Executive summary

Enhancing a brief online intervention to reduce alcohol consumption

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Key findings

- The way in which the content of a brief online alcohol intervention was presented to users impacted on levels of engagement with the intervention.

- Users who viewed a tunnelled version of the online intervention (in which the content was presented in a pre-determined order) viewed more pages and spent more time on the website than participants who viewed a free-roam version (in which they could view the content in any order).

- Increasing and higher risk drinkers were more likely to make a plan to cut down on their drinking in the tunnelled versus free-roam version of the intervention.

- The intervention led to significant reductions in alcohol consumption at one- and six-month follow-up.

- The structure of the intervention (tunnelled versus free-roam) had no impact on the effectiveness of the intervention in reducing alcohol consumption.

- Instructing increasing and higher risk drinkers to make if-then plans linking high-risk situations with appropriate behavioural responses was no more effective in reducing alcohol consumption than instructing them to choose strategies to cut down on their drinking.

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Background

Brief alcohol interventions delivered opportunistically in primary care settings have been found to lead to small but significant reductions in alcohol consumption (Moyer et al., 2002). The reach, and potential, of such interventions could be expanded considerably through the use of the Internet. Alcohol interventions that are delivered through the Internet are likely to be low-cost, easy to deliver, and convenient to use. However, online interventions have been found to have smaller, but still significant, effects on alcohol consumption than those delivered in person (Webb et al., 2010). Research is therefore needed to enhance the effectiveness of current online interventions to reduce alcohol consumption.

Engagement with online interventions is often low (Kelders et al., 2012) which, in turn, is likely to reduce their effectiveness (Donkin et al., 2011). The way in which the content is delivered in an online intervention may have an important impact on levels of engagement. One key distinction is between free-roam structures that allow users to view the intervention content in any order and tunnelled structures that guide users through the intervention content in a specific, pre-determined, order (Fogg, 2003). Systematic reviews have reported mixed findings on the impact of the structure of the intervention on measures of engagement (Kelders et al., 2012) and effectiveness (Fredericks et al., 2015). However, few studies have directly compared free-roam versus tunnelled versions of the same intervention (e.g., Crutzen et al., 2012).

To be effective, brief online alcohol interventions need to include behaviour change techniques that have been found to influence alcohol consumption. Brief alcohol interventions typically provide people with tips, or strategies, on how to reduce consumption (e.g., avoid drinking in rounds). However, research indicates such strategies may only be effective when they are linked to specific high-risk situations (e.g., when out with heavy drinking friends) (Armitage and Arden, 2012). Meta-analytic reviews have found that instructing people to form if-then plans (i.e., implementation intentions) that explicitly link high-risk situations with appropriate strategies has a medium-to-large sized effect on health-related behaviour (Gollwitzer and Sheeran, 2006).

The present study therefore sought to assess the impact of two enhancements to a brief online alcohol intervention (www.dontbottleitup.org.uk). First, the study compared the impact of a free-roam versus a tunnelled structure on engagement as well as alcohol consumption one and six months later. Second, the study compared the effectiveness of instructing users to choose strategies to cut down on their drinking versus making if-then plans linking high-risk situations with these potential strategies on alcohol consumption one and six months later.

Methods

Participants were 286 university staff and students who were recruited online. After completing a baseline questionnaire assessing demographics and current alcohol consumption (units per week, frequency of binge drinking), participants were re-directed to the DontBottleItUp (DBIU) website and were randomly allocated to a condition in a 2 (structure: free-roam versus tunnelled) x 2 (planning: strategies versus if-then plans) factorial design. As part of the DBIU website, participants first completed the AUDIT measure (Babor et al., 2001) and then received feedback on their risk level (i.e., lower risk, increasing risk, higher risk, high risk/possibly dependent). Participants then had access to 4-5 pages of information on alcohol (tailored to their risk level), including a page with instructions on making plans to cut down for increasing risk and higher risk

drinkers. Emails were sent to participants one and six months later to complete follow-up questionnaires assessing subsequent alcohol consumption. These were completed by 236 and 224 participants, respectively.

Findings

The structure of the online intervention had a significant effect on all measures of engagement. In particular, participants who viewed the tunnelled version viewed more pages (Ms = 3.49 vs. 1.37) and spent more time on the website (Ms = 200.48 vs. 173.49 secs) than participants who viewed the free-roam version. In addition, participants who viewed the tunnelled version were more likely to view specific pages providing information on units (86.6% vs. 52.8%), comparisons with national drinking data (83.3% vs. 28.9%), and the risks of drinking (81.9% vs. 25.4%) than participants who viewed the free-roam version. In addition, increasing risk and higher risk drinkers who viewed the tunnelled version were more likely to view the page on making plans to cut down (83.3% vs. 23.5%) and more likely to make a plan to cut down (35.9% vs. 12.3%) than participants who viewed the free-roam version.

Significant reductions in alcohol consumption (weekly units) were found between baseline and both one-month (mean reduction = 2.58 units) and six-month (mean reduction = 2.15 units) follow-up. Similarly, significant reductions were found in the frequency of weekly binge drinking between baseline and both one one-month (mean reduction = 0.15 times) and six-month (mean reduction = 0.18 times) follow-up. In addition, a significant reduction in AUDIT scores was found between baseline and six-month follow-up (mean reduction = 2.19). Similar significant reductions in alcohol consumption (units, binge drinking, AUDIT scores) were also found for increasing risk and higher risk drinkers. However, neither the structure of the intervention (free-roam vs. tunnelled) or the type of plan to cut down (strategies vs. if-then plans) had a significant effect on reductions in alcohol consumption or the frequency of binge drinking for either all participants or specifically for increasing and higher risk drinkers.

Implications

The findings of the present study indicate that the way in which the content of a brief online intervention is structured can have an important impact on levels of engagement. Specifically, participants who viewed a tunnelled version of the DontBottleItUp (DBIU) website viewed more pages and spent more time on the website than those who viewed a free-roam version. These findings are in line with the few other studies that have directly compared tunnelled versus free-roam versions of the same online intervention. For example, Crutzen et al. (2012) found that participants who viewed a tunnelled version of a 12 page information website about hepatitis visited more pages and spent more time on the website than those who viewed a free-roam version. Similar results have been reported by McClure et al. (2013) who compared the impact of tunnelled versus free-roam structures on engagement with an online smoking cessation intervention. Taken together these findings indicate that brief online alcohol interventions should use tunnelling to structure the intervention content in order to increase engagement.

In contrast to the effects on engagement, the structure of the intervention had no impact on reductions in alcohol consumption (i.e., units consumed, frequency of binge drinking) at either one- or six-month follow-up. This finding contrasts with those of Crutzen et al. (2012) who found that a tunnelled (versus free-roam) version of an online intervention led to greater knowledge about hepatitis at one-month follow-up, although the study did not assess any impacts on health behaviour. However, the present findings are consistent

with McClure et al. (2014), who found that the structure of an online smoking cessation intervention had no impact on cessation rates at 12-month follow-up. It is possible that while a tunnelled online intervention increases engagement in terms of pages viewed and time spent on the website, the nature of the engagement may be relative superficial (i.e., peripheral processing); however, Crutzen et al.'s (2012) finding that the tunnelled version led to greater knowledge about hepatitis would discount this explanation.

The present study found that the brief online intervention led to significant reductions in alcohol consumption at one- and six-month follow-up. However, it was also found that there was no difference in reductions in alcohol consumption between users (increasing and higher risk drinkers) who were instructed to choose between various behavioural strategies to cut down on their drinking and those who were instructed to form if-then plans linking high-risk situations with appropriate behavioural responses. This finding contrasts with previous research which has suggested that it is necessary to link situations and strategies to engender behaviour change (Armitage and Arden, 2012; Gollwitzer and Sheeran, 2006). However, it is important to note that all participants in the present study received feedback on their risk level (based on their AUDIT score). It is possible that this information was sufficient to produce a small reduction in alcohol consumption, meaning that viewing more pages of information or making specific plans to cut down did not confer any additional benefit. Interestingly, "feedback on performance" was identified as one of four key behaviour change techniques that were associated with greater reductions in alcohol consumption in a review and meta-analysis of online alcohol interventions (Black et al., 2016). Other behaviour change techniques that were associated with greater reductions in alcohol consumption included provision of normative information, prompting commitment and prompting review of goals. Future research should therefore seek to test the effectiveness of these behaviour change techniques using experimental/factorial designs.

Conclusion

The findings of the present study suggest that brief online alcohol interventions should employ a tunnelled structure in order to increase levels of engagement. However, future research is needed to identify the "active ingredients" of brief online alcohol interventions in which the effectiveness of different behaviour change techniques are compared against each other using experimental/factorial designs.