



A review of alcohol media literacy interventions and potential applications for a UK context

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EXECUTIVE SUMMARY

Alcohol media literacy interventions aim to develop capacity for critical analysis of media content in children and young people, in order to facilitate ability to resist pro-alcohol portrayals. This study reviewed evaluations of such interventions to understand factors supporting effectiveness including intervention content; theories of change; key mechanisms of delivery; strengths and weaknesses in current evidence and issues pertaining to potential adaptation for delivery in a UK context.

Nine relevant studies were identified for review and synthesis, drawing on realist principles to consider what works for whom in what circumstances, in what respects, and how. This synthesis identified that interventions delivering core media literacy skills of critical analysis and message dissection, to general population groups within the regular school day, in school settings, consistently attain intended outcomes. These include decreased positive alcohol expectancies, decreased brand identification and decreased alcohol norms, with outcomes attained even where significant variation in intervention dose and teacher involvement were observed, suggesting inclusion of core skills as the primary change mechanism. Further, positive outcomes across a broad age range suggest that these programmes may be applicable across childhood to late adolescence. The review strongly supports the adaptation of intervention content to reflect local alcohol marketing and context, including guiding the selection of media content for analysis. Due to the limited number of studies identified, conclusions cannot yet be drawn about most effective intervention length and delivery. Further limitations include lack of baseline measures of exposure to alcohol advertising, suggesting an assumption of homogeneity in youth frequency and mode of contact with these messages, and also lack of consideration of engagement with newer media. Significantly, no interventions were reported from the UK, meaning understanding of the transferability of programmes is limited and necessitating exploratory work on alcohol media exposure in UK youth.

This exploratory work was commenced through focus groups with a small sample of Year 6 (10-11 year olds) UK school children, exploring patterning of exposure to mainstream and new media alcohol advertising, as well as issues relating to the context surrounding such exposure. Data suggests that exposure to alcohol advertising through mainstream media and online content is limited, with little recollection of specific adverts/brands. Generic alcohol advertising, for example through supermarket promotions, was recalled more frequently than alcohol-specific ads, as well as brands observed through parental consumption and familial social activity. This suggests that the more traditional conceptualisation of media evident in intervention studies would benefit from expansion to incorporate a broader view of alcohol marketing. Further, existing levels of technical literacy, exhibited through knowledge of applying account controls, skipping ad content etc. was significant in youth exposure levels, with both children's and parents' abilities important. This review supports the development and testing of UK-specific intervention content to include core media literacy skills applied to UK alcohol advertising. Future intervention development should also consider provision of tools

to enable minimisation of alcohol advertising exposure, as well as the role of the family, and particularly parental levels of media literacy, as mechanisms of behaviour change.

BACKGROUND

Alcohol consumption is frequently observed by young people in media content (Sumnall et al. 2011) and is generally framed in mainstream and new media portrayals as relatively unproblematic (Lancaster et al. 2011). This contributes to normative perceptions of alcohol as an everyday product, contrasting with policy efforts to challenge and shift drinking norms (Nicholls 2012). Evidence suggests that these portrayals impact young people's attitudes and beliefs on alcohol, with subsequent impact on consumption in later youth and adulthood.

In their analysis of consumer behaviour research on young people, Hastings et al. (2005) identify that, although less influential than price in youth drinking behaviour, a link is observed between advertising exposure, prevalence of advertising and youth consumption. This is supported by Smith and Foxcroft (2009) who, in a systematic review of prospective cohort studies on alcohol advertising, identified an association between exposure to alcohol advertising and promotion, and subsequent consumption in young people. Anderson et al. (2009), in a systematic review of longitudinal studies, also identified an association between exposure to alcohol-related commercial content and likelihood of alcohol use in young people (under 18), as well as increased levels of use correlated with higher exposure in those who had already commenced drinking. Current UK codes of advertising practice restrict content of mainstream media alcohol ads, in terms of types of drinking portrayals and the suggested benefits of consumption, but not in frequency or timing (ASA 2016), meaning level of exposure can be intense for young viewers, with ads commonly identified both before and after the watershed (Sumnall et al. 2011).

As well as identifying influence in mainstream media portrayals, social media and general online spaces, although ostensibly covered by advertising guidance, lack the regulation of mainstream approaches. These constitute a fast-growing area for alcohol marketing (Hastings et al. 2010) and, although age-approval processes are standard practice for accessing alcohol-related online content, this can be easily surpassed in many cases, allowing access for those under 18 (Winpenny, Marteau and Nolte 2014). As with mainstream media, evidence suggests correlation between high levels of exposure to digital media content on alcohol and consumption levels in young people (Lobstein et al. 2016). Interactive and engaging marketing e.g. branded merchandise, screensavers etc. is widely utilised on alcohol brand websites and engagement with these by young people is found to be more predictive of drinking than brand awareness alone (Gordon 2011). Although advertising and marketing have often been considered as separate entities within research, they are more helpfully viewed as part of the same overall strategy, with information communicated to drinkers through marketing, such as bulk buy offers, discounts etc., meaning the distinction is of reduced value. Where exposure to alcohol-related advertising and marketing content is assessed more holistically, associations with increased youth alcohol consumption are supported (Hastings et al. 2010).

What are media literacy interventions?

Concerns over the influence of media on youth health behaviour have led to the development of media literacy interventions, both as generic skills-building activities and as targeted content focused on health behaviours. Media literacy is defined as “the ability to access, analyse, evaluate and create media in a variety of forms” (Center for Media Literacy 1992), with intervention development focussed on activities to enhance critical thinking and analysis of media strategies and, subsequently, to increase resistance to the types of persuasion techniques routinely employed. The core concepts underpinning media literacy training are defined as understanding that:

1. all media messages are constructed
2. media is constructed using a specific creative language with its own rules
3. people will experience the same media message differently
4. producers of media are businesses driven by the requirement to make profit
5. media messages contain embedded values and positions

(Thoman 1993)

These core concepts have been developed into intervention components, both for general media literacy programmes and for health promotion. Systematic review of general interventions has identified that, although positive outcomes are frequently obtained in terms of the acquisition of intended media analysis skills, significant variation in elaboration of intervention content and use of effectiveness measures makes comparative analysis problematic (Bergsma and Carney 2008). It was further suggested that dose-response association between outcomes and length of intervention was inconclusive, as was understanding of how delivery in different contexts may impact outcomes, suggesting further investigation to better understand how to maximise effect.

Alcohol-specific media literacy interventions aim to moderate advertising effects and limit subsequent alcohol consumption, with evidence suggesting that young people with higher levels of media literacy are less vulnerable to the influence of alcohol-related media exposure on future intention to drink (Chang et al. 2016). The outcomes of acquiring alcohol-specific media literacy skills have been categorised as: acquisition of deconstruction skills; lower perceived social norms of alcohol; reduced positive alcohol expectancies; increased self-efficacy to refuse alcohol; reduced preference for alcohol-related merchandise; and increased understanding of persuasive content of adverts (Gordon et al. 2016). As with generic programmes, evidence suggests that positive outcomes are frequently obtained, although significant variation in programme length, teaching approach and evaluation methodology, makes conclusions on maximising effectiveness problematic (Hindmarsh, Jones and Kervin 2015).

To date, interventions on alcohol media literacy have been developed and delivered primarily in the US and Australia, with little examination of potential incorporation into UK health promotion. This study reviewed evaluations of such

interventions to understand factors supporting effectiveness including intervention content; theories of change; key mechanisms of delivery; strengths and weaknesses in current evidence and issues pertaining to potential adaptation for delivery in a UK context. Qualitative exploratory work was then conducted to assess the relevance of review findings and potential issues of adaptation for UK delivery, including the patterning of youth exposure to alcohol media content.

METHODS

Aims and research questions for review of alcohol media literacy interventions

This evidence review aimed to enhance understanding of key considerations in the development and delivery of alcohol media literacy (ML) programmes, drawing on Realist principles to better assess what works for whom in what circumstances and in what respects, and how. (Pawson and Tilley 1997). This approach considers how and why complex interventions work or not, with a focus on identifying theoretical frameworks to better understand the mechanisms of change that intervention components aim to stimulate. It further incorporates consideration of contextual features which may have impacted on the programme as intended. The research questions for the review were:

- What aspects of content and delivery are important for effectiveness of alcohol ML interventions?
- What theories of change are associated with effectiveness?
- What are the limitations to current evidence and research on effectiveness?
- How are these findings relevant to a UK context and what adaptations may be needed for effective delivery in the UK?

Exclusion criteria and search process

Review of key alcohol ML interventions was undertaken between December 2016 and May 2017. Initial reading of key papers in the relevant area informed the approach to intervention identification, with the inclusion criteria and search strategy described by Hindmarsh et al. (2015) also drawn on to ensure robust processes. Databases searched were: ERIC, British Education Index (BEI), Google Scholar, Psycinfo, Scopus, Web of Science, PubMed, ASSIA, Communication Abstracts.

Search terms used were: (Media literacy OR advertising literacy OR media education) AND (intervention) AND (child* OR adolescent OR youth) AND (alcohol OR alcohol education OR alcohol behaviour) AND (intervention OR programme). Initial results were then filtered by the lead author according to the following inclusion criteria:

- i) Must report an evaluation of a standalone alcohol media literacy intervention (with post-test), delivered to under 18s.
- ii) Papers describing processes for developing an included intervention.
- iii) Intervention must be more than 25 mins (deemed necessary to impart core media literacy skills and knowledge).
- iv) Studies must directly measure variables associated with core ML skills and knowledge.
- v) Studies published in English between last ten years (Jan 2007 – Dec 2016).

Data extraction and synthesis approach

Eleven papers were initially identified as meeting the criteria for inclusion. On second analysis two were then excluded: Peter et al. (2013), which was identified as measuring existing media literacy skills as opposed to newly acquired ones; and Goldberg et al. (2006), which fell outside the date of review but had emerged within the search due to being republished. Nine final selections were therefore identified, which were read alongside development and theory papers for the relevant intervention where these were available. Table 1 presents studies identified for inclusion and the application of the inclusion criteria.

Table 1 - Exclusion criteria checklist								
Reference	Reference number	Alcohol related	Teaches core media literacy concepts?	Description of intervention components	Intervention over 25mins	Description of delivery context	Implementation issues reported? Fidelity, take up etc.	Pre and post-test design
Banerjee et al. (2015)	1	Y	Y	limited	Y	Limited	Limited	Y
Gordon et al.	2	Y	Y	Y	Y	N	Y	Y
Chen (2013)	3	Y	Y	Y	Y	Limited	N	Y
Greene et al. (2016)	4	Y	Y	Y	N/A	Limited	N/A	Y
Sivisathamparam (2011)	5	Y	Y	Y	Y	Y	Y	Y
Peter et al.	(excluded)	Y	measure is of existing ML	N/A	N/A	N	N	Y
Kupersmidt et al. (2010)	7	Y (and smoking)	Y	Y	Y	Limited	Y	Y
Gordon et al. (2016)	6	Y	Y	Y	Y	Limited	Limited	Y
Draper et al. (2015)	8	Y (and smoking)	Y	Limited	Y	limited	N	Y
Kupersmidt et al. (2012)	9	Y (and smoking)	Y	Y	Y	Y (Tested for contextual moderators)	Y (tested for implementation moderators)	Y
Jones et al.	(excluded)	Y	intervention is counter marketing	Y	Y	Y	Y	Y

Papers were examined for: programme theory; descriptive (context) data on delivery; core concepts being taught in intervention; missing context data; outcomes; interpretation of reason for outcomes; author observations/interpretations. Data extraction was initially carried out by the principal investigator and then checked by the co-researcher for quality assurance and missing data. Data was refined and reduced, with agreement on final content for inclusion in the evidence synthesis reached through ongoing discussion between the two researchers, and further assessed by project supervisor. Final extraction is presented in Table 2 (below).

Methods - Focus groups

Recruitment and sampling for focus groups

The overall aim of focus groups was to consider the relevance of review findings for UK pupils, to better understand any necessary adaptations of existing media literacy interventions and/or testing issues for intervention development. This was an exploratory study aimed at investigating key themes generated from the initial review of intervention evidence. Qualitative methods were selected to facilitate depth of understanding in order to expand theory (Hyde 2000), in this instance through examination of the context in which the behaviour occurred (Gilbert 1990), specifically the situation surrounding media content access by participants. Focus group methods were chosen due to benefits including: potential reluctance of younger participants to talk alone; the ability to access the forms of communication and language used by the target group; their lack of discrimination by varying literacy levels (Kitzinger 1995). This was pertinent in a primary school setting where children may feel more comfortable with peers and where literacy levels would not be pre-established.

Year 6 pupils (age 10-11 years) were selected as participants for data collection, representing the earlier end of the delivery spectrum for alcohol ML interventions and facilitating exploration of early exposure and use of media. Sites were selected to provide exploratory information, and do not constitute a large enough sample to clearly illustrate any patterning in responses. Although representativeness is limited, purposive sampling was employed to initially identify four primary schools in two counties in South Wales, representing a range of urban and non-urban settings typical of the geographic make-up of Wales. Their socio-economic profiles were identified based on free school meal entitlement (2 low FSM, 1 high FSM, 1 medium FSM relative to national averages for Wales).

Initial contact was made with schools through the area Healthy Schools Coordinator, who agreed to forward an introductory email describing the project and requesting initial expressions of interest. The lead researcher then followed up with telephone calls to arrange an introductory meeting and to secure school-level consent. At this meeting, processes for pupil selection and parental consent were established, with schools asked to randomly select from Year 6 classes and to recruit a balanced gender mix where possible. Although the researcher offered to lead on gaining parental opt-in consent so as to minimise inconvenience for schools, all sites preferred to draw on their existing relationships with parents to facilitate contact. This involved letters and information sheets sent home with pupils,

containing parental consent slips to be returned to the school, to ensure active opt-in.

Although four schools agreed to participate in the study and regular contact was maintained with sites throughout, the fourth withdrew at a late stage due to time pressures associated with Year 6 mandatory testing. This occurred too late for any further recruitment of a replacement school, leaving three participating sites and 28 total participants (12 male, 16 female):

- School A is a local authority school in an ethnically diverse urban area of Wales, with over 400 pupils and over 45% Free School Meal (FSM) entitlement rate.
- School B is also a local authority school in a significantly more affluent, semi-rural area of Wales, with low levels of ethnic diversity. It has over 300 pupils and an FSM rate of less than 3%.
- School C is a local authority urban school based in a relatively diverse region, with an FSM rate of around 5% and a large pupil population (>500).

Ethical approval was gained from Cardiff University Social Science Research Ethics Board. The investigators provided current Disclosure and Barring Certificates to schools during the consent process.

Data collection and analysis

All focus groups were carried out during the normal school day, in usual classrooms to ensure familiarity for participants. A teacher was present in all groups along with the principal investigator and, on two occasions, the co-researcher. Pupils were asked to provide their own opt-in, with an age appropriate consent form read out to the group by the researcher prior to group discussion and then signed to indicate informed participation. This ensured that variations in literacy levels among participants would not be a barrier to contributing. They and their parent/carers were advised of use of data, anonymity, right to withdraw and were provided with opportunities to ask questions.

A focus group topic guide was developed in advance by the principal investigator based on key themes extracted from the evidence review, and this was used to guide – but not restrict – conversation, with deviation to unplanned areas where relevant to the broader discussion. Issues considered in the group included recollection of alcohol adverts and channels of exposures, the context surrounding viewing behaviour and factors influencing choice of media, other channels of exposure to alcohol promotion and awareness of counter-messaging.

Focus groups were recorded and transcribed by the principal investigator, with elimination of hesitation noises but otherwise in full. As the focus groups were spread over a two month period, the first two were transcribed immediately after interview and read for emerging themes, which were then incorporated into later groups. This included reference to specific social media and internet sites mentioned by the children but previously unknown to the researcher. Focus group data was analysed using thematic analysis drawing on the approach of Braun and Clarke (2006), which defines this technique as offering both flexibility and methodological

soundness. The authors state that thematic analysis can identify, analyse and report patterns within data, as well as supporting interpretation and acknowledging the active role of the researcher in the process of theme development. Data set comprised transcribed focus group content, which was read using a deductive, theoretically-driven approach, incorporating issues identified in the evidence review conducted before fieldwork. These then formed the basis for initial broad categories and sub-categories during coding. Coding was done by the primary researcher and then revised through discussion with the project supervisory team.

FINDINGS FROM EVIDENCE REVIEW

This section will present a summary of key data from identified alcohol media literacy interventions for children and young people, with discussion of learning from the synthesis of papers. Table 2 provides an overview of sampling, intervention, context and methods for each paper, as well as selected outcomes of significance for the review.

Table 2

Ref. No.	Sample details	Intervention (ML = media literacy)	Delivery context	Theory	Measures	Summary of key outcomes (significant difference unless otherwise stated)
1	171 students (59 male). Mean age 15.75. From 34 schools in one US state. 70% white. No control group reported.	Youth Message Development – analysis of print adverts selected for local relevance. Two arms with varying media literacy activities. Analysis activities compared to analysis plus planning. 75 minute workshop for each condition.	Delivered to small groups of students attending a Leadership Institute (US Summer school for conservative values).	Analysis activities based on core ML skills. Core ML skills will be enhanced by active participation, based on Theory of Active Involvement (Greene 2013). Interpersonal communication should moderate intervention messages (more talk = more remembering)	Pre and immediate post-test questionnaire. Further post-test after 3-4 months. Media-relevant measure – frequency of critical thinking. Behaviour measure – self-efficacy to counter-argue. Communication measure - frequency and target of talk	No difference in critical thinking by intervention arm. 68% participants talked to someone about the workshop afterwards. Communication moderated intervention effect on self-efficacy but not critical thinking. Self-efficacy was higher in the analysis plus planning group, supporting inclusion of planning.
2	37 pupils, aged 10-12 from one urban, religious, Australian school. No control group reported.	'Media in the Spotlight' – 10 lesson programme (10 hours over 5 weeks). Ad content selected for local relevance to reflect Australian	Intervention delivered in classroom by study author (with teacher present) to increase fidelity. Delivery during the school day, scheduled to be	MIP model – activities to teach core ML skills to build competence in interpreting multimodal adverts. Inoculation Theory – can	Pre and post-test questionnaire. Core ML skills measured as: increased ML skills, understanding of persuasive intent, reduced	Acceptability to setting increased through coherence with PDHPE curriculum. Flexibility to meet school needs key. Core ML outcome measures were

		drinking culture.	convenient for teachers. Low initial level of approval for drunkenness stated as related to school values.	inoculate against pro-alcohol messages before engagement in drinking. Constructivist teaching principles – planning activities used to increase engagement	interest in branded merchandise, reduced perceptions of teenage drinking norms. Self-efficacy to refuse also measured.	all improved (MIP model supported). Inoculation theory somewhat supported (reduced norms). No significant difference in self-efficacy to refuse.
3	15 classes from 7 th to 10 th grade in 4 US schools, (mean age = 14.03). Intervention group and wait list control. 171 total (80 male). 57 pupils in negative condition, 60 balanced and 54 control.	TeenSmart TV programme – 45 min classroom-based session. Study tested negative ML content against balanced ML content. Adverts selected from YouTube for local relevance.	Classroom based. Regular teachers aided researcher in pre-test survey. A trained research assistant delivered the programme. The main researcher and research assistant then delivered post-test measures.	Content based on core concepts of ML (derived from MIP model). Negative and balanced approach derived from parental mediation, where style of communication about ad content influences youth perception.	Pre-test survey done in class, one week before intervention. General TV consumption measured at baseline. Measures reflect core ML concepts – perceived realism, desirability, negative expectancies, drinking intent, scepticism.	Improvement in all core ML skills – MIP model supported. Lower alcohol expectancies in negative intervention condition than balanced or control. Negative intervention condition more strongly supported for boys and balanced condition for girls.
4 (formative research underpinning intervention used in paper 1)	Phase 1 - 148 pupils (44 male, mean age 15.57) received the intervention. Students drawn from 32 schools. Phase 2 - 20 student interviews, (10 th grade, 40% female) Phase 3 - 2 student focus groups (10 th	Formative research for Youth Message Development (YMD). Feasibility testing of 2 versions of YMD curriculum at phase 1. Aimed to test validity of intervention components, including analysis and planning activities.	Phase 1 - Delivered while students were attending a Leadership Institute (US Summer school for conservative values). Phase 2 – cohort of students from New Jersey Phase 3 – cohort of students and teachers	Core ML skills will be enhanced by active participation. Analysis activities based on core ML skills. Planning activities based on Theory of Active Involvement (Greene 2013) - Active	Test of correlations between curriculum variables and substance-use related variables. Also tested analysis versus planning conditions.	Inclusion of planning activities was supported. Intervention components were validated as reflective of core ML skills as intended. Delivery was feasible.

	grade, 6 female), 2 teacher focus groups.	Intervention content refined in phases 2 and 3.	from New Jersey	engagement produces new skills and knowledge, which change relevant cognitions, which leads to behaviour change.		
5	364 participants (180 male). 215 (100 male) in intervention group. 149 (80 male) in control group. Age range 13-19 (Mean 15.73). 45.1% 9 th and 10 th grade. From 3 US high schools.	Evaluation of Expectancy Challenge Alcohol Literacy Curriculum (Ecalc). Adaptation of existing 'Expectancy challenge' intervention for university students, with addition of media literacy core concepts and tested for high school population. Intervention group received alcohol-specific ML content while control had ML content centred on body image. 50 minute programme.	3 schools with pupils from broad range of SES backgrounds . Parental opt-in was required (incentivised by class-prize). Students recruited through the Health Education Programme.	Based on theorised association between pro-alcohol media content and development of positive alcohol expectancies. Expectancies are characterised as memory processes which are predictive of future intention to drink. Challenging expectancies should decrease planned and actual consumption.	Actual consumption at baseline and 1-month follow up. Changes in alcohol expectancies at baseline and 1-month. No other distinct measures of acquisition of core ML skills.	Reduced positive expectancies reported in 11 th /12 th grade for both drinkers and non-drinkers in intervention group. Effect not mirrored in 9 th and 10 th grade drinkers and limited in 9 th /10 th grade non-drinkers. Observed reductions in consumption support theorised association between expectancy and drinking. Alcohol-specific ML content partially supported over generic content.
6 (follow-up to paper 2)	83 intervention group, 82 wait-list control. Age 9-12 (mean 10.81). 52.8% female overall. Intervention	'Media in the Spotlight' – 10 lesson programme (10 hours over 5 weeks). Ad content selected for local relevance to reflect	Classroom-based programme, delivered by the lead author with a teacher present. Schools were motivated by use of wait-list control.	MIP model – activities to teach core ML skills to build competence in interpreting multimodal adverts. Inoculation Theory –	Baseline measure of core ML concepts 2 weeks before intervention, done in classroom with questions read out by researcher.	Primary ML outcomes: no difference from baseline for self-efficacy in intervention group. Wait list control self-efficacy scores were lower at wave 3 than wave 1.

	group received programme between waves 1 and 2, with wait list group receiving between waves 2 and 3.	Australian drinking culture.	Higher SES schools due to evidence of increased substance use. 3 smaller schools combined or intervention group, 1 larger school used as wait-list control.	can inoculate against pro-alcohol messages before engagement in drinking. Constructivist teaching principles – planning activities used to increase engagement	Outcomes measured for all at wave 3 using same method. Secondary measure for inoculation against pro-alcohol messages.	Increased deconstruction, decreased brand preference reduced social norms for both groups, maintained at 3 month follow up for intervention group. Alcohol expectancies decreased in intervention group at 3 months but not at immediate post-test. Expectancies in control group increased from waves 1-2 then decreased at wave 3.
7	Sampled from 12 schools in 5 US districts. All 3 rd to 5 th grade classes invited by parental opt in. 22 classes (344 pupils) intervention group. 27 classes (335 pupils) wait-list control. Mean age 9.4. 51% female.	Media Detective programme. 10 lessons (45 mins each) over 2 weeks. Analysis of print media adverts, including looking for 'clues' within ads. Components were based on both alcohol and tobacco and reflect core ML skills.	Delivered in classrooms, by teachers who attended 1-day training (received after post-test by teachers in wait-list control classes).	Intervention components and sampling based on MIP model. Sampling based on evidence that attitudes towards substance use may become more positive during this developmental period. MIP model theorises that this will then be predictive of intention to drink.	Pre-post test RCT. Surveys done in class by researchers reading questions aloud. Primary – reduced intention to use alcohol or tobacco. Secondary – deconstruction, understanding persuasive intent, decreased interest in merchandise, self-efficacy to refuse. Measure of delivery fidelity.	Reduced intention to use and increased self-efficacy in intervention group only for those who had tried alcohol or tobacco at baseline. Higher baseline self-efficacy observed in 'never used' at baseline. Sig. diff. in deconstruction and persuasive intent for intervention group (greater for grade 5 than for younger pupils). Reduced interest in merchandise for boys only. Those in the 'never used'

						group had lower baseline interest in merchandise.
8	15 participants (10 male) from 1 rural middle-school in 1 US state. Pupils deemed at risk due to substance use within last 30 days. Mean age not reported. Low SES school.	Media Detective intervention (paper 7) adapted into a 2-hour programme. Elementary-level content developed for intervention, reflecting lower than average literacy levels of participants. No control group.	Delivered in a school-setting but as part of an after-school programme of additional tutoring and activities.	Derived from the intervention above (paper 7), with same theoretical basis.	Baseline and post-test measure of core ML skills: deconstruction; understanding persuasive intent; desirability and realism of portrayals; intentions to use and current substance use (past 2 weeks). Summated into four scales: advertising preferences; advertising skills; actual behaviour; perceptions of advertising	Significant pre and post-test difference on all four scales. Authors suggest that delivery outside mainstream schooling was beneficial to those with more negative previous academic experiences.
9	12 intervention and 12 control classes from 2 school districts in 1 US state. 214 in intervention group (130 girls). 198 in control group (103 girls). Grades 6-8 (mean age not reported). Short-term efficacy RCT.	Media-Ready Curriculum for middle school. 10-lesson programme over 10 days (45 min lessons). Based on core ML skills built up over duration of course, with no focus on alcohol and tobacco until week 5 onwards. Finishes with creation of a counter-message.	Delivered in school setting by classroom teachers, who had received 8 hours of training and teacher manual. Included training on intervention components and MIP model, with chance to practice ML skills activities.	MIP model. Lesson structure closely reflects the model, with activities on perceived realism and similarity, deconstruction, sceptical examination of ad content. Incorporates a planning activity (creation of counter-message).	Primary: intention to use. Incorporated analysis of age, gender and previous use as potential moderating variables. 3 mediator measures included: perceived realism; perceived similarity; acquisition of deconstruction skills. Teachers rated fidelity of delivery. Students rated enjoyment and	Reduced intention to use in intervention group. Boys had higher intention to use than girls. Previous use was predictive of intention to use in all groups. Positive outcome on all mediator measures for intervention group, supporting core ML components. Girls rated course as more interesting than boys. Teachers rated course as easy

					engagement	to teach and enjoyable.
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Core components associated with effective delivery processes

Studies 2, 3, 5, 6, 7 and 9 were delivered in schools and aimed for cohesion with existing activities, either through linking delivery to health and personal education curriculum content and/or by being flexible with the needs of the school in terms of delivery times. Training processes for those delivering programmes are not consistently reported, meaning assessing resource commitment is challenging. Papers 2, 3 and 5 involved delivery from research staff rather than teachers and involved extensive outside input, for example in paper 3 the person delivering the intervention received at least 20 hours of training. Papers 7 and 9 report delivery by teachers who had received a day of training, suggesting significant initial time commitment and school engagement is necessary for effective delivery. Teacher involvement in either developing or evaluating curriculum content was reported in 2, 4, 7, 8 and teacher rating of course content or delivery was predominantly positive. Although required time commitments from schools may have implications for sustainable delivery, evidence suggests that buy-in may be more likely where integration into curriculum aims is considered as well as teacher perceptions of ease and enjoyment of delivery. Positive outcomes were attained regardless of variations in the way that school staff are involved in delivery, supporting flexibility in this area as acceptable in future intervention development, with outcomes attained with both higher and lesser levels of teacher involvement.

Regular school time is supported as an effective context for the attainment of intended ML outcomes, with transferability to other delivery settings, somewhat supported. Papers 1, 4 and 8 were delivered in non-school settings, suggesting potential transferability, however baseline population demographics may be significant. Papers 1 and 4 were both delivered to participants attending a summer camp at a US Leadership Institute, for the development and promotion of conservative values (<https://www.leadershipinstitute.org/>). Available description of camp activities suggests that participants receive media skills training as a tool for building political activism, which may impact baseline media literacy levels and could moderate intervention effects. Further, as with paper 2, which was delivered within a religious school cited as having low approval of drunkenness, this population may have lower alcohol norms at baseline. Comparison of drinking approval at baseline with national population averages would aid interpretation of outcomes and is recommended for UK intervention development.

Total age range of participants was 9-19, with core ML outcomes supported across this range to varying degrees, suggesting applicability of the intervention across adolescence, however further understanding of the acquisition of alcohol beliefs and norms may aid more effective targeting. In paper 6, delivered to a younger cohort, wait-list control alcohol expectancies actually increased prior to intervention, then decreased post-delivery. Although occurring over a relatively brief time period, the possibility of some developmental change associated with

this outcome should be considered. This is further suggested in paper 7, where ML skills were acquired more by grade 5 pupils than in younger participants. Further consideration of the influence of age on the process for developing positive alcohol expectancies would aid understanding.

Processes for gaining parental consent for participation varied throughout, with use of opt-in parental consent processes more common with younger participants, involving active agreement rather than tacit consent unless otherwise stated, with opt-in process otherwise not reported. Meta-analysis of opt-in compared with passive parental consent suggests potential for systematic bias, with over-representation of lower risk adolescents (Liu et al. 2017), which should be considered when understanding outcomes.

Core components associated with effective intervention content

In total, six different interventions were delivered: a) Youth Message Development (papers 1 and 4); b) Media in the Spotlight (papers 2 and 6); c) Teensmart TV (paper 3); d) Evaluation of Expectancy Challenge Alcohol Literacy Curriculum (paper 5); e) Media Detective Programme (papers 7 and 8); f) Media-Ready Curriculum (paper 9). Total age range of intervention participants was 9-19 years.

A significant variation was identified in the length of interventions, from single 45 minute sessions to 10 hours of content. Regardless of this and, as identified previously by Hindmarsh et al. (2015), alcohol media literacy interventions routinely included the teaching of ML skills derived from the core concepts previously outlined, through analysis of alcohol-related media advertising content. Although variable measures and scales are used in evaluations, outcomes generally show that core ML skills have been acquired and this is observable regardless of length of intervention, suggesting that dose is less significant than the inclusion of core concepts.

While all interventions report being based on interactive analytical tasks, for example through small-group work, variation was observed in incorporation of additional planning components, with five papers describing these. Where planning components were tested during intervention development (1 and 4), they were associated with stronger outcomes than with no reported prior testing but, overall, support for the planning component was variable and evidence is stronger for acceptability than effectiveness at this time. Some of this variation may be methodological as comparisons between intervention arms were not always included.

A majority of papers report cultural adaptation of intervention content, involving selection of alcohol adverts for analysis that were locally relevant and more likely to be recognisable to participants. This process of selection is described in depth in the development work for interventions a, b, c, and e with strong evidence to suggest that it is important for youth engagement. An illustrative example is found in the Media Detective Programme, where a 'James Bond' character was initially utilised as the programme detective tasked with identifying clues in selected adverts. It was found that young participants did not relate to the character, as too out of date, illustrating the necessity of both testing intervention components ahead of delivery and of updating intervention content to account for

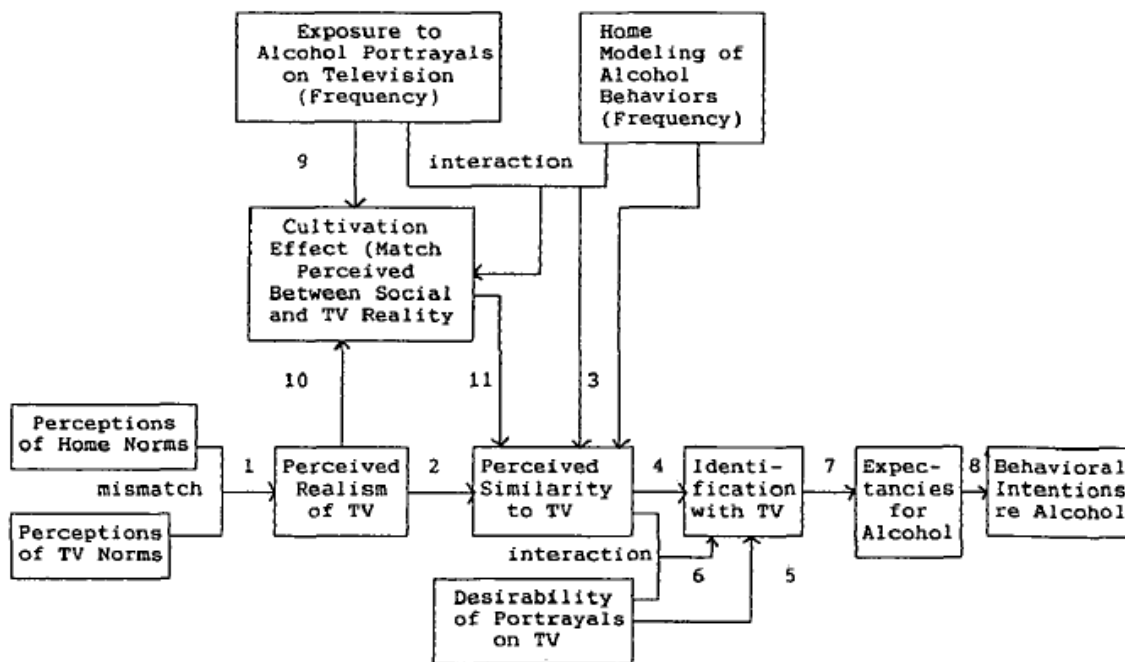
generational variations. Further, interventions largely selected from traditional forms of advert, with little reported inclusion of online content and wider forms of alcohol marketing, meaning understanding of the influence of these – and the potential impact of ML- is limited. For delivery of this type of intervention in a UK context, development work to test participant awareness of various alcohol adverts is recommended, encompassing age variations and potential gender differences.

Identifying and assessing theories of change

Media literacy aims to teach the ability to understand the emotional appeal of advertising and counter it through reasoning. In terms of theoretical underpinnings, a majority of identified studies reference the Message Interpretation Process (MIP) model (Austin, Roberts & Nass, 1991; Weintraub Austin and Meili, 1994), developed from empirical research on the impact of advertising messages on children and young people and considered an important framework for interpreting the impact of ML training (Weintraub Austin, Kallman and Kistler, 2017:

Figure 1

Hypothesized model for alcohol message interpretation process



(Weintraub Austin and Meili, 1994).

The MIP model states that message interpretation has both an affective and a cognitive component, consisting of an emotional processing route and a logical one. Weintraub Austin and Meili (1994) describes three underpinning assumptions of the model: that children are active viewers of media content; that they are somewhat but not entirely logical in their decision making; that identification with portrayals will predict actual behaviour (e.g. imitation). For the first of these, it is argued that exposure alone cannot fully account for advertising effects, suggesting that children and young people should be conceived of as active viewers who interpret observed portrayals through both their logical and emotional responses to them. Drawing on Social Cognitive Theory (Bandura 1986), the MIP model suggests that children will initiate and accept what is portrayed only if it is perceived as rewarding, meaning that alcohol portrayals are more likely to be influential in

perceptions of drinking if they are considered realistic and show a positive outcome. From the components of the MIP model, the acquisition of media literacy skills therefore involves understanding persuasive intent, ability to deconstruct advertising content, questioning media messages, and ability to create visual and digital counter-messages. This is theorised as leading to a decrease in acceptance of portrayed alcohol norms, which should lead to decreased perception of the realism of the portrayal, leading to decreased identification and likelihood of repeating the observed behaviour. It is further theorised that a decrease in positive expectancies should lead to lower acceptance of the media portrayal, leading in turn to reduced intention to drink. Decreased brand identification and understanding of persuasive intent should reduce desirability of products (therefore impacting the emotional processing route), as well as reducing perceived realism (the logical processing route). Decreased social norms are theorised as resulting from decreased perceived realism of portrayals.

Outcomes showing that core ML skills are routinely acquired generally support MIP model theorisation. Alcohol-specific ML content was more effective than generic training (paper 5), with limited suggestion that control group participants were transferring core ML skills to other topics, echoing earlier findings of Weintraub Austin and Johnson (1997) which underpinned the development of the MIP model. In papers with delayed post-test (1-4 months follow up), effects were generally maintained, suggesting sustainability of acquired skills and again supporting the MIP model in relation to sustained impact on decision making outcomes over time. The lack of immediate impact in alcohol expectancies (paper 6) supports delayed effect in this mechanism.

The inclusion of planning activities, cited in papers 1 and 4, stemmed from the Theory of Active Involvement (TIA) (Greene, 2013) and, in papers 2 and 6, from Constructivist teaching principles, which suggest that active involvement in meaning and knowledge construction is beneficial to learning outcomes. In the TIA model, this principle is applied to suggest that engagement with an intervention will produce knowledge gains and new skills, leading in turn to reflection and changes to associated cognitions e.g. norms, intentions (Greene 2013). The inclusion of planning activities, underpinned by the Theory of Active Involvement (Greene 2013) is somewhat supported, however methodological variations and inconsistent use of control groups must be noted, such as in paper 9, featuring a planning activity but with no analysis-only comparison group. Planning activity functioned as a mechanism for improving self-efficacy in paper 1, but not in paper 2 where no impact of activities was observed in relation to self-efficacy. However, where measured, student satisfaction ratings with planning activities were generally positive, suggesting value as a tool for maximising intervention acceptability.

Papers 2 and 6 further reference Inoculation Theory in relation to programme content. This theorises that interventions can build resistance to powerful marketing messages before age of engagement in drinking, resulting in reduced pro-alcohol norms (Compton, Jackson and Dimmock 2016). While this was arguably supported in observed reduced norms post-intervention, it is unclear how this differentiates from the theorisation of MIP, particularly as reduced norms were also observed in other research not citing Inoculation theory. Where actual drinking measures were included (5, 7, 8, 9), reduction in consumption was variably reported. Where higher

risk participants were targeted, based on previous use of alcohol, positive reduction was attained (8) however, for a non-targeted population (5), drinking reduction was attained for 11th/12th grade drinkers but not 9th/10th. This may suggest that the older cohort had more drinking experience to shape their expectancies, potentially supporting Inoculation theory, however reduced drinking may also be explainable through the MIP model, which describes theorised impacts on actual drinking behaviour.

Limitations to current evidence

The review identified a limited body of intervention research, with significant variations in methodology and evaluation, including use of control, baseline and outcome measures. Although the acquisition of core ML skills through ML interventions, across age groups, is supported, absence of longitudinal data on drinking outcomes, as well as inconsistent use of consumption measures across interventions means evidence of impact is limited. Incorporation of consumption measures for older participants, and longer post-test follow up, is recommended to facilitate better understanding of impacts on actual drinking behaviour and to clarify intervention theorisation.

The role of self-efficacy is unclear from current evidence. Where self-efficacy to refuse alcohol was included as an outcome measure (four papers), results are highly variable, with no impact in papers 2 and 6 and no control group used in paper 1. Although self-efficacy is not directly described in the MIP model underpinning the majority of studies, it is likely included as a measure due to the theorised association with intention to drink. Intention to drink was utilised as an outcome measure in papers 3 and 9, with positive change (reduced intention to drink) observed in intervention groups. However, although the MIP model theorises the association between alcohol expectancies, which are routinely measured in interventions, with behavioural intentions, self-efficacy as an outcome of the acquisition of media literacy skills is under-theorised within this type of intervention, with further analysis recommended. It is unclear whether self-efficacy to refuse is theorised as a mechanism of change for reduced intention to drink or as a distinct dimension and, while self-efficacy may be significant in intention to drink, other dimensions, including previous behaviour (Aas et al. 1995) may also be important. This was supported in paper 9, where previous use was predictive of higher intention to use in both control and intervention groups (although intention was then reduced post-intervention). An interesting outcome is observed in paper 7, where positive effects, including self-efficacy, were measured only in those with previous use of alcohol and not in the 'never drink' participants, suggesting that those with no use/interest at the outset may be less impacted by the intervention. Further, 'never drinkers' displayed higher baseline self-efficacy, suggesting that resistance to pro-alcohol messages was already present. Further analysis of baseline characteristics of 'never drinker' participants is recommended to better understand variations at baseline that may be impactful on interventions outcomes. This should include better understanding of factors influencing the development of self-efficacy and alcohol norms in younger participants and the role that media engagement plays in this.

Some gender variations were observed across the literature, suggesting further testing of tailored intervention content. Higher intention to use was identified in boys than girls (9), brand identification was reduced more in boys than girls (7), while girls exhibited higher sense of unreality of portrayals at baseline than boys (3). As participants in these studies ranged from grades 3-10 (approx. age 7-15) the interaction of gender with age is also unclear. Further investigation into the emergence of gender and age differences in media engagement and the development of alcohol norms, would be beneficial to inform future intervention development.

All but one intervention targeted general youth within the designated population, with only paper 8 targeting those deemed at higher risk, necessitating further investigation into transferability and impact of ML interventions with higher risk populations. Although there is some evidence of potential applications to higher risk groups and delivery in other settings, this is presently too limited for conclusion. The absence of evidence on the impact of alcohol media on drinking outcomes in at-risk populations (Grube and Waiters 2005) means that, at present, it may be problematic to understand if media literacy is the best option for this group. At present, evidence of alcohol ML interventions as reducing future drinking behaviour is weakly supported however further longitudinal research is needed to confirm this effect. Further research is recommended, both into delivery for at-risk populations and to understand whether media literacy is more effective than other interventions that theorise consumption in at-risk populations differently. Overall there was variable reporting of SES of participants and/or schools, making understanding the impact of SES on intervention processes and outcomes also problematic.

All interventions were delivered in either the United States or Australia, with no UK studies identified. As evidence supports intervention content being adapted to represent local alcohol norms and behaviours, consideration of UK-specific media is needed, along with understanding of youth engagement with it. Evidence synthesis suggests that interventions were underpinned by assumptions of homogeneity in youth exposure to media, with baseline measures of exposure not used in any of the identified studies. While the prevalence of media in everyday life may support arguments that all young people are in frequent contact with advertising, assumptions over age of emergence for engagement with alcohol media across cultures, as well as patterning by gender, support further exploration. The dominance of traditional media content in intervention components also suggests the inclusion of online media in exploratory work to understand any variations by type. In light of these key limitations, exploratory focus groups were convened with Year 6 pupils to consider the following:

- Are underlying assumption of homogeneity in participants levels of exposure supported?
- Are there observed differences between mainstream media and social media engagement on alcohol?
- What is the context of exposure to alcohol advertising for younger viewers and how does this impact frequency?
- Is any patterning of engagement observable e.g. gender or SES?

This group were selected to represent the younger spectrum of participants where emergence of key attitudes and behaviours may be significant.

Findings from focus groups

The section presents findings from exploratory focus groups, with illustrative quotes used throughout to show key themes identified. Implications of overall study findings for the development and delivery of alcohol ML interventions in UK settings will then be presented in the Discussion.

Testing assumptions of exposure to alcohol advertising content

The assumed homogeneity of exposure previously identified was explored in focus groups including consideration of alcohol advertising in online spaces, to understand any differentiation in access.

Television

When discussing alcohol adverts known from mainstream media channels, specifically through TV and poster/banner ads, participant recollection of alcohol brands was limited, although a majority reported seeing at least one TV ad. Where TV ads were remembered, they were often described as boring and a thing to avoid. Almost all reported use of newer, on-demand TV viewing services, such as Netflix and catch-up services, with adverts routinely skipped when watching these:

When they're on later I normally record them so then because you record them you don't have to bother watching the adverts. (Female, School C)

If we watch something with our family it might have an advert on it but we normally fast-forward it, so it might have, like, a glimpse of something but we don't watch properly. (Female, School B)

Exploration of viewing behaviour suggests that choice of child-friendly channels is highly protective of exposure, with children favouring those such as Disney and Nickelodeon reporting – as expected – no viewing of alcohol ads through these sources. Where alcohol advertising had been observed it was most frequently reported as during 'family viewing' time on more mainstream channels watched in the evening:

I saw...Strongbow, I think it is. I saw it on the TV, on ITV. (Female, School A . Reported seeing this after watching the 6 o'clock news with her parents).

Sometimes we like to watch family programmes and sometimes they have adverts for alcohol, like the Simpsons on Sky 1. (Female, School C)

While TV ads for brands were not referenced often, supermarket promotions of alcohol on TV were more widely recalled by a majority of participants, with frequent reference to multi-buy offers, meal deals and seasonal promotions, for example:

Yes, some adverts, like if it's a Tesco one, some parts will be advertising like, vegetables then fruit, then toys, then it'll just have that short snappy bit about alcohol and you kind of think 'oh'. (Female, School B).

The everydayness and 'alcohol as another product' presentation style described here is frequently employed in supermarket promotions, which are generally compliant with 2016 Advertising Standards Authority guidance banning promotion of excess drinking, even where multi-buys are being advertised. Another School B respondent reflected this when discussing whether alcohol ads should be restricted, suggesting that supermarket portrayals were less concerning than other ads:

Yeah I'm half and half because I wouldn't want little kids to see, like a full alcohol advert, but that little snippet where it's like, 25% of fruit, 30% of vegetables and then a little alcohol snippet, that doesn't really matter as much. (Female, School B)

The advertising style employed by supermarket promotions tends to avoid the more typical presentations seen for branded products, for example through presentation of young, social groups engaged in desirable activities. It is therefore necessary to consider whether the analytical activities employed in ML interventions would be effective for supermarket ads, in light of the frequency of exposure identified here.

As well as in mainstream programming, exposure when watching sport on TV was reported slightly more frequently by boys, along with recognition of alcohol brands as sponsors of sports teams and events. Sport viewing was almost always with family members:

There's actually lots of beer and alcohol adverts when you're watching sport. (Male, School A)

I've seen some as well watching football and rugby matches, there's some sponsoring. On TV. (Male, School C)

Although the small sample size must be considered, the gender difference observed mirrors variations described earlier in intervention outcomes, suggesting that gender should be considered in intervention development. Testing of gendered differences in recognition of ads selected for inclusion in ML interventions may be beneficial to maximise responsiveness to intervention components.

Online

The evidence review identified that interventions tended to focus on mainstream media advertising content in ML intervention components, with lack of inclusion of online activity, including social media. Data suggests that recollection of alcohol advertising online was still limited but was reported slightly more frequently than through TV, with banner advertising and ads preceding searched content most commonly cited, for example:

I was watching a You Tube video and an alcohol advert came up so sometimes I find that, like, even if it's an appropriate video for me there's still alcohol videos that come up. (Female, School A).

Yeah, on Snapchat and some of them says like best alcohol adverts, like top 5 and then they do all sorts of things like that. (Male, School C)

It was very common for participants to access social media sites with age limit of 13, with Instagram, Snapchat and Musical.ly most frequently used. This did not greatly increase exposure to direct alcohol advertising but could lead to viewing of alcohol-related content through this, including 'trending' of adult participation in drink challenges:

I've seen a You Tuber, he does a lot of gaming and stuff and he played FIFA against a friend and if you lost you had to drink, like they had this ping pong game... (Male, School C)

On Instagram there's like these challenges, like a 7 second clip and there's challenges of who can drink alcohol the quickest. It's just random people on there and it shows you them, like trying to drink alcohol and then they go all drunk and things. (Female, School A)

The skipping of ads employed in TV viewing was also highly evident in online activity, with all respondents showing awareness of how to do this and a desire to skip as quickly as possible:

None of us are bothered about seeing what it (advert) actually is. If it catches my eye I might look at it but otherwise it's just 'skip'. (Male, School C)

But they normally have like you can skip in five seconds or you can skip at the end of this advert but I never actually watch them. (Female, School B)

Awareness of how to avoid unwanted ad content is significant in considering youth exposure to alcohol adverts and in developing appropriate counter-strategies to moderate the effects of exposure. Exploration with a larger sample is recommended to understand access to differing viewing technologies and any socio-economic patterning.

The context of exposure and implications for intervention development

The role of family

The role of family was highly significant in exposure to alcohol ads, with adult viewing decisions, available forms of media at home and parental consumption all important in youth exposure. This is unsurprising in the selected age group, where parental behaviours are highly influential (Lauricella, Wartella and Rideout, 2015). Although alcohol ad recall was limited, children did describe a more generic recognition of alcohol through presentations in everyday life, including from observations of parental consumption both at home and at social settings, when out shopping, both in supermarkets and including posters seen in town centres. An

informal chat at the end of one group session about alcohol recognised from home life as opposed to those recalled on adverts prompted significantly more brand recall, suggesting an avenue of internalisation that may not be effectively addressed by existing components of media literacy. As this was only done for one group it is not possible to assess whether this is a wider trend but would benefit from further exploration.

Existing parental media and technological literacy was identified as significant in the regulation of youth exposure to alcohol advertising, potentially acting as a moderator of impact. Application of TV viewing controls e.g. password protected accounts, was widespread and was significant in reducing exposure to alcohol-related content by limiting the programme choices of children:

My parents put like, parental controls on it. So whatever I watch it goes to their phones or something. (Female, School C)

This was also evident in the children's access to online content:

It would come up on anything but there's a thing called like 'safety mode' or something, or like 'parental guidance'. And basically you're not allowed to look up video comments then because people will be saying, like, not very nice things. Plus it blocks videos that wouldn't really be appropriate for us. (Male, School A)

This sense of appropriateness was frequently evident, with awareness of what should be 'adult' content stemming from parents, suggesting family as an important moderator of advertising influence. This included the perception of alcohol advertising as something not meant for participants at this age and definitely not for younger children:

I hate them. When it's in the night, it can be like adult stuff and I don't really want to watch that (Female, School C)

I think it should just be on adult programmes because little children could be watching and really they shouldn't be seeing it until they're a bit older and they understand a bit more. (Female, School B)

Capacity to avoid unwanted content was associated with own technological literacy and was explicitly linked to parental input for many, for example through being taught how to avoid certain content or through conversations on what was allowed:

Yeah the first time I didn't really know what to do but then I had a chat with my mum and she told me all the things to do to kind of avoid it next time. (Female, School B)

This extended to ability to safeguard social media use, which was widely understood:

Only follow people you know (on social media). Because I'm private on all my stuff so people try to follow me and if I don't know them I just leave them.
(Female, School C)

Findings suggest that inclusion of avoidance strategies may constitute a valid intervention component as part of media literacy training, with potential to integrate such activities into the school curriculum as part of IT teaching. Provision of relevant information to parents should also be considered to support and reinforce school activity and provide consistency.

Other exposure: sponsorship

As stated earlier, sport was a frequently reported avenue for exposure to alcohol ads. Respondents whose engagement with sport extended to attending live events with family members also observed ads there:

You know it's like TV but it's at the side of the pitch, there's some on there.
(Female, School A)

This exposure also included awareness of sponsorship of teams and sports leagues:

Some of the rugby teams from the Pro12 and the AVIVA premiership, some of the Irish teams they have Guinness on them somewhere. I see it because I watch a lot of rugby. (Male, School C)

All groups demonstrated a sophisticated understanding of sponsorship as planned commercial activity, cited as influencing TV and online advertising as well as sports:

They pay people to advertise their stuff. So more people see it and they want to buy it. (Female, School B)

Some adverts probably pay extra so you can't skip them. (Male, School C).

As with supermarket promotions, sponsorship is a form of alcohol marketing that may not employ the typical advertising strategies identified in more mainstream content, but levels of exposure suggest further investigation into the inclusion of analysis of sponsored content within media literacy analysis interventions would be beneficial. This should aim to build on awareness and media literacy that was already developed in study participants by Year 6.

Awareness of counter-marketing

As well as exposure to pro-alcohol advertising, participants were asked about exposure to, and recollection of, alcohol safety messaging through media, with very mixed responses and perceptions that this type of advert was less frequent than those promoting consumption:

There's less, there's less about the danger of drinking than there is about drinking. (Male, School A)

There's more adverts saying 'buy alcohol' than don't drink alcohol. (Female, School C)

There was some limited recollection of branded drink reduction campaigns seen on TV, including 'Dry January' and 'Drink Responsibly' slogans, but overall this was as minimal, reflecting the limited engagement with TV adverts already discussed and suggesting a barrier to internalisation of counter-messages that utilise traditional media approaches.

DISCUSSION AND RECOMMENDATIONS

Key implications

- Although evidence of effectiveness of alcohol media literacy interventions is limited, indications suggest effectiveness in teaching critical analysis of pro-alcohol media messages to children and young people.
- Interventions are most effective when adaptation of components reflects local alcohol context, with development and testing of UK-related content recommended in light of absence of UK evidence.
- Intervention components should incorporate wider definitions of alcohol marketing and sources of exposure in selecting content for analysis.
- Qualitative data shows that viewing behaviours of young people have been changed by the advent of new viewing technologies, suggesting development of the active viewer theorization of young people to incorporate disengagement with media.
- Family behaviour is highly significant in both use of media and exposure and may moderate/mediate intervention effects. Considering potential family-based interventions for younger children and investigating the changing role of family influence with age are recommended to inform intervention content.
- Further investigations of media engagement and exposure across age groups is recommended, with incorporation of baseline measures into evaluation.

Developing intervention content

Adaptation of intervention content to incorporate UK advertising norms is recommended and, as exposure through mainstream and newer media was here relatively equal, intervention development should include consideration of mainstream and online advertising. Exploratory work with UK young people to establish brand recognition and sources of exposure, including variations by age and gender, is recommended to underpin selection of intervention content.

Evidence suggests that the concept of advertising exposure underpinning alcohol ML interventions may further benefit from expansion to incorporate broader types of exposure to alcohol marketing and promotion cited by participants. While ads for alcohol brands were not widely cited, supermarket advertising had greater penetration, suggesting that supermarket use of media reinforces known high levels of youth exposure to alcohol promotion in store (Chambers et al. 2017). As stated earlier, this has implications for intervention development as many of the tactics employed in branded marketing (on which core ML concepts are based) may not be adopted in supermarket portrayals, where alcohol is generally featured as part of a package of purchases e.g. meal deals. The use of visual imagery and outcome portrayals from drinking is arguably reduced in these adverts although, as referenced by young people, the association of alcohol with special occasions was prominent. Consideration should be given to ways to challenge these more generic portrayals and associations in future ML interventions.

Sponsorship was also widely recognised in focus groups, including a strong association with sport, both on TV and at live events. Sumnall et al. (2011) identified that, although young people suggest not actively attending to alcohol sponsorship, they did recognise the cultural association between alcohol and sport, suggesting that this form of exposure contributes to the alcohol media environment and should be considered in interventions.

Forms of required literacy may need to be adapted to the medium (Livingstone 2004), potentially reflecting more subtle communication strategies such as those used by supermarkets and in sponsorship. Incorporation of different forms of media into intervention components is recommended and will arguably still be amenable to the critical appraisal skills taught in ML interventions (Jolls and Wilson, 2014). This would require testing of the application of core ML analysis activities across a wider range of alcohol media.

Expanding theory of change

As discussed earlier, within primary theorisation of media literacy interventions, children are conceived as active viewers, who process and interpret media messages. Focus group data suggests that the active viewing concept can potentially be expanded to incorporate interaction with media which influences exposure to alcohol content. Participant capacity to be an active viewer was associated with own levels of awareness and use of media technology, as well as levels of parental monitoring/media literacy. At this age, being an active viewer seems to involve avoiding content that has no interest, including alcohol-related content. Newer options for TV viewing e.g. catch up, streaming services, online viewing etc. mean that adverts are often skipped over, suggesting greater choice is now possible over exposure as long as digital literacy is present, with all aware of options for 'skipping' ad content in both mainstream and newer media. The review of intervention evidence suggested an assumption of homogeneity in exposure to alcohol advertising and, although levels of exposure were relatively consistent across focus groups, they were also reportedly low. This may suggest that intervention development would benefit from adaptation for modern viewing practices to incorporate content on active avoidance.

As stated above, family acted as a significant influence in relation to exposure to alcohol advertising. Reflecting developmental and interpersonal changes occurring throughout adolescence, the role of family is likely to be more important for younger children, with peer influences more likely to take precedence for older children. This suggests that the presence / absence of parental media literacy and application of parental controls should be considered in devising interventions, with any resulting adaptations taking into account the developmental processes viz-a-viz the age of the children who are the targets for intervention. Although family influences are theorised within the MIP model in relation to the development of alcohol norms and subsequent perceived realism of portrayals, involvement has been observed here as more complex and multi-layered, suggesting that theory development should consider family behaviour more broadly, as well as potential changes to family influence as youth transition through different school contexts.

Further recommendations

Although evidence suggests that media literacy may be effective in delivering core skills across the range from early to late adolescence, the incorporation of newer viewing behaviours has implications for most effective age for delivery, with focus group data highlighting the need to reach younger audiences with the required generic technical skills for early media engagement. Further, as alcohol ad exposure was relatively low, there are potential ethical concerns over an intervention which may actually increase exposure to alcohol-related media, suggesting potential for a phased approach, with generic core ML skills at a younger age supplemented by alcohol-specific content later. Further investigation of the changing pathway of exposure by age is recommended to support effective planning and intervention targeting. This expanded theorisation of the role of family in this pathway would add to understanding of how long term outcomes may be moderated by what happens post-intervention e.g. when at home later. Although some evidence for sustained outcomes was identified, suggesting that learning was retained after children returned to their wider context, this is still limited. Follow up evaluation over extended timescales is strongly recommended.

While known brands vary by nation or region, the alcohol legislative context also varies, including advertising standards which differ by country and will therefore impact exposure, potentially leading to variation in baseline measures across adolescent populations. This variation may also include baseline skills and behaviour in use of media. Evidence suggests that, although core ML outcome measures are commonly used at baseline, existing knowledge, exposure to alcohol advertising and levels of alcohol use are not routinely monitored, reflecting the underlying assumption of media exposure as relatively common across youth populations. Intervention theorisation is based on the association between alcohol advertising, the development of alcohol norms, and subsequent alcohol behaviour, and it is therefore arguable that variations in baseline measures of exposure, as well as subsequent measures of consumption, are important for better understanding of whether this is supported. Consideration should be given to incorporation of a baseline exposure questionnaire into intervention development. One such example is the Measuring Youth Media Exposure (MYME) methodology (Rich, Bickham and Shrier 2015), incorporating recall estimation, time-use diaries and real-time behaviour capture. Effectiveness of this, and other similar tools, should be monitored to assess whether a baseline measure of the target population would add to understanding of youth exposure within different cultural contexts and at different ages. Comparative analysis of environments with more restrictive alcohol advertising practices e.g. France, may then be informative.

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