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Feasibility of the Prototype Willingness Model as the basis for school-delivered alcohol misuse prevention: A qualitative think aloud study to explore acceptability of 'The Alcohol Smart Quiz' with adolescents and teachers.

Abstract

This study sought feedback from teachers and adolescents on a novel intervention to reduce alcohol misuse based on the Prototype Willingness Model. A qualitative, think aloud interview study was conducted with 17 adolescents aged 11-14 and nine teachers. Transcripts were analysed using thematic analysis.

Adolescents found the content of the intervention appealing and credible. Teachers welcomed the content and format of as a means of generating discussion. 'Moderate' drinking appeared to be an acceptable message, although difficult to define. Enacting 'if-then' plans in real social situations might be challenging and representations of drinking on social media should be considered.

Feasibility of the Prototype Willingness Model as the basis for school-delivered alcohol misuse prevention: A qualitative think aloud study to explore acceptability of 'The Alcohol Smart Quiz' with adolescents and teachers.

Introduction

The United Kingdom is a high prevalence country for underage drinking in comparison with the rest of Europe; 90% of 16 year-olds report that they have tried alcohol and many drink with the intention of getting drunk (Hibell et al., 2012). In adolescence, drunkenness is associated with harmful consequences, such as injuries, and unprotected sex (Newbury-Birch et al., 2009), and in 2009, the Chief Medical Officer (CMO) advised that adolescents under 15 should avoid alcohol (Donaldson, 2009). Although national surveys suggest decreasing numbers of 11-15 year-olds have tried alcohol, evidence suggests that those who do drink consume harmful quantities and are starting to drink earlier (Fuller, 2015).

School is an important place to deliver alcohol harm prevention because of the potential to reach large numbers of adolescents. In the UK many schools offer alcohol education as part of Personal, Social and Health Education (PSHE), although reviews suggest this might have positive impacts on knowledge and attitudes about alcohol, but behaviour (Jones et al., 2007; Stockings et al., 2016). There is a need to develop theoretically robust alcohol harm prevention measures for delivery in schools, and to identify specific ingredients of interventions that may be effective in this context (Cairns et al., 2011; Foxcroft & Tsertsvadze, 2012).

Educational interventions that produce changes in knowledge and attitudes may do so because they assume targeting these factors changes behaviour. For example, the Theory of Planned Behaviour (TPB) assumes that people make rational decisions about their behaviour based on their attitudes and intentions (Ajzen, 1991). However, intentions are less able to predict behaviours that are

undertaken in social situations which have vivid images associated with those who engage in them (Webb & Sheeran, 2006). The adolescent period is also characterised by high levels of impulsivity (Arnett, 1996) meaning that decisions about whether or not to drink may be reactive rather than rational.

An alternative is to consider the application of dual process models of behaviour, which assume that there are two processes underlying decision making (Kahneman, 2011). The first involves a rational and planned consideration of the costs, benefits and outcomes and requires cognitive effort and attention. The second process is faster and activated by associations in the physical or social environment. This reactive system needs little cognitive effort and attention and may occur outside of awareness (Strack & Deutsch, 2004).

The Prototype Willingness Model (PWM) (Gerrard, Gibbons, Houlihan, Stock, & Pomery, 2008) is a dual process model that has been applied specifically to adolescent health behaviour. In the PWM there is a planned route to behaviour, via intentions, similar to the TPB, and a reactive route, via 'willingness'. This theory acknowledges that adolescent health behaviours, such as drinking, occur in social contexts and are influenced by risk images or 'prototypes' of peers who engage in or abstain from a specified behaviour. Within the reactive pathway, prototype evaluation influences an individual's propensity (their 'willingness') to engage in behaviour. Risk images are assumed to be widely held, due to the importance of social comparison in adolescence (Gibbons & Gerrard, 1995). Previous research has shown that the PWM is able to offer a good explanation for risk behaviours, such as alcohol consumption in young people (Gerrard et al., 2002) but few studies have applied the theory to preventing alcohol related harms in young adolescents in the UK.

The Alcohol Smart Quiz (ASQ) is an intervention based on the PWM that has been developed specifically to target alcohol related harms in adolescents who are under the age of 15, given the CMO advice to avoid drinking before this age. An initial programme of work was undertaken to establish if the PWM might provide a suitable basis for such an intervention in this population.

Focus groups revealed clear images of drinker and non-drinker prototypes, and highlighted a difference between 'planned' drinking occasions at age 16-17 and 'unplanned' drinking occasions in younger adolescents (XXX). A survey confirmed the relationship between prototypes, willingness, and alcohol consumption, suggesting that younger adolescents be an appropriate age group for an intervention targeting prototypes and willingness (XXX).

Work was then undertaken to specify the ingredients of an intervention based on the PWM.

Although there has been a drive in recent years to classify behaviour change techniques (BCTs) according to theoretical determinants, at the time of development no clear BCTs related to the PWM had been defined. A logic model to chart the change processes in the PWM was derived and through a consensus study (XXX) and piloting (XXX) eight BCTs were identified (Appendix A). Six of the BCTs were defined using a taxonomy of BCTs (Michie et al., 2013), and two additional BCTs related to targeting prototype perceptions were defined. One PWM technique (*teaching awareness of social influences on unplanned behaviour*) aimed to make adolescents aware that they while may not plan to drink in social situations there may be specific pressures that lead to drinking. The other PWM technique (*targeting actor or abstainer prototypes*) aimed to reduce favourability and similarity of a drunk prototype, and enhance favourability and similarity of non-drinker prototype.

Two BCTs (*information about social and environmental consequences; information about health consequences*) were related to the planned pathway in the PWM. They aimed to increased awareness of short term risks associated with drinking, which might be unplanned. Two BCTs (*information about others' approval of behaviour; social comparison*) were related to norms about drinking.

The final two BCTs (*action planning; demonstration of action planning*) were related to implementation intentions. A challenge in developing an intervention specifically based on the PWM was around how to over-ride reactive behaviour in a social context. Implementation

intentions are 'if-then' plans that link situations to specific behavioural goals so they become automatic (Gollwitzer, 1999). These plans are often made in the format 'when situation x arises I will perform response y' and are proposed to allow a reduction in cognitive demand, allowing goals to be met without conscious intent (Gollwitzer, Bayer, & McCulloch, 2005). Although this approach has not yet been specifically linked to the PWM, it appears to offer promise in enabling people to override impulsive behaviours, and thus may be one approach to targeting the influence of prototypes and social comparison in situ. Furthermore, implementation intentions may offer an opportunity for reactive behaviours to be interrupted in distracting environments, such as those where adolescent drinking takes place, because they enable individuals to identify and become more aware of specific scenarios in advance (Webb, Sheeran, Gollwitzer, & Trotschel, 2012).

BCTs in the ASQ are delivered via ten quiz questions on a website (Appendix B). Adolescents were consulted about potential formats during development, reporting a preference for online activities. Using the internet also ensures that intervention fidelity can be maintained compared to a teacher delivered programme. In addition, interventions delivered in groups may have iatrogenic effects because the presence of other adolescents may reinforce drinking as a normative (Hennessy & Tanner-Smith, 2015).

It is important to understand how adolescents respond to the intervention, and the BCTs, in order to understand what factors that might limit its credibility or enhance its appeal, prior to a potential trial. There also appears to be little research into what teachers think about the content of specific interventions prior to their evaluation in schools. If the content of a programme is not acceptable to teachers it then they may make modifications, which may influence its effectiveness. For example, one study found that teachers adapted the material within the 'keepin' it REAL' intervention in 97% of lessons (Miller-Day et al., 2013). Thus, the overall aim of the study was to explore the

acceptability of the content and format of the ASQ to adolescents and teachers; and to determine factors that might influence the feasibility of delivering the ASQ in schools.

Method

Participants

Advertisements were placed on a University electronic notice board and sent via email to schools. Recruitment continued until data saturation was reached, as evidenced by no new information being identified within interview coding. There were 17 adolescents aged 11-14 (9 females; M age = 12.65; $SD = .99$) attending seven different schools from two counties and nine teachers from six schools (all female; age range 26-58). Two teachers were from independent schools (one single sex girls, the other mixed); one from an academy; the others from mixed secondary schools, with varying indices of deprivation. The study was granted approval by XXX Ethics Committee and all participants were required to sign a consent form (parental consent was required for adolescents).

Materials

The ASQ was presented on a laptop using LifeGuide open source software (Yang et al., 2009). There were introductory and information pages and ten quiz questions, each with three possible answers. Regardless of choice, the following page provided the correct answer, an explanation, and current score. Questions targeted the favourability and similarity of alcohol prototypes (a negative drunk prototype, and a positive non-drinker prototype) with a focus on short term harmful consequences of drinking, for example being sick or embarrassed. Other questions focused on the benefits of making an advanced plan to avoid either drinking too much or getting drunk in a social situation. Answers were presented from the viewpoints of adolescents in the target age range, derived from participants' responses in previous studies. Furthermore, on each answer page, the source of the information was provided (e.g. NHS statistics, or surveys with adolescents). Examples of

implementation intention plans were provided both within the quiz questions and as part of a follow up activity (See Appendix B for all web pages).

Think aloud interviews

In a think aloud interview participants are asked to talk out loud about what they are thinking while completing a task. The interviewer's role is to prompt the participant to keep verbalising their thoughts with minimal input. This method has been employed in the development of online interventions (Yardley, Miller, Teasdale, Little, & Primit, 2011) to reveal how BCTs are interpreted and to ensure language is appropriate.

Procedure

In the current study, the think aloud method was combined with a semi-structured interview (Appendix C). The semi-structured section came first and explored views about drinking and alcohol education. At the start of the think aloud section the interviewer introduced the website and asked the participant to follow the instructions, answer the questions, and to talk about what they were thinking. If the participant stopped talking, the researcher used a series of pre-prepared prompts (such as 'what does that make you think about'). At the end they were asked for their overall opinion and for any other views on the topic. Interviews lasted 25-70 minutes and took place on University premises (or school for teachers). All interviews were conducted by the author, were audio recorded and transcribed verbatim. Participants were offered a £10 voucher to thank them for their time.

Analysis

Transcripts were thematically analysed by the author in six phases outlined by Braun and Clarke (2006). During familiarisation, notes made about what appeared to be important to each participant. The text was then coded, breaking the text into meaning units. Once the interviews

were coded there were some duplicates and codes that could be combined theoretically or semantically, leaving 56 codes. During the search for themes, transcripts were re-read and the set of codes were gradually combined into groups that could comprise potential themes. Themes were then reviewed, looking across the coded transcripts and the entire data set to ensure that they gave a coherent depiction of the data. 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 adolescent alcohol consumption, throughout the process of interviewing participants and analysing the data.

Results

There were three main themes and associated sub-themes identified. The main themes were named 'drinking in moderation', 'influences' and 'facilitators and challenges' and are discussed with supporting quotes using pseudonyms.

Theme one: Drinking in Moderation

The theme 'moderation' reflects evidence within the transcripts that 'a little bit of alcohol is fine', but excessive drinking was viewed negatively. Subthemes related to moderation were 'prototype perceptions', and 'avoiding the consequences'.

Prototype perceptions

While drinking a small amount of alcohol was generally viewed in a positive way, some participants appeared to ascribe negative characteristics to the 'drunk' prototype related to reputational issues, such as being rebellious or part of a 'bad crowd'. Other participants talked about different types of drinkers, illustrating the challenge of presenting a specific prototype within an intervention.

You can be a different type of drunk, I know one of my friends is a happy drunk, I know someone else who just cries, it's really weird actually, so it depends (James, 14)

Participants recalled a number of stories about drinking, often at parties, which made it seem cool, while non-drinkers might not have fun.

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

Teachers thought that younger students might describe a drunk person in a negative way but this might become more positive with age and depend on the social group

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).

Avoiding the consequences

Drinking in moderation appeared to receive approval because it could enable participants to avoid the unwanted consequences of drinking 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, 14).

Teachers appeared to view the focus on short term harms as important, but were also keen to discuss long term physical effects and addiction. Avoidance of social embarrassment also appeared to have an important role. Adolescent participants seemed very aware of reputational issues, and keen to preserve their dignity and social status. Reputational consequences were linked to sex and the perception of girls (in particular) who got drunk as 'easy'.

I know if you get wasted frequently people will think you're easy so I wouldn't go down that road. Like if a girl got drunk boys could take advantage or some boys could think the opposite and just be like 'stay away for her' (Aisha, 13)

Theme two: Influences

This theme describes the adolescents' reasons for drinking alcohol, which include the ubiquitous 'peer pressure', but also comprises of curiosity about, and inevitability of drinking, which may influence if-then plans. Sub-themes were 'pressure', 'expectations' and 'planning'.

Pressure

The sub-theme 'pressure' relates to the participants' reports of 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 you might feel you have to do it otherwise they'd all make fun of you (Eliza, 12).

Eliza's quote is typical of the other participants who reported a strong need to fit in and appeared to be concerned about behaviours that might mark them out as an outsider, or someone who didn't know how to have fun. Teachers described how students felt under pressure to conform to a range of behaviours.

They were saying how 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 (Miss Edwards)

On the other hand some participants presented their decisions as autonomous, and appeared keen to claim an absence of peer pressure influence.

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, 14)

Expectations

This sub theme reflects the participants' discussions and interpretations of cultural norms of drinking. For these participants, alcohol consumption was a normative part of the lives of adults that they knew, as well as being a teenage rite of passage. Even for the younger participants who had not tried alcohol, there was a sense of acceptance they would drink in the future. There was evidence of curiosity and interest in trying alcohol as well as sense of inevitability and association with adulthood.

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

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 (Will, M, 12).

These expectations appeared to be influenced by older siblings and adults, as well as the portrayal of alcohol in the media. Although some teachers felt that it would be appropriate to encourage adolescents to avoid drinking at a young age, most appeared resigned to teenage experimentation.

It just seems to be a rite of passage 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)

Planning

This sub-theme encapsulates the opportunities and challenges that implementation intentions might offer to adolescents. The idea of having a pre-prepared 'excuse' or a response to a situation where alcohol was present was viewed positively by some participants.

Making a plan so you know what to do is a pretty clever idea because you can still do all the stuff that your friends do and you still have fun but then you just kind of stop that pressure
(Tim, 13)

For some of the participants however, being put on the spot meant that they were sceptical about whether their plans could be enacted.

I think you could make a plan, but I don't think it would ever work, cause if people were peer-pressuring you then you might be really worried and then you wouldn't remember your plan in time (Josie, 14)

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, 12).

In general, the teachers were positive about the potential of these plans to reduce harm. However, there was a caveat to their usefulness, once a large amount of alcohol had been consumed.

I think that trouble with planning is that often your friends are drunk as well. So you might agree that nobody is leaving on their own or that that you're not going to get in anybody's car on the way home but plans can become shattered by reality (Ms Smith)

In addition, three of the teachers were critical about the plan to avoid drinking because it was calorific due to concerns about body image.

Theme three: Facilitators and challenges

The theme 'facilitators and challenges' encompassed the factors that might influence how the ASQ is delivered and received. Related sub-themes were 'classroom implementation', 'content', 'credibility' and 'social media'.

Classroom implementation

The use of computers in PSHE lessons was not seen as an obstacle, and teachers 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, or we could have it on the screen, answering their own questions online or we could just show it and answer the questions together, so I think it can quite adaptable (Ms Fox)

Participants they reported that they liked discussing the right and wrong answers. The question and answer format was also positively viewed because it gave the participants more control in comparison to a traditional lesson.

Content

The content and aims of the intervention appeared to be favourably received. Teachers were receptive of the focus on reducing the short term effects of experimenting with alcohol, rather than long term effects of drinking.

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

However, other teachers suggested that further information about the long term harms from drinking and alcohol units would be useful. In addition to some of the short term effects described in the ASQ, there were other suggestions to help adolescents minimise drinking harms.

They need to know "How much is too much?" Like "what would you think is ok at a party?" And those kinds of degrees of drunkenness that are acceptable. I wonder about that and the difference between binge drinking and regular drinking (Ms Day)

Mrs Day's quote reflects the views of other teachers and some of the adolescents that alcohol education in schools could include discussion of drinking safely, such as talking about how some drinks are stronger than others.

Credibility

Credibility is a vital concern for an intervention aimed at adolescents. It appeared that credibility 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). Another aspect which appeared to enhance the credibility of the ASQ was that the participants felt it did not tell them not to drink.

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

In connection with the theme about moderation, teachers were keen to highlight the importance of a credible message. For example, talking about the positive outcomes associated with using alcohol.

I think maybe the good points of alcohol, because it's the same with drugs we can't paint that as all bad otherwise they're just going to go and do it (Miss Fry)

The question about similarity was not well understood by the majority of the participants which may threaten the credibility of the message. Participants also made suggestions about the website design, including 'jazzing up' the pages.

Social media

Another challenge, that was not dealt with in depth in the ASQ was the influence of social media/. Evidence from the transcripts demonstrated the power of social media and suggested that many alcohol behaviours were amplified via these websites. For example, participants talked about

people that they knew posing for pictures whilst pretending to drink. Even though the possibility that these photos were faked was acknowledged, the potential influence of such images could be strong. Moreover, social media was also portrayed as a place 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. At school he couldn't look at anyone for two weeks because he was so embarrassed... it was a picture of him with no clothes on (James, 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 all of the teachers demonstrated the negative aspects of social media in adolescents' lives, suggesting it may be important to consider how it is related to alcohol within the ASQ.

Discussion

This study explored acceptability and feasibility of the ASQ with adolescents and teachers. Themes related to these aims were identified within interview transcripts. Firstly, the theme 'drinking in moderation' suggested drinking during adolescence was perceived to be acceptable. Secondly, the theme 'influences' highlighted the role of peer-pressure alongside curiosity about alcohol. This raised important concerns about adolescents' capacity to enact implementation intentions in high pressure situations. Finally, the theme about 'facilitators and challenges' suggested that implementing the ASQ in schools would be feasible. Overall, because the ASQ avoids encouraging adolescents to avoid alcohol completely, it was seen as delivering an acceptable message to the intended recipients.

The concept of 'moderation' appeared to be relevant and acceptable to adolescents and teachers in this study, but it remains difficult to define. For example, one of the teachers in the study said that

they wanted their students to know *'how much is too much?'* alcohol. 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. However, a 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. Teachers also suggested that the ASQ might benefit from some information about the positive reasons for drinking and acknowledgement that it was a fun activity which could enhance acceptability.

Prototype perceptions are crucial within the PWM; however, there is less agreement about the optimal way to target these images within interventions. The ASQ targeted a 'drunk' and 'non-drinker' prototype, building on a previous study (XXX). Participants 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. Current findings suggested that focussing on a 'moderate' drinker prototype might be a way of avoiding negative connotations associated with 'non-drinker' prototypes and some of the ambivalence associated with a 'drunk' prototype.

The findings about influences on drinking reflects previous research (Coleman & Cater, 2005).

Adolescents and teachers talked about the need to belong to the group, and how drinking could be influenced by friends. Given the paucity of studies on teachers' views about alcohol harm prevention, it is important to note they viewed drinking as inevitable. While the use of a digital format may enhance intervention fidelity, differences in views about drinking may influence how the ASQ is introduced, and how the content is discussed afterwards. Moreover, some teachers saw the ASQ as a flexible tool, which could be completed as a group, which may influence its efficacy (Hennessy & Tanner-Smith, 2015)

There were mixed opinions about the use of implementation-intentions. For some participants, making plans to deal with social pressure to drink or get drunk was viewed as a good idea and something to help them feel in control. However, in common with an earlier study, participants saw

barriers to enacting plans in real life (XXX). While a recent study showed benefits of using if-then plans to reduce binge drinking in 16 year olds (Rivis & Sheeran, 2013), no studies have been identified that have explored if they are effective in younger adolescents, who may be less able to overcome the power of the social situation. For example, one study suggested that young adolescents (age 10-12) may be particularly susceptible to peer alcohol use compared to those aged 13-14 (Kelly et al., 2012). However, the mixed views could reflect that the content of the plans were not in line with participants' goals, or that they did not anticipate that they would experience the situations described (Gollwitzer & Sheeran, 2006). For example, they may not wish to avoid alcohol altogether, as one of the examples suggested, but avoidance of embarrassment or drunkenness might be more realistic. Some examples were viewed as excuses rather than personally relevant reasons to avoid drinking. In line with other studies, participants discussed how experimentation with alcohol is normative for adolescents in the UK, and therefore some may have goals related to drinking. Prototypes are described as 'goal states', thus it may be more appropriate to link the favourable prototype with the plan. Further work is needed to explore how to operationalise this technique more appropriately, and to explore techniques that may interrupt the reactive pathway within the PWM.

Analysis 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 found that adolescents who were exposed to fake social media profiles depicting drinkers reported greater willingness to drink and had more positive attitudes towards drinking (Litt & Stock, 2011).

Limitations

No claims for generalisability are made; however, the opportunistic nature of recruitment means the sample lacks heterogeneity. There are ongoing challenges with the recruitment of under-16s into alcohol research (XXX), which means diverse samples are difficult to achieve. The teachers were drawn from a wide range of different types of schools thus, their experiences of teaching different

groups of students, including those challenging to recruit, were valuable. Further work to understand teachers' views of alcohol education would be beneficial. Efforts were made to ensure participants that responses would remain confidential, but issues of trust and social desirability may remain.

In conclusion, the findings suggested that the content and the mode of delivery were acceptable and ASQ would be feasible to deliver in a school setting, with some modifications. For both adolescent and teachers 'moderate' drinking appeared to be acceptable message, alongside a focus on drinking in social situations. However, it is important to undertake further research determine whether implementation intentions can offer a means of targeting reactive drinking in adolescents, particularly in a culture where teenage drinking is normative.

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