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Is it the Drinks or the Friends? An Experimental Study of Identity Shift as an Alcohol-Related Social Media Self-Effect

[Registered report]

Femke Geusens

Caleb T. Carr

Kathleen Beullens

Femke Geusens^{1,2}, PhD, Corresponding author (femke.geusens@kuleuven.be)

Caleb T. Carr³, PhD (ctcarr@ilstu.edu)

Kathleen Beullens¹, PhD (kathleen.beullens@kuleuven.be)

¹Leuven School for Mass Communication Research, KU Leuven, Belgium

Parkstraat 45 (bus 3603)

B-3000 Leuven

Tel: +32 16 37 92 38

Fax: +32 16 32 04 97

²Department of Women's and Children's Health, Uppsala University, Sweden

³School of Communication, Illinois State University, Normal, IL, USA

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Abstract

Prior research has repeatedly found a positive relationship between sharing alcohol references on social media and drinking behavior. This study adds to the literature by testing for alcohol-related self-effects of social media use. We explored attitudes and self-concept as potential underlying mechanisms, and tested whether it is the depicted alcohol that elicits an effect or depiction of the associated socialness of going out with friends. This preregistered study ($N = 178$) employed a fully-crossed 3 (drinking presentation: explicit v. implicit v. none) \times 2 (socialness: with others v. alone) experimental design. A two-way MANOVA using Pillai's trace tested for significant differences in attitudes, drinking and non-drinking identity, and drinking intentions across six self-presentation conditions. Neither an effect of alcohol self-presentation nor of socialness self-presentation on alcohol-related cognitions were identified. Findings raise important questions about the causality of the relationship between sharing alcohol posts on social media and drinking behavior.

Keywords: alcohol, identity shift, social media, self-effect, experiment

Supplemental—and blinded—material, including stimuli, dataset, analysis syntax, and supplemental analyses, can be found in this study's OSF repository:

https://osf.io/c27rn/?view_only=2912366bca77457688e58beaa02bfbda.

Is it the Drinks or the Friends? An Experimental Study of Identity Shift as an Alcohol-
Related Social Media Self-Effect

Introduction

Alcohol abuse is considered part of the college experience and a rite of passage for many students (Crawford & Novak, 2006). In Belgium, most college students (94%) drink alcohol; and although many students (63%) adhere to the official Belgian guideline of a maximum of ten standard glasses of alcohol per week, half of all college students are at increased risk of problematic alcohol consumption (VAD, 2016; Van Damme et al., 2018). In the past few years, sharing alcohol references on social media has been suggested to play a role in this behavior (Geusens & Beullens, 2021a; Moreno, D'Angelo, et al., 2016; Ridout, 2016; Westgate & Holliday, 2016). Alcohol references can be understood as photos, videos or texts that depict or refer to alcohol consumption (e.g., a photo in which someone is holding a beer; Beullens & Schepers, 2013; Hendriks, van den Putte, & Gebhardt, 2018).

Prior research has generally found a positive relationship between sharing alcohol references on social media and drinking behavior (D'Angelo et al., 2014; Geusens et al., 2020; Geusens & Beullens, 2017; Moreno et al., 2012, 2013; Ridout et al., 2012). This study adds to this line of literature in three ways. First, this is the first study to test the proposition of alcohol-related social media self-effects using an experimental design. As such, it will provide more clarity in whether sharing alcohol references can elicit an immediate causal effect on individuals' alcohol-related cognitions. Second, this study further explores underlying mechanisms that can explain why sharing alcohol references on social media can result in increased drinking. Specifically, this study tests whether sharing alcohol references can affect alcohol attitudes, drinking identity, non-drinking identity and drinking intentions. Finally, most alcohol references shared on social media depict alcohol in a social context (e.g., a group picture taken at a party; Hendriks, van den Putte, Gebhardt, et al., 2018). Consequently, this

study provides insight in what is really causing effects: depictions of drinking alcohol or depictions of having fun with friends whereby alcohol happens to be part of the setting. Taken together, this study advances our understanding of how alcohol-related social media self-effects operate.

Alcohol-Related Social Media Self-Effects

Content analyses have demonstrated young individuals share alcohol references on their social media profiles (Beullens & Schepers, 2013; Hendriks, van den Putte, & Gebhardt, 2018; Litt et al., 2018; Moreno, Arseniev-Koehler, et al., 2016; van Hoof et al., 2014). Some of the most important reasons for doing so include: showing they were present at a fun event, sharing the conviviality of the moment, and because they perceive the post is fun and positive (Hendriks et al., 2017). Research into depictions of risky drinking behavior has shown some of the most important underlying motives for sharing heavy drinking references are self-presentational: displaying oneself as a wild and fun person, positioning oneself as an experienced drinker who remains in control even when intoxicated, and demonstrating friendship group belonging (Hebden et al., 2015; Niland et al., 2014). Simultaneously, it has been argued that many alcohol references are shared on accident, because the post focuses on something else (e.g., having fun with friends) and alcohol just happens to be present in that setting (Hendriks et al., 2017).

Sharing such content can potentially affect individuals' drinking behavior. Theoretically, self-effect theories posit that individuals can internalize their self-presentations, thus influencing their beliefs, attitudes, self-concepts, and ultimately their behaviors (Valkenburg, 2017). Several cross-sectional and longitudinal studies have already linked alcohol-related self-sharing behavior to higher alcohol consumption (e.g., D'Angelo et al., 2014; Geusens et al., 2020; Geusens & Beullens, 2017; Litt et al., 2018; Moreno et al., 2012, 2013; Ridout et al., 2012). For instance, Moreno et al. (2013) found that students who had shared references about a campus block party on Facebook before, during, or after said party, consumed larger amounts

of alcohol at the party than non-displayers. D'Angelo et al. (2014) found that individuals who had shared alcohol references on Facebook in the last months of their senior year of high school engaged more often in binge drinking during their first year of college. And Geusens and Beullens (2017) found a reciprocal relationship between sharing alcohol references on social media and binge drinking behavior: the more frequently individuals shared alcohol references on social media, the more often they engaged in binge drinking one year later, and vice versa.

Despite these findings suggesting a positive relationship between sharing alcohol references on social media and drinking behavior, Geusens and Beullens (2021b) found that within-person level relationships between sharing alcohol references and alcohol consumption existed cross-sectionally, but did not endure over time. Using a three-wave panel study with one-year time-lags, the researchers questioned whether their findings meant that a media effect was taking place in a smaller timeframe that was not captured by their one-year time-lag, or whether there was no media effect present and what we observe in most studies reflects the existence of subgroups of youngsters who enjoy drinking heavily and communicating about this online. The current research aims to address this question by experimentally testing whether communicating about alcohol online can elicit what has been called an alcohol-related social media self-effect.

To fully understand these alcohol-related social media self-effects, it is not only important to establish that there is a direct relationship between sharing alcohol references on social media and offline alcohol consumption, but also to understand how this relationship works. One of the most relevant theories to explain self-effects of self-presentation on social media is identity shift theory (IST; Carr et al., 2021). IST posits that deliberate online self-presentations, especially those done in a public setting, result in a transformation of the self-concept consistent with the presented self. Several experiments have supported IST with regard to other outcomes, especially self-perceived personality traits (Carr, 2021; Carr et al., 2021; Carr & Foreman,

2016; Choi et al., 2020). In these studies, participants deliberately portrayed themselves either as shy, introverted persons or as outgoing, extraverted persons. Follow-up measurements found individuals asked to portray themselves as introverted later rated themselves as being less sociable, whereas individuals asked to portray themselves as extraverted later rated themselves as more sociable, supporting the change in self-concept predicted by identity shift. The self-transformation stemming from selective self-presentation has also been found to result in behavioral outcomes, including affecting presenters' purchase intentions (Carr & Hayes, 2019) and art preferences (Johnson & Van Der Heide, 2015). Ultimately, IST predicts the act of considering and committing to an identity in a mediated space that the individual can see and edit—and thereby reflect on and see facets of themselves made manifest—forces presenters to allocate cognitive processes to focus on the presented self, and subsequently adjust their self-concept to align with the facets of their selves put forth.

While IST has yet to be tested in relation to health-risk behaviors, extending IST to apply to alcohol-related social media effects would mean that when individuals deliberately portray themselves as drinkers on social media, this selective self-presentation affects their alcohol-related self-concept, which in turn is expected to result in greater intentions to consume alcohol in the future. Alcohol-related self-concept can be understood as a combination of the extent to which an individual believes consuming alcohol to be part of who they are, and the ability to imagine oneself as a non-drinker, and to be comfortable with this idea (Lindgren et al., 2013, 2017). Thus, in other words, we can expect that when individuals present themselves as drinkers online by sharing self-claims which focus on drinking alcohol, this can (H1a) reinforce their alcohol-related self-concept, (H1b) resulting in stronger intentions to drink more alcohol in the future (Hypothesis 1, see Figure 1). Moreover, this effect should be moderated by the explicitness of their depiction of drinking, so that self-presentations explicitly acknowledging

drinking should result in stronger effects than implicit acknowledgements of drinking (Hypothesis 2). This is the first pathway of self-effects that will be tested.

[FIGURE 1 ABOUT HERE]

However, theories of self-concept change are not the only relevant theories when trying to understand how alcohol-related self-effects operate. Following Valkenburg's (2017) categorization of self-effects theories, a second explanation can be found in attitudinal self-effect theories. These theories do not focus on how behaving a certain way may affect beliefs and attitudes towards the self (e.g., perceiving oneself to be a drinker), but towards the issue that is communicated about (e.g., attitudes towards drinking alcohol; Valkenburg, 2017). According to self-perception theory (Bem, 1972), individuals can use their own behavior as a source of evidence for their beliefs and attitudes, if their behavior is engaged in without outside pressure. In other words, when individuals observe themselves doing certain things (such as sharing content on social media), they can use this behavior to form or reinforce their beliefs and attitudes. When looking specifically at the act of sharing alcohol references on social media, individuals predominantly do so because it is linked to having fun (Hebden et al., 2015; Hendriks et al., 2017; Niland et al., 2014). As a result, following self-perception theory (Bem, 1972), it is not unconceivable to suppose that individuals' acts of sharing alcohol-references (H3a) reinforces their positive attitude towards drinking alcohol and (H3b) this results in stronger intentions to drink heavily in the future (Hypothesis 3). A few studies have already looked at attitudes as a potential underlying mechanism of the relationship between sharing alcohol references on social media and drinking behavior, and found that the more often individuals shared alcohol references, the more positive attitudes they held towards drinking alcohol, and the more alcohol they consumed (Geusens et al., 2020; Geusens & Beullens, 2019). However, these studies relied predominantly on cross-sectional data.

Is it the Alcohol or the Partying?

An important consideration when studying alcohol-related social media self-effects is whether it is the depicted alcohol that elicits an effect, or the link these pictures have with going out with friends. Few students drink alone, as alcohol is almost always consumed with friends at a bar or party (Van Damme et al., 2018). It has been argued that consuming alcohol and going out are intrinsically linked, as for many students alcohol is primarily consumed to improve social gatherings and have more fun (Van Damme et al., 2018). Consequently, most alcohol references on social media are shared to commemorate a fun night out with friends (Hebden et al., 2015; Hendriks et al., 2017; Niland et al., 2014). For instance, Beullens and Schepers (2013) found that of all pictures shared on Facebook depicting alcohol, the vast majority were taken during the evening or night and depicted people together with others. Likewise, Hendriks et al. (2018) found the majority of alcohol posts on Facebook and Instagram displayed a social context with both the profile owner and others shown.

Furthermore, studies using self-report scales that include both items related to sharing alcohol references and items related to sharing going out references, often find no real differences in the relationship between sharing drinking-related content and drinking behavior when including or excluding the going out items (e.g., Geusens & Beullens, 2019). This raises the question what is having the effect: the alcohol posts, or the way these alcohol posts are linked with going out and having fun with friends, from which two competing hypotheses are derived (Hypothesis 4). If it really is an effect of depicting alcohol, then we should find a stronger effect on alcohol-related cognitions (i.e., attitudes, [non]drinking identity, drinking intentions) when sharing alcohol posts than when sharing going out posts whereby it is only implied that alcohol was consumed (H4a). On the other hand, if it is predominantly an effect of remembering the fun that was had with friends while going out, then we should find a

stronger effect for photos in which friends are depicted, regardless of whether alcohol is explicitly shown or implicitly present because of the setting (H4b).

Method

Sample

This study was conducted in Belgium, a country known for its tolerant alcohol policy (World Health Organization, 2018). The legal age to buy and drink alcohol is 16; and 93.9% of all college students consume alcohol (Van Damme et al., 2018). Beer is especially popular in Belgium: During the academic year, more than half the college population (52.3%) consume beer at least once per week and students consume approximately 9 glasses of beer ($M = 8.6$) per week (Van Damme et al., 2018). Despite the fact that both overall alcohol consumption and prevalence of heavy episodic drinking are relatively high in Belgium compared to other countries (World Health Organization, 2018), prior cross-sectional research found the associations between alcohol-related social media use and drinking behavior to be similar when comparing undergraduate college students (age 18-20) who would be underage in the United States, but of legal drinking age in Belgium (Geusens et al., 2020).

A convenience sample of participants was recruited with the help of a master's student, who spread the call to participate via their personal network, student Facebook groups, and handing out flyers on campus. Individuals could be included if they were a college or university student between 18 and 25 years old (the typical age of students and coincident with emerging adulthood; Arnett, 2013), consumed alcohol at least occasionally, and used Facebook or Instagram. Potential participants were asked to participate in a study on online self-presentation by completing an online experiment at home. All participants who completed the study were compensated with a €10 voucher for a popular online store.

Power analysis (G*Power; *a priori* power analysis; *F*-test: MANOVA: Global effects) indicated a minimal sample size of $N = 162$ ($n = 27$ participants per condition) was required

(taking into account an effect size of $f^2(V) = .05$, α err prob = .05, Power ($1-\beta$ err prob) = 0.95, comparing 6 conditions on 4 response variables). Five-hundred individuals opened the survey; but only 200 uploaded a picture and filled out the questionnaire. If individuals were unable to meet the requirements for the condition they were randomly assigned to (e.g., because they were unwilling to share a picture or don't have the required picture) or failed to pass the attention check, they were not included in the final sample. Of the 200 individuals who completed the study, 1 had to be removed because they were too old (age = 28), 6 because they failed the attention check, and 15 because they didn't consume alcohol. The final sample consisted of 178 participants ($M_{\text{age}} = 21.42$, $SD = 1.73$), most of them women (80%).

Procedures

Participants consented to participate in a study about self-presentation on social media; and were then told to develop a profile and initial post in a new social media system by uploading a photograph of themselves (consistent with their randomly-assigned condition, see below) and indicating their name and hometown¹. The survey engine piped this identifying information into subsequent screens of the study. Such explicit self-identifications are critical to activate private self-awareness, which drives identity shift (Carr et al., 2021).

After uploading their information, participants were asked to take a moment to reflect on this picture and write a short text description to accompany the photograph, consistent with their randomly-assigned condition's presentational goals (next section), as if they were posting their photograph and text to a social medium. Text descriptions were driven by the same four prompts, and concluded with their name and hometown. Self-presentational prompts were:

- (1) Describe what is going on in the picture you've uploaded.
- (2) What circumstances led to the events in the picture you uploaded?
- (3) What was the most memorable part of the event you've pictured?

¹ Identifying information was removed from the dataset prior to analyses.

(4) What might you like to do for fun the next evening you have free?

Manipulating Self-Presentation. Participants were randomly assigned to one of six conditions and asked to self-present—both via text and uploaded picture—consistent with their assigned condition. This research employed a 3 (drinking presentation: explicit v. implicit v. none) \times 2 (socialness: with others v. alone) fully-crossed experimental design to test hypotheses, and participants were asked to deliberately self-present accordingly. Appendix A provides complete instructions and prompts.

Drinking Self-Presentation. To manipulate the focus of alcohol, participants were asked to focus their pictorial and textual self-presentation on alcohol consumption either explicitly, implicitly, or not at all. In the *explicit alcohol* conditions, prior to uploading photographs, participants were directed to select a picture in which alcohol was a focal point of the occurrence, and which prominently features alcohol in the foreground or as the focus of the image (e.g., a picture where someone toasts to the camera). Additionally, in responding to the four question prompts, individuals were directed to “address the role of drinking alcohol in that experience.” In the *implicit alcohol* conditions, participants were directed to select a picture taken in a context in which alcohol was present (e.g., a picture taken at a bar, a party or a festival), but not the focus of the post: either to the side or as part of the ambiance (e.g., at the bar with beers on the table, but the focus of the photo on the individuals around the table). Additionally, in responding to the four question prompts, individuals were directed that they may “acknowledge the presence of drinking alcohol; but do not detail how it affected that experience.” Finally, in the *no alcohol* conditions, participants were directed to select a picture of themselves that does not contain food or drink.

Socialness Self-Presentation. To manipulate the presence and role of being social, participants were directed to focus their pictorial and textual self-presentation on socialness or do not. In the *social* condition, participants were directed to upload a photo that includes friends

or others, and focus their responses on how the presence and roll of the others enhanced the situation. In the *nonsocial* condition, participants were directed to upload a photo in which they are the only individual pictured, and focus their responses on their individualized experiences of the situation.

Measures

Outcome Variables. The critical dependent variable of this study is participants' *alcohol self-concept*, or how much of their personal identity is driven by drinking and non-drinking. This concept was assessed using the alcohol self-concept scale (Lindgren et al., 2013; adapted from Shadel & Mermelstein, 1996). Five items measured participants' *drinking identity* (e.g., "Drinking is part of 'who I am'") and four items measured participants' *non-drinking identity* (e.g., "I am able to see myself as a non-drinker"). Factor analysis (principal components, eigenvalue factor 1 = 4.38, explained variance factor 1 = 48.72, eigenvalue factor 2 = 1.61, explained variance factor 2 = 17.92) confirmed items loaded onto two factors with good internal reliability: drinking identity (Cronbach's $\alpha = .87$) and non-drinking identity ($\alpha = .82$).

Two additional measures operationalized related facets of individual's relation to and with alcohol. First, participants' *alcohol attitudes* were measured using Crites et al.'s (1994) attitude semantic differential scale. Participants were asked how they feel about drinking alcohol by indicating on a seven-point semantic differential scale using four adjective pairs (negative/positive, dislike/like, bad/good, undesirable/desirable). Higher scores indicate more favorable attitudes toward alcohol. Factor analysis indicated all four items loaded onto one factor (principal components, eigenvalue = 2.03, explained variance = 50.63) with acceptable internal reliability ($\alpha = .66$).

Second, participants' *drinking intentions* were measured following Fishbein and Ajzen's (2010) theory of planned behavior questionnaires guidelines. Participants were asked whether they plan (a) to drink alcohol in the coming week, (b) to drink more than 10 glasses of alcohol

in the coming week, (c) to engage in binge drinking² in the coming week, and (d) to get drunk in the coming week. Higher values indicated greater intention to engage in risky drinking behavior. Factor analysis showed all items loaded onto one factor (principal components, eigenvalue = 3.14, explained variance = 78.59) with excellent internal validity ($\alpha = .91$).

Control variables. To test whether participants were randomly assigned to the different conditions, we measured biological sex, age, frequency of alcohol consumption, number of standard drinks consumed on a typical drinking day, how easy and frustrating it was to (a) find the required picture and (b) write the caption, frequency of sharing pictures in which alcoholic beverages are visible on public social media such as Facebook or Instagram, frequency of sharing pictures in which alcoholic beverages are visible on private social media such as Messenger or Snapchat, frequency of exposure to pictures in which alcoholic beverages are visible on public social media such as Facebook or Instagram, frequency of exposure to pictures in which alcoholic beverages are visible on private social media such as Messenger or Snapchat, whether or not they are fully vaccinated, the impact of COVID-19 lockdown measures on drinking behavior, current ability to go out for drinks, extraversion and socialness. More details on how these control variables were measured and the randomization check can be found in Appendix B.

Results

Descriptive Analyses

On average, participants scored below mid-point (4) on the drinking identity and non-drinking identity scales, indicating they did not identify as being a drinker ($M = 2.40$, $SD = 1.26$, $t[177] = -16.92$, $p < .001$) nor as being a non-drinker ($M = 3.57$, $SD = .82$, $t[177] = -6.93$, $p < .001$). They held relatively positive attitudes towards alcohol ($M = 4.93$, $SD = .97$, $t[174] =$

² Binge drinking is defined as consuming at least four glasses of alcohol (for women) or five glasses of alcohol (for men) in a two-hour time span (NIAAA, 2004).

12.73, $p < .001$, compared to scale mid-point [4]) and were undecided about their engagement in risky drinking behavior in the coming week ($M = 3.51$, $SD = 1.76$, $t[177] = -3.74$, $p < .001$, compared to scale mid-point [4]). On average, participants consumed alcohol 2 to 4 times per month ($M = 2.07$, $SD = .74$), and consumed 3 or 4 glasses of alcohol on an average drinking day ($M = 2.15$, $SD = 1.13$; answer option ‘2’ of this ordinal scale equals ‘3 or 4 glasses’; Babor et al., 2001). They indicated seldomly sharing alcohol posts on public social media ($M = 1.30$, $SD = .81$) or private social media ($M = 1.76$, $SD = .99$); and sometimes being exposed to these posts on public ($M = 2.75$, $SD = .81$) and private social media ($M = 2.70$, $SD = .96$). Most individuals indicated COVID had impacted their drinking behavior ($M = -.94$, $SD = 1.06$), resulting in less alcohol consumption (66.9% indicated consuming less alcohol, whereas 9% indicated consuming more alcohol). Almost all participants (98.9%) indicated they had been able to go out for drinks since the start of the academic year. Participants found it relatively easy to complete the experimental tasks ($M_{ease\ photo} = 3.58$, $SD = 1.22$, $M_{ease\ text} = 3.37$, $SD = 1.09$, $M_{frustration\ photo} = 1.97$, $SD = .91$, $M_{frustration\ text} = 2.08$, $SD = .97$.)

Randomization Check

Participants were nondifferently distributed across conditions, $\chi^2(5) = .92$, $p = .97$ (n_{range} : 27-33). A two-way MANOVA using Pillai’s trace indicated no significant differences in the control variables depending on the condition participants were in ($V_{alcohol\ manipulation} = .22$, $F[36,312] = 1.09$, $p = .34$, $\eta_p^2 = .11$; $V_{social\ manipulation} = .07$, $F[18,155] = .60$, $p = .90$, $\eta_p^2 = .07$; $V_{alcohol \times social\ manipulation} = .20$, $F[36,312] = .98$, $p = .52$, $\eta_p^2 = .10$). Taken together, the random assignment was successful, and differences can be attributed to experimental conditions rather than within-participant effects. However, a second two-way (2×3) multivariate analysis of variance (MANOVA) with Pillai’s trace indicated the level of ease and frustration depended on the condition individuals were assigned to ($V_{alcohol\ manipulation} = .09$, $F[8,340] = 1.93$, $p = .05$, $\eta_p^2 = .04$; $V_{social\ manipulation} = .01$, $F[4,169] = .54$, $p = .70$, $\eta_p^2 = .01$; $V_{alcohol \times social\ manipulation} = .13$,

$F[8,340] = 3.02, p < .01, \eta_p^2 = .07$). For the results of the post-hoc tests and more details on the differences between the conditions, please see Appendix B.

Hypothesis Testing

Hypotheses were tested using a preregistered two-way MANOVA, run with socialness (social v. nonsocial) and alcohol (explicit v. implicit v. no drinking control) self-presentation condition as independent variables; and drinking identity, non-drinking-identity, alcohol attitudes, and drinking intentions as dependent variables³. Pillai's trace indicated no significant effect of the alcohol manipulation ($V = .02, F[8,334] = .41, p = .92, \eta_p^2 = .01$), social manipulation ($V = .03, F[4,166] = 1.10, p = .36, \eta_p^2 = .03$) or alcohol \times social interaction ($V = .04, F[8,334] = .83, p = .57, \eta_p^2 = .02$). Counter to our hypotheses, we found no main or interaction effects of alcohol or socialness self-presentations on alcohol-related cognitions (see Figure 2).

[FIGURE 2 ABOUT HERE]

Discussion

This study adds to the literature on alcohol-related social media self-effects by experimentally testing whether alcohol-related self-presentations can change alcohol-related cognitions, paying special attention to the potential conflation of presenting alcohol consumption and presenting a social setting. Contrary to expectations, we found no self-presentation effects on alcohol-related cognitions. This is in contrast to a range of prior research, which repeatedly found a positive relationship between sharing alcohol references on social media and drinking behavior and cognitions (e.g., Erevik, Torsheim, Andreassen, et al.,

³ An additional two-way MANCOVA was run with sex, age, frequency of alcohol consumption, number of standard drinks consumed on a typical drinking day, ease and frustration of finding the required picture and writing the caption, frequency of sharing and exposure to alcohol posts on public and private social media, vaccination status, impact of COVID-19 lockdown measures on drinking behavior, current ability to go out for drinks, extraversion and socialness as covariates. This additional test also did not find significant effects of the alcohol manipulation ($V = .02, F[8,296] = .44, p = .90, \eta_p^2 = .01$), social manipulation ($V = .03, F[4,147] = 1.28, p = .28, \eta_p^2 = .03$) or alcohol \times social manipulation ($V = .05, F[8,296] = .99, p = .45, \eta_p^2 = .03$).

2017; Erevik, Torsheim, Vedaa, et al., 2017; Geusens & Beullens, 2017, 2021a; Litt et al., 2018). Our unexpected finding has several implications for the research on alcohol-related social media self-effects.

Our findings raise important questions about the causality of the relationship between sharing alcohol posts on social media and drinking behavior. Many of the studies in this field rely on cross-sectional data (e.g., Erevik, Torsheim, Vedaa, et al., 2017; Geusens et al., 2020; Rodriguez et al., 2016; Thompson & Romo, 2016). As a result, it is possible we are misinterpreting the causal mechanism of the association: Rather than alcohol-related self-presentations predicting heavier drinking behavior, individuals may communicate more often about alcohol simply because they are consuming more alcohol (Geusens et al., 2022; Geusens & Beullens, 2021b). Nevertheless, longitudinal studies have also reported positive relationships between sharing alcohol-related content on social media and later drinking behavior (e.g., D'Angelo & Moreno, 2019; Geber et al., 2021; Geusens & Beullens, 2017, 2019; Moreno et al., 2013). One possibility is that although a singular alcohol-related self-presentation does not cause changes in alcohol-related cognitions, effects may be cumulative. Cumulative media effects are predominantly studied within exposure research, and proffer that repeated short-term exposure to similar media contents over a longer period of time likely result in stronger effects (Koch & Arendt, 2017). Repeated alcohol-related self-presentations online may be necessary to trigger the hypothesized self-effect.

Our findings also suggest that alcohol-related cognitions, including self-concept and attitudes, may be more core personal traits, and thus more resistant to change. Identity shift theory argues that predominantly 'fluid' characteristics that are not very value-laden are more easily changed by how we self-present, such as opinions about brands, art, or one's level of extraversion (Carr et al., 2021). Considering we found no effects of alcohol-related self-presentation on alcohol-related self-concept and attitudes, alcohol-related cognitions may be

more central and value-laden identity markers. This would also be in line with earlier findings that, for many students, alcohol consumption is a central part of college life (Martin & Zamboanga, 2018; Tan, 2012). It is possible students have already developed strong opinions about the role of alcohol in their college experience, which may make their alcohol-related cognitions harder to influence.

An important consideration when discussing our results, is that our design did not mimic a natural social media setting and it would also seem our manipulation may have triggered some reactance. Although we found no significant differences, the more explicit the alcohol self-presentation, the more negative the alcohol-related cognitions, especially for individuals in the conditions where they were asked to focus on their own experiences and not on their friends. It is possible these conditions were especially confrontational to our participants. Many alcohol-related self-presentations on social media have been argued to be unintentional, posted without much thought (Geusens & Beullens, 2021c; Hendriks et al., 2017). In contrast, we asked participants to deliberately search for an alcohol post and contemplate and discuss this post. By making participants focus on alcohol, we may have triggered a defensive-protective mechanism. Regardless of their actual alcohol consumption, it is likely individuals do not perceive themselves to be heavy drinkers or as someone whose alcohol use is potentially problematic, as reflected in the low drinker-identity scores. Furthermore, alcohol consumption is generally a social behavior, and solo drinking is often seen as a sign of problematic use (Demant & Järvinen, 2011; Lyons et al., 2014). By making participants look for and describe a picture in alcohol is explicitly or implicitly depicted but the social context has been omitted, participants may have unconsciously felt the need to reassert that is not a faithful self-depiction.

Moreover, participants in the alcohol conditions found it harder and more frustrating to complete the exercise, suggesting potential avenues for future research. One way to overcome this difficulty could be to start from a more ‘natural’ setting in which the focus on alcohol is

less obvious, such as by researchers identifying and using a previously-shared picture aligning with the experimental condition, rather than having participants look for this picture themselves. Asking participants to write a self-presentational prompt to an extant social media post could increase the external validity of the manipulation, which in turn could reduce participants' reactance and result in 'cleaner' effects.

Limitations

One limitation of this research is our decision to sacrifice some external validity for internal validity and methodological control. The self-presentational writing prompts are atypical of how many individuals would post on social media, but are consistent with prior identity shift research which used the prompts to elicit sufficient self-reflection and -presentation to activate identity shift (e.g., Carr & Foreman, 2016; Walther et al., 2011). The use of these same prompts in the present study thus standardizes the procedure of self-presentation with prior identity shift research, allowing for future meta-analyses and direct comparisons among findings; but at the expense of external validity regarding typical social media posting behaviors. Although some individuals consciously share alcohol posts to create a desirable image of themselves or fit in with their peers (Hebden et al., 2015; Niland et al., 2014), and individuals consciously consider which social media platforms are most appropriate to share different types of alcohol-related content on (Vanherle et al., 2022), many studies indicate most alcohol posts are shared without much conscious awareness of the fact that alcohol is present in the post (Geusens & Beullens, 2021c; Hendriks et al., 2017). In contrast, our design focused on this conscious awareness of alcohol by having the participants answer prompts related to their alcohol use, even when we told them not to focus on the alcohol. As such, while our study is insightful to understand identity processes, the results may be less generalizable to understand how alcohol-related social media self-effects work in a natural environment, where individuals do not consciously consider the alcohol they share online.

A second concern and methodological artifact is that recruitment proved challenging. Students were not readily willing to share a picture, resulting in high attrition rates. During data collection, the first author noted that implicit/alone and explicit alcohol conditions seemed to have especially high attrition rates and took longer to recruit for; and data revealed participants in these conditions were more frustrated and found the assignment harder. Though the randomization check indicated participants in these conditions did not differ from other participants with regard to their socio-demographic and personality variables, survey engine constraints prevented accurate assessment of how many participants dropped out in each condition prior to uploading a picture, which may suggest that self-presentational or social desirability effects affected results.

Finally, participants reported relatively low alcohol consumption compared to national averages (Van Damme et al., 2022), which may partially be due to the lockdown measures which have a lasting impact on students' consumption patterns. The average Belgian college student consumes 9.2 standard units of alcohol per week, a bimodal distribution affected by a group of heavy drinking students. Our sample predominantly reflected the 75% of Belgian college students who report to consume an average of 2.9 standard units per week, missing the 25% heavy drinkers who consume an average of 22.2 standard units of alcohol per week (Van Damme et al., 2022). Considering alcohol-related social media effects have been argued to reflect a group of heavy drinking individuals who also enjoy sharing posts about their alcohol consumption on social media (Geusens et al., 2022; Geusens & Beullens, 2021b), the present results may not be generalizable to heavier- drinking students.

Relatedly, our relatively low alcohol consumption patterns might also be explained by the study's overrepresentation of women. Women typically consume less alcohol than men, and are less likely to engage in risky drinking behaviors, such as pre-gaming or binge drinking (Van Damme et al., 2022). Online depictions of alcohol—especially of drunkenness—are also

gendered, as women are often judged more harshly than men for sharing drinking photos on social media (Geusens & Vranken, 2021; Hendriks et al., 2017; Hutton et al., 2016). Although the women in our sample did not report to find it harder or more frustrating to complete the tasks, the overrepresentation of women may have affected results and generalizability, and findings should be replicated with a more representative sample, including more men.

Conclusion

Prior research has generally found a positive relationship between sharing alcohol references on social media and drinking behavior (D'Angelo et al., 2014; Geusens et al., 2020; Geusens & Beullens, 2017; Moreno et al., 2012, 2013; Ridout et al., 2012). This study experimentally tested whether alcohol-related self-presentations immediately affect alcohol-related cognitions. Contrary to expectations, we found no effects of alcohol-related self-presentations on alcohol-related self-concept, attitudes, or drinking intentions. Alcohol-related cognitions may be part of a college student's core set of self-views, robust against self-effects.

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Figure 1

Hypothesized Model

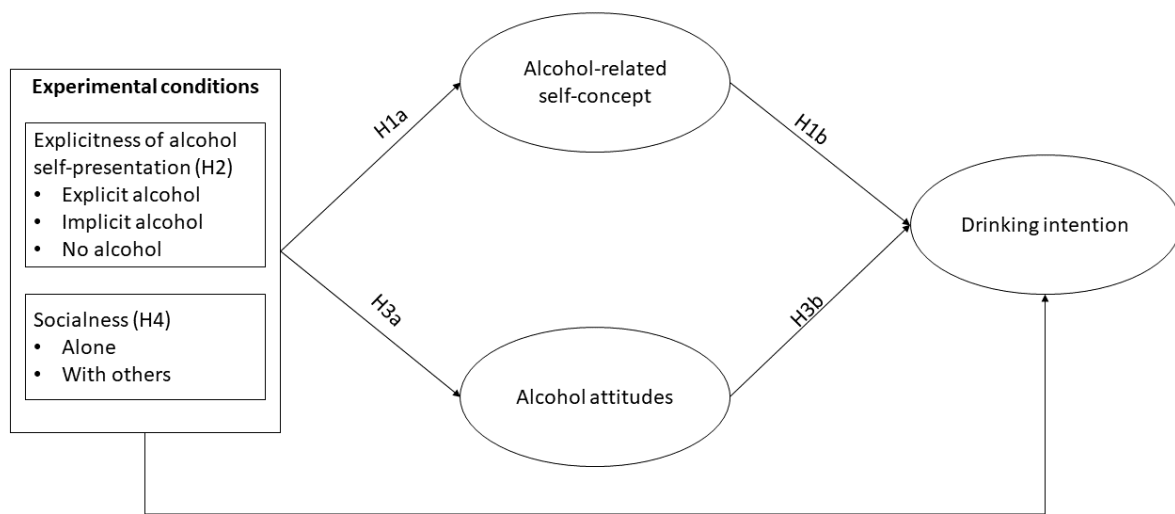


Figure 2

Visual Representation of the Non-Significance of the Effects of our Conditions on Alcohol-Related Cognitions

