portrayed character’s valence is assumed to influence the learning processes proclaimed by social cognitive theory (Bandura, 2002). Consequently, de Graaf (2013) included the factor of character valence in an experimental investigation. However, in de Graaf’s study (2013), numerous characters endured different consequences, which makes an analysis of the causality difficult. Thus, no study has systematically controlled character valence while testing the effect of portrayals of the consequences of alcohol on the viewer. Therefore, we manipulated the consequences of alcohol consumption, as well as the characters’ valence in the stimulus. This comprehensive design allows us to make statements regarding the mechanisms of social cognitive theory responsible for effects of mass media alcohol portrayals on the viewer.

The effect of the portrayal of alcohol in the mass media

Research based on two explanatory concepts, imitation theory and social cognitive theory, has yielded insightful results when the effects of mediated alcohol portrayals on the viewer were examined. According to the concept of imitation, “perceptual inputs are translated automatically into corresponding behavioral outputs” (Dijksterhuis & Bargh, 2001, p. 1). In the context of alcohol consumption, studies have presented evidence that in interpersonal situations, such as drinking in a bar, the sipping behavior of one person is imitated by others at the same table (Quigley & Collins, 1999). This is especially the case when all participants drink alcohol (Larsen, Engels, Souren, Granic, & Overbeek, 2010). Furthermore, extant research showed this effect in relation to mediated characters. In a study

set in a living room environment, Koordeman, Anschutz, Van Baaren, and Engels (2011a) observed that especially men exposed to the portrayal of alcohol in movies consumed significantly more alcohol and sipped in accordance with the actor (Koordeman, Kuntsche, Anschutz, van Baaren, & Engels, 2011b).

Focusing on the direct effects of alcohol perception on alcohol-related behavior, the effect of imitation seems limited to behavior within the specific media exposure situation. Therefore, this study focused on the second explanatory concept often cited in regard to the effects of mass media alcohol portrayal on viewers: social cognitive theory (Bandura, 1969). This theory suggests that viewers can learn attitudes and behaviors vicariously by observing a model experiencing a reward or punishment for his or her actions. This model can be a parent or a peer of the observer. However, also characters portrayed in mass media can become models shaping the viewers' behaviors and attitudes. In the context of alcohol portrayals in mass media, this means that by observing a mediated character experiencing positive effects of alcohol (i.e., fun or increased sociability) or negative effects of alcohol (i.e., conflict or feeling sick), viewers can build expectancies of and attitudes toward alcohol-related behavior. These expectancies and attitudes could then affect the viewers' own drinking behavior.

Several survey studies have been conducted based on the rationale of social cognitive theory. For instance, Sargent, Wills, Stoolmiller, Gibson, and Gibbons (2006) conducted a longitudinal study with adolescents and found a significant effect of movie exposure on drinking initiation. Hanewinkel et al. (2012, 2014) surveyed a total of around 19,000 teenagers in six European countries. These studies revealed a link, stable cross-countries, between movie alcohol exposure and behavioral variables, such as increased binge drinking (2012) and drinking initiation (2014). Russell et al. (2014) focused on alcohol expectancies and intention to drink. The authors found an inverse relationship between television viewing and negative alcohol expectancies, as well as increased drinking intentions due to increased television viewing. In another recent study, Osberg et al. (2012) tackled the problem of college alcohol abuse. Testing the influence of college alcohol movies, the authors also considered alcohol expectancies and descriptive and injunctive norms regarding college student's alcohol consumption. As in many other studies, including this one, alcohol expectancies were tested based on the Comprehensive Effects of Alcohol Questionnaire (Fromme, Stroot, & Kaplan, 1993). It records participants' outcome expectancies related to alcohol, in other words, what people think happens to one's behavioral, emotional, and cognitive state when alcoholic beverages are consumed. The questionnaire includes positive expectancies, for instance, becoming more talkative, as well as negative expectancies, such as becoming unreliable, and usually comprises between 15 and 38 statements.

This body of literature clearly shows a link between exposure to portrayals of alcohol in entertainment media and alcohol-related behaviors, expectancies, and attitudes. However, although the assumptions of extant research are based on social cognitive theory, experimental research is needed in order to detangle which mechanisms are at the root of the effects of alcohol portrayals on the viewer.

The mechanisms of social cognitive theory

The observation of a reward or punishment for a certain behavior is one of the main pillars of the learning effect proclaimed by social cognitive theory. Thus, “the observed detriments and benefits experienced by others influence the performance of modeled patterns in much the same way as do directly experienced consequences” (Bandura, 2002, p. 129). In the context of the effects of alcohol portrayals in mass media on the viewer, this puts the consequences of alcohol consumption shown in entertainment media in the focus. They are either seen as positive (for instance, fun or romantic success) or as negative (such as conflict or embarrassment; Coyne & Ahmed, 2009; Van Den Bulck, Simons, & Gorp, 2008).

Three studies (Bahk, 1997; de Graaf, 2013; Kulick & Rosenberg, 2001) to date have tackled the influence of the depictions of alcohol consequences in mass media on the viewer: Bahk (1997) tested the impact of the exposure to negative consequences of alcohol consumption in a movie on college students’ attitudes toward alcohol. He compared three conditions: an experimental condition depicting alcohol consumption without the portrayal of any consequences, an experimental condition depicting alcohol consumption in connection with negative consequences, and a control group depicting no alcohol representations. Compared to the control group, the presence of negative consequences deteriorated attitudes toward alcohol; however, the mere absence of negative consequences improved the participants’ attitudes toward alcohol. Testing the portrayed positive and negative outcomes of alcohol against a control group without a portrayal of alcohol, Kulick and Rosenberg (2001) found an increase in positive alcohol expectancies by the depiction of positive alcohol outcomes. Interestingly, negative alcohol expectancies were increased by the portrayal of negative, as well as positive, outcomes, compared to the control condition. The most recent study, by de Graaf (2013), compared the portrayal of positive and negative alcohol consequences to a condition without movie exposure and found more negative expectancies (Fromme et al., 1993) and attitudes toward alcohol due to the negative consequence version.

de Graaf (2013) was the first to assess both expectancies and attitudes as dependent variables. This is of importance, because extant research shows that the concepts are empirically distinguishable and contribute separately to the power of models that predict alcohol-related behavior. The improvement

in explained variance by adding expectancy to attitude measures strongly varied between studies from 1% to 11%; however, expectancies and attitudes were found to have a significantly distinct direct effect on alcohol-related behavior (Christiansen & Goldman, 1983; Jones, Corbin, & Fromme, 2001; Leigh, 1989; Stacy, Widaman, & Marlatt, 1990). In addition, the concepts appear to predict different aspects of alcohol-related intentions and behavior. Wall, Hinson, and McKee (1998) pointed out differing predictions of expectancies and attitudes regarding “intentions to drink ‘too much’ and self-report excessive drinking behavior” (p. 415). Furthermore, differentiating between positive and negative expectancies, Stacy and colleagues (1990) found that “positive expectancy appears to be superior to Attitude as a predictor of Intention” (p. 926).

All in all, to comprehensively assess the effects of consequence portrayals, both positive and negative alcohol expectancies, as well as attitudes have to be taken into account. Consequently, we formulated the following two hypotheses:

- H1: The portrayal of positive alcohol consequences will result in (a) stronger positive alcohol expectancies regarding higher sociability, (b) weaker negative alcohol expectancies, such as cognitive and behavioral impairment, and (c) more positive attitudes toward alcohol than the portrayal of negative or no consequences.
- H2: The portrayal of negative alcohol consequences will result in (a) weaker positive alcohol expectancies regarding higher sociability, (b) stronger negative alcohol expectancies, such as cognitive and behavioral impairment, and (c) more negative attitudes toward alcohol than the portrayal of positive or no consequences.

The second important aspect in the learning effects explained by social cognitive theory is the perception of the model that experiences an outcome (Bandura, 2004). This is rooted in identificatory processes, starting with the parent–child relationship (Bandura, 1969). Research focusing on mass media has found that those processes are also relevant for mediated characters. According to Moyer-Gusé (2008), the perception of a model can consist of differing concepts: identification, wishful identification, similarity, parasocial interaction, and character liking. In this context, “attractive and/or similar models are more likely to be observed and imitated” (Moyer-Gusé, 2008, p. 412).

In the area of entertainment education, several studies emphasized the role of character liking, in comparison to similarity and identification. Consequently, we choose to focus on this concept. Character liking is the positive evaluation of a character (Moyer-Gusé, 2008). This feeling affects how the viewer experiences the actions and consequences portrayed for this

character. For instance, Slater and Rouner (2002) suggested that especially empathetic responses to a character influence the effect of persuasive messages. Stephenson (2003) supported this idea only for high sensation seekers. In a study on a marijuana service announcement, sympathetic distress acted as a mediator in attitude change for high sensation-seeking adolescents. In her study on the depictions of the consequences of alcohol, de Graaf (2013) controlled for liking, mentioning that “liking of a specific character that experiences negative consequences of a behavior may lead to more negative beliefs and attitudes toward the behavior” (p. 437). Thus, it might make a difference in the context of alcohol consequences what kind of character is portrayed enduring negative consequences of alcohol, such as a conflict or nausea. de Graaf (2013) did not find a significant effect of character liking on alcohol expectancies and attitudes. However, in this study character liking was not manipulated as a factor but assessed by viewers’ own evaluations.

Looking at the body of literature thus far, it is unclear whether the valence of a model influences the effect of the portrayed consequences of a behavior. However, following the principles of social cognitive theory, we hypothesized:

H3: The effect of the portrayal of alcohol consequences on alcohol expectancies and attitudes will be stronger for a positively valenced character compared with a negatively valenced character.

Level of alcohol consumption

Effect studies in numerous areas showed that viewers’ characteristics influence the effect of mass media (e.g., Lee & Chen, 2013; Stephenson, 2003). In the context of alcohol-related behavior, the viewer’s own behavior related to alcohol seems especially crucial. This is largely based on the assumption that the viewers’ own alcohol behavior shapes and builds the viewers’ alcohol experiences and attitudes. As McCarty, Morrison, and Mills (1983) pointed out, “Heavy drinkers believed more strongly than light and moderate drinkers that drinking heavily results in enjoyable experiences and did not produce unpleasant experiences” (p. 339). This belief may be based on a wish to avoid cognitive dissonance. Dissonance occurs when two cognitions are psychologically inconsistent (Aronson, 1969). For instance, drinking heavily while strongly expecting unpleasant consequences could produce a negative state of dissonance. Therefore, heavy drinkers might hold positive expectancies of alcohol salient and suppress negative ones.

Acknowledging its importance, survey studies (e.g., Russell et al., 2014) and experimental studies (Anschutz et al., 2014; Kulick & Rosenberg, 2001) have statistically controlled the individual’s alcohol consumption. Still, insights regarding the moderating role of alcohol consumption on the perception of alcohol portrayals remain scarce. So far, only studies investigating

the effects of alcohol prevention messages included alcohol consumption as a potential moderator (Kim, Lee, Macais, 2014; Lee & Chen, 2013) and found heavy drinkers to be hardly susceptible to prevention messages. Thus, to uncover how personal experience with alcohol might moderate the learning effects connected to the portrayal of alcohol consequences, we formulate the following research question:

RQ1: Does alcohol consumption influence the effect of the portrayal of alcohol consequences on alcohol expectancies and attitudes?

Method

We collected the data for this study at a primary healthcare center in Austria in September, 2016. The experiment had a 3 (consequence: negative vs. no consequence vs. positive) \times 2 (valence: positive vs. negative) between-subjects design. Participants were randomly exposed to one version of the stimulus movie followed by a questionnaire.

Procedure

Initially, a total of 238 people participated. We excluded one experimental group ($n = 34$) that was not relevant for this experimental design because the stimulus for this group did not contain alcohol depictions. Additionally, we had to exclude 11 participants due to technical problems with the online tool used in this study. Thus, the analyses were conducted with a total of $N = 193$ participants ($M_{\text{age}} = 39.55$; $SD = 15.27$; 60.1% female; 18.7% active students at an university).¹

In the first step, the healthcare personnel preselected people appropriate for participation. For instance, all patients with alcohol, drug, or psychological problems were excluded. The selected individuals were then invited to participate in the study. As primary healthcare centers do not deal with emergency cases, most people could be addressed since they were, for example, in need of a prescription, referral, blood test, or paperwork after a sick leave. We still deemed it important to assess the participants' subjectively felt health by asking them how they feel at the moment. Subjectively felt health was generally high (1 = *good*, 5 = *bad*, $M = 1.92$; $SD = 1.07$). Then we accompanied the participants individually to an office room adjacent to the healthcare center. There, they were individually placed in front of a computer and autonomously filled out the study. First, they gave informed consent. Then, they randomly watched one of six versions of the stimulus movie, which was followed by the questionnaire. After the study, a debriefing text informed each participant about the topic of the study and gave detailed information about the risks of alcohol consumption.

Stimulus

We designed six short movies based on the popular TV series *Gossip Girl*. To make sure that no confounding effects of the series salience occurred, we recorded familiarity with the series using two 5-scale items (1 = *not at all*, 5 = *very well*). Both measures clearly showed that the show was not salient, as more than half of the participants did not know the series at all ($M = 1.88$, $SD = 1.2$), and 93.8% ($n = 181$) indicated they had not seen the series within the past 6 months ($M = 1.12$, $SD = 0.65$). There was no significant difference in the groups regarding the participants' familiarity with the series, $F(2, 189) = 0.15$, n.s., and watching within the past 6 months, $F(2, 190) = .191$, n.s.

Episodes from all six seasons of the show were cut and used to create six different story lines. Several positive and negative consequence scenes were combined in different order (see [Appendix](#)). In between the scenes, a short textual statement explained the plot. The story revolved around Serena Van der Woodsen, a wealthy young woman from New York City. In two versions of the movie, she experiences positive effects of alcohol; that is, she is drunk and has a lot of fun with her friends (positive consequences condition, $n = 62$). In two other versions, she endures negative consequences of alcohol consumption; that is, she loses her purse, is nearly hit by a car, and vomits (negative consequences condition, $n = 65$). In the last two versions, she consumes alcohol without experiencing any consequences (control group, $n = 66$). The storyline was interwoven with short statements connecting the scenes. With these statements and the following scenes, the main character, Serena, was either portrayed positively (i.e., doing everything she can to help her friends; positive valence condition, $n = 98$) or negatively (i.e., cheating on her best friend and being described as a liar; negative valence condition, $n = 95$).

Thus, two factors, the presentation of the consequences of alcohol consumption (positive, negative, or no consequences) and the character valence (positive or negative), were varied in the movies. For all analyses, we treated the consequences conditions and valence conditions as separate factors and we included an interaction term of valence and consequence in all analyses.

Measures

We measured the participants' attitudes and expectancies toward alcohol. To assess *alcohol expectancies*, we adapted the items of Fromme and colleagues' (1993) comprehensive effects of alcohol questionnaire. We used 14 negative alcohol expectancies and 10 positive expectancies, which were rated on a 5-point scale (1 = *I do not agree at all*, 5 = *I totally agree*). An exploratory factor analysis revealed that three items did not load on any factor and were, therefore, excluded. The other items spread into five

factors comparable to Fromme et al.'s (1993) factors: sociability, tension reduction, and sexuality as positive expectancies and cognitive and behavioral impairment as negative expectancies. Tension reduction and sexuality, however, consisted of only two statements each and could not be merged into a reliable index, $\alpha < .70$. *Attitudes toward alcohol* were measured explicitly on two 5-point semantic differential items (*good-bad, pleasant-unpleasant*). A reliable index was formed ($\alpha = .84$). Thus, we analyzed the variables sociability ($M = 3.58$, $SD = 0.70$), cognitive impairment ($M = 3.86$, $SD = 0.65$), behavioral impairment ($M = 3.88$, $SD = 0.66$), and attitudes toward alcohol ($M = 2.82$, $SD = 0.93$).

To assess the moderator, we measured participants' *alcohol consumption* with a single 5-point scale item (1 = *never*, 2 = *less than once a month*, 3 = *two to four times a month*, 4 = *two to three times a week*, 5 = *four times a week or more*; $M = 2.96$, $SD = 1.08$).

For the control, we inserted *age* because, to date, no study has included an adult sample with a broad age range (e.g., de Graaf, 2013; Kulick & Rosenberg, 2001). We also included gender as a control variable as it might affect expectancy perceptions (Jones et al., 2001).

Pretest

The stimulus was pretested to ensure the perception of the positive and negative consequences and the character valence. Participants saw different versions of the stimulus; therefore, not all participants were included in each analysis. Participants who were exposed to negative ($n = 14$) or positive ($n = 10$) alcohol consequences reported whether they perceived the consequences as positive or negative. This was asked using five semantic differential items on a 5-point scale with 1 indicating the negative option (for example, *unpleasant*) and 5 indicating the positive option (for example, *pleasant*). The index was reliable at $\alpha = .95$. Participants who saw the positive consequences of alcohol perceived them, on average, as positive ($M = 3.7$, $SD = 0.9$); the negative consequences were perceived as negative ($M = 1.8$, $SD = 0.7$). The difference between the consequence groups was significant, $t(22) = -6.06$, $p < .001$. Participants were also exposed to versions of the stimulus movie presenting the character as positive ($n = 16$) or negative ($n = 24$). They reported whether they perceived the character as positive or negative using six semantic differential items on a 5-point scale with 1 indicating the negative option and 5 indicating the positive option ($\alpha = .84$). Participants who saw the positive character perceived her, on average, as more positive ($M = 3.7$, $SD = 0.6$); the negative character was perceived as negative ($M = 2.5$, $SD = 0.8$). The difference between the valence groups was statistically significant, $t(38) = -4.94$, $p < .001$. Therefore, the stimulus was deemed appropriate for the main study.

Randomization check

A randomization check for movie liking (5-item semantic differential, 1 = *bad*, 5 = *good*; $M = 2.43$, $SD = 0.96$), $F(5, 187) = 1.12$, n.s.; participants' subjectively felt health (5-point scale index; $M = 1.92$; $SD = 1.07$), $F(5, 186) = .78$, n.s.; gender ($\chi^2 = 3.84$, $df = 5$, $N = 193$, $\Phi = .14$, n.s.), and age, $F(5, 161) = .59$, n.s., was successful. Character liking was recorded as a manipulation check of the valence condition (5-item semantic differential, 1 = *unpleasant*, 5 = *pleasant*). The character was liked significantly more in the positive valence condition than in the negative valence condition, $F(1, 191) = 77.33$, $p < .001$. As the character presented was a young woman, we tested for the possible similarity effect of age and gender. Character liking was not correlated to age, $r(165) = -.126$, n.s., and did not differ related to gender, $t(191) = -.692$, n.s.

Data analysis

We tested linear regression models for each dependent variable. As the first step, we tested the no consequence group (the control group) as the reference group. As the second step, we used the positive consequences condition as the reference to assess differences between the negative and positive consequences conditions. Character valence (dummy coded with 1 = negative valence) was inserted as the main independent variable. To assess its moderating effect, we computed an interaction term between character valence and the consequences conditions. Alcohol consumption was included as a moderator variable and was, therefore, mean centered. We then included interaction terms of alcohol consumption and the consequence. Age (mean centered) and gender were inserted as a control.

The model showing all hypotheses and research questions is depicted in Figure 1.

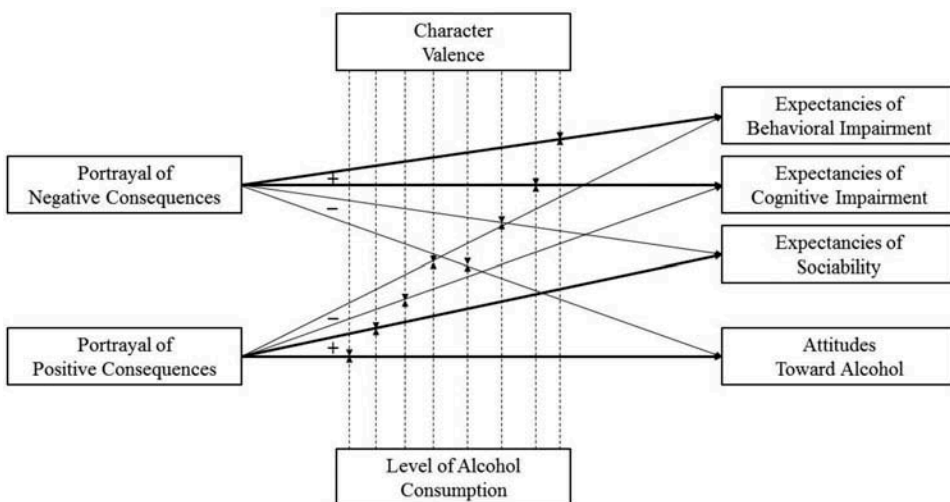


Figure 1. Model of the formulated research questions and hypotheses.

Results

To test the stated hypotheses and answer the research question, we first investigated the positive and negative expectancies of the portrayal of alcohol. In the second step, we investigated the effects of the predictors and control variables on attitudes toward alcohol.

Alcohol expectancies

Sociability

For positive alcohol expectancies regarding sociability, we found no main effects for the positive consequences condition ($b = -.06$, $SE = .19$, $\beta = -.04$, $p = .76$) and no effect of the negative consequences condition ($b = .07$, $SE = .18$, $\beta = .05$, $p = .71$) compared to the control condition. The valence of the presented character was also not connected to awareness of positive alcohol expectancies ($b = -.26$, $SE = .18$, $\beta = -.19$, $p = .14$). In addition, gender did not influence the expectancies for sociability ($b = -.10$, $SE = .11$, $\beta = -.07$, $p = .37$). However, we found a negative main effect of age ($b = -.01$, $SE = .00$, $\beta = -.20$, $p = .01$), suggesting that younger participants are likely to have more positive expectancies of alcohol consumption. We also found a positive main effect for alcohol consumption ($b = .19$, $SE = .09$, $\beta = .31$, $p = .03$).

In the next step, we looked at the interaction effects of the consequences conditions with character valence, as well as the participants' alcohol consumption. No interaction terms reached statistical significance. The total explained variance was $R^2 = .06$ (see Table 1).

We repeated this analysis with the positive consequence group as the reference group; however, we found no main differences between the positive

Table 1. Linear regression explaining positive expectancies for sociability; control group inserted as reference group.

	<i>b</i>	<i>SE</i>	β
<i>Step 1 – Main Effects</i>			
Positive Consequence Condition	-.06	.19	-.04
Negative Consequence Condition	.07	.18	.05
ΔR^2	0.0%		
<i>Step 2 – Controls</i>			
Character Valence (Negative)	-.26	.18	-.19
Age	-.01**	.00	-.20
Gender	-.10	.11	-.07
Alcohol Consumption	.19*	.09	.31
ΔR^2	7.8%		
<i>Step 3 – Interaction Effects</i>			
Positive Consequence Condition* Character Valence	.26	.26	.13
Negative Consequence Condition* Character Valence	.25	.25	.14
Positive Consequence Condition* Alcohol Consumption	-.08	.13	-.07
Negative Consequence Condition* Alcohol Consumption	-.06	.12	-.06
ΔR^2	-1.4%		
Total R^2	6.4%		

Note: $N = 193$. * $p < .05$. ** $p < .01$. *** $p < .001$

and negative consequences conditions ($b = .12$, $SE = .19$, $\beta = .09$, $p = .51$). Thus, hypotheses 1a and 2a, posing a main effect of the consequences condition on positive alcohol expectancies compared to the control condition and the opposite consequences condition, were rejected.

Cognitive impairment

For participants' expectancies of cognitive impairment, we found a negative main effect of the positive consequences condition compared to the control group ($b = -.47$, $SE = .17$, $\beta = -.33$, $p = .01$). However, no significant difference occurred for the negative consequences condition compared to the control group ($b = .14$, $SE = .17$, $\beta = .10$, $p = .39$). The valence of the presented character was not connected to awareness of cognitive impairment by alcohol ($b = .14$, $SE = .16$, $\beta = .10$, $p = .40$). In addition, gender did not impact cognitive impairment ($b = -.09$, $SE = .10$, $\beta = -.07$, $p = .36$). Older participants, however, expected higher levels of cognitive impairment ($b = .01$, $SE = .00$, $\beta = .21$, $p = .005$) than younger participants. Furthermore, we found a main effect for participants' own alcohol consumption, as people who indicated they drink alcohol regularly had a lower overall expectancy of cognitive impairment ($b = -.28$, $SE = .08$, $\beta = -.46$, $p < .001$).

When we tested possible interaction effects, we found a positive interaction effect of both consequences conditions with alcohol consumption (positive consequences condition \times alcohol consumption: $b = .26$, $SE = .12$, $\beta = .23$, $p = .03$; negative consequences condition \times alcohol consumption: $b = .24$, $SE = .11$, $\beta = .24$, $p = .03$). When probing the interaction effect (see Hayes & Matthes, 2009), we found that in the control group participants with high levels of alcohol consumption showed a lower awareness of cognitive impairment. However, when negative consequences were shown, the participants with high alcohol consumption ($b = .44$, $p < .05$; above 4 on a 5-point scale, see Figure 2) aligned their assessment of negative consequences with the participants with low and average alcohol consumption. For the positive consequences condition, we found the converse effect, as again participants with high alcohol consumption showed a lower awareness of cognitive impairments in the control group, compared to participants with low and average alcohol consumption. However, this time participants with low and average alcohol consumption aligned their assessment of cognitive impairment with the participants with high alcohol consumption by showing a decrease in this measurement ($b = -.34$, $p < .05$; below 3 on a 5-point scale, see Figure 3). The total explained variance was $R^2 = .17$ (see Table 2).

When the positive consequences condition group was inserted as a reference group, the analysis revealed that the negative consequences condition group assessed negative outcomes regarding cognitive impairment as significantly more likely compared to the positive consequences condition group ($b = .61$, $SE = .17$, $\beta = .44$, $p < .001$). Interestingly, when the positive consequences

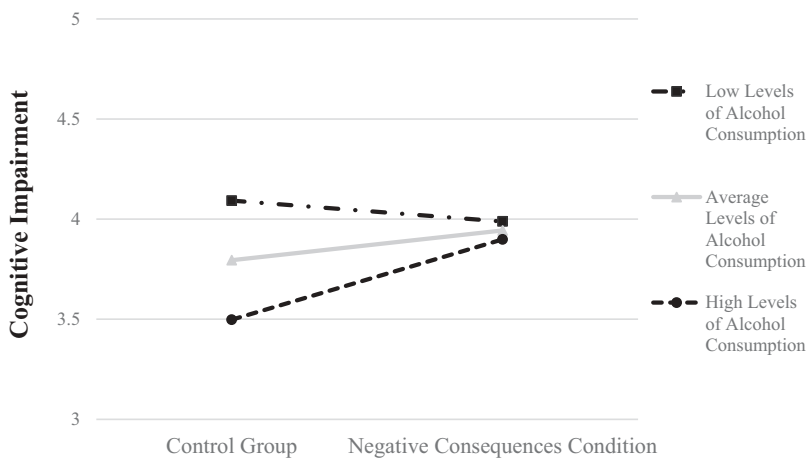


Figure 2. Interaction effect of the negative consequences condition and level of alcohol consumption on cognitive impairment.

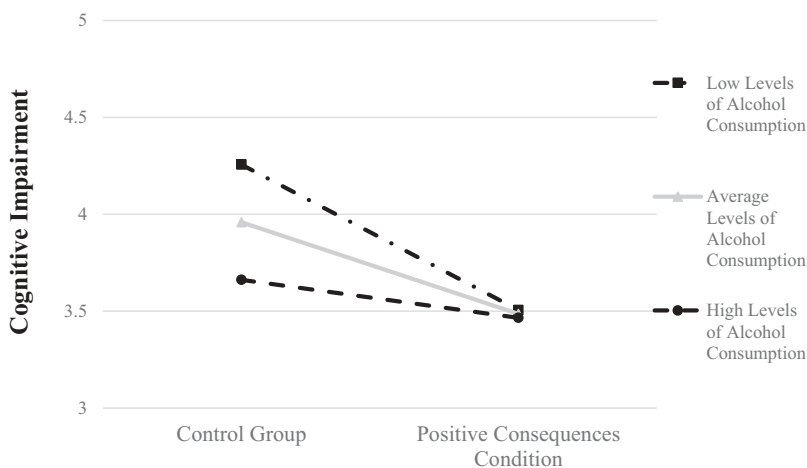


Figure 3. Interaction effect of the positive consequences condition and level of alcohol consumption on cognitive impairment.

condition was used as the reference group, character valence had a positive main effect ($b = .36$, $SE = .18$, $\beta = .28$, $p = .04$). Thus, if a person was presented negatively, expectancies for cognitive impairment, such as grouchiness, increased. No other new main effects or interaction effects were revealed in this analysis.

Behavioral impairment

In the third analysis, we investigated participants' expectancies of behavioral impairment. We did not find main effects for the positive ($b = -.28$, $SE = .18$, $\beta = -.19$, $p = .12$) or negative consequences condition ($b = .08$, $SE = .18$, $\beta = .06$, $p = .64$) compared to the control group. No effect was found for character

Table 2. Linear regression explaining negative expectancies for cognitive impairment; control group inserted as reference group.

	<i>b</i>	<i>SE</i>	β
<i>Step1 – Main Effects</i>			
Positive Consequence Condition	-.47**	.17	-.33
Negative Consequence Condition	.14	.17	.10
ΔR^2	6.7%		
<i>Step 2 – Controls</i>			
Character Valence (Negative)	.14	.16	.10
Age	.01**	.00	.21
Gender	-.09	.10	-.07
Alcohol Consumption	-.28***	.08	-.46
ΔR^2	8.6%		
<i>Step 3 – Interaction Effects</i>			
Positive Consequence Condition* Character Valence	.23	.24	.12
Negative Consequence Condition* Character Valence	-.09	.23	-.05
Positive Consequence Condition* Alcohol Consumption	.26*	.12	.23
Negative Consequence Condition* Alcohol Consumption	.24*	.11	.24
ΔR^2	2.1%		
Total R^2	17.4%		

Note: $N = 193$. * $p < .05$. ** $p < .01$. *** $p < .001$

valence ($b = -.04$, $SE = .17$, $\beta = -.03$, $p = .83$). Participants' alcohol consumption showed a negative main effect on expectancies of behavioral impairment ($b = -.23$, $SE = .08$, $\beta = -.37$, $p = .01$). All other variables had no main effects. The analysis revealed no significant interaction effects on valence, alcohol consumption. The total explained variance was $R^2 = .11$ (see Table 3).

When we inserted the positive consequences condition as the reference group, we found a main effect of the consequence manipulation, as participants in the negative consequences condition indicated a significantly higher

Table 3. Linear regression explaining negative expectancies for behavioral impairment; control group inserted as reference group.

	<i>b</i>	<i>SE</i>	β
<i>Step1 – Main Effects</i>			
Positive Consequence Condition	-.28	.18	-.19
Negative Consequence Condition	.08	.18	.06
ΔR^2	5.5%		
<i>Step 2 – Controls</i>			
Character Valence (Negative)	-.04	.17	-.03
Age	.00	.00	.01
Gender	.02	.10	.01
Alcohol Consumption	-.23**	.08	-.37
ΔR^2	6.4%		
<i>Step 3 – Interaction Effects</i>			
Positive Consequence Condition* Character Valence	.13	.25	.07
Negative Consequence Condition* Character Valence	.12	.24	.07
Positive Consequence Condition* Alcohol Consumption	.02	.13	.00
Negative Consequence Condition* Alcohol Consumption	.14	.11	.14
ΔR^2	-0.7%		
Total R^2	11.2%		

Note: $N = 193$. * $p < .05$. ** $p < .01$. *** $p < .001$

level of behavioral impairment compared to the positive consequences condition ($b = .37$, $SE = .19$, $\beta = .26$, $p = .05$). We found no additional main or interaction effects. Thus, the findings lend partial support to hypotheses 1b and 2b as negative consequences lead to a significantly higher awareness of cognitive and behavioral impairment than positive consequences. Positive consequences can only minimize awareness for cognitive impairment compared to the control group; however, the negative outcomes of alcohol consumption were as present in the control group as in the negative consequences conditions. The hypothesized interaction effect between valence and consequences condition was not found for any alcohol expectancy. Therefore, H3 is rejected.

Attitudes toward alcohol

We did not find main effects for the positive ($b = .21$, $SE = .22$, $\beta = .10$, $p = .34$) or negative consequences condition ($b = -.16$, $SE = .21$, $\beta = -.08$, $p = .45$), compared to the control group. No main effect was found for character valence ($b = -.15$, $SE = .21$, $\beta = -.08$, $p = .48$). However, the analysis revealed a positive main effect of alcohol consumption on explicit attitudes toward alcohol ($b = .65$, $SE = .10$, $\beta = .76$, $p < .001$) and a negative main effect of age ($b = -.01$, $SE = .00$, $\beta = -.15$, $p = .02$). The analysis revealed no other main effects. Again, the interaction effect of consequence and character valence did not reach statistical significance. Therefore, the proposed interaction effect of Hypothesis 3 is rejected. However, we found a significant interaction effect of the positive evaluation group and alcohol consumption ($b = -.36$, $SE = .15$, $\beta = -.22$, $p = .02$). When probing this interaction effect, we found that participants in the positive consequences condition with low alcohol consumption ($b = .52$, $p < .05$; below 2 on a 5-point scale, see Figure 4)

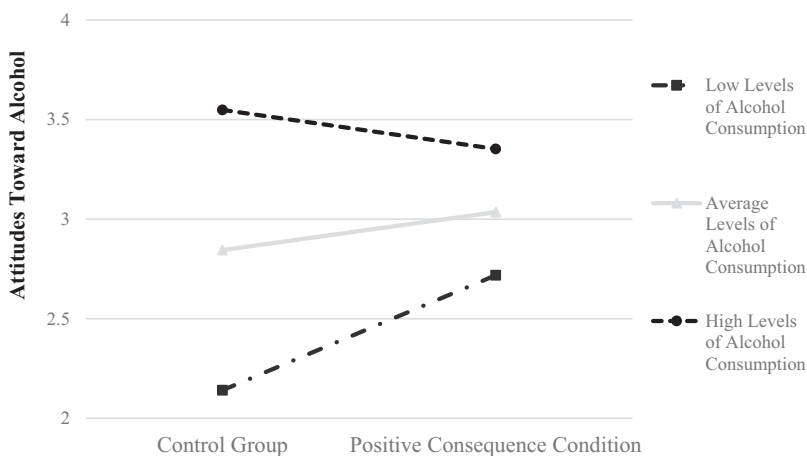


Figure 4. Interaction effect of the positive consequences condition and level of alcohol consumption on attitudes toward alcohol.

Table 4. Linear regression explaining negative expectancies for attitudes toward alcohol; control group inserted as reference group.

	<i>b</i>	<i>SE</i>	β
<i>Step 1 – Main Effects</i>			
Positive Consequence Condition	.21	.22	.10
Negative Consequence Condition	–.16	.21	–.08
ΔR^2	1.4%		
<i>Step 2 – Controls</i>			
Character Valence (Negative)	–.15	.21	–.08
Age	–.01*	.00	–.15
Gender	.01	.12	.01
Alcohol Consumption	.65***	.10	.76
ΔR^2	29.4%		
<i>Step 3 – Interaction Effects</i>			
Positive Consequence Condition* Character Valence	.11	.30	.04
Negative Consequence Condition* Character Valence	.28	.29	.12
Positive Consequence Condition* Alcohol Consumption	–.36*	.15	–.22
Negative Consequence Condition* Alcohol Consumption	–.22	.14	–.16
ΔR^2	1.0%		
Total R^2	31.8%		

Note: $N = 193$. * $p < .05$. ** $p < .01$. *** $p < .001$

showed an increase in their alcohol evaluation, compared to the control group, whereas the evaluation of participants with average and low alcohol consumption remained constant. No other interaction effects reached statistical significance. The total explained variance for attitudes toward alcohol was $R^2 = .32$ (see Table 4).

We repeated the analysis for the positive consequences condition as the reference group, but the analysis showed no significant difference between the positive and negative consequences conditions ($b = -.37$, $SE = .22$, $\beta = -.29$, $p = .10$). The analysis did not reveal additional main or interaction effects. Thus, hypotheses 1c and 2c proposing a main effect of the condition on attitudes toward alcohol is rejected.

To answer the research question, the viewers' own alcohol consumption had a main effect on the awareness of negative expectancies and attitudes toward alcohol. Furthermore, viewers' alcohol consumption moderated the effect of the consequences condition for cognitive impairment and attitudes toward alcohol (RQ1).

Discussion

This study is the first to comprehensively test the effects of the portrayal of alcohol in audiovisual mass media content on the viewer by manipulating not only alcohol consequences, but also character valence. Furthermore, we included interaction effects with level of alcohol consumption (Kim et al., 2014; Lee & Chen, 2013). In addition, age (an important covariate that has not been thoroughly tested) and gender were included.

Interestingly, character valence did not impact the effects. In line with existing research however, results indicate that alcohol portrayals in audiovisual mass media content affect expectancies for, and attitudes toward, alcohol. Yet, the importance of the viewer's individual characteristics regarding their own level of alcohol consumption is emphasized, as they influence how the portrayal of alcohol consequences affects a viewer. Especially groups at risk, such as heavy consumers of alcohol, react in specific ways, which should be taken into consideration when trying to persuade them to adopt a healthier lifestyle.

A general insight is that although many effects of the portrayal of alcohol in audiovisual content are contingent upon individual's characteristics, we believe that mass media have the potential to influence viewers. This result is in line with existing research (Bahk, 1997; de Graaf, 2013; Kulick & Rosenberg, 2001) and supports our initial assumption that this research avenue is of high societal relevance. For instance, the expectancy of cognitive impairment due to alcohol consumption significantly differed between all conditions. Furthermore, the expectancy of behavioral impairment significantly differed between positive and negative consequence portrayals (H1b and H2b).

However, we found no main effects of the portrayal of consequences on positive expectancies. Thus, whether alcohol consumption was connected to no consequences, positive consequences, or negative consequences did not impact awareness of sociability. We suggest that a more in-depth examination of the portrayal of positive consequences of alcohol is required. First, a stronger manipulation of the specific outcomes might be necessary. In this study, the character was depicted interacting with friends in several scenes unrelated to alcohol. Therefore, the portrayal of the increase in sociability might not have been explicit enough. In other words, it might be necessary that a character explicitly states that he or she is feeling more energetic or outgoing after having drunk alcohol. Second, we focused on the positive outcome of sociability in this study. As suggested by Fromme and colleagues (1993), tension reduction, liquid courage, and sexuality are also perceived positive outcomes of alcohol consumption. Replication studies should attempt to employ stimulus material that clearly distinguishes between those outcomes. A separate analysis of each positive expectancy variable might show, if certain positive outcomes lend themselves better to mass media influences than others. For instance, the factor of liquid courage (Fromme et al., 1993), which could consist of a character having the courage to pursue a love interest after drinking alcohol, could have stronger effects on the positive alcohol expectancies of viewers.

In the broad body of literature that uses social cognitive theory, the role of the model characteristics seems unclear. In this study, we chose to manipulate character liking, one of the aspects seen as influential on the learning

effect of observed behaviors and attitudes. Although Slater and Rouner (2002), as well as Stephenson (2003), conducted experiments that supported this assumption, de Graaf (2013) recorded character liking and engagement and found no effects. This study falls in line with de Graaf (2013) because it revealed a negligible effect of character valence. The hypothesized interaction effect between valence and the consequences condition (H3) did not appear for any tested dependent variable. This result could have three explanations.

First, character valence of mediated characters might really not affect the influence of the portrayed alcohol consequences. Meaning, viewers generalize the effects of alcohol, knowing that in real life drinking alcohol affects good and bad people.

Second, additional experimental research that manipulates the aspects of characters is needed. Not only character liking but also several character characteristics combined with the viewers' characteristics might influence learning effects. For instance, such variables as identification, wishful identification, similarity, liking and parasocial interaction (Moyer-Gusé, 2008) would be worth investigating as possible moderators. In this study, which featured an attractive and wealthy character, wishful identification might have counterbalanced the effect of liking. This calls for studies that record different character involvement concepts, to detangle possible influences. In contrast, replication studies using different types of stimuli could reveal interactions of identification and consequence depictions. Additionally, the results of this study indicate that the participants' own level of alcohol consumption serves as an important moderator. As such, similarity to the portrayed character regarding drinking behavior could be an interesting avenue for future research. Even though effects of alcohol consumption are assumed to be similar for good and for bad people, effects of alcohol consumption differ for light and heavy drinkers (King, Houle, de Wit, Holdstock, & Schuster, 2002). Thus, the portrayal of a light drinker experiencing negative consequences due to alcohol consumption could be perceived differently by heavy drinking viewers compared to viewers disinclined to alcohol.

Third, character valence might influence the viewer only if a longer relationship, that is, a parasocial relationship, occurs. This would be the case if a viewer follows a TV series but would be difficult to manipulate using short stimulus movies. Therefore, longitudinal studies should be conducted. Overall, the way identification processes with mediated characters affect observational learning from mass media is not yet clearly differentiated from processes regarding real-world models as peers or parents. The effects, however, could strongly differ, especially taking wishful identification into account. To further develop the theoretical framework of social cognitive theory, a comprehensive comparison of character involvement effects regarding mediated and real-world models seems necessary.

The results regarding the depicted consequences revealed a complex picture, due to interesting effects of covariates and the expected interaction effects with the moderator alcohol consumption. Regarding alcohol consumption (RQ1), which has been shown to affect viewers' perception of the portrayal of alcohol in mass media (Anschutz et al., 2014; Russell et al., 2014), we found a main effect of alcohol consumption on the awareness of cognitive and behavioral impairment. Participants with high alcohol consumption expected less negative consequences due to alcohol consumption. This is not highly surprising, as according to the theory of cognitive dissonance (Aronson, 1969), people adapt their beliefs and behaviors in order to avoid internal conflicts.

The findings become interesting, though, when looking at the interaction effects of the consequence manipulation and individual alcohol consumption. Moderate and light drinkers, who are already more aware of negative consequences of alcohol are less affected by the depiction of negative consequences connected to alcohol consumption. However, the opposite effect can be seen regarding the positive condition. Although heavy alcohol drinkers are not significantly affected by exposure to positive alcohol consequences, moderate and light drinkers evaluate cognitive impairment aspects less negatively after seeing the positive aspects of alcohol. We suggest that heavy alcohol drinkers have a high salience of positive consequences of alcohol and are therefore not strongly affected by the portrayal. Light and moderate drinkers, however, trivialize cognitive impairment due to alcohol after having seen its positive consequences, and align their expectancies to those of heavy drinkers. A comparable result was also found regarding attitudes toward alcohol. Light drinkers became significantly more positive toward alcohol after having seen its positive consequences. Because alcohol expectancies and attitudes affect intentions to drink (Cooke, Dahdah, Norman, & French, 2016), this finding could spur discussion about the dramatic use of alcohol on television and how this use might be employed to influence viewers.

On a more positive note, the depiction of the negative consequences of alcohol significantly influenced the participants who were heavy drinkers. We thus suggest that heavy alcohol drinkers, who usually avoid the negative effects of alcohol to decrease cognitive dissonance, can be made aware of them through audiovisual mass media content. By being directly exposed to the portrayal of negative alcohol effects, heavy drinkers could no longer deny or ignore the effects. This result is very thought provoking because it suggests that especially the at-risk group of high alcohol consumers could be affected by the incorporation of additional negative consequences in mass media content.

Considering that the evaluation of alcohol prevention efforts does not show consistent effects, this approach might be promising (Larimer & Cronce, 2002; Neighbors, Larimer, Lostutter, & Woods, 2006). Numerous alcohol prevention

campaigns such as the Risk Skills Training Program (RSTP; D'Amico & Fromme, 2000) point out the importance of alcohol expectancies and include expectancy challenges in their program. Although the RSTP was implemented with adolescents and college students, it is questionable if such a face-to-face program could reach a broad public. Consequently, employing mass media as reminder of negative alcohol consequences by depicting negative outcomes of alcohol consumption and simultaneously stop trivializing alcohol consumption by depicting positive consequences could be an interesting perspective. Current content analyses have found that alcohol consumption is omnipresent in mass media today, however depictions of negative, as well as positive, consequences are rarely featured (Mayrhofer & Matthes, accepted). For instance, Van den Bulck et al. (2008) found only 3.7% of alcohol acts were followed by negative consequences (1.4% positive). Coyne and Ahmed (2009) found less than 2%. At the same time, Mayrhofer and Matthes (accepted) also only found 4.0% of all alcohol depictions to be connected to positive outcomes. Thus the majority of all depiction features regular alcohol consumption without depicting its consequences. Yet, drinking alcohol on a regular basis has, of course, negative outcomes on ones' health and day-to-day performance (WHO, 2014). Thus, guidelines for television producers to depict a more realistic image of the negative consequences of alcohol consumption more frequently should be implemented.

Furthermore, future research should attempt to include further factors suggested by social cognitive theory. For instance, observer attributes such as incentive preference or internal standards could also affect the learning process (Bandura, 2002). Therefore, this study can be seen as a first step in systematically using important pillars of this theoretical framework as research design, namely consequences and character valence, but the complexity of social cognitive theory in its complete form invites further research.

Moreover, this is the first study to address diversity issues and goes beyond recruiting a sole student sample. Extant research has focused on specific groups and was therefore unable to clarify, which individual characteristics affect the perception of consequence portrayals. This is the first study to address this topic using a sample characterized by a broad age range from 18 years to older than 70, as well as recruiting people from different socio-economic backgrounds. The diversity of the sample allows us to draw more general conclusions to the effect of alcohol portrayals on a broader public. Especially regarding age as alcohol consumption among teenagers, students, and adults differs significantly (e.g., Lundhahl et al., 1997; Mirand & Welte, 1996; Moore et al., 2005). Interestingly, we found a main effect of age on the awareness of positive and negative consequences, with older participants displaying stronger expectancies of cognitive impairment effects of alcohol and weaker expectancies of sociability. This result points toward the fact that to make statements on the effects of audiovisual mass media content on the public, experiments with student samples do not suffice. The stimulus in this

study displayed characters in their 20s. Following up on the effects of the broad public, it would be of interest to use stimuli that represent older characters. This might lead to interaction effects between age and the displayed mass media content and reveal opportunities to affect older adults and their drinking behavior.

Limitations

This study has several limitations that must be considered. First, to increase the external validity of the results, real mass media content of a popular TV show was used. We believe it is important to expose participants to the kind of portrayal of alcohol that is actually shown on television. However, the manipulated scenes might include confounding elements. Thus, future research must attempt to control for as many aspects as possible when designing stimulus material.

Moreover, within this study the participants were confronted with only one stimulus of one TV series. Although the chosen series, *Gossip Girl*, pertains to the highly popular genre of dramas, effects of alcohol consequence portrayals might differ, if embedded in other genres such as comedy or reality TV. Consequently, replication studies using sets of media content with different narrative structures could provide important insights. Also, this study highlights the fact that the perception of media content differs according to audience characteristics. Sampling in the field assured a highly diverse sample, which allowed us to make qualified statements on effects relevant throughout different groups and effects specific to certain groups. However, replication studies focusing on specific population groups could prove fruitful, especially if the stimulus material is matched to their viewing habits. For instance, exposing participants to alcohol consequence portrayals taken out of a show they regularly watch opens the possibility to assess for more in-depth character- and narrative-involvement effects.

Furthermore, the effects of the consequences conditions were strongly influenced by moderators. When mass media is used as an alcohol educator, the goal would be to affect as many viewers as possible. Therefore, it might be an interesting avenue for research to explore which consequences of alcohol affect viewers the most. Manipulations might have to be stronger and depict, for example, death due to alcohol, or weaker, as embarrassing behavior to increase the viewers' possibility to relate to it.

Last, we chose for this experiment a subset of possible factors influencing the effect of the portrayal of alcohol in the mass media on the viewer that seemed the most promising to us. Other possible factors regarding character valence are worth exploring, as well as additional personality traits that have been tested in survey studies, such as rebelliousness (Hanewinkel et al., 2012) and trait reactance (Russell et al., 2014).

Conclusion

To conclude, this study has made clear that the mass media can play an important role as an educator about the effects of alcohol. However, the effects strongly differ for different viewer groups. Therefore, efforts to influence viewers in the direction of a healthier lifestyle have to be fine-tuned to the target group. Especially the portrayal of negative consequences seems an important avenue to reach high-risk groups, such as heavy drinkers, and make the negative outcomes of drinking more salient.

Notes

1. In an additional analysis we also assessed the impact of the participant's current life situation on our four dependent variables. That means we took into account whether they were currently students, employed or retired. We did not observe any additional effects and the results reported stayed unchanged.

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Appendix

Gossip Girl:

The show was chosen based on several considerations. First, 121 episodes of the show were produced, each lasting 44 minutes. This meant a sufficient number of scenes to work with. Second, the show used to be extremely popular worldwide, with millions of viewers per episode; thus, we investigated material that was well-liked and popular, consequently, ensuring external validity. Third, the series had a strong leading character, who experienced various situations of alcohol consumption and consequences. Fourth, the show ended in 2012. As the stimulus movies combined different scenes, it was important that the show was not salient to the participants; therefore, a show that had ended was chosen.

Scene Description

Plot Scenes:

- Scene 1: Serena arrives back in town.
- Scene 5: Serena and Blair talk at a brunch.

Negative Valence:

- Scene 2: Blair and Serena meet at a bar and talk. Blair is upset because Serena left town suddenly and without notice.
- Scene 6: Serena gets arrested for theft.
- Scene 7: Blair confronts Serena after finding out she had sex with Blair's boyfriend.
- Scene 8: Serena and Dan have a fight at a bar.
- Scene 9: Serena and a guy have drinks at a bar.

Negative Consequence:

- Scene 3: Serena near-unconscious, vomits, cannot walk due to excessive drinking.
- Scene 4: Serena is drunk, loses her purse, did not get the cake she was supposed to buy for her family. Then, she stumbles into the traffic, while trying to get a cab.

Positive Valence:

- Scene 12: Blair and Serena meet at a bar and talk. Blair is happy Serena is back.
- Scene 13: Serena organizes an engagement party for Blair.
- Scene 14: Serena and Dan talk at a bar, Dan embarrasses Serena.
- Scene 15: Blair comforts Serena.

Positive Consequence:

- Scene 10: Serena is drunk at the Thanksgiving party, she is having fun with Nate and Blair.
- Scene 11: Serena and Georgina are out partying, they are drunk and have fun. They get a lot of compliments from men.

Movie Versions by Scene Number

	Positive Consequence	No Consequence	Negative Consequence
Positive Valence	Scene 1,12,11,5,10,13,14,15	Scene 1,12,5,13, 14,15	Scene 1,12,3,5,4, 13,14,15
Negative Valence	Scene 1,2,10,5,6,7,8,11,9	Scene 1,2,5,6,7,8,9	Scene 1,2,3,4,5,6,7,8,9