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CONSUMER SOCIALIZATION AND THE ROLE OF BRANDING IN HAZARDOUS ADOLESCENT DRINKING

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ABSTRACT

This study examines the relationship between alcohol marketing and consumer socialization to alcohol brands (assessed here using *aided and unaided brand recognition* and *brand saliency*); and the associated relationship between consumer socialization and hazardous alcohol consumption among a cohort of adolescents surveyed in Scotland. The research addresses gaps in the consumer socialization literature, by examining how marketing influences brand consumer socialization, and how brand consumer socialization influences subsequent hazardous consumption behavior over time, using a robust longitudinal design that assesses causal relationships whilst controlling for a wide range of important confounding variables. The results demonstrate the contribution of marketing to adolescents' brand socialization to alcohol, and the impact of this socialization on subsequent drinking behaviors. Implications for marketing managers, parents, policymakers and consumer researchers are discussed, together with suggestions for future consumer research.

Keywords: consumer socialization, alcohol, branding, marketing, adolescents, drinking behavior

INTRODUCTION

Concern over the consumer socialization of children has stimulated a stream of research on the effects of marketing on youths over the last forty years (Stupening, 1982; John, 1999). The concept of consumer socialization refers to how individuals develop as consumers in the marketplace (Ward, 1974). However, less attention has been paid to children's socialization to advertisements aimed at adults (Bjurström, 1994). While increasing restrictions have been placed on tobacco marketing, the pervasiveness of alcohol in many Western societies makes it difficult to shield children from it. A recent UK Government report concluded that although directly advertising alcohol to children had been banned in the UK, concern remained about the impact of other types of marketing activity such as sponsorship, branding, and packaging for which there is a paucity of research (Buckingham, 2009). Although there is a body of research examining the relationships between marketing and consumer socialization, few studies have explored how this subsequently affects behavior, nor explored temporal effects using a longitudinal research design. Furthermore, the extant literature on alcohol marketing has predominantly explored direct relationships between marketing exposure and attitudes and behavior, rather than exploring potentially mediating relationships between marketing, socialization and subsequent behavior.

This study addresses these gaps, utilizing a robust, longitudinal cohort survey design to examine associations between the exposure of adolescents in Scotland to alcohol marketing and its association with alcohol consumer socialization at age 13 and the subsequent impact of this consumer socialization on hazardous alcohol consumption at age 15.

Worldwide, 3% of deaths are attributed to alcohol, and alcohol-related deaths among 15-29 year olds total 320,000 (World Health Organization, 2011). In Scotland 5% of deaths are alcohol-related which is higher than the world average (Young Scot, 2010). Alcohol “is an integral part of Scottish life”, but “for a large section of the Scottish population their relationship with alcohol is damaging and harmful” (Scottish Government, 2009, p.6). According to a national survey, 44% of 13 year olds, and 77% of 15 years old adolescents in Scotland have consumed an alcoholic drink (Black, Eunson, Sewel & Murray, 2011) with the proportion who had consumed alcohol in the past week increasing from 11% to 14% among 13 year olds, and from 31% to 34% among 15 year olds, during the period 2008-2010 (Black, Eunson, Sewel & Murray, 2011). Among those aged 15 who reported drinking in the past week, the mean weekly alcohol unit intake increased from 18 to 20 units between 2008 and 2010 (Black et al., 2011). Indeed, levels of youth hazardous (binge) drinking in the UK are considerably higher than in the rest of the European Union (Hibell, Guttormsson, Ahlström, Balakireva, Bjarnason, Kokkevi & Kraus, 2012). Hazardous drinking among adolescents is a particular societal concern given the potential health and social harms associated with such consumption, including poor educational performance, risky sexual behavior and teenage pregnancy (Newbury-Birch, Walker, Avery, Beyer, Brown & Jackson, 2009; OECD, 2009), crime and disorder (Hibell, Guttormsson, Ahlström, Balakireva, Bjarnason, Kokkevi & Kraus, 2012; Home Office, 2004) and a number of physical and psychological harms (HES, 2007). Given these health and social harms, consumer research on potential influences on adolescents’ attitudes and behaviors in relation to alcohol is vital.

This article starts by considering the concept of consumer socialization, the role of marketing as a consumer socialization agent, and the role of branding and other influences on this process. Key constructs conceptualized as representing consumer socialization in this study (*aided and unaided brand recognition* and *brand saliency*) are then examined. Existing research on alcohol marketing, consumer socialization to alcohol, and effects on drinking behaviors among adolescents is considered, identifying relevant gaps in the knowledge base. The study's methods, analysis and results are then presented, followed by a discussion on the meaning and relevance of the findings. The article concludes by discussing the limitations of the present study, ideas for future research and key implications.

LITERATURE REVIEW

The consumer socialization of children

Consumer socialization is defined as the “processes by which young people acquire skills, knowledge, and attitudes relevant to their functioning as consumers in the marketplace (Ward, 1974, p. 2). Consumer socialization theory draws on Bandura's (1977) social learning theory, suggesting that consumer attitudes and behaviors are learned during childhood and adolescence through interaction between a consumer and four main socialization agents: parents and relatives, peers, media (including marketing), and schools (Moschis & Churchill, 1978; Ward, Klees & Robertson, 1987). A review of the impact of the commercial world on children's wellbeing concluded that “there is strong evidence that commercial messages promoting tobacco, food and alcohol influence children's attitudes and behavior and may have a damaging impact on their health” (Buckingham, 2009, p2). Yet, the balance of extant knowledge in this area is based on research examining cross-sectional associations between marketing, consumer socialization, and attitudes and behavior. Longitudinal cohort studies are needed to assess causal inferences,

and to understand the temporal effects of any associations. Furthermore, there is a paucity of studies that consider a number of forms of marketing and several indicators of consumer socialization in analyses. This is important given the increasingly multi-channel, integrated nature and potentially cumulative effect of marketing on consumers (Gordon, MacKintosh & Moodie, 2010).

There is extensive non-causal research that suggests commercial brands play an important role in the consumer socialization of children in general (John, 1999). A study by the National Consumer Council (NCC) in the UK found that the average child is familiar with up to 400 brand names by the time they reach the age of 10 years (Mayo, 2005). Another study found that 69% of all three year olds could identify the McDonald's golden arches – yet half of all 4 year olds did not know their own surname (Dammler & Middelman, 2002). Children begin to make inferences about people based on the brands they use at around 11-12 years (Belk, Mayer & Driscoll, 1984). Connections are developed by children between brands and their self-concepts between middle childhood (7-8 years) and early adolescence (12-13 years) and perceptions of group members through brands with increasing age (Chaplin & John, 2005). John (1999) proposed three stages of consumer socialization: (i) a perceptual stage (3-7 years) typified by simple and immediate perceptions in relation to consumption; (ii) an analytical stage (7-11 years) during which children's thought transforms from perceptual, uni-dimensional and concrete to symbolic, multi-dimensional and abstract; and (iii) a reflective stage (11-16 years) characterized by increasing sophistication, reflection and reasoning in information processing, social skills and knowledge about marketing, branding and pricing. The present study concerns adolescent

consumers aged 13-15 within this third, reflective stage, when it is expected that their consumer socialization would be at a more advanced level of development.

Much consumer socialization research has concentrated on children's cognitive processes, and parents' roles in developing these, but has neglected examining children's physical behavior and independent learning, and the influences on these (McNeal, 2007). Public policy concerns have focused research on the impact of television advertising (McNeal, 2007). Furthermore, previous surveys of children's consumer socialization have only been able to ascertain correlations rather than being able to test causality (John, 1999). In contrast, this paper examines socialization to alcohol longitudinally. In doing so this study explores not only the links between marketing and consumer socialization, but also the subsequent effect of consumer socialization on behavior over time. This offers increased understanding of how alcohol marketing and consumer socialization affect adolescents, and insight into the temporal effects within these relationships.

The influence of marketing on consumer socialization

Within the extant literature key influences on consumer orientation of children that have been identified include the appeal of and children's responses to advertising and media (Ward, Klees & Robertson, 1987), parental and peer influence (Moore, Raymond, Mittelstaedt & Tanner, 2002), and school (Ward, 1974). Other confounding variables found to have a lesser influence include age, social class, gender and ethnicity (Moschis & Moore, 1984; Shim, 1996; Singh, Kwon & Pereira, 2003). The social context affects adolescents' developing consumer socialization during John's (1999) reflective third stage, with potential influences including family and peers as well as the mass media and marketing (John, 1999). Alongside advertising,

presence during parental purchasing is acknowledged to play a part in children's consumer socialization (John, 1999). Children become familiar with brand names through a wide variety of sources, including their parents and friends and a range of marketing channels, such as television, radio, books and shops (McNeal, 2007). The research reported in this paper takes account of all of these sources. Research on the associations between marketing, consumer socialization, and subsequent effects on behavior are pertinent given that systematic reviews of the evidence suggest that the marketing of alcohol (Anderson, De Bruijn, Angus, Gordon & Hastings, 2009), energy dense high fat foods (Hastings, Stead, McDermott, Forsyth, MacKintosh, Rayner, Godfrey, Carahar & Angus, 2003), and tobacco (Lovato, Linn, Stead & Best, 2003) influences the consumption behaviors of young people. The present study seeks to offer increased insight into the mechanisms of these effects by examining associations between alcohol marketing, consumer socialization, and youth drinking behaviors.

Brand equity as an indicator of consumer socialization

The concept of a brand has evolved over time from a seller's identification mark to mental associations, emotion and most recently a sense of community (Kapferer, 2012). A contemporary definition of a brand is: "*a name that symbolizes a long-term engagement, crusade or commitment to a unique set of values, embedded into products, services and behaviors, which make the organization, person or product stand apart and stand out*" (Kapferer, 2012, p.12) or more simply: "*a name that influences buyers*" (Kapferer, 2012 p.15). Branding is recognized as one of marketers' most powerful and advanced emotional tools (de Chernatony, 1993). Emotional messages are better able to gain consumers' attention (Ray & Batra, 1983) and encourage deeper processing of the message (Dutta & Kanungo, 1975). Brand strategies are

devised to develop branding that builds lasting relationships with consumers that help to ensure they continue to buy products and services.

Branding is a marketing tool that is particularly resonant with young people (Mayo, 2005).

Adolescents use brand labels and associated imagery to express both individuality, and group identification (Epstein, 1998). Furthermore, adolescents are particularly sensitive to brand messages (Jackson, Hastings, Wheeler, Eadie & MacKintosh, 2000; Harradine & Ross, 2007). Although some have argued that adolescents need to be socialized into the commercial world (Piachaud, 2007), concern is warranted when it comes to products intended solely for adult consumption such as alcohol, especially given the health and social harms associated with adolescent drinking (Hibell, Guttormsson, Ahlström, Balakireva, Bjarnason, Kokkevi & Kraus, 2012).

The power of branding is encapsulated in the notion of brand equity; the monetary value of the goodwill a brand has accumulated (Kapferer, 1997). Kapferer (2012, p.16) proposed four indicators of brand equity: (i) *aided awareness* (brand recognition); (ii) spontaneous or *unaided awareness* (brand saliency); (iii) *evoked set* (the brands one would consider buying); and (iv) *brand consumption* (whether or not a brand has already been consumed). Given that consumer socialization is the process through which young people gain consumer related knowledge, attitudes and skills (Ward, 1974), it is appropriate to suggest that demonstrating high levels of measures of brand equity by an individual can be conceived as markers of consumer socialization. Therefore, the present study explores the relationships between alcohol marketing, brand equity measures as markers of consumer socialization (*aided and unaided brand recognition* and *brand saliency*), and drinking behavior among adolescents. *Evoked set* was not

measured in the present study as asking adolescents what alcohol brands they would consider buying would be considered unethical, as this would be illegal at ages 13-15 years.

Brand recognition is achieved when a brand becomes widely known in the market place. A major objective in brand recognition is the identification of a brand without the name of the organization present, for example Stella Artois lager is a very well recognized brand in its own right, which is owned by the corporation Anheuser-Busch InBev.

Brand saliency (or brand recall) is the ability to recall a brand name under different conditions and link the brand name, logo and advertising executions to certain associations in memory. Ability to recall a brand helps to ensure that consumers understand which product or service category a brand belongs to, and the products and services that are sold under that particular brand name. Brand recall has a powerful impact on the level of brand awareness that is achieved. This also ensures that customers know which of their needs are satisfied by the brand through its products (Keller, 2008). Therefore it is important for brands to try to ensure consumers easily achieve recall. Aided and unaided awareness may be considered forms of brand familiarity, which is viewed as “the most rudimentary form of consumer knowledge” (Baker, Hutchinson, Moore & Nedungadi, 1986, p. 637). Baker., Hutchinson, Moore & Nedungadi (1986) concluded that brand familiarity was likely to encourage identification with a brand, increase the likelihood of a brand’s inclusion in the evoked set, create positive emotional reaction to a brand and stimulate its purchase.

The influence of alcohol marketing on consumer socialization

Having identified that marketing is proposed as an agent of consumer socialization, and that brand recognition and brand saliency are markers of consumer socialization, it is prescient to consider the literature in relation to these phenomena in the context of alcohol. A limited number of studies have considered relationships between alcohol marketing and markers of alcohol consumer socialization, usually measured through only one construct such as brand recognition. A cross-sectional study in the USA by Collins, Schell, Ellickson & McCaffrey (2003) involving 1530 8th graders (aged 12-14 years) in Midwestern schools identified associations between exposure to alcohol advertising for beer and brand recognition, but did not consider subsequent effects on youth drinking behaviors. Another cross-sectional study in the USA with 1588 7th through 12th graders (aged 12-19 years) found an association between the advertising budgets of leading beer brands and brand saliency (Gentile, Walsh, Bloomgren, Atti & Norman, 2001).

However, most existing studies have not assessed the relationship between alcohol marketing and consumer socialization directly, but rather have focused on relationships between alcohol marketing or consumer socialization and drinking behavior. For example, a study in New Zealand identified positive associations between liking of alcohol advertising and brand allegiance at 18 years and volume of beer consumed at age 21 (Casswell & Zhang, 1998). A cross-sectional study by Unger, Schuster, Zogg, Dent & Stacy (2003) identified associations between beer brand recall and self reported lifetime and past 30 day alcohol use among 591 adolescents from the 8th through 10th grade in schools in Los Angeles. However, the latter study was not longitudinal so could not test causality. It also did not control for important confounders such as previous drinking or age. As Siegel, DeJong, Naimi, Fortunato, Albers, Heeren,

Rosenbloom, Ross, Ostroff, Rodkin, King, Borzekowski, Rimal, Padon, Eck & Jernigan (2013) identify, there is currently very little research specifically on adolescent consumption of alcohol brands, with most research focusing on alcohol beverage types, and oriented towards assessing relationships between marketing and behavior directly, rather than considering the role of markers of consumer socialization such as brand recognition and brand saliency.

Alcohol branding

In the UK there are hundreds of alcohol brands, many of which are marketed using sophisticated branding techniques, and five of the UK's top 100 consumer brands are alcohol brands (Superbrands, 2010). The alcohol industry uses branding as a way of generating consumer identity and loyalty, which are key objectives in a crowded and competitive marketplace (de Chernatony, 1993). Research suggests that alcohol branding has a powerful influence on young people, by using evocative imagery and cues that present credibility to young people whilst offering a gateway to achieving maturity (Jackson, Hastings, Wheeler, Eadie & MacKintosh, 2000).

Studies have also found that alcohol brands appeal to adolescents on emotional levels, and fulfill aspirations in terms of image, self-identity and group identification, as well as attitudes towards alcohol (Casswell, 2004). This is achieved through the use of extensive and sophisticated brand strategies, such as use of relevant cultural props and references including language, music, events, sponsorship and merchandising (Gordon, Harris, MacKintosh & Moodie, 2011; Fisher, Miles, Austin, Camargo & Colditz, 2007). Research examining what makes alcohol advertising attractive to youth (aged 10-17 years) found that adolescents' favorite alcohol advertisements

featured animals as the main characters and their least favorite concentrated on the product or adult scenarios (Chen, Grube, Bersamin, Waiters & Keefe, 2005). However, the story and humor in an alcohol advertisement were more closely associated with the advertisement's attractiveness than adolescents' liking of the human and animal characters and music. Given that such research has identified the extensive use of alcohol branding and its influence on attitudes, it is appropriate to consider associations between alcohol marketing and alcohol branding, and alcohol branding and drinking behavior.

The influence of alcohol marketing on drinking behavior

As outlined earlier, there is a considerable literature examining direct associations between alcohol marketing and youth drinking behavior (see reviews by Anderson, De Bruijn, Angus, Gordon & Hastings, 2009; Gordon, Hastings & Moodie, 2010). During the 1980s research in this area began to move away from econometric studies involving a statistical examination of the relationship between overall levels of alcohol consumption (using sales data) and overall levels of advertising (using advertising expenditure) towards consumer studies which examined how individuals' drinking knowledge, attitudes and behaviors varied with their exposure to alcohol marketing. For example, Lieberman & Orlandi (1987) conducted a qualitative study with school children to examine the effect of alcohol advertising on their expectations of drinking, identifying high levels of recall and recognition of alcohol advertising, and positive expectancies towards drinking.

Later and more sophisticated quantitative studies explored relationships between exposure to alcohol marketing at one time point, and subsequent drinking behaviors at a later time point

among the same cohort of adolescents. For example, Ellickson, Collins, Hambarsoomians & McCaffrey (2005) conducted a longitudinal study with 3111 students in middle school (aged 13-15 years) in the USA, identifying that exposure to in-store beer displays predicted onset of drinking, and exposure to magazine advertising predicted frequency of drinking at follow up. Stacy, Zogg, Unger & Dent (2004) conducted a cohort study with 12-13 year olds and identified an association between exposure to television advertising for alcohol and increased risk of alcohol consumption. Similarly, a later study of youths aged 10-15 years in the USA found that those who had never consumed alcohol but displayed high receptivity to beer marketing at baseline were 77% more likely to initiate drinking at follow up (Henriksen, Feighery, Schleicher & Fortmann, 2008). Whilst these studies have advanced knowledge, they have focused on limited forms of alcohol marketing (such as television advertising), restricted types of alcohol (beer) or limited proxies of consumer socialization (such as only measuring brand recall), and have predominantly assessed the effect on initiation of drinking, or frequency of drinking, rather than hazardous drinking. Whilst recent studies have begun to consider relationships between exposure to forms of marketing such as alcohol branded merchandise and adolescent hazardous drinking (Fisher, Miles, Austin, Camargo & Colditz, 2007; McClure, Stoolmiller, Tanski, Worth & Sargent, 2009; McClure, Stoolmiller, Tanski, Engels & Sargent, 2013), the role of consumer socialization has not been considered in such studies, nor has a comprehensive range of forms of alcohol marketing been included, and many existing studies such as McClure, Stoolmiller, Tanski, Engels & Sargent (2013) have used a cross sectional design, limiting the ability to generate causal inferences.

Assessing the relationship between alcohol marketing, consumer socialization, and drinking behaviors

Children in the UK have high rates of access to mobile Internet (Childwise, 2012), are reported to have the highest exposure to advertising in Europe (Livingstone, Bovill & Gaskell, 1999), and have some of the highest levels of alcohol consumption and related harms in Europe (Hibell, Guttormsson, Ahlström, Balakireva, Bjarnason, Kokkevi & Klaus, 2012). However, there is a paucity of research examining associations between alcohol marketing, consumer socialization, and drinking behaviors and particularly hazardous drinking.

This paper addresses the current gaps in the knowledge base by measuring adolescents' exposure to alcohol marketing, consumer socialization to alcohol brands, and drinking behavior using a longitudinal cohort design and controlling for a wide range of confounding variables. The study examines adolescents' consumer socialization to alcohol branding at age 13, the age at which many adolescents start drinking alcohol (Black, Eunson, Sewel & Murray, 2011), as well as being the key age for consumer socialization of individuals (McLeod, 1974) and then examines the subsequent impact on hazardous alcohol consumption at age 15. The research presents two contributions to knowledge. Firstly, the study increases understanding of the nature of relationships between marketing, consumer socialization and subsequent drinking behavior over time. Secondly, the study advances knowledge relating to alcohol marketing, by exploring the potentially mediating role that consumer socialization to alcohol plays in the relationship between alcohol marketing and hazardous alcohol consumption. Hazardous drinking has been defined as “a pattern of alcohol

consumption that increases the risk of harmful consequences for the user and others” (Babor, Campbell, Room & Suanders, 1994, p. 5).

Unlike previous consumer socialization research (e.g. Lachance, Beaudoin & Robitaille, 2003) this study examines all four of the main consumer socialization agents: marketing, parental, peer and school influences that act as control variables in the analyses. This study also includes other potentially relevant confounding influences including perceived social norms and personal characteristics. Furthermore, this study considers the full range of alcoholic drinks and brands, rather than just a single category such as beer for one or more measures that have been the focus of other research (e.g. Casswell & Zhang, 1998; Unger, Schuster, Zogg, Dent & Stacy, 2003; Henriksen, Feighery, Schleicher & Fortmann, 2008).

To examine influences on and the impact of consumer socialization to alcohol among adolescents, the following research questions were posed:

RQ1: Which factors play a significant role in adolescents’ alcohol consumer socialization at age 13 (Wave 1)?

RQ2: Does adolescents’ alcohol consumer socialization at age 13 (Wave 1) predict hazardous alcohol consumption at age 15 (Wave 2)?

METHOD

Design

This longitudinal two-stage cohort design study involved a questionnaire survey conducted within three local authority areas in the West of Scotland. Local authority databases for all 2nd year pupils

attending state secondary schools in each area provided the sampling frame for the study. The baseline sample was recruited via an information pack (containing an information sheet, parental and respondent consent forms and offering a small gift token for participation), which was sent to the homes of all 2nd year secondary school pupils (12-14 years, mean age 13) on each database. A total of 920 respondents was recruited and interviewed at baseline, with a cohort of 552 followed up two years later when respondents were in their 4th year of secondary school (14-16 years, mean age 15).

Data Collection

The data collection process for the study consisted of face-to-face surveys conducted in-home, by professional interviewers, immediately followed by a self-completion survey questionnaire to gather sensitive data on drinking attitudes and behavior. Respondent confidentiality and anonymity of personal data were assured. Parental permission and respondent consent were obtained prior to interview at each wave. Ethical approval was obtained from the University Ethics Committee, and interviewers adhered to the Market Research Society Code of Conduct (Market Research Society, 2008). Numbered show cards were used throughout the interviewer-administered questionnaire to maximize privacy and enable respondents to answer freely without fear of conveying their answers to others present during the survey. Respondents sealed their self-completion questionnaire in an envelope before handing it to the interviewer. The extent of parental presence during the interview and self-completion questionnaire was recorded and revealed that in 42% of cases at Wave 1 and 28% of cases at Wave 2 a parent was present during the whole interview, albeit the use of numbered cards throughout enabled participants to respond

without revealing their answers to anyone present, but in only 11% of cases at Wave 1 and 7% of cases at Wave 2 was a parent present and close enough to see any answers while their child filled in the more sensitive self-completion survey.

Measures

The measures used in the study were informed by a comprehensive review of relevant literature (see Gordon, Hastings & Moodie, 2010), and by formative research and survey pre-testing reported elsewhere (Gordon, Hastings, Moodie & Eadie, 2010). A range of control variable measures affecting adolescent drinking behaviors identified in the extant literature (see Bobo & Husten, 2000) were included in the survey instrument. The measures used in the questionnaire survey are explained forthwith.

Control Variables

Drinking status

Drinking status was assessed by asking a question used in a national youth survey (Black, Eunson, Sewel & Murray, 2011): ‘Have you ever had a proper alcoholic drink - a whole drink, not just a sip?’ Those who had tried a whole alcohol drink, and not just a sip, were classified as drinkers, and those who had not done so as non-drinkers.

Personal characteristics

Data were recorded on age, gender, social grade (ABC1 or C2DE, based upon the occupation of the chief income earner), ethnicity, (recoded to ‘White’ or ‘Asian or Asian British/mixed/other’) and religion (recoded to ‘religious’ or ‘not religious’). Gender, ethnicity and social grade have been

identified previously as requiring greater attention in consumer socialization research (Ekstrom, 2006).

Social influences

Drinking among parents, siblings and friends was assessed using four items. Respondents were asked whether their mother drank and whether their father drank, with four response categories: yes, no, not sure, I do not have a/see my mother/father. Those who indicated they had siblings were asked whether any of their brothers or sisters drank alcohol: yes, no, don't know. To measure descriptive social norms for drinking, respondents were then asked to indicate how many of their friends drank alcohol at least once per week: all of them; most of them; about half of them; a few of them; none of them; not sure. Responses were recoded into three dummy variables, owing to the high number of respondents (101) who replied 'not sure', which meant that using a continuous measure would have resulted in a lot of missing cases. The response categories 'all of them', 'most of them', 'about half of them' and 'a few of them' were combined into a single category. The recoded categories were: 'having friends who drank alcohol at least once per week', 'not sure' and 'none'. To measure injunctive norms for drinking, perceptions of others' views on trying alcohol was assessed by using three self-completion items – whether brother(s) or sister(s)/parents/closest friends would consider it OK or not OK for them to “try drinking alcohol to see what it's like”: OK; not OK; don't know.

Given that research on consumer socialization suggests that school is an important socialization agent (Ward, 1974), the following measures were included in the survey. Liking of school was measured by asking respondents whether they: 'dislike school a lot', 'dislike school a little', 'neither like nor dislike school', 'like school a little' or 'like school a lot'. Rating of respondents'

school work compared to other pupils was assessed using the following response categories: ‘a lot worse’, ‘a bit worse’, ‘about the same’, ‘a bit better’ or ‘a lot better’. Both measures were adapted from research on tobacco marketing (MacFadyen, Hastings & MacKintosh, 2001).

Marketing control variable

Liking of advertisements in general was also assessed by asking respondents to choose one of the following options; ‘I like adverts a lot’, ‘I like adverts a little’, ‘I neither like nor dislike adverts’, ‘I dislike adverts a little’ and ‘I dislike adverts a lot’. Liking of advertisements was used as a proxy for adolescents’ understanding of advertising’s persuasive intent, because it has been suggested that children who understand the persuasive intent of advertising like advertising less (Robertson & Rossiter, 1974).

Marketing variable

The number of channels through which each respondent reported having seen alcohol marketing was assessed for 15 types of marketing identified from formative research (Gordon, Hastings, Moodie & Eadie, 2010). Respondents were asked to indicate whether or not they had come across alcohol being marketed through each of the following: TV/Cinema, posters/billboards, newspapers/magazines, in-store promotion, price promotions, sports sponsorship, branded clothing, email, websites, mobile phone, social network sites, music sponsorship, TV/film sponsorship, celebrity endorsement, product design. The number of channels through which respondents had noticed marketing was calculated by counting the number of positive responses for each of the 15 channels.

Brand equity measures of alcohol consumer socialization

Adolescents' consumer socialization to alcohol was examined in terms of brand equity, because it encapsulates the power of branding in consumers' minds and its reflection in their consumption preferences and choices. Alcohol consumer socialization was measured in the present study following Kapferer's (2012) indicators discussed previously: (i) unaided brand recognition (masked); (ii) aided brand recognition (unmasked) and (iii) brand saliency.

i. Unaided brand recognition

Following an approach used in previous research (see Collins, Schell, Ellickson & McCaffrey, 2003), respondents were shown a series of visuals of five masked alcohol brands (with the brand name covered up on them) selected following pre-testing in an exploratory study (Gordon, Hastings, Moodie & Eadie, 2010), to test their recognition of the unnamed brands. Respondents were asked which brand they thought each one was. The number of masked brands correctly identified was totaled (out of a possible five).

ii Aided brand recognition

Respondents were then shown the same series of alcohol brands with the brand name uncovered (to test their recognition of the alcohol brands; response categories were 'seen', 'not seen' and 'don't know'). The number of unmasked brands correctly identified was totaled (out of a possible five).

iii. Brand saliency

Respondents were asked, “Can you tell me the names of as many brands of alcohol that you have either seen or heard of?” a measure used in tobacco marketing research (MacFadyen, Hastings & MacKintosh, 2001). Up to a maximum of 16 brands of alcohol freely recalled without prompting were recorded for each respondent. This question was asked before the brand recognition questions above to avoid contamination. However, for consistency with Kapferer’s (2012) list of brand equity measures, it is presented in the methods section here in this order.

Drinking Behavior

Alcohol consumption

Alcohol consumption was calculated based on combining: (i) the frequency of drinking and (ii) the amount in units of alcohol consumed the last time respondents had an alcoholic drink.

Frequency of drinking was assessed using an existing and extensively tested and reliable measure (Engs & Hanson, 1994) by asking respondents how often they usually had an alcoholic drink (daily, twice per week, weekly, fortnightly, monthly, only a few times per year, or I never drink alcohol now).

The *amount in units of alcohol consumed* the last time respondents had an alcoholic drink was calculated using a series of measures developed and tested in previous research (Gordon, MacKintosh, & Moodie, 2010), owing to issues identified with measuring actual consumption of alcohol among adolescents using existing measures (see Del Boca & Darkes, 2003). The amount in milliliters of each type of alcoholic drink consumed and the alcohol by volume (ABV) of each drink were estimated, based on responses to the following: brand or name of drink(s) consumed;

type(s) of alcohol consumed (e.g. beer, wine, vodka), drinking vessel(s) used (recorded using a visual), the amount of each drink consumed (more than one full bottle/can/glass, one full bottle/can/glass, $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{4}$ or less than $\frac{1}{4}$ of a bottle/can/glass).

Hazardous alcohol consumption was coded categorically according to whether a respondent exceeded or was below a potentially hazardous level. The criteria used for determining a hazardous level were guided by the Alcohol Use Disorders Identification Test (AUDIT) (Babor, Higgins-Biddle, Saunders & Monteiro, 2001), albeit because the survey used in the research was designed for adolescents rather than adults, respondents reported (i) only frequency of drinking (rather than also the frequency of heavy drinking) and (ii) details of the drinks they consumed on the last occasion (for each drink: the brand, type of drink, container and amount of container consumed) rather than typical number of alcoholic drinks consumed when drinking. The detailed data about the drinks consumed on the last occasion enabled the alcohol units consumed to be calculated more accurately. Drinkers were categorized as drinking at a potentially hazardous level (code 1) if they *both* drank at least once per month *and*, for boys, drank six or more units (equivalent to AUDIT's '3-4 drinks' or more) on the last occasion. For categorizing potentially hazardous drinking among the girls, the level was adjusted down to five or more units on the last occasion. Drinkers who drank less frequently than once per month *or* who drank less than six units on the last occasion and non-drinkers were coded as '0' (below a potentially hazardous level). However, it could be argued that 15 year olds should not be drinking at any level as they were below the legal drinking age.

Statistical Analysis

To answer **RQ1** a series of linear regressions was conducted in SPSS 21 to examine the associations between a range of personal characteristics, social influences and marketing variables and adolescents' alcohol consumer socialization at age 13 (Wave 1). The alcohol consumer socialization outcome variables at age 13 (Wave 1) were: (i) *unaided brand recognition*: the number of *masked* alcohol brands (brand names covered) correctly identified; (ii) *aided brand recognition*: the number of *unmasked* alcohol brands (brand names visible) recognized; (iii) *brand saliency*: the number of unprompted (free recall) alcohol brands recalled. The independent variables measured at age 13 (Wave 1) were entered in blocks using forward likelihood ratio, with the alcohol marketing variable entered into the analysis after potential confounding variables had first been taken account of. The blocks of Wave 1 variables were entered into the analyses in the order indicated in Figure 1. Checks were made on the correlation matrix, the variance inflation factor scores, tolerance, eigenvalue loadings, Durban-Watson values, the error distributions and standardized residuals to ensure the adequacy of the analyses.

To answer **RQ2** a series of logistic regression analyses was performed in SPSS 21 to examine the impact of alcohol consumer socialization (assessed through measures of brand equity) at age 13 (Wave 1) on hazardous alcohol consumption at age 15 (Wave 2). Three models were run to examine separately the effects of the following alcohol consumer socialization measures at age 13 (Wave 1): (i) *unaided brand recognition* (brand names masked) (ii) *aided brand recognition* (brand names unmasked); and (iii) *brand saliency*: the number of unprompted (free recall) alcohol brands recalled.

The independent variables measured at age 13 (Wave 1) were entered in blocks using forward likelihood ratio, with the alcohol consumer socialization variables entered into the analysis after potential confounding variables had first been taken account of. The independent variables were entered in blocks in the order indicated in Figure 1. All outliers were investigated and checks made to ensure that they did not exert undue influence on the analyses.

[Insert Figure 1 about here]

RESULTS

Sample demographics

The number of respondents with a valid age (between 12-14) who participated in Wave 1 was 920, of whom 547 subsequently also provided valid data at Wave 2. The cohort sample was evenly distributed by gender, 50% (n=275) male and 50% (n=272) female. Social grade, classified using the National Readership social grading system, was based upon the occupation of the chief income earner (Wilmshurst & MacKay, 1999); 40% (n=220) were ABC1 (middle class) and 59% (n=325) were C2DE (working class). These figures are largely consistent with national census data: 45.6% ABC1, 54.4% C2DE (General Register Office for Scotland, 2001). Sample ethnicity was predominantly white 93% (n=510), with 3.5% (n=19) identifying themselves as Asian or Asian British, 1%, mixed race (n=7), 1% black (n=6), <1% Chinese (n=1) and <1% other (n=1). Most of the sample identified themselves as Christian 64% (n=349) or had no religiosity 31% (n=169), with 3.5% Muslim (n=19), <1% Sikh (N = 2), <1% Hindu (n=1) <1% any other religion (N = 2) and 1% don't know/not stated. Compared with respondents successfully followed up (cohort),

respondents lost due to sample attrition had a higher proportion of girls (50% girls in cohort sample, 57% girls in sample lost to attrition, $p < 0.05$) and a higher proportion of middle class (ABC1) respondents (40% ABC1 in cohort sample, 55% ABC1 in sample lost to attrition, $p < 0.001$). There were no differences between the cohort and the dropout sample with respect to drinking status, age, ethnicity or religion.

Drinking status

At the start of the study, 36% of the two-wave cohort was categorized as drinkers at age 13, rising to 62% being categorized as drinkers by the age of 15. As expected, many adolescents initiated drinking between the two waves of data collection: 163 (30%) of non-drinkers at age 13 had taken up drinking by the age of 15. Eighty-six adolescents were categorized as exhibiting hazardous alcohol consumption at age 15.

RQ1: Which factors play a significant role in adolescents' alcohol consumer socialization at age 13 (Wave 1)?

Three linear regression models (Models 1-3) shown in Table 1 examined the association, after controlling for potentially confounding variables (see Figure 1), between the total number of channels through which respondents had seen alcohol marketed at age 13 (Wave 1) and the following Wave 1 dependent variables: (i) unaided (masked) brand recognition (Model 1); (ii) aided brand recognition (Model 2); and (iii) brand saliency (Model 3). All of the models were significant (Model 1: $F = 30.690$, $df = 6, 504$, $p < 0.001$, Adjusted $R^2 = 0.259$; Model 2: $F = 16.761$, $df = 10, 500$, $p < 0.001$, Adjusted $R^2 = 0.236$; Model 3: $F = 31.974$, $df = 8, 502$, $p < 0.001$, Adjusted $R^2 = 0.327$).

After taking account of the control variables, the models revealed that the more channels through which adolescents had seen alcohol marketing, the greater their level of alcohol consumer socialization across all three measures (unaided and aided brand recognition and brand saliency). The models also indicated that adolescents who exhibited greater alcohol brand consumer socialization across all three socialization measures were white and had already tried drinking alcohol. While younger adolescents were significantly better able to recognize masked and unmasked alcohol brands there was no significant difference, by age, in the number of brands of alcohol freely recalled. Boys were significantly better able to identify masked alcohol brands. Adolescents with friends who drank alcohol at least once per week were significantly better able to recognize both masked and unmasked alcohol brands. Lower social grade, disliking school and liking advertisements generally was significantly associated with higher unmasked brand recognition. Having parents who adolescents thought would consider it OK for them to try alcohol was associated with lower unmasked brand recognition. Having a mother who drank was significantly associated with being able to freely recall a larger number of alcohol brands (greater brand saliency), whilst not seeing or having a father was associated with lower brand saliency (compared to having a father who did not drink). Not knowing whether their friends drank alcohol at least once per week was associated with lower brand saliency (compared to thinking that none of their friends drank at least once per week).

[Insert Table 1 about here]

RQ2: Does adolescents' alcohol consumer socialization at age 13 (Wave 1) predict hazardous alcohol consumption at age 15 (Wave 2)?

Three separate logistic regression models (Models 4-6 shown in Table 2) examined the impact on alcohol consumption (hazardous or not), after controlling for potentially confounding variables (see Figure 1), of the following Wave 1 alcohol consumer socialization variables (measures of brand equity): (i) *unaided brand recognition* (masked) (Model 4); (ii) *aided brand recognition (unmasked)* (Model 5); and (iii) *brand saliency* (Model 6).

All of the models were a good fit (Model 4: Hosmer and Lemeshow Test: Chi-square = 3.830, df = 8, p = 0.872, Nagelkerke $R^2 = 0.199$; Model 5: Hosmer and Lemeshow Test: Chi-square = 4.045, df = 8, p = 0.853, Nagelkerke $R^2 = 0.186$; Model 6: Hosmer and Lemeshow Test: Chi-square = 9.247, df = 8, p = 0.322, Nagelkerke $R^2 = 0.204$). The models indicate that hazardous drinking at age 15 is predicted by two measures of alcohol consumer socialization at age 13: unaided brand recognition (being able to recognize more masked alcohol brands) and brand saliency (being able to freely recall more brands of alcohol). Other significant predictors of hazardous drinking at age 15 were having tried alcohol at age 13, having a sibling(s) who drinks and thinking that one's closest friends would consider it OK to try alcohol at age 13.

[Insert Table 2 about here]

DISCUSSION

Consumer socialization theory supposes that children are socialized as consumers through four main socialization agents: media (including marketing), parents and relatives, peers, and schools (Ward, Klees & Robertson, 1987). The present study found that adolescents' consumer

socialization to alcohol at age 13 was influenced by personal characteristics, social influences and exposure to alcohol marketing and that subsequent hazardous drinking behavior was predicted by personal characteristics, social influences and consumer socialization to alcohol. Having tried alcohol by age 13 was associated with consumer socialization to alcohol at that age and predicted subsequent hazardous drinking at age 15.

Consumer socialization to alcohol through marketing

The more channels through which adolescents were exposed to alcohol marketing, the greater adolescents' socialization to alcohol (masked and unmasked brand recognition and brand saliency) was found to be. These results are consistent with findings from existing cross-sectional studies that have identified associations between alcohol marketing and single measures of consumer socialization, such as exposure to beer advertising and brand recognition (Collins, Schell, Ellickson & McCaffrey, 2003); and beer advertising expenditure and brand saliency (Gentile, Walsh, Bloomgren, Atti & Norman, 2001).

The findings in this study are also consistent with existing marketing literature suggesting that branding is a powerful emotional tool that gains attention, encourages greater level of message processing, and influences consumption behaviors (Kapferer, 2012 p.15). The findings in relation to **RQ1** suggest that alcohol marketing has a discernible impact on the consumer socialization of adolescents to alcohol.

Consumer Socialization to alcohol through other influences

Personal characteristics and social influences examined in **RQ1** also influenced adolescents' consumer socialization to alcohol. Previous drinking experience (being categorized as a drinker at age 13) and being white were consistently associated with higher alcohol brand recognition (unaided and aided) and brand saliency at age 13. Younger adolescents showed significantly better brand recognition (both unaided and aided) but not brand saliency. This might reflect younger children's tendency to be attuned to visual attributes of products, such as shape, size and color (John, 1999). Boys were better at unaided brand recognition, perhaps a reflection of research showing boys are exposed to slightly more marketing media than girls (Dotson & Hyatt, 2005). Dislike of school was associated with higher aided brand recognition, which is consistent with the finding from RQ2 that disengagement from school precedes hazardous drinking.

Social influences on alcohol consumer socialization were also evident. Having friends who drank alcohol at least once per week was associated with higher unaided and aided brand recognition which perhaps reflects the influence of socializing in a pro-alcohol environment, while not knowing if their friends did so (as opposed to their friends not drinking) was associated with lower brand saliency. Having a mother who drank was associated with higher brand saliency perhaps as a reflection of adolescents being socialized in a family environment in which alcohol brands were present. Not having or not seeing his or her father was associated with lower brand saliency, which may reflect children brought up in a less stable family environment that may have impacted upon their cognitive development with respect to consumer socialization (Grusec & Hastings, 2006). Thinking that their parents would consider it OK to try alcohol was associated with lower aided brand recognition.

These analyses provide support for cross-sectional research identifying associations between receptivity to alcohol marketing and poor educational performance, peer drinking, and perceived prevalence of and approval of drinking (Henriksen, Feighery, Schleicher & Fortmann, 2008). The findings of this study also concur with existing research suggesting that peers (Moore, Raymond, Mittelstaedt & Tanner, 2002), school (Ward, 1974), and ethnicity (Singh, Kwon & Pereira, 2003) influence consumer socialization of adolescents.

Impact of consumer socialization on hazardous drinking

In relation to **RQ2**, hazardous drinking at age 15 was significantly predicted by two measures of alcohol consumer socialization to alcohol at age 13 (unaided brand recognition and brand saliency). These longitudinal results provide support from this longitudinal study, for existing research that has identified positive associations between brand allegiance at 18 years and volume of beer consumed at age 21 (Casswell & Zhang, 1998). This study builds upon earlier research evidence, by comprehensively assessing relationships between exposure to a number of forms of alcohol marketing, brand recognition and brand saliency as markers of alcohol consumer socialization, and subsequent consumer behavior over time in the one study; it effectively combines the focus of previous studies that have assessed associations between alcohol marketing and brand socialization, and brand socialization and drinking behaviors. The findings here suggest associations between exposure to alcohol marketing and consumer socialization to alcohol, and between consumer socialization to alcohol and subsequent hazardous drinking over time. This suggests that alcohol marketing has a socializing effect and this socialization affects drinking behaviors.

This study also identified that there are other personal characteristics and social influences associated with hazardous drinking. Having tried alcohol at age 13, having a sibling(s) who drinks and thinking that one's closest friends would consider it OK to try alcohol at age 13 were also significant predictors of hazardous drinking at age 15. These findings concur with existing research identifying that family member and peer influence (Rittenhouse & Miller, 1984), and social norms (Ellickson, Collins, Hambarsoomians & McCaffrey, 2005) influence adolescent drinking behaviors.

Limitations and Future Research

One limitation of the present study is that the research findings here suggest the need to start collecting data at an even younger age, because 36% of the 13 year olds in the study were already drinkers at Wave 1 and previous drinking experience was found to be both significantly associated with consumer socialization to alcohol at age 13 and a significant predictor of subsequent hazardous drinking at age 15. Another limitation is that this study used self-report measures of exposure to alcohol marketing, and drinking behaviors that may over or under represent reality. However, the findings are largely consistent with existing research evidence on these phenomena. Future research to further test causal pathways between exposure to alcohol marketing, consumer socialization, and drinking behaviors would help further develop the knowledge base. For example, use of other indicators of consumer socialization beyond brand recognition and brand saliency, and additional measures of drinking behavior beyond hazardous drinking in consumer studies might help generate more insight and understanding. Indeed, such studies need not be limited to the context of alcohol, as research of this nature in other marketing contexts can assist with understanding of the relationships between marketing, consumer socialization, and consumer

behavior. Finally, longitudinal cohort studies involving several measurement time points over a number of years, would enable more sophisticated analysis to assess causal relationships.

Implications and conclusions

Previous research has suggested associations between exposure and involvement with alcohol marketing and youth drinking. However, the present research unpicks the mechanisms of how alcohol marketing, and a range of other agents, influence the consumer socialization of children, and the resultant impact on drinking behaviors. The results demonstrate the contribution of personal characteristics, social influences, and marketing variables to adolescents' socialization to alcohol and the impact of adolescents' consumer socialization to alcohol branding on subsequent hazardous drinking. Marketing is shown to act as a significant influencing agent in the consumer socialization of adolescents to alcohol. This process is facilitated through alcohol marketing across a range of channels, not just conventional advertising, but multiple forms of marketing communication including cultural sponsorship, sports sponsorship, posters/billboards, newspapers/magazines and digital marketing - social networking sites, which major alcohol companies have recently identified as key channels (e.g. Bradshaw, 2011). Beyond marcomms, other elements of the marketing mix such as product and place may also be expected to influence this consumer socialization process. This has important implications for four key groups: marketing practitioners, parents, policy makers and consumer researchers.

Marketing practitioners have to recognise that their marketing campaigns and brands lie at the heart of adolescent consumer socialization to alcohol, and this feeds through to adolescent drinking behavior.

The much used defence that marketing only encourages brand switching, and not category

consumption (Portman Group, 2010), is no longer tenable: this research shows that the two are inextricably linked. This means that tighter controls not just on the content, but also the amount, of alcohol marketing have to be part of any sensible response to concerns about adolescent drinking.

For parents the research suggests that they can do something in their own right about their children's drinking – most notably by recognising the multiple influences on adolescents' socialization to alcohol and trying to mitigate them. Given the influence of peers on consumer socialization to alcohol, parents should examine the friendship groups their children socialize with to assess whether friends may encourage pro-alcohol attitudes, behaviors and perceptions of social norms in relation to alcohol. Parents should also consider the potential impact that their own behavior may have on their children. Parents may try to restrict their children's access and exposure to alcohol marketing. However, once again, unless something is done to reduce the plethora of alcohol marketing the system is always going to be stacked against them.

Turning to policy makers, a key conclusion to emerge from this research is that UK children are being heavily exposed to alcohol marketing across a number of channels, and that this exposure influences their consumer socialization to alcohol and alcohol brands, which subsequently affects their drinking behaviors. This suggests the current policy and regulatory environment is not adequately protecting children. This concern is reinforced by a recent analysis from the European Commission showing that 10-15 year olds in the UK are exposed to significantly more alcohol advertising (51% more in the case of alcopop ads) than are adults (Winpenny, Patil, Elliott, van Dijk, Hinrichs, Marteau & Nolte, 2012). Policy makers, therefore, have to take a very hard look at the UK's regulatory system. At present, this is narrowly focused on controlling one specific marketing

input, the creative content of advertising, and completely ignores outputs – most notably the brand. There is a need therefore for much more robust regulation of alcohol marketing that not only covers the full range of inputs but also the outputs. This will be challenging – how can you even pin down let alone delimit something as intangible and elusive as a brand? It will also need to be completely independent of industry; judgements will be difficult enough to make without the distorting effects of vested interest. In France this circle has been squared by means of the ‘Loi Evin’, which restricts alcohol advertisers to factual messages in a narrow range of adult-oriented channels (Rigaud & Craplet, 2004). Ultimately it may be, as Casswell (2012) and many others (University of Stirling, 2013) now argue, that the only way to fully protect children from alcohol marketing is, as with tobacco, to institute a total ban.

For consumer researchers the study suggests three important conclusions. Firstly, it shows that the current characterization of the impact of marketing on consumer socialization as a subset of media influences is far too limited. Marketing goes way beyond mere communication: it is widely manifested in the environment. By extension alcohol marketing may exert an influence beyond marketing channels through family store cupboards, shopping practices and consumption experience. Indeed, prior experience of drinking was consistently found to be a factor in later consumer socialization to alcohol. Digital developments mean that this real environment is being combined with an increasingly commercialized virtual one. Secondly, in line with this broader conceptualization, marketing needs to be given more prominence in consumer socialization research to rebalance the current focus on parental influences (McNeal, 2007). Finally, the findings linking consumer socialization and drinking behavior suggest a need to move beyond the current research emphasis on cognition and give due attention to behavior.

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Table 1: Associations with measures of alcohol consumer socialization at age 13 (Wave 1)

Model 1	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.654	.435		3.802	.000
Ethnicity (1 = white; 0 = not white)	1.334	.205	.253	6.550	.000
Drinking status at w1 (1 = drinker; 0 = non-drinker)	.431	.109	.158	3.940	.000
Age	-.448	.128	-.135	-3.500	.001
Gender (1 = male; 0 = female)	.215	.100	.082	2.137	.033
How many of your friends drink alcohol at least once per week (1 = a few/half/most/all; 0 = none)	.383	.106	.145	3.608	.000
Number of channels through which seen alcohol marketing	.136	.019	.274	6.998	.000
<p>➤ Dependent variable = masked brand recognition: the number of unaided alcohol brands recognized at age 13 (Wave 1)</p> <p>➤ Independent marketing variables = liking of advertisements in general & the number of channels through which seen alcohol marketing</p>					
Model 2	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	3.651	.347		10.527	.000
Ethnicity (1 = white; 0 = not white)	.773	.144	.218	5.356	.000
Social grade (1 = C2DE; 0 = ABC1)	.239	.071	.135	3.365	.001
Drinking status at w1 (1 = drinker; 0 = non-drinker)	.197	.079	.108	2.493	.013
How much like or dislike school (1 = dislike a lot; 5 = like a lot)	-.091	.029	-.126	-3.106	.002
Age	-.314	.087	-.141	-3.622	.000
How many friends drink alcohol at least once per week (1 = a few/half/most/all; 0 = none)	.294	.074	.166	3.997	.000
Whether parents would consider it OK to try alcohol (1 = OK; 0 = not OK)	-.266	.092	-.139	-2.897	.004
Whether friends would consider it OK to try alcohol (1 = OK; 0 = not OK)	.166	.087	.094	1.897	.058
Number of channels through which seen alcohol marketing	.060	.013	.181	4.558	.000
Liking of ads in general (1 = dislike a lot; 5 = like a lot)	.076	.031	.099	2.475	.014
<p>➤ Dependent variable = unmasked brand recognition: the number of aided alcohol brands recognized at age 13 (Wave 1)</p> <p>➤ Independent marketing variables = liking of advertisements in general & the number of channels through which seen alcohol marketing</p>					
Model 3	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.567	.484		1.173	.241
Drinking status at w1 (1 = drinker; 0 = non-drinker)	.614	.241	.101	2.551	.011
Ethnicity (1 = white; 0 = not white)	2.022	.449	.170	4.505	.000

How many friends drink alcohol at least once per week (1 = don't know; 0 = none)	-0.726	.274	-.098	-2.649	.008
Whether dad drinks (1 = yes; 0 = no)	.063	.290	.011	.217	.828
Whether friends would consider it OK to try alcohol (1 = OK; 0 = not OK)	.374	.235	.063	1.590	.112
Whether dad drinks (1 = no dad/do not see dad; 0 = dad does not drink)	-1.249	.405	-.126	-3.084	.002
Whether mum drinks (1 = yes; 0 = no)	.689	.266	.117	2.588	.010
Number of channels through which seen alcohol marketing	.474	.041	.428	11.519	.000

- Dependent variable = **brand saliency**: the number of alcohol brands freely recalled at age 13 (Wave 1)
- Independent marketing variables = liking of advertisements in general & number of channels through which seen alcohol marketing

Table 2: Predictors of hazardous drinking at age 15

Model 4	N (vs. omitted category)	Adjusted OR	95% C.I. for EXP (B)		Sig.
			Lower	Upper	
Drinking status at w1 (1 = drinker; 0 = non-drinker)	167 (315)	1.792	1.039	3.094	.036
How much like/dislike school (1 = dislike a lot; 5 = like a lot)	482 cases	.836	.677	1.032	.095
Whether sibling drinks					.011
Whether sibling drinks (1 = yes; 0 = no)	149 (236)	2.744	1.520	4.952	.001
Whether sibling drinks (1 = don't know; 0 = no)	27 (236)	1.895	.571	6.287	.296
Whether sibling drinks (1 = no siblings; 0 = no)	70 (236)	1.819	.840	3.937	.129
Whether friends would consider it OK to try alcohol					.003
Whether friends would consider it OK to try alcohol (1 = OK; 0 = not OK)	208 (166)	3.625	1.658	7.926	.001
Whether friends would consider it OK to try alcohol (1 = don't know; 0 = not OK)	108 (166)	3.660	1.566	8.556	.003
Unaided brand recognition	482 cases	1.250	1.006	1.554	.044
Constant		.033			.000
<p>➤ Dependent variable = hazardous drinking (Wave 2): 1= hazardous alcohol consumption; 0 = non-drinker or non-hazardous alcohol consumption</p> <p>➤ Independent marketing variables = liking of advertisements in general & unaided brand recognition at age 13 (Wave 1)</p>					
Model 5	N (vs. omitted category)	Adjusted OR	95% C.I. for EXP (B)		Sig.
			Lower	Upper	
Drinking status at w1 (1 = drinker; 0 = non-drinker)	167 (315)	1.993	1.165	3.410	.012
How much like/dislike school (1 = dislike a lot; 5 = like a lot)	482 cases	.828	.671	1.021	.078
Whether sibling drinks					.012
Whether sibling drinks (1 = yes; 0 = no)	149 (236)	2.683	1.492	4.825	.001
Whether sibling drinks (1 = don't know; 0 = no)	27 (236)	1.807	.548	5.956	.331
Whether sibling drinks (1 = no siblings; 0 = no)	70 (236)	1.810	.839	3.904	.131
Whether friends would consider it OK to try alcohol					.002
Whether friends would consider it OK to try alcohol (1 = OK; 0 = not OK)	208 (166)	3.803	1.741	8.307	.001
Whether friends would consider it OK to try alcohol (1 = don't know; 0 = not OK)	108 (166)	3.774	1.623	8.779	.002
Constant		.062			.000
<p>➤ Dependent variable = hazardous drinking (Wave 2): 1= hazardous alcohol consumption; 0 = non-drinker or non-hazardous alcohol consumption</p> <p>➤ Independent marketing variables = liking of advertisements in general & aided brand recognition at age 13 (Wave 1)</p>					
Model 6	N (vs. omitted category)	Adjusted OR	95% C.I. for EXP (B)		Sig.
			Lower	Upper	

Drinking status at w1 (1 = drinker; 0 = non-drinker)	167 (315)	1.817	1.055	3.131	.031
How much like/dislike school (1 = dislike a lot; 5 = like a lot)	482 cases	.847	.685	1.046	.123
Whether sibling drinks					.007
Whether sibling drinks (1 = yes; 0 = no)	149 (236)	2.879	1.586	5.229	.001
Whether sibling drinks (1 = don't know; 0 = no)	27 (236)	2.012	.605	6.693	.254
Whether sibling drinks (1 = no siblings; 0 = no)	70 (236)	1.869	.860	4.063	.114
Whether friends would consider it OK to try alcohol					.003
Whether friends would consider it OK to try alcohol (1 = OK; 0 = not OK)	208 (166)	3.506	1.598	7.691	.002
Whether friends would consider it OK to try alcohol (1 = don't know; 0 = not OK)	108 (166)	3.827	1.639	8.939	.002
Brand saliency (number of alcohol brands freely recalled)	482 cases	1.115	1.020	1.219	.016
Constant		.031			.000
<p>➤ Dependent variable = hazardous drinking (Wave 2): 1= hazardous alcohol consumption; 0 = non-drinker or non-hazardous alcohol consumption</p> <p>➤ Independent marketing variables = liking of advertisements in general & brand saliency (number of alcohol brands freely recalled) at age 13 (Wave 1)</p>					

Figure 1: Variables for RQ1 and RQ2

