Moderating teen drinking: Combining social marketing and education

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ABSTRACT

Purpose

This paper outlines a pilot study that was undertaken in Australia in 2011 that combined social marketing with education. An intervention targeting 14-16 year olds to influence attitudes and behavioural intentions towards moderate drinking was developed and tested. Game On: Know Alcohol (GO:KA) is a 6 module intervention that is delivered to a year level cohort in an auditorium. GO:KA combines a series of online and offline experiential activities to engage (with) students.

Design/Methodology

Following social marketing benchmark criteria, formative research and competitive analysis was undertaken to create, implement and evaluate an intervention. The intervention was delivered in one all boys' and one all girls' school in April and June 2011, respectively. A total of 223year 10 students participated in GO:KA with the majority completing both pre and post surveys. Paired samples t-tests and descriptive analysis were used to assess attitudinal and behavioural intention change.

Findings

Attitudinal change was observed in both schools while behavioural intentions changed for girls and not boys according to paired samples t-testing. Post hoc testing indicated gender differences.

Research limitations

The lack of a control group is a key limitation of the current research that can be overcome in the 20 school main study to be conducted in 2013-2015.

Originality/value

The current study provides evidence to suggest that a combined social marketing and education intervention can change teenage attitudes towards moderate drinking whilst only changing behavioural intentions for female teenagers. Analysis of the intervention provides insight into gender differences and highlights the need for a segmented approach.

Introduction

Australia, like many developed nations, has a drinking problem with an estimated cost to community of $36 billion a year (Laslett et al., 2010) and consequences for society that include alcohol related violence and risk of harm from drinking through chronic disease or through accident or injury (NHMRC, 2009; WHO, 2009). The National Preventative Health Task Force's Alcohol Working Group (2008, p.2) stated *"short-term consumption of alcohol at harmful levels…is a prominent feature of the drinking culture in Australia."* According to the Australian Institute for Health and Welfare (2011) 1 in 5 Australians aged 14 years or older consumed alcohol at a level that put them at risk of harm from alcohol-related disease or injury over their lifetime, and this remained stable between 2007 (20.3%) and 2010 (20.1%). As noted by the World Health Organization (2009, p. 6) *"the diversity of alcohol-related problems…points to the need for comprehensive action across numerous sectors. Policies to reduce the harmful use of alcohol must reach beyond the health sector, and appropriately engage other sectors"* including marketing and education. In its final report the Queensland Law and Justice Safety Committee (2010) recommended <u>mandatory, ongoing education on the health impacts of alcohol be provided in all Queensland schools</u>.

"People's attitudes to the health impact of alcohol do not just happen: they develop over time, they may be based on first-hand experience, they may depend on the attitudes of others in the same peer group, and they may change (King, 1995, p. 11.)". Researchers working with the World Health Organization have commented that "education alone is too weak a strategy to counteract other forces that pervade the environment" (Babor *et al*., 2010, p. 216). There are many critics of health education with some remarking on education's inability to change behaviour (Hallgren *et al*., 2011; Midford and Munro, 2006; Williams and Connolly, 2006), while others note that education can have unintended consequences increasing the likelihood of consumption (Stuart, 1974; May, 1991). These criticisms are typically directed at education efforts that are delivered on an ad hoc basis with few, if any, attempts at follow up. Social marketing theorists have suggested that combining education with social marketing can be an effective approach to generate change in social behaviours across a broad range of areas including alcohol consumption, road safety and healthy eating (Rothschild, 1999). The combined approach is suggested as relevant for target groups that lack the ability to perform the desired behaviour. For this group, education develops skills and knowledge while marketing is used to reinforce that skill and provide the opportunity for the skill to be enacted (Rothschild, 1999).

Social marketing is often applied for social issues where voluntary change is required and where motivation, ability or opportunity (MOA) is low (Rothschild, 1999). One such issue is alcohol consumption, which is one of the biggest health problems in developed countries. Each year a total 320 000 young people between the age of 15 and 29 die from alcohol-related causes, resulting in 9% of all deaths in that age group (WHO, 2011). Early intervention has been identified as a key mechanism to reduce the level of harmful drinking (DeWit *et al.*, 1997; National Centre for Education and Training Assessment (Roche et al., 2010) and it with this in mind that our intervention targeted teens aged 14 – 16. Adolescents are more prone towards risk taking and sensation seeking behaviour (Steinberg, 2007). For example, young people who are aged 14 to 19 are more likely to drink at risky levels (McBride *et al.*, 2000) than any other age group in the general population.

The aims of this study are twofold. Firstly, this study sought to describe the theory behind a combined social marketing education approach. This paper outlines an intervention that was developed for school delivery by social marketers, which represents a novel approach to alcohol education. The key objectives of the intervention were to change attitudes and behavioural intentions towards moderate drinking (harm minimisation) through engaging activities. Consequently the second aim of this study was to pilot test the feasibility of a combined social marketing/education intervention to understand whether the intervention could influence attitudes and behavioural intentions towards moderate drinking in teens aged 14-16.

The intervention was pilot tested in two Australian schools in 2011 and evaluated using a repeated-measure design. The intervention involved alternating games-based modules with knowledge-based modules using the do-learn-feel learning hierarchy (Ray, 1973) as a design principle. The eight benchmark criteria outlined by the National Centre for Social Marketing (2012) were used to underpin the design process. The specific aspects of the intervention are detailed in the following section.

Peer and social influence on drinking

Prior education approaches to influencing drinking attitudes and behaviours of teens sometimes fail to acknowledge the myriad of social influences surrounding adolescents such as their parents, siblings, extended families and finally peers. As noted by King (1995) what is often overlooked is that education is competing against a multitude of influences, many of which are not helpful. A key issue of note is that in many countries there is a culture of

drinking to excess. For many young people intoxication is considered normal and drunken anti-social behaviour is tolerated (Fry, 2010). Further, drinking to excess is often celebrated with drunken stories worn as a badge of honour (Kubacki *et al*., 2011). In excessive drinking cultures the social pressure to drink alcohol is extremely high with many young people gaining entry into peer social groups through their choices to drink alcohol (often to excess). Further, in a culture of excessive drinking people choosing to abstain or reduce alcohol consumption can experience social exclusion (Pavis *et al.*, 1997). Thus, any intervention seeking to influence attitudes and behavioural intentions needs to harness the power of peers. For our intervention this meant conducting the modules with peers and encouraging interaction through competition in gaming and via group discussion activities.

Environmental influences on drinking

In addition to social influences there are many environmental influences surrounding young peoples' drinking choices. Key influences include (but are by no means restricted to) notable increases in licensed venues, exposure to sponsorship and advertising and a growing preference towards alcoholic beverages containing a higher alcohol content. Consider Victoria, Australia's second largest state where the number of licensed venues grew consistently over the course of the past decade. For example licensed venues in Victoria grew by 11 per cent in 2002–03 and by 2.7 per cent in 2007–08. The largest increases were for on-premise licences, which have the second highest offence rate (Allen Consulting Group, 2009). A similar situation exists in the advertising space with sustained growth in alcohol advertising and sponsorship. UK Statistics reported in Hastings and Angus (2011) demonstrate that industry-funded efforts to promote safer drinking ($US 104 million) are greatly out-gunned by alcohol advertising ($US 4.9 billion). As a result, young people are 239 times more likely to see an alcohol advertisement than an advertisement promoting safe drinking (moderate drinking or abstinence). Thus any intervention needs to equip teens with strategies that leverage positive environmental influences such as curfews, standard drink product labelling, legal limits and overcome negative influences such as easy access to alcohol. For our intervention, this required students to be aware of a range of environmental influences and then develop skills such as standard drink knowledge and strategies to moderate drinking.

Education insights

As noted earlier some are quick to criticise education. However, there is evidence suggesting that education has a role to play in achieving behavioural change. For example, a meta-analysis assessing 48 studies conducted by Snyder *et al.* (2004) concluded that education campaigns have tangible effects in changing behaviour of 8% of the population on average. Alcohol education programmes have shown success in supporting both prevention (abstinence) and harm minimisation (moderate drinking) programs in both community and school settings (e.g. Tobler *et al.*, 2000; Stead *et al.*, 2007). The use of harm minimisation strategies has been proposed as an integral component of alcohol education (Roche et al., 2010) with larger effect sizes noted (Newton *et al.*, 2009) when compared to zero alcohol strategies.

Competitive analysis was undertaken to build an understanding of current approaches adopted in alcohol education programs and the reasons why students would not adopt moderate drinking attitudes or behavioural intentions. Our formative research identified that an alcohol education intervention should adopt a harm minimisation focus, be based on recent (Australian) National Health and Medical Research Council (NHMRC, 2009) guidelines, and be single-substance focus (i.e. alcohol only). Further, interactivity, relevance and creativity were identified as three vital elements that engaged students and maintained receptiveness to alcohol education (Roche et al., 2010). Interactivity is acknowledged as a key factor contributing to alcohol education effectiveness by Tobler *et al.* (2000) in their meta-analysis on tobacco, alcohol, marijuana and illicit drugs school education programs and also in Soole *et al.*, (2008). Our competitive analysis yielded a total of 43 different programs (Roche et al., 2010), many of which are now dated owing to a recent revision to NHMRC (2009) drinking guidelines. Further, many alcohol education programs that are currently available in Australia are fear based, information heavy and didactic (Roche et al. 2010). Only a few alcohol education interventions offered online activities, which have previously been shown to be effective (Reis and Riley, 2002). Experiential learning focuses on engaging students in ways that best enhances their learning (Kolb and Kolb, 2005), thus the curriculum undertaken in this study encompasses elements of interactivity, relevance, and creativity through hands-on activities and digital content that appeal to a student audience. The content enables students to experience the process and consequences of intoxication, and to devise strategies for drinking situations.

Game On: Know Alcohol (GO:KA)

A school-based intervention was created by social marketers following the UK National Social Marketing Centre (2012) bench mark criteria (outlined in Table 1).

Table 1: Application of social marketing benchmark criteria for GO:KA

Criteria	Definition	Application
1. Consumer orientation –	Develops a robust understanding of the audience, based on market and consumer research, combining data from different sources.	The project commenced and concluded by seeking to understand audience views. Multiple research methods (focus groups, ethnographic research and secondary data sources) were used to understand student learning preferences and possible modes of delivery. Student satisfaction with aspects of GO:KA were measured after curriculum delivery.
2. Behavioral goals	Has a clear and unequivocal focus for achieving impact on peoples' behaviour, and is based on specific behavioural goals.	Social marketing typically aims to influence behaviours rather than just attitudes. Behavioural intentions were used in the current study as a proxy for actual behaviour.
3. Theory based	Draws on and incorporates the use of behavioural theory to inform and steer development, drawn from an integrated theory framework.	The underpinning theories used to design GO:KA were the theory of Planned Behaviour (Ajzen, 1991), the do-learn-feel learning hierarchy (Ray 1973) and experiential learning (Kolb and Kolb 2005). According to the theory of Planned Behaviour a direct determinant of behavioural intention is attitude (in addition to other factors).
4. Insight	Based on work to develop a deeper "insight" into peoples' lives, with strong focus on what will move and motivate people.	Places teens at the heart of the program and commences the program design from the realities identified by the recipients. For example, Roche et al. (2010) identified key elements of successful drug prevention programs, recommending a single substance focus, interactivity, peer interaction and varied teaching methods.
5. Exchange	Incorporates a compelling exchange proposition and analysis, while really understanding what the person has to give up in order to obtain benefits.	The social costs (social exclusion, shyness) associated with not drinking are typically perceived as high compared to the benefits of moderate drinking (social inclusion, control, lack of hangover). When the costs outweigh the benefits, moderate drinking is less appealing. GO:KA aimed to reduce the social costs demonstrating benefits of moderate drinking.
6. Competition	Incorporates a robust competition analysis to ensure that all those things competing for the time, attention, and behaviour of the audience are addressed.	Direct competition (competing alcohol education programs) and indirect competition (commercial marketing messages for alcohol) were considered. Most alcohol education interventions are multi-substance focussed (Roche et al., 2010). Alcohol marketing messages contain positive messaging linking alcohol to social settings, relaxation and fun.
7. Segmentation	Uses a developed segmentation approach, going beyond more simple targeting approaches, and avoids the use of generalization.	GO:KA was designed for teens aged 14-16, based on our understanding that drinkers under the age of 15 years are much more likely than older drinkers to experience risky or antisocial behaviour connected with their drinking (Alcohol Working Group, 2008).
8. (Marketing) Methods Mix	Examines and uses an appropriate mix of (marketing) methods to achieve the goals.	A mix of (marketing) methods was used with an online game being designed specifically for GO:KA (Product). The consequences and effects of alcohol were a consistent message of GO:KA and delivered through a variety of online and offline activities (Promotion). GO:KA was delivered by an expert team (People), with consistent GO:KA branding (Physical evidence).

Our analysis was used to build a distinctive intervention that involved alternating games-based modules with knowledge-based modules. The intervention was delivered by the research team and supported by teachers in the pilot study. The program was delivered in an auditorium and break out class rooms and outdoor settings with all students in the target year level (Year 10) encouraged to participate in GO:KA as part of their pastoral care program. Table 2 summarises GO:KA providing an overview and key objectives for the learning modules.

Table 2: Summary of GO:KA

Module	Overview	Key Objective
1 – Game On! Risky Ride	Students play Risky Ride (www.riskyride.com.au) which consists of three levels. Each level represents a different Blood Alcohol Concentration (BAC).	At the end of this module students understand that loss of control leads to poor performance. It is difficult to drive when you are over the legal blood alcohol limit
2 – Know the Effects of Alcohol	Students participate in a range of activities such as: Beer Goggles, Stork Balance Test, writing about an emotional experience, watching an online video, and laying in the gutter to simulate being passed out.	At the end of this module students will understand the physiological, cognitive, emotional and physical effects of alcohol consumption through experiencing a range of effects in simulated activities.
3 – Game On! Drink Aware	Students play three games relating to standard drinks: 1. Bartender (http://microsite.ors.wa.gov.au/games/bar_art_v42.swf), 2. Drink Driving Quiz (http://microsite.ors.wa.gov.au/youngdrivers/quizzes/DrinkDriving/index.html), 3. Be Drink Aware (http://www.bedrinkaware.com.au/games/index.htm).	At the end of this module students will understand the concept of standard drinks' and understand the number of standard drinks in popular alcoholic beverages.
4 – Know Standard Drinks	Students calculate the number of standard drinks in three popular alcoholic beverages. Students completing the task successfully were invited to pour one standard drink size (87ml) using their choice of soft drink.	At the end of this module students will be able to pour exactly one standard drink and they will understand that determining standard drinks is very difficult as standard drinks vary for each beverage type.
5 – Game On! Stay in Control	Students play the Drinking Nightmare Game (http://www.drinkingnightmare.gov.au/internet/drinkingnightmare/publishing.nsf/Content/game), which simulates experiences of a night out in the form of a board game.	At the end of this module, students will understand risky drinking scenarios and the options and consequences associated with certain drinking scenarios. In addition, they recognize people, places and situations where they may face identical difficult drinking situations.
6 – Strategies for Drinking Moderately in Social Settings	Students are given a drinking situation and a range of strategies they can choose to moderate drinking. Students work in groups to discuss the strategies they would use in the nominated drinking situation.	At the end of this module students will be able to outline 5 strategies to drink moderately, have three personal strategies for drinking moderately, have a personal strategy to help friends drink moderately, understand that drinking moderately helps you stay in control and still have fun. Finally students will complete a personal pledge to drink moderately

Method

More than 11,500 students were enrolled in Year 10 in Catholic schools in Queensland, Australia at the time of this study. A convenience sample was used for this project with schools co-opted by the organisation funding this project. Schools were approached by Queensland Catholic Education Commission and immediately agreed to participate in this project. Both schools were based in metropolitan Brisbane within a 5 kilometre radius of the research team and the central business district. The research team met with the schools to determine the timetable for delivery. A school coordinator was appointed to assist with logistics and planning prior to intervention delivery. Ethical approval was sought for this project with parents receiving information on the alcohol education intervention. Parental consent was required for students to participate in the research component of GO:KA. A pre and post survey was conducted at each school to ascertain within-subject attitude and behavioural intention change. All surveys were conducted online, at the commencement of GO:KA and each participating student was assigned a personalized eight digit code ensuring student anonymity. Identification codes were used to match pre and post data at the individual level.

Measures used in this study were adapted from Ajzen and Fishbein (1980). Attitudes were measured with five items on a 7 point bi-polar semantic differential scale with -3 indicating a negative attitude towards excessive drinking and +3 indicating a positive attitude (see items in Table 4). The attitudinal measures had good internal consistency ($a>0.8$). Behavioural intentions' were measured on a three item 7 point bi-polar scale where -3 indicated negative intentions and +3 indicated positive intentions (see items in Table 4). The behavioural intention items exhibited good reliability ($a>0.8$).

Socio-demographic characteristics that were measured in the pilot study included gender, age and country born. These are reported in Table 3.

Table 3: Key demographic characteristics

	All boys school n=131	All girls school n=102
Age		
14 years	29.3%	44.1%
15 years	65.5%	51.0%
16 years	1.7%	3.9%
Country born		
Australia	90.3%	92.5%
Overseas	9.7%	7.5%

Over two-thirds of students in the all boys school were aged 15 years and more, while just over one half of the girls were aged 15 years and over. On average, the boys were older than the girls. The majority of students were born in Australia.

Results

A repeated measure design was used in this project and students were surveyed online on two occasions. This study utilized paired sample t-tests (Malhotra *et al.*, 2008)to measure changes in attitudes and behavioural intentions pre and post participation in GO:KA (see Table 4). The respondents were matched with their unique GO:KA code and this resulted in 96 matched responses for boys and 95 for girls. Of the students who completed the post-intervention survey, over 82 per cent were matched to baseline (93 per cent girls and 73 per cent boys). Match rates for girls were consistent with Perry et al. (1989) but lower for boys and consistent with Vogl (2007). Attrition rates resulted from students being absent, failing to maintain the same identifier code or include a unique identifier code.

Table 4: Attitude and intention change

Attitudes Drinking to excess is ……..	Pre M(SD) All boys (n=123) All girls (n=102)	Post M (SD) All boys (n=126) All girls (n=95)
(-3) Harmful | Beneficial (+3)	-1.6 (1.6) -2.0 (1.5)	-1.7 (1.5) -2.4 (1.1)**
(-3) Unpleasant | Pleasant (+3)	-0.3 (1.9) 1.1 (1.7)	-0.3 (1.7) -1.2 (1.9)**
(-3) Bad | Good (+3)	-0.6 (1.9) 1.3 (1.7)	-0.7 (1.7) -1.5 (1.8)**
(-3) Worthless | Valuable (+3)	-0.9 (1.8) -1.7 (1.4)	-1.0 (1.5) -2.1 (1.4)*
(-3) Unenjoyable | Enjoyable (+3)	0.5 (2.0) 0.5 (1.9)	-0.03 (1.8)** -1.2 (1.9)**
Overall drinking attitudes	**-0.6** **-0.2**	**-0.9*** **-1.7***
Behavioural intentions	**Pre**	**Post**
I intend to drink moderately on social nights (-3) Extremely unlikely | Extremely likely (+3)	0.2(2.1) 0.2 (2.0)	0.6(1.8) 0.7 (2.0)*
I will try to drink moderately on social nights (-3) Definitely false | Definitely true (+3)	0.4(2.0) 0.8 (2.0)	0.6 (1.7) 1.2 (1.9)
I plan to only drink moderately on social nights out (-3) Strongly disagree | Strongly agree (+3)	0.4(2.0) 0.7 (1.9)	0.3 (1.6) 1.0 (1.9)
Overall behavioural intentions	**0.6** **0.7**	**0.6** **1.1***

** Significant at the p<0.001 level, * Significant at the p<0.05 level

Overall change was achieved in the expected direction for drinking attitudes in both schools with stronger effects observed in the girls' school. Paired samples t-testing indicated that girls perceived drinking to excess more negatively after participating in GO:KA (pre M = -0.2; post M = -1.7, p<0.001). Significant change was also observed for the boys' school (pre M = -0.6; post M = -0.9, p<0.05). The analysis on an item level indicated significant change across all 5attitudinal items for the girls' school and only on one item for the boys' school (enjoyable/unenjoyable). There was considerable standard deviation (between 1.1 and 2.0) for each attitudinal item for both girls and boys suggesting there was considerable variation in student's attitudes towards moderate drinking both prior to and following participation in Game On: Know Alcohol with some students holding moderate attitudes toward drinking while others did not.

The girls' school demonstrated positive behavioural intention change across the summated measure (pre M=0.7; post M=1.1, p<0.05), whereas no change was observed for the boys. At an item level significant change was detected on one of the 3 behavioural intention items ("I intend to drink moderately...") for girls and 0 out of 3 behavioural intention items for boys. Once again there was considerable standard deviation (between 1.9 and 2.1) for each item for both girls and boys suggesting that some students intended to drink moderately prior to and following participation in GO:KA while others did not intend to drink moderately prior to and following the alcohol education intervention.

Post hoc testing was undertaken to test for gender differences for drinking attitudes and behavioural intentions following GO:KA (post test). An independent samples t-test indicated statistical significance for attitudes following GO:KA, with girls (M=-1.7, SD = 1.3) reporting higher attitudes than boys (M=-0.7, SD = 1.3), t (219) = 5.5, p < .001. The same test was run for behavioural intentions with girls (M=-1.0, SD = 1.7) reporting higher behavioural intentions than boys (M=0.5, SD = 1.5), t (217) = -2.2, p < .001. The findings in the current study are consistent with the Vogl (2007) study where behavioural effects for males were not significant while effects were found for girls. Together, these studies suggest that further empirical testing is required to examine gender differences.

Discussion

There are many critics of health education with some remarking on education's inability to change behaviour (Hallgren *et al*., 2011; Midford and Munro, 2006; Williams and Connolly, 2006), while others note that education can have unintended consequences increasing the likelihood of consumption (Stuart, 1974; May, 1991). These criticisms are typically directed at abstinence, information based education efforts that are delivered on an ad hoc basis with few, if any, attempts at follow up and teacher centred didactic approaches. For example, in a review of drug education interventions Vogl (2007) noted that information based programs increased knowledge but failed to change attitudes or behavioural intentions while affective programs targeting decision making and problem solving skills have not consistently demonstrated the ability to change drug related knowledge, attitudes or behaviour. Comprehensive drug alcohol education programs that are delivered as part of a community-wide approach (e.g. Komro *et al*., 2001) can demonstrate effect sizes in the short term. To achieve changes over the longer term programs need to be sustained over time with booster sessions recommended.

The current study provides further empirical evidence to support the use of a harm minimisation approach employing interactive curricula in alcohol education. Consistent with SHAHRP (McBride et al., 2004) GO:KA was effective in moderating attitudes toward alcohol drinking. Computer delivered drug programs had previously been shown to be effective decreasing positive attitudes towards drug use and decreasing behavioural intentions for drug use. The current study provides further evidence suggesting that computer technology can be employed in alcohol education to improve attitudes for both boys and girls. However, consistent with CLIMATE (Vogl, 2007), GO:KA increased intentions to drink alcohol moderately for girls but no change was evident for boys suggesting future research is warranted. This is discussed in the following section.

Implications for curriculum-based alcohol interventions

This paper described the theory behind a combined social marketing education approach. The objective of the intervention was to change attitudes and behavioural intentions towards moderate drinking (harm minimisation) through engaging activities. A pilot test of the feasibility of a combined social marketing/education intervention identified that alcohol education can be delivered in a format that is engaging and fun for students. This paper provides evidence to suggest that teacher concerns about activities designed to engage students which are "fun" miss the point (Roche et al., 2010) are unfounded as the majority of students enjoyed learning in a fun and engaging way and understood key messages delivered via online games and physical activities. The theoretical contribution of this paper is the combined role of social marketing and education. In efforts to differentiate social marketing from traditional approaches to social issues, education is often positioned as a competitive strategy which is a misinterpretation of Rothschild's (1999) paper on the role of social marketing with the social issues continuum. Social marketing can be used to complement education particularly in target groups where awareness and knowledge levels are low.

The second aim of this paper was to pilot test the feasibility of a combined social marketing/education intervention to identify whether a combined social marketing/education intervention could influence attitudes and behavioural intentions towards moderate drinking in teens aged 14-16. The results show that both attitudes and behavioural intentions towards moderate drinking amongst girls could be changed whereas only attitudes could be changed for boys. There is a growing body of evidence suggesting that education efforts that are repeated over time are effective in changing behaviour in the longer term (Komro *et al.*, 2001; McBride *et al.*, 2004). The pilot intervention described in this study was designed as a

13

one-off program with a total duration of 4.5 hours. The program was developed as a series of 6 modules based on our understanding that in practice teachers usually utilise parts of developed programs rather than entire programs. Our long term aim is to develop a program that is publicly available for teacher use to provide teaching resources for teachers to maximise the occasions that students are exposed to moderate drinking messages. As noted by McBride *et al*. (2004) classroom programs are practical for schools to implement, are cost and time effective when compared to community programmes and they require less external expertise. Practical issues such as cost and ease to disseminate must be considered by program developers if we are to maximise share of voice for safe drinking messages. There is a need to monitor the proportion of safe drinking messages that adolescents are exposed to in comparison to commercial alcohol marketing messages to begin to redress the growing imbalance between the two message forms.

Limitations and future directions

The current study is limited to a convenience sample that was comprised of two metropolitan single sex education schools of a Catholic denomination in Queensland, Australia and student cohorts of 14-16 years with gender effects observed. Generalisations beyond the current sample are not possible owing to the convenience sampling method employed in the current study. The results presented in this paper must be viewed in light of the sample and the evaluation measures employed. A randomised control trial or a four group six study approach may be used to evaluate the social marketing/education intervention allowing researchers to control for extraneous factors. The current study based on a convenience sample design was limited to paired samples t-testing to understand whether pre intervention attitudes and behavioural intentions differed from post attitude and behavioural intentions. One statistically significant change was observed in the three behavioural intention measures in the all girls' school. Random sampling will permit a more meaningful calculation allowing the mean differences between scores to be computed with confidence intervals to be assessed. Further, random sampling will permit generalisations beyond the sample in the study to be made.

Behavioural intentions should be expanded to capture intentions to binge drink (drink to excess). Given the relationship between behavioural intentions and actual observed behaviours has been challenged (Holdershaw *et al*., 2011) it is important for researchers to extend evaluation beyond behavioural intentions to capture behavioural data in order to understand the impact on behaviour change in the short and longer terms. Ideally,

researchers should seek to measure actual behaviour given the known problems associated with self-reporting of drinking behaviour (Rundle-Thiele, 2009). Further, additional proxies for behaviours should be incorporated to broaden our understanding. Attention should be paid towards including measures employed in recent alcohol education evaluations to permit a direct comparison of effects to be made. Finally, a longitudinal element is recommended to enable researchers to estimate the longevity or erosion of any changes achieved.

Statistical change was achieved for five attitudinal measures for girls and one out of five measures for boys. Attitudinal research shows that knowledge is critical in the formation of consumer attitudes (Ajzen and Fishbein 1980). Further research is needed to identify whether knowledge changes occurred evenly for both genders and to uncover knowledge deficiencies. An improved understanding of the knowledge attitude relationship offers one key to unlock how behavioural intentions can be changed in boys. Additional opportunities for research arise beyond examining gender effects. Previous research (for example see Kulis et al. 2007) has found that ethnicity plays a role in program effectiveness suggesting that additional demographic variables should be empirically examined in future research.

There is a need to extend testing beyond the Catholic school single sex setting to ensure that GO:KA can achieve attitudinal change in a wide variety of settings, including public schools, different denominations, co-educational contexts and to extend testing to different ages to ascertain if education is equally effective in earlier school year levels. Finally, future research is needed to validate the findings presented in the current study to establish whether timing of program delivery and evaluation impacts efficacy.

Conclusion

It is important for the research community to remain mindful that share of voice for messages promoting moderate drinking are significantly outweighed by messages promoting alcohol (Hastings and Angus, 2011) and therefore any attitudinal or behavioural intention change from a one-off intervention represents an important step in the moderate drinking direction. This research has contributed evidence that combining social marketing with education to create interventions has a positive influence. The research provides additional empirical support for a gender effect that warrants future research attention to improve our understanding of how behavioural intention change for boys can be achieved.

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