POLICY AND PREVENTION

Do Media Messages Change People’s Risk Perceptions for Binge Drinking?

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Abstract — Aims: The current study investigated the effect of a media health message for drinking on risk perception estimates (comparative optimism). Methods: Sixty-five young adults who regularly drink alcohol watched an anti-drinking scenario (having an accident due to drinking). There were two intervention conditions: 30 participants ‘imagined’ they were part of the scenario, and 35 ‘watched’ the scenario. They then completed four comparative optimism estimates comparing themselves to those the same age and gender with similar drinking habits. The four comparisons were of their likelihood of being involved in an accident due to drinking: having unprotected sex, when under the influence of alcohol; having a car accident due to drinking (drivers only) and developing cirrhosis. There was also a control group (n = 59) who just completed the questionnaires. Results: Both intervention groups reported significantly lower comparative optimism for accident, unprotected sex and car accident than the control group. The ‘imagine’ group reported significantly lower comparative optimism than the ‘watch’ group for accidents. Conclusions. These results highlighted that media messages can successfully change people’s risk perception, and also that imagination can be a powerful tool in changing risk perceptions associated with binge drinking.

INTRODUCTION

It has long been suggested that one of the reasons that people do not practice healthy behaviours, such as moderate drinking, is due to their inaccurate perceptions of risk and susceptibility, including comparative optimism (also known as unrealistic optimism) (Weinstein, 1980, 1983, 1987). Comparative optimism/unrealistic optimism refers to the belief that negative events are less likely to happen to us than others and that positive events are more likely to happen to us than others (e.g. Weinstein, 1987). Comparative optimism has been reported for a multitude of diverse events, such as contracting HIV, having a heart attack, being involved in a car accident and being mugged (for reviews see Chambers and Windschitl, 2004; Helweg-Larsen and Shepperd, 2001). There is mixed evidence to whether comparative optimism is related to behaviour and the direction of the relationship (e.g. Dolinski et al., 1987; Gerrard and Warner, 1994; Weinstein et al., 1990). Although most studies on comparative optimism and behaviour are cross-sectional, a recent prospective study investigated alcohol behaviour and comparative optimism in over 200 US college students at four time points during a 2-year period (Dillard et al., 2009). Measures included comparative optimism (e.g. how do you feel your own chances are of having a drinking problem at some time in your life compared with those of other university students of your age and sex), alcohol consumption and negative consequences of their drinking (e.g. argued with friends, damaged property, got injured, forgot where you were or what you did). The most important results were that those that exhibited comparative optimism at time 1 reported experiencing a greater number of alcohol-related negative events at all further time points. Therefore, the association of comparative optimism and negative consequences of drinking remained over a 2-year time period. These results suggest that comparative optimism can have important negative consequences on subsequent health behaviour.

Owing to potentially negative consequences of comparative optimism, researchers have concluded that it is important to develop successful interventions to ‘debias’ these risk perceptions. Some research has suggested that perceptions of invulnerability, such as comparative optimism, are resistant to change (Robb et al., 2008; Weinstein and Klein, 1995; Weinstein et al., 1991). However, there has been some success in debiasing comparative risk judgements. For example, when drivers were told that they would be made accountable for their decisions, their comparative optimism for having an accident as a driver was reduced (McKenna and Myers, 1997). Other studies indicated that it is possible to modify comparative optimism by requiring participants to imagine a relevant scenario with severe consequences for which the participants are to blame (McKenna and Myers, 1995).

There is strong evidence to suggest that imagination tasks might be a useful debiasing strategy (e.g. Armitage and Reidy, 2008; Gregory et al., 1985; Sherman et al., 1981). Imagining self-relevant events can also influence participants’ subsequent behaviours (Ruvolo and Markus, 1992; Vasquez and Buehler, 2007). However, studies have indicated that just imagining an event is insufficient for debiasing risk perceptions (e.g. the likelihood of having a car accident as a driver) (McKenna and Myers, 1995). In a series of experiments on drivers’ risk perceptions, as well as imagining an event (car accident), the event had to be severe and the individual imagining the event (the driver) had to believe they were to blame for the accident for successful debiasing to take place (McKenna and Myers, 1995). Imagining the event was not sufficient for debiasing to take place. This method was extended to smoking and a similar debiasing effect was found for smokers who originally exhibited comparative optimism, i.e. before the intervention (Myers and Frost, 2002).

An effective debiasing intervention was developed by producing a video that contained scenes from a 1990s UK BBC television series (Drive) (McKenna and Myers 1995). Each scene contained reconstructions of a car accident and had been designed with blame and severity present. McKenna and Myers (1995) compared two intervention conditions with a control group. All participants completed comparative...
optimism items including their likelihood of having an accident as a driver, compared with other drivers. In a ‘watch’ condition, drivers watched the video and then answered the comparative optimism questions. In an ‘imagine’ condition, drivers were asked to imagine that they were participants in the scenes before they watched the video. The imagine group was totally debiased, exhibiting no comparative optimism for driving behaviours after the intervention; the watch group were partially debiased, whereas the control group exhibited comparative optimism for all driving behaviours.

There are a number of studies indicating comparative optimism for alcohol-related problems (Dillard et al., 2009; Hansen et al., 1991; Leigh, 1987; Weinstein, 1980). The current study investigated negative effects of binge drinking/heavy episodic drinking. Binge drinking has been linked to increased morbidity and mortality such as accidents, car accidents, cirrhosis of the liver, suicide, homicide (e.g. McGinnis and Foeghe, 1993; Okoro et al., 2004) as well as behavioural consequences, such as unprotected sex (Kypri et al., 2009). In a review of binge drinking in Europe, it was reported that binge drinking is most prevalent among adolescents/young adults, but prevalence drops later in life (Kuntsche et al., 2004). The pattern of drinking rather than the average volume, is a fairly recent topic of interest (Kuntsche et al., 2004), highlighted by a former British prime minister, Tony Blair, saying in 2005 that binge drinking had the risk of becoming the ‘new British disease’ (Hetherington and Bowers, 2005).

These findings are relevant to a number of TV health messages developed for the UK Department of Health (DOH) which are designed to discourage binge drinking/heavy episodic drinking. Evidence suggests that media messages on drinking can be influential. The effect of alcohol advertising was explored in a recent systematic review which concluded that alcohol advertisements and media portrayal of drinking was associated with increased drinking in young people (Smith and Foxcroft, 2009).

We investigated whether watching an anti-drinking scenario which included blame and severity components would affect comparative optimism judgements, using two experimental conditions, imagine and watch, similar to the previous driving intervention (McKenna and Myers, 1995).

It was hypothesized that participants in the watch and imagine conditions would exhibit less comparative optimism for alcohol-related events (having an accident, unprotected sex, car accident and cirrhosis) compared with a control condition. As imagining a behaviour (compared with just watching it) has been shown to improve debiasing of the targeted behaviour (Myers and McKenna, 1995) it was further hypothesized that participants in the imagine condition would exhibit less comparative optimism for having an accident, compared with the watch condition. This was because having an accident due to drinking alcohol is the target behaviour in the anti-binge drinking scenario used in the current study.

**METHODS**

**Participants**

Participants were 124 young adults, from Brunel University, UK. Inclusion criteria were that they drank alcohol and were aged between 18 and 30 years. There were 48 males and 75 females. Their age ranged from 18 to 30 years, mean = 21.94, SD = 3.57. They drank alcohol between one and seven times per week, mean = 4.76, SD = 2.66, and drank between 1 and 20 units of alcohol per episode, mean = 5.65, SD = 3.85. There were three conditions (imagine, n = 30, watch, n = 35, control, n = 59). There were no significant group differences for age [F(2, 122) = 1.09, ns] or gender (χ² = 1.91, df = 2, ns).

**Measures**

Comparative optimism was for four alcohol-related behaviours/illnesses. The questions were: ‘compared to the average student of the same age and gender, with similar drinking behaviours, how likely do you think you are:’ (a) ‘To be involved in an accident due to your drinking?’ (b) ‘To have unprotected sex under the influence of alcohol?’ (c) ‘To be involved in a road traffic accident due to your drinking? (drivers only). (d) ‘To develop cirrhosis of the liver?’

Ratings, and subsequent scoring, were on a 5-point scale. The choices were very unlikely (1), unlikely (2), neither likely or unlikely (3), likely (4) and very likely (5). Scores of 1 and 2 indicated comparative pessimism, 3 indicated comparative realism and 4 and 5 indicated comparative optimism. The wording (very unlikely–very likely) has been used in previous research, for example, for comparative optimism for skin cancer (Myers, 1999).

Demographic information collected were age, gender, frequency of drinking alcohol and number of units they drank per session. They were also asked whether they had a driving licence.

**Health information**

This was part of a ‘know your limits’ anti-binge drinking campaign jointly run by the DOH and the UK Home office (www.knowyourlimits.gov.uk). The advert is under 1 min and was previously aired on UK national television. It features a young drinker in a batman style outfit who thinks he is a ‘superhero’ because he has been drinking. He climbs up some scaffolding, with his friends watching. He then falls from the scaffolding, and is left twitching in a pool of blood. Severity (of consequences, falling and badly injured or dead) and blame (due to heavy drinking) are clearly part of the scenario. The health message finishes with the spoken words ‘too much alcohol makes you feel invincible when you’re at your most vulnerable.’ At the time of the experiment this advert was not currently being aired on UK national TV.

**Procedure**

Ethics approval was given by Brunel University Social Sciences Ethics Committee. All participants gave informed consent. They were approached on campus or recruited through email advertisements about the study. Suitability for the intervention was assessed by verbally asking participants ‘do you regularly drink alcohol?’ Participants were randomly divided into the three conditions. Control participants just completed the questionnaire. Participants in the two health message conditions ‘watch’ and ‘imagine’ completed the
experiment in a quiet testing room, where they sat on a chair facing a PC, and then completed the questionnaire.

The ‘watch’ group was verbally given the following information ‘You will now watch a short video clip about drinking. When it has finished can you please turn over the questionnaire and complete it. You can cease the experiment at any time.’

The ‘imagine’ group was verbally given the following information ‘You will now watch a short video clip about drinking and I would like you to imagine that it is personal and involves you. When it has finished can you please turn over the questionnaire and complete it. You can cease the experiment at any time.’

The health message was then played using the computer. After completion of the questionnaire the participants were fully debriefed.

Statistical analysis

All analyses were performed using Statistical Package for Social Sciences (SPSS Version 15.0) with group differences explored using Analysis of Variance (ANOVA), with SNK for all post hoc comparisons. To explore any effects of co-variates, ANCOVA were then performed, with Condition as the independent variable, Comparative optimism ratings as the dependent variables and age, gender, frequency of drinking alcohol and number of units per session as co-variates. A series of one sample *t*-tests investigated whether each group were comparatively optimistic for each event to test whether the intervention ‘debiased’ the behaviours.

RESULTS

Means and standard deviations for ratings can be seen in Table 1.

For comparative optimism ratings for three of the four events (accident, unprotected sex and car accident), there were significant main effects of Condition (Control, Watch and Imagine); participants in the two experimental conditions were significantly less comparatively optimistic than the control condition. In addition, for accident, participants in the imagine condition were significantly less comparatively optimistic than the watch condition as well as the control condition. There were no significant group differences for cirrhosis.

Analyses of covariance (ANCOVA) indicated that for accident, gender and number of units they drank per session were significant co-variates [\(F(1, 115) = 7.12, P < 0.01; F(1, 115) = 6.04, P < 0.05; \text{respectively} \), with comparative optimism for accidents remaining significant, [\(F(2, 115) = 8.19, P < 0.001 \)]. For unprotected sex, there were no significant co-variates. For car accident, age and frequency of drinking alcohol were significant co-variates [\(F(1, 89) = 5.41, P < 0.05; F(1, 89) = 4.58, P < 0.05; \text{respectively} \), with comparative optimism for car accidents remaining significant, [\(F(2, 89) = 4.71, P < 0.01 \)].

A series of one sample *t*-tests investigated whether each group were comparatively optimistic for each event. The comparison was the mid-point of the 5-point scale (3).

For accidents, the control group and watch group exhibited comparative optimism for accidents; however, this was not the case for the imagine condition, which was totally debiased. Only the control group exhibited comparative optimism for unprotected sex and both watch and imagine were totally debiased. All conditions exhibited comparative optimism for car accidents and cirrhosis (see Table 2).

Finally, for the control group, participants were divided into those that exhibited comparative optimism (optimists) and those that did not (non-optimists). The majority exhibited comparative optimism. Those that did not were \(n = 1\) for accidents, \(n = 7\) for unprotected sex, \(n = 7\) for car accident and \(n = 4\) for cirrhosis.

DISCUSSION

To the best of the authors’ knowledge, this is the first study that has investigated the effect of a media health message of drinking which has been presented on national television on perception of risk (comparative optimism). The health message influence on risk perception on the anti-binge drinking message had the desired effect. For three out of four behaviours (accident, unprotected sex and car accident) the experimental groups exhibited significantly less comparative optimism than controls, i.e. they rated themselves as more at risk. In fact for unprotected sex (both imagine and watch conditions) and accident (imagine condition) participants were totally debiased. This may be considered a powerful intervention as in this study only one message was shown on only one occasion.

The alcohol media message targeted having an accident when under the influence of alcohol. Although the control group exhibited comparative optimism, neither of the intervention groups did, with the imagine intervention being the most effective, exhibiting no comparative optimism, again highlighting the effectiveness of imagination (Armitage and
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Reidy, 2008; Gregory et al., 1985; Ruvolo and Markus, 1992; Sherman et al., 1981; Vasquez and Buehler, 2007).

The effect of the intervention extended to two other drink-related behaviours: having unprotected sex while under the influence of alcohol and having a car accident due to drinking. Both interventions (watch and imagine) were effective and significantly different from the control group, with unprotected sex being debiased for both intervention conditions. Cirrhosis of the liver was not affected by the intervention. It may be that participants did not understand what cirrhosis is or that it is related to heavy episodic alcohol consumption, or they may believe that cirrhosis is not a problem for young people. This suggests that interventions need to be tailored to the perceived risks salient in the target group.

It is unsurprising that individuals in the control group exhibited comparative optimism for drinking-related outcomes as, unlike smoking for example, the dangers of alcohol are not clear cut. Although it is well known that excessive drinking is detrimental to health, there is evidence that moderate drinking can reduce mortality (e.g. Streppel et al., 2009).

A strength of this study is the use of a student sample. Often students are used in psychology experiments in place of a more appropriate general population sample. However, in this case using a student sample was highly appropriate, fitting the demographics of the population particularly at risk of binge drinking.

One possible limitation of this study is that although the media message had an effect on risk perception, it is not known what the effect, if any, they had on actual behaviour as many other factors may also influence both intention and behaviour (e.g. Connor and Sparks, 2005; Myers and Goodwin, 2011). It would be important to investigate in future intervention studies whether changes in risk perceptions translate to behaviour changes.

Future intervention studies could further explore the effectiveness of a number of anti-drinking scenarios, with differing blame and severity, and explore positive frameworks/messages as well. In addition, a repeated measures design would be useful to track changes in risk perception, similar to a study on debiasing smokers’ risk perception (Myers and Frost, 2002).

In conclusion, this intervention study highlighted that media health messages can be powerful tools in changing people’s risk perception. The findings of this study could be integrated into future public health campaigns. This would be easy to deliver and cost-effective. Such future public health messages should incorporate an imagination component, for example, an instruction to imagine the following scene could precede an anti-binge drinking scenario.

REFERENCES


