



A think aloud study to explore the feasibility and acceptability of a digital tool for the prevention of alcohol related harm in adolescents.

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EXECUTIVE SUMMARY

Background

This small grant was awarded to build and test the acceptability of a digital intervention to reduce alcohol misuse in adolescents aged 11-14. Adolescent drinking rates are higher in the UK than other European countries, and consuming alcohol at a young age is associated with a number of risks and harms. There is currently a lack of evidence for school based prevention programmes aimed at reducing alcohol consumption in adolescents.

The Alcohol Smart Quiz

The Alcohol Smart Quiz (ASQ) is a digital intervention that is theoretically based on The Prototype Willingness Model (PWM). This theory acknowledges the social and often unplanned nature of adolescent drinking, and the importance of social comparison with peers. The ASQ was co-produced in conjunction with adolescents, parents, teachers, and with input from intervention development experts. The first stage of the project reported here, was to build an online version of the ASQ that took into account the views of these stakeholders. The second stage of the project was to explore the acceptability of this novel intervention with adolescents and teachers, and to determine factors that might influence the feasibility of delivering this intervention in a school setting.

The ASQ applied behaviour change techniques (BCTs) that were identified in previous studies as relevant to the PWM (Davies, et al., in press). The intervention comprised ten quiz style questions and answers, as well as information and activities. The ASQ aimed to target the perception of 'non-drinker' and 'drunk' prototype images, and presented normative information about drinking. It also included discussions about the social influences on drinking and provided examples of how social pressure can be resisted using 'if-then' plans made in advance. Worksheets and activities were included to encourage adolescents to come up with their own 'if-then' plans to resist social pressure, and to deal with situations where they, or their friends, might be at risk of harm. The source of all the information in the quiz was included on the web pages in order to enhance credibility.

Method

Semi-structured and 'think aloud' interviews were conducted with 17 adolescents aged 11-14 (9 female) and nine teachers (all female). In a think aloud interview, participants are asked to verbalise their thoughts while completing a task, in this case working through the intervention materials and answering the quiz questions. Interview transcripts were analysed using thematic analysis (Braun and Clarke, 2006).

Findings

There were four main themes identified within the analysis of interview transcripts. These were named 'moderation', 'alcohol perceptions', 'making decisions' and 'facilitators and barriers to implementation'. There were important similarities in aspects of the interviews with adolescents and teachers that related to acceptability. Firstly, both groups reported an acceptance of moderate drinking, in some cases, given the inevitability of adolescent consumption. Adolescents appeared to hold ambivalent views about alcohol prototypes, which might influence the credibility of the drunk and non-drinker prototype presented within the intervention. However, both the physical effects of drinking alcohol and the potentially embarrassing consequences of drinking too much were perceived in a negative way.

Secondly, the prevailing culture of drinking in the UK was recognised by adolescents and teachers as an important driver in initiation and maintenance of drinking in the teenage years. Both groups of participants appeared to accept that drinking was inevitable, and this appeared to be amplified through social media for the adolescents.

Thirdly, both groups recognised the challenge that faced adolescents when making decisions within social situations and that there remained a powerful need to belong. Alcohol was also seen as interesting, with curiosity an important reason for initiation. The pressure felt in social situations meant that many participants felt that making plans to avoid drunkenness or harms would be ineffective.

Fourthly, acceptability was enhanced by the quiz format, source of information presented in the ASQ, and focus on short term harms. The ASQ could be improved by clarification of the wording of some questions, focussing moderate drinking, and giving information about units, and the amount of alcohol that it would be harmful to consume in one setting. These

participants suggested that this type of digital intervention would be feasible to deliver within a school setting.

Conclusion

The ASQ had a good level of acceptability to the adolescents and teachers in this study. Furthermore, it appeared to be a tool that could feasibly be delivered in a school setting, although further work to explore how this might work in practice is needed. An acceptance of moderate drinking within young adolescents was reflected in the findings of this study, and should be taken into account when designing interventions for this population. This means that a moderate drinker prototype might be an effective inclusion in the ASQ. The interview findings also suggest that it is important to acknowledge the positive reasons that people drink alcohol, as well as the negative, and that often drinking is volitional as well as the result of pressure (face to face and online). The harm reduction approach espoused by the ASQ was an important factor in its acceptability to both participant groups, although teachers appeared keen to include longer as well as short term effects, despite acknowledging that they might not be effective.

Future work will be undertaken to incorporate the findings of this study into an enhanced version of the ASQ, in preparation for a process evaluation and pilot trial to explore its potential effectiveness. This study underlines the importance of undertaking qualitative work during intervention development.

INTRODUCTION

Background

In the United Kingdom (UK), the consumption of alcohol by young people under the age of 18 has been associated with a number of harmful consequences, including accidents, injuries, problems with decision making and concentration, depression, sleep disorders, and mental health issues (Newbury-Birch et al., 2009, Donaldson, 2009). Evidence also points towards a link between early heavy consumption and alcohol related problems in late adolescence and adulthood (Beynon and Hungerford, 2012, Kuntsche et al., 2013, Viner and Taylor, 2007).

In 2009, the Chief Medical Officer advised that young people under the age of 15 should avoid consuming any amount of alcohol (Donaldson, 2009). Some evidence suggests that the total number of young people aged 11-15 who have ever tried alcohol has decreased during the last decade (from 63% in 2013 to 38% in 2014) (Fuller, 2015). However, the period of adolescence from age 11 to age 15 is an important time for transitions, and the same evidence shows that by 65% of 15 year olds drink at least on an occasional basis. Furthermore, there are high rates of drunkenness; nearly half of 11-15 year olds who had consumed alcohol within the last four weeks reporting that they had been drunk (Fuller, 2015). By the age of 16, other studies show that 90% of adolescents in the UK have tried alcohol (Hibell et al., 2012), and many are drinking with the intention of getting drunk (Currie, 2012). The UK also has a higher prevalence of adolescent alcohol consumption than other European countries (Hibell et al., 2012). This evidence shows that it is important to plan effective prevention programmes in order to reduce the potential harms that are associated with adolescent drinking.

Prevention

A number of recent Cochrane reviews have examined the evidence for prevention programmes that aim to reduce risky drinking in adolescents (Foxcroft and Tsertsvadze, 2012). These reviews found that universal prevention programmes, such as the Life Skills Training programme, or The Strengthening Families Programme, which are delivered over extended time periods, involving families as well as young people themselves, and comprising multiple components, all have the potential to reduce alcohol related harms (Foxcroft and Tsertsvadze, 2012). However the problems of implementing such costly and time consuming prevention activities are undoubtedly a barrier to their widespread adoption (Velleman, 2009) and this may mean that young people who are at greater risk of

alcohol related harms could be missed (Tigges, 2003). Schools, therefore offer an important opportunity to reach and engage with larger numbers of adolescents. Alcohol and drug education often fall under the category of Personal, Social, Health and Economic Education (PSHE) in schools. PSHE, however, is currently a non-statutory part of the state curriculum in England (Department for Education, 2012). The non-statutory status of PSHE means that there is often wide variation in how and what young people learn about alcohol in schools (Macdonald, 2009). Schools in the UK report being under considerable pressures in terms of the statutory curriculum already and feel under too much pressure to take part in additional activities (Alibali and Nathan, 2010).

A further concern with the provision of alcohol misuse prevention in schools is the limited evidence base for smaller scale, brief interventions, delivered in the classroom. A large scale review of the effectiveness and cost effectiveness of alcohol education in schools conducted for the National Institute for Clinical Excellence (NICE) in 2007 identified that that current alcohol education in schools can have an effect on young people's alcohol knowledge, but it found a lack of evidence about its impact on actual alcohol use (Jones et al., 2009). In fact, some prevention programmes may even have the opposite effects to those intended, increasing the behaviour that they aiming to reduce (Hornik et al., 2008, Fishbein et al., 2002, Werch and Owen, 2002).

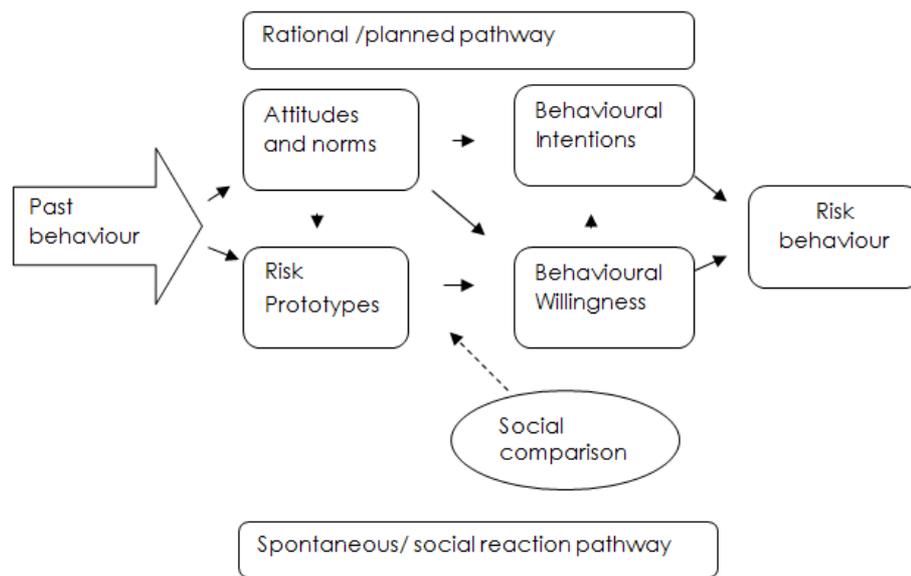
There are two potential explanations as to why there is a continuing lack of evidence for the effectiveness of alcohol prevention programmes. One possible explanation is a lack of a theoretical basis. Without a theoretical basis programmes may fail to address the determinants of adolescent alcohol use (Michie and Prestwich, 2010). Another explanation might be that the theories they are based upon fail to account for adolescent risk taking behaviours, such as alcohol consumption (Reyna and Farley, 2006). For example, The Theory of Planned Behaviour (TPB) (Ajzen, 1991) has been widely applied within interventions (Hardeman et al., 2002), despite the core assumption that risk behaviours, such as drinking alcohol, are rational and under conscious control. However, these types of models have often been found lacking in their explanation for risk behaviours such as drinking (Armitage and Conner, 2001), and some researchers have called recently for this approach to be 'retired' (Sniehotta et al., 2014). The adolescent period is characterised by high levels of impulsivity (Arnett, 2007, Powell, 2006) and drinking tends to occur in social situations where peer influences are strong (Kelly et al., 2012, Gibbons et al., 2003). Therefore, adolescent drinking may be better explained as a reactive, rather than a planned behaviour (Gibbons et al., 2003).

Prototype Willingness Model

The Prototype Willingness Model (PWM) (Gerrard et al., 2008) may offer an appropriate alternative theoretical basis for an intervention to reduce alcohol misuse adolescents in the UK (Rivis et al., 2006, Davies et al., 2013, Davies et al., 2015a). Within the PWM, there are two assumed routes to risky behaviour; the first via attitudes and intentions, similar to the TPB (Ajzen, 1991). The second route is a *social reaction* pathway to risk behaviour via *prototypes* and *behavioural willingness*. The social reaction pathway takes into account that risk taking tends to occur in a social context during adolescence, and is often unplanned (most adolescents, for example, are unlikely to report that they intend to get drunk, but may well do so if they find themselves in certain situations) (Gerrard, et al., 2008). Because of the social nature of risk-taking, adolescents often have clear ideas about the typical person their age that drinks. For example, adolescents in a focus group study described drinkers as 'sociable' and 'cool' (Davies et al., 2013). This image, or prototype, is assumed to be widely recognised and when drinker prototypes are more *favourable* and more *similar* to the self, young people will be more willing to drink (and therefore gain some of the associated prototype characteristics) (Gibbons et al., 2003). Prototypes are associated with those who engage in the target behaviour (drinkers) as well as those who do not (non-drinkers)(Gerrard et al., 2002).

Within the PWM, the influence of prototype perceptions on behaviour is mediated by *behavioural willingness*; which describes extent to which someone is prepared to engage in a risk behaviour in a given risk-conducive situation (Gibbons and Gerrard, 1995). The concept of *behavioural willingness* assumes that although someone may have no expectation of undertaking a behaviour, such as drinking, they do have some idea about how they might react in certain situations (Gibbons et al., 2003). In contrast with intention, willingness is assumed to operate in a subconscious way with little thought about any consequences of engaging in a behaviour (Gibbons et al., 2000). Social comparison and peer influence are thought to mediate the relationship between prototypes and willingness in adolescents because this is an important time for identity development (Gerrard et al., 1999, Gibbons et al., 2009).

Figure 1: The Prototype Willingness Model (adapted from Gerrard et al, 2008)



Previous research has shown that the PWM is able to offer a good explanation for risk behaviours, such as alcohol consumption in young people (van Lettow et al., 2014, Todd et al., 2014, Gerrard et al., 2002). Other studies have also shown that the PWM may offer a suitable basis for an intervention, for example in substance misuse (Gerrard et al., 2006) and physical activity (Ouellette et al., 2005). A number of studies have applied this model to alcohol consumption in the UK, by university students (Norman et al., 2007) and in adolescents aged 16 (Rivis et al., 2006). However, there is less research that specifically examines the PWM in relation to preventing alcohol misuse in young adolescents, under the age of 16, in the UK.

Intervention development

Intervention development has been conceptualised within a number of phases by the Medical Research Council (Craig et al., 2008). The 'development' phase within this framework covers the important process of identifying the evidence base and ensuring the intervention is clearly linked to theory, a step that is sometimes neglected (Michie and Abraham, 2004). During this phase in the development of the Alcohol Smart Quiz, a co-production approach was taken, involving input from adolescents, teachers and parents as key stakeholders in the intervention at different stages of its development. Co-production aims to acknowledge and empower young people (and other stakeholders) through collaboration in the intervention development process (Realpe and Wallace, 2010). Similarly, the Person Based Approach, highlights the benefits of using qualitative

studies during digital intervention development (Yardley et al., 2015). Both approaches aim to increase the acceptability of interventions to their ultimate end users.

Co-production in the current project involved a qualitative focus group study and a survey of adolescents at the outset. There were two important findings from the focus group study. Firstly, it showed that that young people in the UK were able to describe drinker and non-drinker prototypes that potentially could be targeted in an intervention. Secondly, the findings also suggested a distinction between 'planned' drinking by older participants (aged-16-17) and 'unplanned' drinking in younger participants (aged 11-13) (Davies et al., 2013). A survey of 178 adolescents aged 11-17 built on these findings by exploring the relationship between prototypes, willingness, intentions and alcohol consumption. The survey results suggested that young people aged 11-15 were likely to be a more appropriate age group for an intervention targeting prototypes and willingness than those aged 16-17. Furthermore an exploratory factor analysis suggested that targeting prototype characteristics that were related to 'sociability' might be an appropriate focus within the intervention (Davies et al., 2015a).

Although there has been a drive in recent years to classify behaviour change techniques (BCTs) according to theoretical and behavioural features, at the time of development no clear BCTs related to the PWM had been specifically defined and agreed. Thus, within the development of the ASQ, techniques used in eight existing PWM interventions were extracted and compared, to a taxonomy of BCTs (Abraham, 2012) to identify if they adequately reflected the assumed change processes in the PWM. This process was evaluated in a Delphi study, which resulted in four BCTs being identified that were relevant to the social reaction pathway of the PWM. This work was the first to specify BCTs for the PWM (Davies et al., in press). This work suggested that a PWM intervention should aim to target the favourability of 'drinker' and 'non-drinker' prototypes, and provide instruction on resisting social pressure to drink. Implementation intentions are 'if-then' plans that link situations to specific actions or behaviours to help them become automatic (Gollwitzer, 1999). They have been used successfully in a number of interventions, for example in a teenage pregnancy intervention young women were encouraged to make plans to take their contraceptive pills at specific times (Martin et al., 2011). This technique was applied within the ASQ with examples of plans that adolescents could make in advance to resist social pressure to drink, and reduce specific harmful consequences.

The Alcohol Smart Quiz

An online format was selected for the intervention to ensure that fidelity would be maintained and because of the potential to be engaging to the intended audience. 'Serious games' for use in educational settings have been suggested as a good way to engage with young people and a survey suggested that this was something that teachers would consider acceptable (Williamson, 2009). The first version of Alcohol Smart Quiz consisted of ten questions, each specifically linked to one of the four identified BCTs, with the objective of changing alcohol prototypes and reducing reactive drinking influenced by social pressure. The information in the quiz was presented as originating from a survey of other young people, in line with other studies (Teunissen et al., 2012, Blanton et al., 2001). For each question there were three possible choices provided and the correct answer was intended to be presented in the form of a video clip of a young person in the target age group explaining the answer. Prototype descriptions were taken from previous development work (Davies et al., 2013).

In line with a person based approach to intervention development (Yardley et al., 2015), qualitative work was undertaken to further refine the ASQ. An initial version of the intervention was constructed on paper and adolescents views were sought in a think aloud study (Davies et al., 2015b). This study identified some important improvements for the ASQ. Firstly, that the distinction between drinker and non-drinker prototypes was not appropriate, even for very young adolescents, who perceived some drinking to be inevitable. Secondly, the findings suggested that the use of implementation intentions should be incorporated more explicitly, providing clearer examples, as well as encouraging participants to develop and discuss their own plans. Thirdly, the findings also suggested while some aspects of the ASQ were perceived as credible, that it was important to ensure that this was maintained throughout the intervention, in particularly acknowledging the reasons why adolescents drink (Davies et al., 2015b).

The original version of the ASQ had many features that meant it was highly acceptable to adolescents. For example, the participants reported that they thought it was different to other alcohol education, which was more about just saying no or health issues. The use of a website and quiz was also seen as engaging. Furthermore, incorporating skills that could be used in social situations where alcohol was presents was seen as a positive feature. The ASQ was also reflective of the participants' real life experiences of alcohol, enhancing its credibility (Davies et al., 2015b).

Following development work, incorporating the views of young people in the study detailed above, as well as findings from a Delphi study and a survey of parents and teachers, an enhanced version of the ASQ was produced. This version included additional BCTs to provide information about consequences of drinking. All of the BCTs were defined using the most recent taxonomy of BCTs (Michie et al., 2013), where possible. All BCTs and how they relate to the quiz questions and answers are shown in Appendix A. Main changes included adapting the questions in line with specific implementation intentions, and to replace the 'drinker' prototype with a 'drunk' prototype. A logo was designed to enhance the visual appeal of the intervention, and additional worksheets were designed to encourage adolescents to come up with their own implementation intentions style plans. The updated ASQ quiz questions targeted the perception of non-drinker and drunk prototype images; presented normative information about drinking; discussed social influences on drinking; and provided examples of how social pressure and harms could be resisted using 'if-then' plans. In addition there were some facts and statistics about drinking alcohol (SEE APPENDIX).

Teachers

As the ASQ was intended to be delivered in schools, it was important to consider barriers and facilitators that might influence implementation. Teachers play an important role in delivering alcohol education to young people as part of Personal, Social and Health Education (PSHE) or in the science curriculum. Schools are also vital gatekeepers in the negotiation of access to young people to trial a new intervention programme such as the ASQ. However it is often challenging to gain access to schools within which to conduct this type of research (Testa and Coleman, 2006, Tyler and Davies, 2013). The cooperation of teachers and schools is vital for a successful trial of an intervention. This matter is not only important in terms of school participation and recruitment of young people; intervention fidelity is essential in a trial to determine effectiveness. If the content of a programme is not acceptable to the teachers responsible for delivering it then they may be tempted to add or leave things out. If they do not support the intervention messages then this could severely undermine the programme. There appears to be little research into what teachers think about alcohol education in general or about the content of specific interventions prior to their implementation. The inclusion of feedback from teachers therefore represents an important addition to the development of the ASQ.

PROJECT AIMS

This small grant funded the programming of The Alcohol Smart Quiz into LifeGuide open source software for the development of digital interventions (Yang et al., 2009). This is an ESRC funded project that is part of the national Digital Social Research programme. LifeGuide provides software that allows intervention designers to create their own digital interventions and features include allowing tailoring and providing feedback to participants. The programming work took approximately 10 days, including learning to build code in LifeGuide 'logic', designing the website pages, and ensuring that the ASQ was able to run without errors. The remainder of the funding was used to take this version of the ASQ to adolescents and teachers for their input.

Specifically, there were two distinct aims to this part of the project:

- 1) To determine the acceptability of the content and format of the ASQ to adolescents and teachers
- 2) To determine factors that might influence the feasibility of delivering the ASQ within a school setting

METHOD

Think aloud interviews

In a think aloud interview participants are required to talk out loud about what they are thinking while completing a task. The method is widely used in psychology as a form of cognitive interviewing (French et al., 2007, van Oort et al., 2011), in website design (Jaspers et al., 2004, Damico and Baildon, 2007) and more recently in the development of online interventions (Yardley et al., 2011). The benefits of this method are that it can reveal how intervention techniques are interpreted by the intended recipients, and it can help to ensure the language used is understandable and credible.

Participants

Previous work had identified that younger adolescents might be the most appropriate population for an intervention to target alcohol prototypes and unplanned drinking. Therefore, adolescents aged 11-14 were invited to take part in the study. Recruitment continued until data saturation had been reached. In total, 17 adolescents aged 11-14 into (9 females) and nine teachers (all female) took part in the study. Advertisements

about the study were placed on a University electronic notice board and sent via email to local schools. All participants were required to provide informed consent (in addition, parents were also required to provide consent for their child to take part in the study).

Procedure

The interview format used was a semi-structured followed by a think-aloud interview. Interviews with young people lasted between 25 and 40 minutes and took place on University premises. Parents accompanied the participants to the interview, but were asked to wait in a separate area while the interview took place. Interviews with teachers lasted between 35 and 70 minutes and took place at the participant's place of work or on University premises. All interviews were conducted by the author and were audio recorded and transcribed verbatim by a professional transcriber. At the end of each interview, participants (and parents) were offered a £10 voucher to thank them for their time. The study was granted ethical approval by Oxford Brookes University Research Ethics Committee (study reference number 140870). See Appendix for interview schedule.

ANALYSIS AND RESULTS

The analytic procedure was completed using the six phases of thematic analysis proposed by Braun and Clarke (2006). Thematic analysis is an appropriate analytic approach when the aim of the process is to identify patterns across an entire data set (Howitt, 2013). It also allows the researcher to use both deductive (hypothesis driven) and inductive (data driven) coding. This is ideal for the current project where the primary aim is to determine the feasibility of a specific intervention, while allowing emergent concepts and ideas to be identified (Braun and Clarke, 2006).

Analysis

Initially, the researcher read the transcripts whilst listening to the audio recording to check for accuracy. The transcripts were read and re-read a number of times during the familiarisation phase. Notes were made about what appeared to be important to each participant. Once all of the interviews with adolescents had been coded, there were 92 separate codes. There were a small number of duplicate codes at this stage, and so these were combined with other codes. It was also evident that some codes could be combined for theoretical or semantic reasons at this stage. This left a final set of 56 codes. Once all of the interviews with teachers had been coded there were 158 separate codes. This was reduced to 78 once duplicates were identified and others were merged together.

During the search for themes, all transcripts were re-read and the set of codes were gradually combined into groups that could comprise potential themes for the adolescents and teachers together in relation to the research aims.

Themes were then reviewed, looking across the coded transcripts and the entire data set to ensure that they gave a coherent voice to the body of data. The themes were named to reflect both semantic and latent properties. These names and the interpretation of the themes continued during the write up phase, until the researcher was content that the analysis reported here was a good representation of the data set. As this research was conducted and written up by a sole author, discussion took place and advice was sought from colleagues who had expertise in qualitative data analysis and in young people's alcohol consumption, during the process of interviewing participants and analysing the data. The final set of themes and sub-themes are discussed in the results section and supporting quotes from the participants are provided as supporting evidence.

Results

There were four main themes identified within the transcripts of interviews and each theme had some related subthemes (Table 1).

Table 1 Themes and subthemes identified in the thematic analysis of think aloud interviews

Main theme	Subthemes
Moderation	<ul style="list-style-type: none"> Prototype perceptions Physical effects of drinking Social embarrassment Minimising harms
Alcohol perceptions	<ul style="list-style-type: none"> Drinking norms Accepting the inevitable Social media and social image
Making decisions	<ul style="list-style-type: none"> Pressure Willingness to drink / reasons for drinking On the spot decision making Learning outcomes in PSHE
Facilitators and barriers to implementation	<ul style="list-style-type: none"> Positive features Suggestions for improvements Credibility Classroom implementation

Theme One: Moderation

The theme 'moderation' reflects that evidence within the transcripts that 'a little bit of alcohol is fine', but excessive drinking was viewed negatively. This is drawn out in the way that the 'drunk' prototype was described. For teachers, this relates to an acceptance that young people will experiment with alcohol that and an acknowledgement of this is required. It was also built upon in the participants' talk about the harmful consequences of drinking, which could be physical, such as being sick, or social, such as feeling embarrassed. Both participant groups appeared to be concerned with reducing harms. By drinking in moderation, adolescents might be able to avoid being labelled like the drunk prototype and could also avoid the unwanted physical and social consequences of drinking too much.

Prototype perceptions

This sub-theme relates to how the 'non-drinker' and 'drunk' prototypes were perceived by the participants. They recalled a number of stories about adolescent drinking, often at parties, which made drinking seem a little bit dangerous and cool. There was also an element of excitement because drinking was usually forbidden for adolescents:

I think they [drinkers] do it because they think it's cool and they do it because they are not supposed to (Josie, F, 14)

There were other instances where drinking was perceived as a way to get attention at or to fit in with different groups of people. However, there were also positive reasons for drinking, particularly to have fun in social situations:

[Non-drinkers are] maybe like a little um too careful cause It's alright to drink a little bit as long as you don't drink too much and it's kind of like a little less fun to not have a drink cause then you can meet people and like have fun kind of thing (Aaron, M, 11)

Thus, while drinking a small amount of alcohol was generally viewed in a positive way, some of the younger adolescents appeared to ascribe negative characteristics to other people of the same age as them who got drunk:

Some people are like, they drink and they don't know, like I think they do know the consequences, they know that being drunk isn't good for them and it kind of like gives you a bad reputation and stuff but they just kind of do it anyway in a way, so they don't like care for their reputation (Kate, F, 13)

For these participants, the negative view of a young person who go drunk seemed to relate to reputational issues, such as being rebellious or part of a 'bad crowd'. These people were reported as being in the minority. Other participants talked about different types of drinkers, illustrating the challenge of presenting a specific prototype within an intervention:

But then, you can be a different type of drunk, I know one of my friend's [name] he is a happy drunk, he doesn't have to drink much either. Erm. then I know someone else who just like cries, it's really weird actually. So it depends what kind of person (James, M, 14)

The teachers also thought their students would view non-drinkers in a negative way:

As a young person you'll probably say boring, unusual (Ms Fox)

On the other hand, the teachers thought that their students might also describe a drunk person in a negative way at a younger age, but that this might become more positive with age. It also might depend on the different social group that the young person belonged to:

Some would be absolutely disgusted because they knew their friend was in that state and the others would think 'oh that was cool, I wish I'd had the nerve to do it (Mrs Jones).

The variety of ways in which the adolescent participants talked about drinking alcohol suggest they held ambivalent views. Taken together, this evidence highlights the sensitive nature of prototype perceptions and the need to present a realistic image within the intervention.

Physical effects of drinking

Drinking in moderation appeared to receive approval because it could enable participants to avoid the unwanted physical effects of alcohol:

You are not completely in control when you have alcohol so you may do things that can impact your life. Then if it's only a little bit of alcohol and it's not like every week then I guess it's kind of okay (Martha, F, 14).

Participants talked about short term effects such as accidents and injuries, as well as, to a lesser extent, liver disease and addiction. Responses to questions that asked the participant to suggest what they might do if something, such as passing out, happened to their friend, generated some lengthy discussion. Teachers appeared to view this aspect of the ASQ as important, but were also keen to discuss long term physical effects and addiction.

Social embarrassment

Avoidance of social embarrassment also appeared to have an important role to play, which could be related to the feeling that moderation was to be encouraged. Adolescent participants seemed very aware of reputational issues, and keen to preserve their dignity and social status:

Being sick is probably quite embarrassing cause it's gross! And it shows that you probably haven't got much self-control if you've actually been drunk to the point of being sick, especially in front of everyone, that would be horrible, I would not want that to happen at all! (Anna, F, 14)

These reputational consequences were also linked to sex and the perception of girls (in particular) who got drunk as 'easy' as Aisha elaborated:

I know if you get wasted frequently people will think you're easy so I wouldn't go down that road or you get a reputation. Like if a girl got drunk easy boys could take advantage or some boys could think the opposite and just be like 'stay away for her'. People don't like reputations cause it can ruin your status in school (Aisha, F, 13)

It seemed that maintenance of social reputation and the avoidance of embarrassment were important concerns to these participants.

Minimising harm

Linked to this, it appeared that the teachers were receptive of the harm reduction focus within the ASQ. Some appeared driven by a focus on reducing the short term effects of experimenting with alcohol, rather than any of the long term effects of drinking too much:

It's hard for them because at that age they don't really have a long-term view of anything and that's what I think is the most difficult thing um for them to understand is long-term because their time-span and their thinking is a week, two weeks, three weeks at the most (Mrs Lamb)

However, other teachers felt it was important to talk about these issues:

I think that would be really interesting to maybe show them kind of the long-term effects on the liver (Miss Fry)

In addition to some of the short term effects described in the ASQ, there were other suggestions to help young people minimise the harms from drinking alcohol:

What the dangers are of being out of control, what the difference is between different drinks, what's the safest way to drink if you are going to drink (Ms Day)

Ms Day's quote above reflects the view that alcohol education in schools could include discussion of drinking safely, such as talking about how some drinks are stronger measures than others. Most of the teachers felt that information about units should be also included.

Theme Two: Alcohol perceptions

The theme 'alcohol perceptions' brings together the cultural aspects of drinking for adolescents. Firstly, that drinking is an inescapable aspect of life in the UK, with sets of drinking norms that can be applied to many scenarios. Secondly, that young people have a complex set of perceptions about drinking alcohol, with both positive and negative views. Thirdly, the evidence suggests that drinking norms and perceptions are in many cases, amplified through social media.

Drinking norms

This sub theme reflects the participants' discussions and interpretations of the cultural norms of drinking that are ever present in British life. For these participants, alcohol consumption

was a normative part of the lives of adults that they knew, as well as being a rite of passage during the teenage years:

There's a status like 'yeah I'm 13 now perhaps I should try it' even though they're under-age they want to feel grown up so um, yeah I think that being that that's the age that people might start thinking about trying it and because also there's a higher degree of independence....kind of better to think of it like kind of a looser chain (Will, M, 12)

Drinking norms appeared to be influenced by older siblings and adults within the family, as well as the media, with television programmes and music videos being discussed in light of their portrayal of alcohol.

Acceptance of the inevitable

Although some of the teachers felt that it would be appropriate to encourage young people in their care to avoid drinking at a young age, most of them appeared resigned to the realities of teenage experimentation:

It just seems to be a rite of passage actually that some will drink whatever you tell them and short of locking them up and keeping them out of every opportunity where they can get it, I actually don't think there's a lot you can do to stop it (Mrs Jones)

The teachers reported that they tried to acknowledge this inevitability within their lessons about alcohol in order to maintain credibility with their students:

There's a reputation about being a certain age and going out and getting drunk isn't there, and drinking (Ms Fox)

Even for the young adolescents who reported that they had not tried alcohol, there was a sense of acceptance that this was something that would happen in the future.

Social media and social image

There were many examples within the transcripts that demonstrated the power of social media for these participants. This evidence suggested that many actions are amplified

and mediated via social media for teenagers. For example, participants talked about people that they knew posing for pictures whilst pretending to drink:

We've like seen like on Snap Chat and stuff people will take pictures of them drinking, which is ridiculous (Aisha, 13)

Even though the possibility that these photos were faked was acknowledged, the potential influence of such images could be strong and encourage young people to act in a similar way to maintain a certain reputation. Moreover, social media was also portrayed as a place where this reputation could be undone when under the influence of alcohol:

My friend had something put on Snap Chat that he really didn't want and it was against his will but he was drunk and so he didn't really know what he was doing! So everyone saw it for 24 hours and he was so embarrassed... at school he couldn't look at anyone for like two weeks because he was so embarrassed... it was a picture of him with no clothes on (James, M, 14)

These types of experiences appeared to be commonplace as they were mentioned by many of the participants, particularly those aged 13 and 14.

Evidence from nearly all of the teachers demonstrated the negative aspects of social media in young people's lives. It appeared that most of the schools had experienced serious incidents related to inappropriate photos had been shared, not all related to alcohol, but drinking often featured in the re-telling of these stories:

We had one incident which was alcohol-related where um photos were taken and then distributed and the police were called I think, we had, it was a police investigation (Mrs Lamb)

Because of the access to on your mobile phones and things we've had young girls sending photographs of themselves to boys it's then been uploaded and gone viral and it's just horrific (Mrs Rowe)

The power of social media to damage a young person's reputation was a clear concern to the teachers. It seems that further discussion of this issue could be important in the ASQ.

Theme Three: Making decisions

The theme 'making decisions' describes the participants' reasons for drinking alcohol and the teachers' apparent aim to equip their students with the skills to make the decisions that they felt were sensible and would reduce the most risk. This theme incorporates their responses to the plans set out in the ASQ, and their overall aims within alcohol PSHE.

Firstly, the ubiquitous issue of peer pressure, was evident within the transcripts. Secondly, the reasons that the participants discussed for trying or being willing to try alcohol were multifaceted. Thirdly, the presence of implementation intentions (making plans) within the intervention, was positively received, with a caveat that such plans may be unsuccessful in the heat of the moment.

Pressure

The sub-theme 'pressure' relates to the participants' reports of both experiencing and imagining social pressure, not only to drink alcohol, but in relation to other aspects of their lives. The transcripts suggest a strong role for peer pressure in the initiation and maintenance of drinking:

If one of your friends had like a party and there was loads of people there and your friend asked you to have a drink then if you're um and if there are loads of people there then you might feel like pressurised and you have to do it otherwise they'd all make fun of you (Eliza, F, 12)

Eliza's quote is typical of the other participants, regardless of age. They reported a strong need to fit in and appeared to be concerned about which behaviours might mark them out as an outsider, or someone who didn't know how to have fun.

Teachers described how their students felt under pressure to conform to a range of social behaviours. They also mentioned exam pressures as a challenge to their students' well-being. Being bullied for not being part of the crowd appeared to be a common concern:

They were just saying how um it would literally be if their mates are doing it they feel like they have to because they're going to get bullied picked on. That's the main one response that I was getting from the lessons um it was just fear of embarrassment (Miss Edwards)

Willingness to drink / reasons for drinking

The sub-theme 'willingness to drink / reasons for drinking' describes the factors that appeared to influence drinking motivations. While peer pressure was acknowledged as a potential influence in trying alcohol, the participants seemed to talk of themselves as free agents in the process. Curiosity was a reason to try alcohol, rather than someone being put under any pressure by someone else:

[Alcohol] is like really interesting, it's like what could happen to you.... and how it could affect you kind of thing.. it could affect people massively but some other people not at all and it could be like pretty nice (Aaron, M, 11)

Other participants presented their own decisions as autonomous, and appeared quite keen to claim an absence of peer pressure in their own decision-making:

In my friend group we don't get peer-pressured into it, you only drink if you want to but I know in other ones they're like 'have a drink, have a smoke' or whatever. That's not my group though, that's the rough kids (James, M, 14)

It is important to use appropriate language within the intervention to ensure that this sense of agency is acknowledged.

On the spot decision making

This sub-theme encapsulates the opportunities and challenges that implementation intentions might offer to young people in a social situation. The idea of having a pre-prepared 'excuse' or a response to a situation where alcohol was present was viewed in a positive way:

Making a plan, so you know what to do um it's a pretty clever idea because you can still do all the stuff that your friends do but then just say, I don't know 'I don't feel well' or 'I feel a bit sick' or 'I have a headache', so you still have fun but then you just kind of like stop that pressure (Tim, M, 13)

Many of the participants, like Tim, talked about it being a sensible way to think about what might happen in a given situation. In particular some reflected on the challenges of ending up in a situation where alcohol was present, and that it would be useful to have something to say when this did happen:

If you just wait until it happens then you probably, it's, you probably get really flustered and if you already are drunk, it's a bit late. If you plan beforehand then you have more time to think about it and actually clear headedly think about something what you could say, what implications it might actually have (Anna, F, 14)

Anna's comment about being 'flustered' suggests that making a decision on the spot comes with additional challenges. For some of the participants this meant that they were sceptical about whether these pre-made plans could realistically be enacted:

You get pressured and that kind of makes you a bit nervous and makes you really want to do it cause they're encouraging you to do it (Max, M, 12)

It may be that even if personally relevant plans are made, participants might fail to enact them in the heat of the moment. In relation to the plans discussed in the quiz, the teachers were positive about the potential to reduce harm. However, there was a caveat to their usefulness, once a large amount of alcohol had been consumed, as Ms Smith described:

I think that trouble with planning it when you're talking about alcohol is that often your friends are drunk as well and you've just no idea how they're going to respond or be during their drunkenness [laughs]. So you might well all agree that nobody is leaving on their own or that you know that that you're not going to get in anybody's car on the way home or whatever but you know those become, plans can become shattered by the reality of young people's mis-use of alcohol um. So it's a, you know It's certainly something I talk about, I think the reality is quite different you know just from experience! (Ms Smith)

In addition, three of the teachers were critical about the content of the plan to avoid drinking because it was calorific. They cautioned against this approach due to issues with weight and body image that they had experienced with their students.

Learning from experience was commonly mentioned by the participants, as a means of learning 'limits', or the personal amount that a young person might be able to drink, without suffering ill effects.

Learning outcomes in PSHE

It appeared that the teachers' main aim for their students was to impart knowledge about the effects of drinking, in the hope of encouraging them to make 'good choices'. It was not always clear what a 'good choice' might entail, or how you would measure whether this had been made:

Yes I suppose you do a general talk about the way alcohol affects the body um from a physical point of view and emotional point of view and um talk about addiction, how this happens and probably we then go on to think about how they can think before they jump um which isn't always that essay because they don't know they're going to do it (Mrs Jones)

It is possible that the most that teachers could expect was that if a young person was in a situation, then they would know how to reduce harm to themselves and to their friends.

Theme Four: Facilitators and barriers to implementation

The theme 'facilitators and barriers to implementation' draws together the evidence that demonstrates the facilitators and barriers to implementing the intervention. While positive features, such as the focus on reducing harms, and the quiz format were well received, there were a number of suggestions for additions and improvements to enhance the acceptability of the ASQ. Classroom implementation was not thought to be overly challenging for most of the teachers' schools. Finally, the participants did see the content of the ASQ as credible, and possible reasons for this are presented.

Positive features

Although the quiz rewarded participants for the correct answers with points, they reported that they liked discussing the right and wrong answers:

I just really like these thinking questions where you really have to think about it and can also give your opinion (Becca, F, 12)

The question and answer format was also positively viewed because it gave the participants more control in comparison to a traditional lesson in school:

I liked it because um instead of just telling you something it kind of asks you questions about it which I think um was good because it makes you feel more like you're in

control. Sometimes if the teachers just tell you things then you feel a bit like 'oh I don't really want to listen to you' (Anna, F, 14)

Many of the teachers were positive about the ASQ format, with many talking about its potential to prompt discussion in the classroom. Teachers also reported liking the use of facts and showing the source of the information:

I like the way the facts are kind of interspersed with the answers (Ms Smith)

Teachers were also positive about the inclusion of information about what to do if someone came to harm while drinking. Furthermore, the use of quotes and information that was from other teenagers was viewed in a positive light.

Suggestions for improvements

Participants made suggestions about the website design, which can be used to make the ASQ more appealing:

Maybe add a few er things to make it more appealing like as in maybe have a catchy phrase or something, some jazzing up.... um, maybe some doodles on the side or something (Tim, M, 13)

The quiz question about similarity was not well understood by the majority of the participants:

With the one 'how alike would you be', I wasn't too sure because I always think you can be alike to anybody because you could have, share interests with anyone and I don't know, I thought it was a bit, I was surprised, (Kirsten, F, 13)

It is possible that similarity to a non-drinker could be induced in another way, and findings strongly suggest that this aspect of the quiz needs further development.

Teachers suggested that further information about the long term harms from drinking would be a useful addition to the quiz. They also talked about facts and questions about units. Some teachers thought that it would be useful to discuss safe levels of drinking:

"How much is too much?" Like "what would you think is ok at a party?" You know like ah to have a couple of beers, to take, to get. Yeah those kinds of degrees of drunkenness that are acceptable. I wonder about that. Ah also the difference between binge drinking and regular drinking, I wonder whether there, if you asked them what's more dangerous, to drink this much regularly (Miss Day)

Some comments related to the credibility of the information were received where teachers raised issues around the potential for the ASQ to lead to reactance from their students:

And to me 11,000 going to hospital seems quite a lot but it depends what your perception of the world is really doesn't it? Um, I think it could either mean a lot or it might mean nothing, it it's a very difficult one to um, the straightforward facts are better and I think that's interesting about the alcohol decreasing um... but then I can see some of them saying, 'well where have you got that from because all my mates are doing it' (Mrs Jones)

This is a really critical issue for the ASQ that relates to the credibility of the messages that are imparted, and is discussed below.

Credibility

An important issue during the development of the ASQ was to ensure that the information contained in the intervention was credible to adolescents. One particular way that this was enhanced in the current study was by the use of quotes from other adolescents (from previous studies) and by including the source of the information alongside each question (such as national statistics):

I quite liked the information because you know it is a real person that said that and also you know that it's from an interview with young people so you definitely know that that's somebody that's your age, or very much your age, that's saying this (Becca, F, 12)

Another aspect which appeared to enhance the credibility of the intervention was that the participants felt that it was not telling them they should never drink:

It's good cause it hasn't said anything about not doing it but it's kind of like hinted in a way like bad things will happen if you overly drink but it hasn't said anything about oh 'one glass of wine is going to make you do all this', so yeah (Kate, F, 13)

Other issues that might threaten the credibility of the intervention message were related to how the prototypes were described, discussed above. However, overall it appeared that the information was believable and that the ASQ could be acceptable to adolescents in its current form.

Teachers were also concerned with the delivery of a credible, believable message to their students. In connection with the main theme about moderation, teachers were keen to highlight the importance of a credible message. For example, in talking about the positive outcomes associated with using alcohol:

I think maybe the good points of alcohol, because we shouldn't, it's the same with drugs we can't paint that as all bad otherwise they're just going to go and do it and I think quite damaging possibly or it can have quite an adverse effect. Um so I think actually where it's useful, where alcohol is a good thing (Miss Fry)

Classroom implementation

An important aim of this study was to explore how the ASQ might be implemented in a real world classroom. However, across the interviews, the use of computers in PSHE lessons was not seen as a barrier. In addition, the teachers reported that they thought the intervention could be delivered in a flexible way, as a whole class, or individually, with time for discussion and interaction:

I think you can use it in all different ways, we have net books that we can hire out from the library so they're sitting on their own doing that in a casual kind of room um or in a classroom we could have it on the screen and then they're answering their own questions online or we could just show it and answer the questions together as we go through so I think it can quite adaptable, yes (Ms Fox)

All of the teacher participants talked about the need for high quality PSHE lessons, or schemes of work, with one head of PSHE describing it as the bedrock of her students' studies:

I realised that it was the only and most important subject really... I've been trying to say 35 minutes a week is not acceptable and we need more time (Mrs Smith)

Another reason for PSHE being important was to fill any gaps that were left if parents were unable to broach difficult topics:

That's the message that we are getting from parents actually, is actually how hard it is for them to talk about these issues (Miss Fry)

DISCUSSION

Summary of findings

The overall aim of this project was to determine the factors that might influence the feasibility of the ASQ; specifically to 1) determine the acceptability of the content and format of the ASQ to adolescents and teachers, and 2) determine factors that might influence the feasibility of delivering the ASQ within a school setting. A number of themes and subthemes relating to acceptability and feasibility were identified in the transcripts of interviews with adolescents and teachers.

The theme 'moderation' was identified across the interviews and it was evident that some drinking during adolescence was perceived to be acceptable by both adolescents and teachers, and that encouraging abstinence would not be a realistic goal for an intervention aimed at this population. Because the ASQ avoids encouraging adolescents to avoid alcohol completely, it was seen as delivering an acceptable message to the intended recipients. As recent evidence has shown, 65% of 15 year olds drink regularly (Fuller, 2015), so an intervention aimed at this age group must take the normative nature of drinking into account.

The study findings also indicated that the adolescents held ambivalent views about alcohol. They discussed positive perceptions of drinkers, and reasons for drinking, such as being sociable, alongside negative views, such as perceiving those who drank as attention seekers, and showing an awareness of harmful consequences. Other research, with young adults (de Visser and Smith, 2007) and children aged 10-12 (Cameron et al., 2003) has also revealed ambivalent attitudes towards alcohol. Even children who had not yet tried alcohol had both negative and positive alcohol expectancies and an awareness of both the attractive features and the harms associated with drinking (Cameron et al., 2003). Teachers in the current study suggested that the ASQ might benefit from some information about the positive reasons for drinking and the acknowledgement that it was a fun activity. This could be further developed to enhance acceptability.

Prototype descriptions were used in the ASQ to encourage a more favourable image of non-drinkers compared to those who got drunk. This comparison was made because of evidence from a previous study that suggested the drunk prototype would be viewed in a negative way (Davies et al., 2015b). However, there was variability in how a typical drunk person was perceived. Prototype perceptions are crucial within the PWM, and previous

research has shown that favourable images of drinkers and non-drinker predict willingness to drink, and self-reported alcohol consumption (Davies et al., 2015a, Gerrard et al., 2002). However, there is less agreement about the optimal way to target these images within an intervention. The themes 'alcohol perceptions' and 'moderation' demonstrated that focus on a moderate drinker prototype could be a way of avoiding the negative connotations associated with non-drinker prototypes and the ambivalence associated with a drunk prototype. Enhancing the favourability of a moderate drinker prototype is also of relevance because a recent cohort study found that young people who drank moderately in adolescence drank less than those who drank heavily in adolescence, by the time they reached young adulthood (Percy and McKay, 2015).

Other researchers have explored the application of different types of drinker prototypes, such as 'tipsy' or 'uncontrolled' drinkers with young adults ((Van Lettow et al., 2012). In recent study with UK adolescents aged 16-18, an 'occasional' drinker prototype was rated as significantly more favourable than a non-drinker or a heavy drinker (Davies et al., in preparation), providing some evidence that this could be a useful way to enhance the acceptability of the ASQ.

The concept of 'moderation' appears to be relevant and acceptable to adolescents and teachers in this study, but it remains difficult to define. One of the teachers in the study said that they wanted their students to know 'how much is too much?' The Chief Medical Officer's advice that young people under the age of 15 should avoid alcohol altogether (Donaldson, 2009) would evidently not be a realistic message, but no other evidence based guidance about how much alcohol could be considered 'moderate' for young adolescents has been identified. In addition, any quantification of 'how much' might be unacceptable to parents and the media, so caution is needed when considering how to frame this message. The focus on reducing short term harms, and knowing how to react if someone became ill or injured as a result of drinking did appear to be acceptable to adolescents and teachers. Reducing alcohol related harm has been demonstrated to be a useful focus for interventions aimed at adolescents (Midford et al., 2012, McBride et al., 2004). However, the participants in this study also wanted the ASQ to include information about the long term effects of drinking, such as addiction or liver disease. While this information could be incorporated, it is important to take into account that because these adverse effects may not occur until adulthood, their immediate relevance, or impact on motivations to drink, may be of limited use. For example, research has suggested that health messages about consequences that might occur in the distant future might not be

meaningful to adolescents (McKay et al., 2012). However, the authors also suggested that if these health messages were given objective time frames, such as 'by the time you leave school' they could potentially have more impact (McKay et al., 2012).

Making decisions and encouraging healthy choices were identified as important themes within the interviews with adolescents and teachers. The ASQ uses implementation intention plans to enact when a specific situation is encountered. While the general idea of making plans to deal with social pressure to drink or get drunk was well received, in common with reactions to the previous version of the intervention, young people saw barriers to enacting these in real life (Davies et al., 2015b). In contrast, teachers saw greater potential in using implementation intentions, in particular in the follow up activity where their students could think about their own individually relevant plans. While a recent study that has explored the use of implementation intentions with schools students aged 16 was successful in reducing binge drinking (Rivis and Sheeran, 2013), no studies have been identified that have explored if they are effective in younger adolescents. Thus the next phase of work to test the use of implementation intentions within the ASQ has the potential to make an important contribution to the literature.

Pressure to conform was revealed as a key threat to young people's social standing and by extension, their wellbeing. The power of the social situation, and the need to maintain an appropriate reputation was recognised by adolescents and their teachers. This finding is expected based on existing evidence for the role that peer pressure has on drinking and other risk behaviours during adolescence (Marsden et al., 2005, Kelly et al., 2012). This finding supports the discussion of pressure within the ASQ, and is a further feature that contributes to the acceptability of the intervention. The interviews also revealed specific pressures in relation to the use of social media. For example, that peers might post pictures of themselves drinking in order to look 'cool'. A study of students' Facebook profiles found that it was desirable to portray oneself as a drinker, and that this might normalise drinking within the peer group (Ridout et al., 2012). Another study found that adolescents who were exposed to fake social media profiles that portrayed drinker prototypes subsequently reported greater willingness to drink and more positive attitudes towards drinking (Litt and Stock, 2011). It is also important to note peer pressure was not the only or main reason that adolescents drink. Many of the participants described their curiosity and highlighted their own agency in making decisions around alcohol. However, these drinking experiences tend to occur in the presence of peers, and often as a reaction to the situation, rather than intentionally (Gibbons et al., 2003).

The current study also aimed to determine what factors might influence the delivery of a digital intervention, such as the ASQ in a school setting. It appeared that there were a number of positive features that meant that this intervention was feasible to deliver within the classroom. Delivering the intervention via computer was not seen as a barrier to its implementation. Similarly, another intervention with a computer component, was also received favourably by teachers, supporting this finding (Newton et al., 2014). Using a quiz appeared to be well received, as this offered the possibility of class discussions about the answers. Using facts and information, such as true or false questions, interspersed with the answers was also seen as a good means of engagement.

Within a tool designed for use in schools, like the ASQ, teacher delivery style is an important intervention variable (Cahill et al., 2014). Research has demonstrated that there are clear differences in the ways in which teachers deliver health education (Shin et al., 2014). This has implications for intervention fidelity and quality and will be an important part of the next phase of work to test the ASQ.

The literature on teachers' views about school based interventions appears to be sparse. However, teachers play a crucial role in ensuring that trials are implemented as planned, and the fidelity of an intervention depends upon their cooperation. Thus, this study has made an important contribution to understanding what teachers about an intervention prior to its implementation in a pilot trial.

Implications

The ASQ intervention has been developed using a co-production approach from its inception. There are some important implications from the current study that will further contribute to its development. Increasingly, the value of undertaking qualitative work during intervention development is being recognised (de Visser et al., 2015, Yardley et al., 2010). The benefits of ensuring that the content and format of an intervention are acceptable to the intended recipients could ensure that issues of acceptability and credibility are ironed out prior to an expensive trial, for examples. The findings of this study will be incorporated into a new version of the ASQ. The key changes are to incorporate a 'moderate' drinking prototype; to discuss a wider range of reasons for drinking alcohol; to include information about the positives and negative short term effects of drinking, and to provide further information about how to avoid short term harms, such as embarrassment, within the implementation intentions.

Future research

The findings of this study have shown that young people and teachers rate the ASQ highly in terms of acceptability. It also appears that delivering a digital intervention in a school setting might be feasible. In order to determine whether the ASQ has the potential to be an effective intervention to reduce alcohol misuse in young adolescents, a pilot trial is required. Furthermore, to determine factors that might influence its effectiveness, it will be important to explore how it is delivered in different school settings. Thus, the next phase of research will be a process evaluation with the aim of exploring implementation, fidelity, and potential reach and effectiveness in detail.

Limitations

Limitations to the current study must be acknowledged. In line with the philosophical underpinnings of qualitative research, no claims for generalisability are made. However, the opportunistic nature of recruitment into the study means that the sample lacks heterogeneity. There are ongoing challenges with the recruitment of under-16s into alcohol and related research (Tyler and Davies, 2013), which means that larger more diverse samples are difficult to achieve. Studies have found a clear bias in research that uses active consent procedures (Shaw et al., 2015). Due to the perceived sensitive nature of the topic of alcohol, this limitation is difficult to overcome. Although the sample of young people was therefore unlikely to be very diverse, the teachers were drawn from a wide range of different types of schools. Thus, their experiences of different types of students, including those who it would be challenging to recruit was important, and further work to understand teachers experience and views of alcohol education would be beneficial. Furthermore, it is always important to acknowledge the possibility of social desirability bias in studies such as this. All efforts were made to ensure the participants felt assured that their responses would remain confidential, but issues of trust and demand characteristics cannot be ruled out. Nonetheless, it is important to explore the topic of alcohol with young adolescents and to seek their views about an intervention that has been designed for this population, particularly to ensure that it is credible and reflects their real life experiences.

Conclusion

In conclusion, this study has explored some important issues around acceptability and feasibility of a novel digital intervention aimed at reducing alcohol misuse in adolescents. For both adolescent and teacher participants 'moderate' drinking was an acceptable message to deliver within schools, alongside a focus on decision making in social situations.

There is a challenge in drawing a line between moderation and drinking 'too much'. The underlying culture of drinking, seen as an inevitable part of teenage life, has implications for harm reduction, related to the physical effects of alcohol and its portrayal on social media. Modifications have been made to the Alcohol Smart Quiz to take these findings into account and the next phase of work will be a pilot trial and process evaluation to determine potential effectiveness of this approach.

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APPENDICES

Appendix 1: Semi-structured and think aloud interview schedule used with adolescents and teachers

Semi-structured section

As you know, I am interested in talking to you today about a new website on the topic of alcohol. What is your opinion on this topic?

What do you do in your school on the topic of alcohol?

What do young people your age (age 11-14) need to know about alcohol?

Follow up questions

Can you tell me more about (specific incident mentioned/ specific person or event)

Think aloud prompts

What do you think you need to do here?

Are the instructions clear?

What do you think about the question? What do you think about the answer?

Does the question make sense? Is there another way you could say this? Does the answer make sense/ surprise you? What colours and pictures would be best to use?

What does this make you think about?

Ending questions

What was your opinion on what you just saw?

Which parts did you disagree with?

How could this website be improved?

Is there anything else that you can tell me about the topic of alcohol that we have not already discussed?

Alcohol smart quiz intervention



Table 1 ASQ Intervention constructs aims and behaviour change techniques (BCTs)

PWM constructs and key contextual factors	Intervention aim	BCTs <i>Additional PWM BCT descriptions italicised</i>
Attitudes (perceived vulnerability)	Increase awareness of short term risks associated with unplanned behaviour (focus on short term consequences and harm)	BCT 5.3 Information giving about social and environmental consequences <i>PWM_BCT Teaching awareness of social influences on unplanned behaviour</i> BCT 5.1 Information giving about health consequences
Injunctive norms	Reduce perception of approval for drunkenness, but caution about	BCT 6.3 Information about others' approval of behaviour
Descriptive norms	Correct misperceptions about drunkenness amongst adolescents	BCT 6.2 Social comparison (draw attention to others' behaviour and ensure they do compare)
Prototype favourability	Reduce drinker favourability	BCT 6.2 Social comparison + <i>PWM_BCT Targeting actor or abstainer prototypes</i>
Prototype similarity	Reduce similarity to drinker Increase similarity to non-drinker	BCT 6.2 Social comparison + <i>PWM_BCT Targeting actor or abstainer prototypes</i>
Contextual factors: Social comparison Peer pressure in the social context of unplanned	Enable adolescents to recognise behaviour may be unplanned and to overcome situational peer pressure	<i>PWM_BCT Teaching awareness of social influences on unplanned behaviour</i>

drinking	to drink/get drunk	+ BCT 1.4 Action planning (implementation intentions) BCT 6.1 Demonstration of action planning
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Table 2: ASQ Website pages, quiz questions and content linked to BCTS

Page	Content
1	Welcome Title and pictures Welcome to the Alcohol Smart Quiz Website Picture and logo
2	This website contains information and a quiz about alcohol and young people. If you are ready to begin then please type in your: Age Gender And click on the start button. START
3	Introduction: Setting the scene In the United Kingdom, many people drink alcohol at some time in their lives. However, you are not able to legally buy alcohol until you aged 18 because of the possible harms that can occur as a result of drinking. <i>The purpose of this website is to give you information about drinking alcohol, to help you to think about how to avoid the harms.</i> Make sure you read each question carefully and select the answer that you think is correct using the buttons on the screen. NEXT
4	Question 1) Teenage drinking is often reported in the news. Every year the results of a large study are published and it often hits the headlines. What do you think this study has found in the last ten years about the number of young people aged 11-15 who have tried alcohol? a) it has increased b) it has decreased c) it has stayed about the same you'll get one point for the correct answer Descriptive norms: BCT 6.2 Social comparison

5	<p>Answer to Q 1</p> <p>The answer is b) it has decreased. If you picked b then you will get one point.</p> <p>Was that what you expected?</p> <p>Yes / no</p> <p>Source of the fact: Smoking, drinking and drug use survey</p> <p>Descriptive norms: BCT 6.2 Social comparison</p>
6	<p>Question 2</p> <p>As you saw in question one, the number of 11-15s who had tried alcohol has decreased over the last ten years. Why do you think this might be?</p> <p>a) Schools are teaching people about alcohol from an early age b) Parents have become more strict about alcohol c) Young people do not view people drunk as a positive thing</p> <p>Injunctive norms: BCT 6.3 Information about others' approval of behaviour</p>
7	<p>Answer to Q 2</p> <p>It might be a combination of the three possible answers.</p> <p>However, we have asked other young people your age what they thought and they said that getting drunk was not viewed in a positive light, so if you picked c, then you get one point</p> <p>Speaker: Olivia</p> <p><i>Drinking alcohol does not have a cool image any more. Young people who drink a lot and get drunk are not really seen in a positive way by other people their age.</i></p> <p>Injunctive norms: BCT 6.3 Information about others' approval of behaviour</p>
8	<p>Question 3 DRINKER PROTOTYPE</p> <p>Olivia said that young people who drink a lot and get drunk are not seen in a positive light. How would you describe a young person who gets drunk?</p> <p>Pick three words from the list and then click next to compare your answer to other young people (you'll get one point if at least one of your answers matches one of the most common answers).</p> <p>Cool, anti-social, careless, unhealthy, unhappy, depressed, rebellious, pressured, boring, unusual, popular, unpopular, fun, boring,</p> <p>NEXT</p>

9	<p>Answer to Q3</p> <p>The three most commonly chosen words to describe someone who gets drunk were: Anti-social, unhealthy, careless</p> <p>Compare your answer to the three most common words that have been chosen. Score one point if at least one of your answers matches one of the common answers.</p> <p>Speaker: Matt</p> <p><i>Comment here about why it is anti-social, ruins the night for other people</i></p> <p>PWM_BCT Targeting actor or abstainer prototypes</p>
10	<p>Question 4 NONDRINKER PROTOTYPE</p> <p>Speaker: Ricky</p> <p><i>The majority of everyone at my school doesn't drink alcohol, yeah, maybe a couple of people, it's not like massive amounts of alcohol</i></p> <p>Ricky said that most people at his school don't drink alcohol, so that was quite normal. How would you describe a young person who does not drink alcohol?</p> <p>Pick three words from the list and then click next to compare your answer to other young people (you'll get one point if at least one of your answers matches one of the most common answers).</p> <p>sociable, confident, relaxed, chilled, cool, boring, anti-social, unusual, independent,</p> <p>NEXT</p>
11	<p>Answer to Q4</p> <p>Three of the most popular answers were Confident, relaxed and healthy</p> <p>Score one point if at least one of your answers matches one of the common answers.</p> <p>Why do you think these were the most popular words used to describe a non-drinker?</p> <p>PWM_BCT Targeting actor or abstainer prototypes</p>
12	<p>Question 5: SIMILARITY TO THE NON-DRINKER</p> <p>In a survey of 178 teenagers we asked 'how similar are you to the typical non-drinker, from 1 (not very similar) to 7 (very similar).</p> <p>What do you think was the average answer?</p>
13	<p>Answer to Q5</p> <p>The average response to the question was 6. This means that most people rated themselves as similar to the typical non-drinker. (score one point if that was your guess)</p> <p>Most young people aged 11-15 do not get drunk and so they rated themselves as highly similar to the typical non-drinker</p> <p>Speaker: Jay</p> <p><i>If they're trying to look cool by drinking alcohol it kind of maybe shows that they might be insecure cos they need something to fill in the gap</i></p> <p>PWM_BCT Targeting actor or abstainer prototypes</p>
14	<p>Question 6 RISKY CONSEQUENCES</p> <p>Most young people aged 11-15 do not drink alcohol or get drunk. Young people may find that there can be some unwanted consequences from drinking if they do so.</p> <p>Which consequences of drinking for young people are</p>

	<p>1) The most common 2) The most serious 3) The most embarrassing</p> <p>They were sick (vomited) Lost something such as their mobile phone Got taken to hospital Had an embarrassing photograph taken of them Fell out with a friend Had a fight</p>
15	<p>Answer to Q6</p> <p>The answers were</p> <p>1) The most common They were sick (vomited) 2) The most serious Taken to hospital 3) The most embarrassing Having an unwanted picture on social media</p> <p>How do your answers compare with the list? You get one point if you got one of the top three consequences as your number one</p> <p>Fact: 11,306 young people aged 17 and under were taken to hospital from drinking in 2011/2012. Source of the fact: NHS Hospital Episode Statistics</p> <p>BCT 5.1 Information giving about health consequences BCT 6.2 Social comparison Descriptive norms</p>
16	<p>Question 7 UNINTENDED BEHAVIOUR</p> <p>What do you think is the most common reason that young people give for drinking too much when they had not intended to?</p> <p>a) Pressure from friends b) Not remembering how much they had to drink c) Not knowing how strong their drinks were</p>
17	<p>Answer to Q7</p> <p>Again, it could be any of these situations, but feeling pressure from friends was the most common reason that people said they drank more than they intended to. You get one point if you picked answer a.</p> <p>Sometimes in a social situation, people say that they feel pressured into doing something that they had not planned to do.</p> <p>Peer-pressure is a really common phrase, but what does it mean?</p> <p>Speaker: Kiera</p> <p><i>Even if no one actually tells you to do something , you feel it because you know at some point you will lose out of the group by not doing the same thing</i></p> <p>PWM_BCT Teaching awareness of social influences on unplanned behaviour</p>
18	<p>Question 8 IMPLEMENTATION INTENTIONS</p> <p>One way to feel in control and reduce the feeling of pressure or persuasion is to make a plan in advance to deal with social situations where alcohol is involved.</p> <p>Speaker: Kasia</p> <p><i>I think the idea of making a plan in advance is good, but how can you make sure it works when you are in the situation?</i></p>

	<p><i>What do you think?</i></p> <p><i>A: Make sure you stay away from situations where there might be alcohol</i></p> <p><i>B: Make a plan in advance, thinking about what situations you may be in where you will encounter alcohol and then what you could do or say.</i></p> <p><i>C: Wait until you experience a situation and see what happens first</i></p> <p>Pete and Lucy made some plans. On the next page you'll be able to read about their plans.</p>
19	<p>Answer to Q8</p> <p>The answer is to think about the plan in advance. You get one point if you picked answer b</p> <p>Even if you have never been in a situation where you have felt any pressure to drink or get drunk, making a plan now will help you to feel confident if it does happen to you.</p> <p>You might want to stay away from situations where there is alcohol, but you may still come into contact with a friend who has had too much to drink.</p> <p>Speaker: Muna</p> <p><i>If you are at a party and everyone else is doing it, they could be quite persuasive</i></p> <p>EXAMPLES PAGE</p> <p>Pete if..... then</p> <p>I'm really into football so if someone is telling me to drink at a party, then I tell them that I need to be fit and healthy to stay on the team</p> <p>Lucy if..... then</p> <p>Alcohol is so full of calories! If someone pressures me to drink then I tell them that fact, they might laugh, but it is true</p> <p>What do you think of their plans?</p> <p>BCT 1.4 Action planning (implementation intentions)</p> <p>BCT 6.1 Demonstration of action planning</p>
20	<p>Question 9 IMPLEMENTATION INTENTIONS</p> <p>What could you do if the following happened?</p> <ol style="list-style-type: none"> 1: Your friend starts to feel sick after drinking 2: Your friend has passed out and you are not sure if they are conscious 3: Your friend has an injury <p>What is the most common situation that these consequences happen in?</p> <ol style="list-style-type: none"> a) at a park b) at a house party c) on holiday
21	<p>Answer to Q9</p> <p>The most common situation was at a) a house party, followed by out at a park or another outdoor area. Score one point if you said a party.</p> <p>Drinking in unsupervised or outdoor locations seems to lead to more harmful consequences</p> <ol style="list-style-type: none"> 1: If they feel sick, then you could stay with them, get some water, and make sure they if they are sick, that they are ok 2: Although you might worry about calling an ambulance, if someone appears to be unconscious, then you should dial 999 immediately. 3: If your friend has an minor injury, then you could make sure they get home safely, and that

	<p>someone treats the injury for them.</p> <p>BCT 1.4 Action planning (implementation intentions)</p> <p>BCT 6.1 Demonstration of action planning</p>
22	<p>Question 10</p> <p>You've made it to the last part of the quiz. To end the quiz, see if you can correctly identify the alcohol facts below as true or false</p> <p>True or false</p> <p>1 If you are drunk, coffee will help you to sober you up</p> <p>2 A pint of lager has the same amount of calories as a cheeseburger</p> <p>3 A glass of wine has the same amount of calories as a slice of cake</p> <p>4 Anyone under the age of 21 should be careful of taking out the rubbish bags in Missouri. If you are under 21 and the garbage contains an empty bottle of alcohol, you can be charged with illegal possession of alcohol.</p> <p>5 Alcohol is a stimulant.</p>
23	<p>PICTURE OF CHEESEBURGER, DONUTS, RUBBISH BAGS</p> <p>Answer to question 10</p> <p>FALSE - This is a common myth, but coffee will not sober you up.</p> <p>FALSE - but it does have the same amount of calories as a doughnut</p> <p>TRUE - and a bottle of wine is the equivalent to two cheeseburgers</p> <p>TRUE - apparently this is true</p> <p>FALSE - Alcohol is actually a depressant. Initially, you may feel more energetic or cheerful because alcohol depresses your inhibitions. However, that means you can also be less able to control your emotions or reactions.</p> <p>Score one point for each correct answer six points in total</p> <p>More facts</p> <p>http://www.nhs.uk/Tools/Documents/Alcohol%20myth%20buster.htm</p> <p>BCT 5.1 Information giving about health consequences</p>
24	<p>What is your quiz score?</p> <p>0-3 - Need smartening up! Take a look at the factsheet as this might help you avoid some harm in the future</p> <p>4-7 - Half smart. One day a friend may need you to be smart so make sure you look at the factsheet</p> <p>8-11 - Getting smarter. This is an good score but hopefully this quiz has helped your knowledge</p> <p>12-15 - Alcohol smarty pants. Your score shows that you have a lot of alcohol knowledge and think about things from your own perspective ...</p>
25	<p>You will now be given a factsheet to keep with all the quiz information</p>

26	<p>Resources</p> <p>Smoking, drinking and drug use in young people aged 11-15 in England</p> <p>Talk to Frank</p> <p>NHS Choices</p> <p>The quotes used in this website came from a survey, interviews and focus groups with young people aged 11-17 that the researcher carried out.</p>
27	<p>Activity</p> <p>In questions 8 & 9 you saw how some young people had made plans in advance to avoid drinking / getting drunk and harm</p> <p>Use your factsheet to make a plan of your own</p> <p>Write your plan on the worksheet</p> <p>BCT 1.4 Action planning (implementation intentions)</p>