Proscriptive vs. Prescriptive health recommendations to drink alcohol within recommended limits: Effects on moral norms, reactance, attitudes, intentions, and behaviour change.

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Abstract

Aims

Health advice can be framed in terms of *prescriptive* rules (what people *should* do, e.g., you *should* drink alcohol within recommended limits) or *proscriptive* rules (what people *should not* do, e.g., you *should not* drink alcohol above recommended limits). The current research examines the differing effect that these two types of injunction have on participants' moral norms, reactance, attitudes, and intentions to consume alcohol within moderation, and their subsequent alcohol consumption.

Methods

Participants ($N = 529$) completed an online questionnaire which asked them to report their previous 7 days' alcohol consumption. They then read either a *proscriptive* or a *prescriptive* health message and completed measures of moral norms, reactance, attitudes, and intentions to drink alcohol only within recommended limits. Subsequent alcohol consumption was reported seven days later.

Results

The results showed that across all participants, the proscriptive message elicited stronger moral norms than did the prescriptive message, which in turn were associated with more positive attitudes and intentions to drink within recommended limits. For male participants who reported drinking more alcohol than recommended at baseline, the proscriptive message elicited more reported alcohol consumption over the subsequent 7 days.

Conclusions

Proscriptive messages may be effective at eliciting stronger moral norms to drink within government recommended guidelines. However, reactance may occur for high relevance groups. Practical and theoretical implications are discussed.

Health recommendations tend to suggest either an active engagement in a health promoting activity (e.g., people should engage in regular exercise; people should eat five or more fruit and vegetables a day) or the avoidance of health detrimental activity (e.g., people shouldn't smoke; people should not eat an excessive amount of high calorie snacks). Health advice can therefore be framed in terms of what people *should* do (e.g., you *should* drink alcohol within recommended limits) or what people *should not* do (e.g., you *should not* drink alcohol above recommended limits). By presenting the recommendation using the opposing terms of *should* and *should not*, the advice may elicit different motivational and behavioural outcomes.

The distinction between *should* and *should not* is related to two forms of morality that have been identified in the literature: *proscriptive* morality (what we *should not* do) vs. *prescriptive* morality (what we *should* do) (e.g., Janoff-Bulman et al., 2009). The different motivational and behavioural responses associated with these two moral codes have been discussed within theories of motivation such as the dual regulatory systems of approach and avoidance (see Carver & Scheier, 2008, for a review), and of promotion and prevention (Higgins, 1998). Both these systems posit differences in behavioural activation pertaining to the motivational states elicited and subsequent end goals. Promotion goals and approach motivation focus on advancement, activation, enhancement, and positive end states, and may be associated with *prescriptive* moral rules, or what we are told we *should* do. Prevention goals and avoidance motivation focus on protection, inhibition, and negative end states (Janoff-Bulman et al., 2009), and these may be more inherently present in *proscriptive* moral codes, or things we are told we *should not* do. Janoff-Bulman et al. (2009) presented seven studies that supported these assertions, and found that a greater number of proscriptive moral rules were created following avoidance primes than following approach primes, and that more linguistically abstract rules were created following a *should* vs. *should not* stem. Prescriptive rules were considered a matter of personal preference more so than were

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proscriptive rules, with greater behavioural freedom attached to them, despite equal importance being placed on each. Proscriptive rules were viewed as more mandatory, and transgressors of proscriptive rules were viewed more negatively than were transgressors of prescriptive rules (Janoff-Bulman et al., 2009).

Research on message framing has also found that proscriptive vs. prescriptive messages elicit differing persuasive effects when coupled with a mood manipulation, and with a gain or loss framed message (Yan, Dillard, & Shen., 2010, Study 2). In this study, participants exposed to a message advocating a prescriptive behaviour were more persuaded when this message was presented in a gain frame vs. a loss frame, and when they were induced into a happy mood rather than into a sad mood. A message advocating a prescriptive behaviour was more persuasive when coupled with a loss frame than with a gain frame, and when participants were induced into a sad mood than into a happy mood. Further research (Bergquist & Nilsson, 2016) has demonstrated that there is similarity between loss frame (vs. gain frame) messages and proscriptive (vs. prescriptive) messages about energy conservation in that they attract both greater attention (due to the general bias to attend to negative stimuli to a greater extent than positive stimuli) and greater psychological reactance (due to being perceived as more demanding and freedom threatening).

Surprisingly, there is little research that has examined the effectiveness of framing health messages in terms of proscriptive or prescriptive injunctions. However, it may be reasonable to expect, following Janoff -Bulman et al. (2009) that a more rigid, proscriptive code may exert greater influence on our moral judgements, and on the extent to which we believe that the behaviour is morally correct and tied to our ethical principles. Social cognitive models of behaviour such as the theory of planned behaviour (TPB, Ajzen, 1991) have been successfully modified to include a moral dimension, with research showing that moral norms increase the predictive ability of the TPB for a wide range of behaviours

including condom use (Godin et al., 1996), food choice (Dean et al., 2008), and dietary behaviours (Sparks et al., 1995) (for a meta-analysis see Rivis et al., 2009). If proscriptive (vs. prescriptive) recommendations increase the extent to which we integrate the advice into our perceived moral norms, it is possible that proscriptive health messages would also be more effective in eliciting changes in intention and subsequent behaviour, than would prescriptive messages.

However a harsher, proscriptive rule may also elicit a defensive response, or reactance, among participants for whom the information is most directly relevant. Reactance Theory (Brehm, 1966) suggests that when people feel that their personal freedom is threatened, they retaliate with defiance, and with motivation or behaviour opposite to that advised or requested. This reactant behaviour is directed in a way that attempts to restore the threatened freedom, leading to an increase in the behaviour targeted by the reactance-producing information or recommendations (Dillard & Shen, 2005; Erceg-Hurn & Steed, 2011; Miller et al., 2007). If someone engages frequently in a cautioned behaviour with full awareness of the consequences, and feels that they should be at liberty to do so, a harsher, proscriptive rule may elicit reactance due to the person feeling a greater sense of illegitimate interference with their autonomy. Greater reactance may occur when the person perceives the threatened freedom to be associated with what they believe to be a discretionary behaviour than with a behaviour that they concede to be obligatory (cf. Folger, 2012).

It has been found that resistance to health messages may be more likely to occur when a person feels irritated or alienated by the message (Rofes, 2002), and when messages are interpreted as representing a moral good (Crossley, 2001; Norton, 1998). This may impede the success of health messages, and in some cases may lead to an increase in the unhealthy behaviour targeted in the health message. Feelings of victim-blaming and associated reactance have been suggested to be more likely to occur where the health professional deems

that the responsibility to change the health behaviour lies solely with the individual, rather than acknowledges the considerable social, environmental, or structural barriers that may prevent behaviour change from occurring (Whitehead & Russell, 2004). A multidimensional model of reactance suggests that reactance consists of both affective responses (e.g., anger) and cognitive responses (e.g., counter- arguments), which both elicit effects on motivation and behaviour (see Rains, 2013, for a meta-analytic review).

It may also be likely that people feel more threatened when proscriptive rules are highlighted than when prescriptive rules are highlighted, due to the perception of a more concrete and mandatory injunction The use of a proscriptive frame may also elicit anticipatory feelings of failure and blame if the behaviour is not adhered to, and people may feel that greater moral sanctioning will occur if they do not follow recommendations. Following this reasoning, an alternative hypothesis would therefore suggest that proscriptive recommendations would elicit less intention and behaviour change compared to prescriptive recommendations, due to increases in cognitive or emotional reactance. This may be more likely to occur for people who engage more frequently in the behaviour, for those who believe that the behaviour is discretionary, or for those who have not integrated the advice or recommendations within their own belief system.

The current research examines these issues within the context of alcohol consumption. Excessive alcohol consumption is a causal risk factor in more than 200 serious disease and injury conditions (WHO, 2015). Worldwide, over 3 million deaths every year result from harmful use of alcohol, and among people aged 20 – 39 years, approximately 25 % of the total deaths are alcohol-attributable. The harmful use of alcohol also brings significant social and economic losses to individuals and communities. (WHO factsheet updated January 2015, retrieved July 2017 from http://www.who.int/mediacentre/factsheets/fs349/en/). The current research investigates

whether a health recommendation about moderate alcohol consumption using a proscriptive frame differs from a recommendation using a prescriptive frame in eliciting:

a) Stronger moral norms (associated with more positive attitudes towards drinking in moderation, greater intentions to drink in moderation, and lower subsequent alcohol consumption).

b) Greater anticipated reactance to the message for those to whom the message is most relevant (associated with less positive attitudes towards drinking in moderation, lower intentions to drink in moderation, and greater alcohol consumption).

Method

Participants

Five hundred and twenty-nine participants completed the time 1 measures. Participants (54.3% female) were aged between 17 and 77 years ($M = 33.92$; $SD = 15.44$). Participants' reported alcohol consumption indicated that 13% were non-drinkers (M = 11.47, SD = 15.74, range 0-121 units). Of the participants, 30% were students and 51% were employed, with the remainder either unemployed (2%), self-employed (7%), retired (5%), or unspecified (5%).

Measures and manipulations

Time 1

At time 1, participants completed an online questionnaire including the following sections. Unless otherwise stated, responses to all items at times 1 and 2 were given on seven-point scales ranging from *disagree strongly* (1) to *agree strongly* (7), and the mean of each measure's items was taken as the overall measure score.

Demographic information. Participants were asked to indicate their age, gender, occupation and ethnicity.

Baseline alcohol consumption. Following Armitage, Rowe, Arden, and Harris (2014), an adapted version of the timeline follow-back technique (Sobell & Sobell, 1992) was used to assess alcohol consumption. Participants were asked to report the types of drinks (i.e., beer, wine, spirits), size of measures (i.e., small glass, can, pint, single or double measure), and number of each of these drinks they had consumed on each day of the previous week. Each day of the week was presented on a separate line in the survey, and space was given to write a description. Units of alcohol were calculated for each participant and summed to provide a measure of baseline alcohol consumption, with higher scores indicating higher levels of alcohol consumption.

Alcohol Consumption Level. Participants were split into two groups based on their baseline alcohol consumption: those who consumed alcohol within recommended limits, n = 247 (defined as those who reported drinking 14 units per week or fewer and who drank no more than 6 units in one day), and those consumed alcohol outside recommended limits, n = 276 (defined as those who consumed more than 14 units per week, or drank more than 6 units in one day). This was based on the current UK guidelines for alcohol consumption and definition of binge drinking. The use of these criteria for defining high and low alcohol consumers was chosen as was most relevant to the messages given to participants about drinking with safe recommended limits. This method for splitting our sample also resulted in groups that were approximately equal in size. Of the 276 participants who were classified as consuming above recommended safe limits, 48 consumed less than 14 units per week but over 6 units in a single session, and 31 consumed over 14 units per week but less than 6 units in a single session.

Message Type. Participants took part in one of two conditions: a *Prescriptive* condition (in which they were told 'Imagine you went to the doctor, who said you SHOULD drink within government recommended safe limits for alcohol consumption. The doctor gives you no further information.') or a *Proscriptive* condition (in which they were told 'Imagine you went to the doctor, who said you SHOULD NOT drink in excess of government recommended safe limits for alcohol consumption. The doctor gives you no further information.').

Anticipated reactance. Anticipated reactance was measured using a modified version of Hong's (1992) Psychological Reactance Scale (e.g., 'I would feel like doing the opposite to what I am told'; 'I would feel angry because someone was trying to restrict my freedom to choose what I do'), eight items, α = .87.

Moral norms. Moral norms were assessed with two items (e.g., It would be morally right for me to drink within recommended safe limits over the next 7 days), r (521) = .26, $p <$ .001.

Attitudes. Attitudes toward drinking within safe limits were assessed by asking participants to respond to the statement 'Drinking within recommended safe limits over the next 7 days would be…': on five pairs of semantic differentials (*extremely bad* [1] to *extremely good,* [7]) *extremely harmful* [1] *to extremely beneficial* [7], *extremely foolish* [1] to *extremely wise* [7], *extremely unpleasant* [1] to *extremely pleasant* [7] and *extremely unenjoyable* [1] to *extremely enjoyable* [7]), α = .85.

Behavioural intentions. Three items (α = .89), measured behavioural intentions (e.g., 'I intend to drink within recommended safe limits over the next 7 days').

At Time 2, participants completed a second questionnaire containing the following measure.

Reported Alcohol Consumption. Time 2 alcohol consumption was measured using the same measure of consumption that was used at baseline.

Design and procedure

The study employed a randomised prospective design, involving two waves of data collection over a 7 day period. The questionnaires were distributed using Qualtrics survey software, and all questions were completed online. At Time 1, email contacts of psychology students at a university were sent a recruitment email message requesting volunteers to participate in an online two-phase research study about alcohol consumption. The email message contained a web link to the online Time 1 questionnaire. To broaden distribution, the email requested that people forward the email message to friends, family, and colleagues whom they thought might be interested in participating. Participants who included their e-mail addresses at Time 1 were contacted 7 days after completion of Time 1 measures and invited to complete the second phase of the study. At Time 1, each participant was randomly allocated by the software to one of the two conditions: Proscriptive message ($n = 266$), Prescriptive message ($n = 258$). Participants completed the Time 2 measures 7 days later. Ethical approval for this project was given by the hosting university.

Results

Five separate 2(Message Type: proscriptive vs. prescriptive) X 2(Alcohol Consumption Level: above recommended limits vs. below recommended limits) X 2 (Gender: male vs. female) ANCOVAs were conducted for each of our dependent measures (moral norms, anticipated reactance, attitudes, intentions, and alcohol consumption), controlling for age. Gender was included as a moderator in the analysis due to commonly found differences in the drinking patterns of each gender (Wilsnack et al., 2009), and because of previous research identifying gender as a possible moderator of reactance effects (Bensley

& Wu, 2006). Age was included as a covariate due to the different drinking patterns found for different age groups in previous research (Bensley & Wu, 2006).

Moral Norms

There was a significant main effect of Message Type on moral norms, $F(1,489) = 7.48$, $p = .006$, $\eta_p^2 = .015$: participants who received the proscriptive message reported greater moral norms ($M = 3.99$, $SE = 0.12$) than participants who received the prescriptive message ($M = 3.52$, $SE = 0.12$). There was also a significant effect of Alcohol Consumption Level, $F(1,489) = 12.30$, $p = .001$, $\eta_p^2 = .025$: participants who consumed above the recommended limits reported lower moral norms ($M = 3.46$, $SE = 0.12$) than those who consumed below the recommended level ($M = 4.06$, $SE = 0.13$). There were no other main or interaction effects; neither Gender nor Alcohol Consumption Level moderated the effect of Message Type on moral norms.

Anticipated Reactance

There was a significant effect of Alcohol Consumption Level on participants' anticipated reactance $F(1,510) = 5.64$, $p = .018$, $\eta_p^2 = .011$. Participants who consumed above the recommended limits reported higher anticipated reactance ($M = 3.42$, $SE = 0.05$) than those who consumed below the recommended limits ($M = 3.23$, $SE = 0.06$). There were no other main or interaction effects.

Attitudes towards drinking alcohol in line with recommendations

There was a significant effect of Alcohol Consumption Level on participants' attitudes towards drinking in line with recommendations, $F(1,505) = 37.79$, $p < .001$, $\eta_p^2 = .070$: participants who consumed above the recommended limits had less positive attitudes ($M = 4.65$, $SE = 0.06$) than those who consumed below the recommended limits ($M = 5.22$, $SE = 0.07$). There was also a significant effect of Gender on participants' attitudes towards drinking in line with recommendations, $F(1,505) = 25.98$, $p < .001$, $\eta_p^2 = .049$: Male

participants had less positive attitudes ($M = 4.70$, $SE = 0.07$) than female participants ($M =$ 5.17, $SE = 0.06$). There were no other main effects of Message Type, and no interaction effects.

Intentions to drink alcohol within the recommended limits

There was a significant effect of Alcohol Consumption Level on participants' intentions $F(1,501) = 52.74$, $p < .001$, $\eta_p^2 = .095$: participants who consumed above the recommended limits reported lower intentions to consume alcohol within the recommended limits ($M = 3.54$, $SE = 0.12$) than those who consumed below the recommended limits ($M =$ 4.81, $SE = 0.13$). There was also a significant effect of Gender on participants' intentions to consume alcohol in line with recommendations, $F(1,501) = 11.20$, $p = .001$, $\eta_p^2 = .022$: male participants had lower intentions ($M = 3.89$, $SE = 0.13$) than female participants ($M = 4.47$, $SE = 0.11$). There were no other main effects of Message Type or interaction effects.

Alcohol consumption

There was no significant main effect of Message Type on alcohol consumption at time 2 (controlling for alcohol consumption at time 1). However, there was a significant main effect of Gender, $F(1,509) = 24.45$, $p < .001$, $\eta_p^2 = .046$, with male participants ($M = 20.23$, $SE = .92$) consuming greater alcohol at time 2 (controlling for time 1 alcohol consumption) than female participants ($M = 14.07$, $SE = .82$). In addition, there was a main effect of Alcohol Consumption Level, $F(1,509) = 283.80$, $p < .001$, $\eta_p^2 = .358$ such that those who consumed above the recommended limits reported drinking more alcohol ($M = 28.31$, $SE =$ .86) at time 2 (controlling for time 1 alcohol consumption) than those who drank below the recommended limits ($M = 5.98$, $SE = .94$).

There was a significant interaction between Alcohol Consumption Level and Gender $F(1,509) = 24.41$, $p < .001$, $\eta_p^2 = .046$: male participants who consumed above the recommended limits at time 1 consumed significantly more alcohol at time 2 ($M = 34.44$, SE

= 1.20), compared to male participants who drank within the recommended limits at time 1 ($M = 5.95$, $SE = 1.43$), $p < .001$. There was no difference in time 2 alcohol consumption for females who drank below or above the recommended limit.

There was also an interaction between Message Type and Gender $F(1,509) = 8.97$, $p = .003$, $\eta_p^2 = .017$, with male participants consuming more alcohol at time 2 after reading the proscriptive message ($M = 22.78$, $SE = 1.30$), compared to the prescriptive message ($M = 17.67$, $SE = 1.14$), $p < .001$, but no difference in alcohol consumption between Message Type for female participants.

Our analysis also showed a further three-way interaction (see Figure 1) between Message Type, Gender, and Alcohol Consumption Level, $F(1, 509) = 5.29$, $p = .022$, $\eta_p^2 = .010$, such that Males who drank above the recommended limits at time 1 consumed more alcohol at time 2 after reading the proscriptive ($M = 39.20$, $SE = 1.65$) vs. the prescriptive message ($M = 29.45$, $SE = 1.63$), $p < .001$, whereas female participants who drank above or below the recommended limits, and male participants who drank below the recommended limits, showed no differences between Message Type (all $ps > .10$).

----------*[insert **Figure 1** here]*---------

Indirect Effects

The correlation matrix for all measured variables is shown in Table 1. Mediation analysis was conducted to determine any indirect effect of condition on anticipated reactance, attitudes, intentions, and behaviour via moral norms (Hayes, 2013; Zhao et al., 2010). There was a significant indirect effect of Message Type on anticipated reactance, 95% CI [0.01; 0.06], attitudes, 95% CI [-0.14; -0.01], and intentions 95% CI [-0.31; -0.03] via moral norms. There was no significant indirect effect of Message Type on time 2 alcohol consumption (controlling for time 1 alcohol consumption) via moral norms 95% CI [-0.09; 0.69].

----------*[insert **Table 1** here]*---------

Discussion

The results showed that the proscriptive message elicited stronger moral norms to drink alcohol within recommended limits than did the prescriptive message, which in turn were associated with lower reactance, more positive attitudes, and stronger intentions to drink alcohol within those limits. There was also some evidence for a reactance effect: male participants who drank more than the government recommended limits responded by reporting consuming more alcohol after reading the proscriptive than after reading the prescriptive message, although this was not mediated by increased levels of reactance or less positive attitudes towards consuming alcohol in moderation.

The findings support the results of Janoff-Bulman et al. (2009), who suggest that proscriptive moral codes are viewed as more obligatory and more concrete. Overall, participants in the current study reported that drinking alcohol in accordance with government recommended limits was aligned with their ethical principles and moral beliefs to a greater extent when the more obligatory moral code inherent in a proscriptive message was used. When this concrete moral norm was highlighted, more positive attitudes and stronger intentions to comply with a health request were evidenced across all participants regardless of current drinking levels. Given that other TPB variables of perceived behavioural control and subjective norms were not included in the current study, the full TPB model was not tested. However, the significant associations between moral norms, intentions and behaviour support the suggestion that moral norms may be usefully incorporated into sociocognitive models such as the TPB (Manstead, 2000; Rivis et al., 2009).

The findings also showed that for male participants who consumed more than the recommended government guidelines, the proscriptive message led to greater alcohol consumption the following week, although this effect was modest, and was not mediated by any self-reported cognitive or affective indicators of reactance. It is possible that for these

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participants, the harsher and more concrete proscriptive rule was perceived as an illegitimate interference with autonomy and free choice, and drinking in excess of recommended limits was an attempt to restore their threatened behavioural freedom. Further research is needed to consolidate this finding and further explore the mechanisms by which a proscriptive message may lead to boomerang effects on behaviour (see Ringold, 2002). There is also mixed evidence for differences in the reactance experienced by males and females, with some studies finding that males show greater levels of reactance following a threat to behavioural freedom (e.g., Dowd & Wallbrown, 1993; Joubert, 1990; Seeman et al., 2004; Woller et al., 2007) and others finding no differences (Hong et al., 1994). It may be that gender differences in reactance effects are more specifically linked to the nature of the behavioural freedom that is restricted. With particular relevance, Bensley & Wu (2006) found in an experimental study that male heavy drinkers were most likely to respond to more dogmatic health messages about alcohol consumption by consuming greater alcohol compared to those receiving a neutral health message.

Our findings add to the literature examining reactance effects, and the study is the first to directly compare the effects of proscriptive vs. prescriptive messages about alcohol consumption on subsequent attitudes, intentions, and behaviour. Nonetheless, there are some limitations to acknowledge. Our study only examined self-reported alcohol consumption. For male heavy drinkers, reporting higher levels of alcohol consumption after reading the proscriptive message compared to the prescriptive message could itself be a means to restore a threatened behavioural freedom. Thus, we do not know whether actual alcohol consumption increased among this subgroup. An experimental design giving participants an observed opportunity to consume alcohol after the intervention would have the potential to elucidate these effects. We also only examined effects over a 7 day period. A longer follow up would help clarify whether any longer term differences between health messages are found. Finally,

our measures of moral norms, attitudes, and intention all focussed on the act of consuming alcohol within recommended guidelines, rather than avoiding exceeding recommended guidelines. It may be that proscriptive messages would be more effective when cognition measures are framed as 'not doing', rather than 'doing', a particular action, due to the differing goals associated with each action (see Richetin *et al*., 2010). Future research could usefully explore these effects.

Reducing excessive alcohol consumption remains an important agenda for public health policy. The current research adds to a body of literature which examines the conditions under which health promotion messages are likely to be effective in promoting attitude and behaviour change, and in reducing unhealthy lifestyle choices. The findings show that for females and those who consume within the government guidelines, a proscriptive message elicits stronger moral norms (which are related to less reactance), elicits more positive attitudes, and strengthens intentions to consume alcohol within government recommended guidelines. However, for male heavy drinkers, proscriptive messages led to greater alcohol consumption behaviour. Further research is needed to examine the mechanisms and qualifying conditions by which these effects occur.

Acknowledgement

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Table 1. Mean, standard deviations (SD), and correlation matrix for all measured variables.

	Mean	SD	2.	3.	4.	5.	6.
1. Moral norms	3.72	1.92	-.15**	.29**	.36**	-.21**	-.14**
2. Anticipated Reactance	3.33	0.87	-	-.31**	-.26**	.10*	.15**
3. Attitudes	4.93	1.11		-	.61**	-.23**	-.34**
4. Intentions	4.14	2.08			-	-.24**	-.32**
5. Time 1 Alcohol consumption	11.46	15.73				-	.48**
6. Time 2 Alcohol consumption	17.74	20.15					-

p < .05, ** *p* < .01

Figure 1. Mean units of alcohol consumption reported at Time 2 (controlling for units of alcohol consumption reported at Time 1), by Message Type and Alcohol Consumption Level.