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Content Themes of Alcohol Advertising in US Television — Latent Class Analysis

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Abstract

Background—There is little alcohol research that reports on the thematic contents of contemporary alcohol advertisements in US television. Studies of alcohol ads from two decades ago did not identify “partying” as a social theme. Aim of the present study was to describe and classify alcohol advertisements aired in national television in terms of contents, airing times, and channel placements and to identify different marketing strategies of alcohol brands.

Methods—Content analysis of all ads from the top 20 US beer and spirit brands aired between July 2009 and June 2011. These were 581 unique alcohol ads accounting for 272,828 (78%) national television airings. Ads were coded according to predefined definitions of 13 content areas. A latent class analysis (LCA) was conducted to define content cluster themes and determine alcoholic brands that were more likely to exploit these themes.

Results—About half of the advertisements (46%) were aired between 3am and 8pm, and the majority were placed either in Entertainment (40%) and Sports (38%) channels. Beer ads comprised 64% of the sample, with significant variation in airing times and channels between types of products and brands. LCA revealed five content classes that exploited the “Partying”, “Quality”, “Sports”, “Manly”, and “Relax” themes. The partying class, indicative of ad messages surrounding partying, love and sex, was the dominant theme, comprising 42% of all advertisements. Ads for alcopops, flavored spirits, and liqueur were more likely to belong to the party class, but there were also some beer brands (Corona, Heineken) where more than 67% of ads exploited this theme.

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Conclusions—This is the first analysis to identify a partying theme to contemporary alcohol advertising. Future analyses can now determine whether exposure to that or other themes predicts alcohol misuse among youth audiences.

Keywords

alcohol; advertising; content analysis; adolescence; television

INTRODUCTION

Alcohol consumption is the third leading cause of death in the United States, responsible for millions of years of potential life lost (Centers for Disease Control and Prevention, 2004). Among persons aged 12–20 years, alcohol use contributes to the three leading causes of death—unintentional injury, homicide and suicide (Hingson et al., 2009b, Hingson and Zha, 2009, Hingson et al., 2009a). Moreover, hazardous drinking (consuming large quantities) and harmful drinking (alcohol abuse) are common and result in much morbidity and cost to the medical and mental health systems (Rehm et al., 2009). Alcohol is marketed by a multinational industry that in the US alone, spent \$3.45 billion dollars in the year 2011 (Federal Trade Commission, 2014). About 26% of these outlays went toward television advertising, which was restricted to beer and wine until 1996, when the distilled spirits industry ended its voluntary ban on television advertising (Elliott, 1996).

The size of the US expenditure and its potential relevance to underage drinking prompts the need to understand if and how such advertising contributes to teen drinking. In the past three decades, evidence has accumulated that exposure to alcohol advertising is indeed an independent risk factor for initiating early drinking and binge drinking, also for increasing the frequency of drinking as well as teenage alcohol-related problems (Anderson et al., 2009, Smith and Foxcroft, 2009, Morgenstern et al., 2011, Grenard et al., 2013). There is also evidence that young people have a higher likelihood of consuming those alcohol brands they were exposed to on television, and that having a favorite advertised alcohol brand increases the likelihood of risky drinking (Ross et al., 2014, McClure et al., 2013a, Morgenstern et al., 2014). Given this growing evidence from epidemiological data there seems to be consensus that young people should be protected from marketing influences to drink (WHO, 2014, Casswell, 2012, Jernigan, 2010). A straightforward prevention approach would be a complete ban of alcohol advertising in all media channels. However, up to now there have been, with few exceptions like the Evin Law in France (Regaud and Craplet, 2004), few governments willing to significantly restrict the ability of the industry to engage in alcohol advertising.

One reason for this lack of action could be that selling alcoholic beverages is a legal activity and therefore restrictions on advertising must be balanced and justified, in the same way as for other consumer products. In contrast to tobacco, the alcohol industry has been quite successful in promoting corporate social responsibility (Casswell, 2013, Babor and Robaina, 2013, Babor et al., 2013a). As a consequence, most of the measures to regulate alcohol marketing, in Europe as well as in the United States, are based on the concept that alcohol companies can self-regulate their marketing, a key construct in the corporate social

responsibility lexicon. In most of these voluntary advertising codes there is agreement that alcohol advertising should not be placed in youth venues or be unduly attractive to those under the legal drinking age (Beer Institute, 2011, DISCUS, 2011). There is substantial empirical evidence from studies from Australia (Jones and Donovan, 2001, Donovan et al., 2007), Brazil (Vendrame et al., 2010), United Kingdom (Searle et al., 2014) and the US (Smith et al., 2014, Babor et al., 2013b) that many of the alcohol ads in these countries violate their self-imposed codes. This has been found using standardized expert ratings (Babor et al., 2013b) as well as employing more naïve raters like visitors of a train station (Searle et al., 2014), school children (Vendrame et al., 2010) or college students (Jones and Donovan, 2001). However, there is still a lack of empirical criteria defining specifically what aspect of advertising content appeals to youth, or, more importantly, what aspect might be associated with transitions to harmful drinking. This is because most of the prior research has studied the effect of overall exposure rather than thematic quality. An important step in more effectively regulating the process might be understanding the themes exploited by advertising and how youth might differentially respond to them.

In this manuscript we describe and classify the content of contemporary television advertising in the United States. In developing our approach, we reviewed the literature and were able to find some earlier content analyses of US television alcohol advertising, mostly pertaining to advertising in the 1980/90s, before spirit companies were also engaged in the practice (Madden and Grube, 1994, Finn and Strickland, 1982, Grube, 1993, Atkin and Block, 1981). One local study examined ads that ran in St. Louis between 1979 and 1980 (Finn and Strickland, 1982). Twenty two themes were identified and reliably coded from the 131 unique ads that aired over the period. The most prevalent themes were camaraderie (70%), relaxation (41%), humor (38%), quality (30%) and physical activity (25%). A second study examined 82 television ads captured on the three main US networks in 1978–79 (Atkin and Block, 1981). The most prevalent themes in these ads included camaraderie (54%), masculinity (45%), taste (37%), escape/emotional relief (32%), femininity (30%), romance (19%), adventure/excitement (17%). A more recent study analyzed ads for alcoholic and nonalcoholic beverages in US magazines as well as in 71 TV ads in 1999/2000 (Austin and Hust, 2005). That study found an emphasis on relaxation (69%), humor (62%), working (54%), friendship (39%) and masculinity (38%). This is in line with results from a recent Australian study which identified humor and friendship/mateship to be the most prominent themes in Australian television alcohol advertisements (Pettigrew et al., 2012), and with a study from the UK which found attractive people and settings as well as humor as the most widely used techniques in 292 television ads of the years 2003–2006 (Gunter et al., 2008).

In the context of a study of adolescent and young adult exposure to contemporary television advertising (Tanski et al., 2015), we examined a two year sample of U.S. television alcohol advertisements. For web-based cued-recall questionnaires, still pictures were extracted from all ads that had aired during that time period (McClure et al., 2013b). In extracting these still pictures, it became evident that the previously reported themes were indeed still present, but that some brands seemed to use novel marketing themes. More specifically, some of the ads showed high-energy, extroverted party scenes, with alcohol use being clearly associated with social and sexual success. The social party theme was not mentioned in the TV

advertising content analyses from the 1980's, and was only tangentially referred to in the analysis of ads 15 years ago (Austin and Hust, 2005). But a more recent content analysis of alcohol radio advertising in the UK explicitly mentioned “weekend drinking and partying” as one of five key emerging themes (Daykin et al., 2009). Given that this theme might specifically appeal to the underage youth market, we wished to reliably determine its prevalence in contemporary television advertising. We therefore conducted a systematic content analysis of the 2009–2011 alcohol ads that had aired on national television. To extend the existing literature, we not only covered airing times and placements, but also applied a latent class analysis to identify underlying content similarities between groups of ads, over and above individual themes.

MATERIALS AND METHODS

Sample Selection

We obtained an electronic copy of every nationally-aired television alcohol advertisement from 7/1/09 to 6/30/11 from TNS Adscope at Kantar Media (www.kantarmedia.com). The monitored data contained 349,591 alcohol advertisement airings of 803 unique ads in 92 national TV channels, equaling 479 airings per day or 20 airings per hour. For our analysis, we excluded ads from alcohol brands that were not in the U.S. Top 20 in terms of sales, which resulted in a sample of 581 unique ads from 28 brands (11 beer brands, 16 spirit brands, and one alcopop brand). During the two year study interval, these ads were aired 272,828 times (mean = 469.6) in 87 different channels, accounting for 78.0% of all airings for alcohol products. On closer examination of product types, we categorized the advertisements into beer, pure spirits, flavored beer, flavored spirits, alcopops, and liqueur advertising. “Flavored” beverages were defined as having one or more supplement ingredient which changed the actual taste of the drink (e.g., lime or spice), but were not sweetened. Alcopops and liqueur, in contrast, were defined to contain sugar.

Airing times were grouped into five categories, comprising nighttime (11.00 pm – 02.59 am), early morning (03.00 am – 08.59 am), daytime (9.00 pm – 3.59 pm), early evening (04.00 pm – 07.59 pm), and prime time (08.00 pm – 10.59 pm). Based on the airing date we also determined the percentage of airings on weekends. National TV channels with more than 500 airings (n =42) were classified according to their primary content into “Entertainment”, “Sports”, “Home & Leisure”, and “Educational” channels. These 42 channels accounted for 98.5% of the total airings, with all other channels being classified as “other” (also see Table 1).

The actual content coding was a three-step procedure. In a first step, the entire sample of ads was watched by an undergraduate student (JC), who identified possible themes and presented them to a group of behavioral researchers. For example, the partying theme was described by the coders as follows: “Partying typically has a sense of anonymity, although sometimes one or two people will be singled out as central subjects of the advertisement. The location is usually at someone’s house or outdoors, somewhere where everyone is interacting at the same time. Often there are many people present and much alcohol is shown. Once potential themes had been identified two undergraduate students (JC & MB) double-coded a random sample of 180 ads to operationalize the coding procedure. This

involved several feedback and revision loops whereby ads were content coded in blocks of 30, with differences discussed and resolved with their supervisor (JS). The final operationalization manual (available on request from the senior author) contained 30 content categories. The rest of the 581 ads were coded to this scheme, indicating for each ad if a specific content was present (“0”) or not present (“1”). For the present analysis, the number of content categories was reduced by excluding rare (<5%) or very frequent (>95%) categories, resulting in thirteen advertising content themes: Humor, Friendship, Artistic, Sports, Relax, Sex, Partying, Quality, Love, Manly, Taste, Luxury, and Tradition. Inter-rater reliability was calculated on the 180 ads (31%) which were coded by both students. Percent category agreement ranged from 84% (Humor) to 97% (manly), and Cohen’s Kappa ranged from 0.54 (Taste) to 0.81 (Friendship), showing moderate-to-high inter-rater agreement (also see Appendix table).

Statistical Analysis

The 13 themes were used as binary (0=absent, 1=present) indicators of a latent categorical variable in a latent class analysis (LCA) using Mplus (Muthen and Muthen, 2014). The model assumes that the probability that an alcohol advertisement will have a particular theme is, $\text{Prob}(\text{Theme Present given Latent Class}) = 1/(1 + \exp(\tau_c))$. The τ_c was seen as the threshold parameter that determines the probability of the theme appearing in an alcohol ad within each level or class. In the exploratory phase of the modeling, we used the Bayesian information criteria (BIC) to determine the optimal number of classes (levels) for the latent categorical variable. We started with 2 and increased the number of classes until the BIC reached a minimum and then started increasing again. Standard optimization algorithms are prone to converging to solutions that are locally optimal but not the true ML solution which is globally optimal. To avoid this pitfall, for each LCA, 2 to 6 classes, we started with reasonable initial estimates and then used the random starts facility in Mplus to generate a large number of random variations of the initial estimates. We used the patterns of probabilities of themes in each class to characterize and label the different classes of alcohol ads. We used the model parameters to generate latent class (posterior) probabilities for each ad that indicated the probability that the particular ad belonged to each class. We assigned each alcohol ad to a pseudo-class, that is, the class that it had the maximum probability of belonging to as an estimate of latent class membership. We then examined how the type of alcohol and the brand mapped on to the different pseudo-classes. Pseudo-classes are valuable for exploratory analyses because they greatly simplify computations. However, as they tend to produce inaccurate (too small) p values, all inferential tests were conducted within the latent class model. In the text we use the term “classes” to refer to both, pseudo-classes and latent classes.

RESULTS

Products and airing times

Table 1 shows how airing time and channel varies by type of product and alcohol brand. The majority of airings were beer advertisements (64%), followed by spirits (14%), flavored spirits (9%), alcopops (6%), flavored beer (4%), and liqueur (3%). About a third of the ads were aired at night, with an overall peak between 1 and 2 am (24,049 airings) and the lowest

number of airings between 6 and 7 am in the morning (1,498 airings). There were significant differences in the airing times for specific products. For example, compared to other alcohol products, ads for alcopops were more often aired during the day and in the early evening programs, while liqueur was more often advertised at night and during prime time. Beer ads were shown earlier in the day and more often on weekends than spirit ads. Systematic placements of products can also be seen by looking at the TV channels. Alcopops, flavored beer and liqueur were generally more often advertised in channels with entertainment themes than beer and flavored spirits. Liqueur ads were almost never found in sports channels but were significantly overrepresented in channels classified as “Home & Leisure”. About 14% of all airings were found in educational/science channels, but only few of these were for alcopops, flavored spirits, or liqueur.

Table 1 also shows the airing data aggregated at the brand level and revealed high variance between brands. Some brands (e.g., Malibu Rum or Absolut) were almost exclusively advertised in entertainment channels at night and at prime time, while other brands (e.g., Guinness or Coors) were predominantly present in sports channels and during the day (Table 1). Differences in brand airing times do not merely mirror the product that is associated with these brands. For example, some placements of beer brands (e.g. Stella Artois, Bud Light) were more similar to spirits or liqueur ads than to other beer ads, with a stronger focus on entertainment channels and prime time.

Content themes

Table 2 shows the result of the content coding, again also separately for product type and brand. The most frequent individual content themes over all ads were humor (51% of ads) and friendship (45%). The other nine content themes were found in less than 20% of the ads. Compared to non-beer ads, beer ads were more likely to contain humor, sports and quality themes, and less likely to contain artistic, sexy, partying, luxury, taste, and tradition themes. No difference was found for friendship, love, and the “manly” theme. Different marketing strategies of the Top-20 US brands can be seen in the number of unique ads related to the brand. Some brands have a high number of airings using a low number of unique ads (e.g., Sam Adams, ratio 3:1, or Heineken, ratio 2:1) while other brands have more variation in their ads (e.g., Grey Goose, ratio 1:3, or Corona, ratio 1:2). This is also reflected in different variations within and between content themes. For example, some brands include a specific theme in all or almost all of their ads (e.g., Sam Adams, Dos Equis, Captain Morgan, or Mike’s Hard Lemonade), while this is not evident in others (e.g., Budweiser, Smirnoff, Baileys, or Absolut).

Latent Class Analysis

A latent class analysis with the 13 indicators revealed a 5-class model as best representing the observed contents (see Table 3). The BIC showed a clear minimum at 5 classes (6624, 6501, 6436, 6417 and 6431 for 2 to 6 classes respectively). Entropy is a measure of how well the model discriminates between individual ads in different classes ranging from 0 (no discrimination) to 1 (perfect discrimination) and the overall entropy for the 5 class model was .80 indicating good discrimination. The first class (labeled “Partying”) included partying, love, and sexy as dominant indicators, the second class (labeled “Quality”) related

to quality, artistic, taste, and tradition, the third class (labeled “Sports”) revealed high probabilities, in addition to humor and friendship, for the sports indicator, the fourth class (labeled “Manly”) could be described with the manly, artistic, and luxury theme, and the fifth class (labeled “Relax”) was related to the artistic, relaxation, and sexy contents. The labeling of the classes was based on the uniqueness of the top 5 indicators, not on the highest probabilities per class. For example, friendship showed up in the top 5 for every class and humor showed up in the top 5 for 3 of the 5 classes. Hence, labeling a class “Friendship” or “Humor” would not be discriminative. On the other hand, the partying theme only showed up in the top 5 for class 1, the quality theme only showed up in the top 5 for class 2, and the sports theme only showed up in the top 5 for class 3. Classes 4 and 5 were less distinct, as there were no unique indicators. But given that the manly theme loaded 1.0 for class 4 and only .09 for class 3 and the relaxation theme loaded .70 in class 5 and only .08 in class 3, these two indicators seemed the best choices.

Table 3 also presents the proportion of ads with highest probabilities for a specific class, overall and aggregated over product type and brand. It can be seen that the biggest proportion of ads (42%) belonged to class 1, the “partying” class. Tests for independence between product type and latent class revealed a clear rejection of the null hypothesis ($\chi^2(20) = 164.8$; $p < .001$), also for comparisons between different types of products (beer vs. spirits, $\chi^2(4) = 39.2$; spirits vs. flavored spirits vs. liqueur, $\chi^2(8) = 30.9$; beer vs. flavored beer, $\chi^2(4) = 91.3$; all $p < .001$). Only alcopop, flavored spirits, and liqueur ads seem to be similar in terms of content class ($\chi^2(8) = 13.5$, n.s.), though about 16% of the liqueur ads most probably belong to the “artistic” class (but none of the alcopop or flavored spirits ads, some of which are found in the “sports” class). Aggregating the 581 ads by brand shows the 13 brands that had the majority of their ads in the “party/love/sexy” class, the 6 “quality/taste/tradition” brands, 3 brands in the “manly/luxury” class, each two brands in the “sports” and “artistic/relax” class, and two brands (Baileys and Southern Comfort) that had no clear class majority. Similar to the analysis of product type, it turned out that 46% of the brands that market beer, 46% of the brands that market spirits, 50% of the brands that market liqueur, flavored spirits, or flavored beer, and 100% of the brands that market alcopops belonged to the “partying” class.

DISCUSSION

This study described and classified alcohol advertisements aired in the years 2009–2011 in US national television. It showed that alcohol advertising (a) is very frequent in US television, with an average of one ad per three minutes, (b) is aired 24 hours a day, with a peak at nighttime, but still more than a third during daytime, (c) has two characteristic content themes -- humor and friendship -- one of which is present in most ads, and (d) is best described in terms of five distinct latent classes of which the biggest is indicative of ads exploiting the themes partying, love, and sex. Ad content, airing times and channels depended on the type of alcoholic beverage that is advertised. Flavored spirits, alcopops and liqueur were almost twice as likely to be advertised in the partying/love/sexy context than beer and pure spirits. These brands were also more often shown in TV channels with entertainment programming, and might probably aim at women. There was significant content and placement variation between brands for similar type of products, indicative of

different marketing strategies and creation of brand identities. There were beer brands (e.g. Sam Adams, Coors) which rarely exploited the partying theme as well as beer brands (e.g. Corona, Heineken) that were almost always placed in the partying context. The same was true for spirit brands, with some clearly belonging to the partying class (e.g. Captain Morgan, Stolichnaya) and others not (Jack Daniels, Ketel One).

The aim of the present study was to better understand differences between ad messages to subsequently identify content that could be especially influential to young audiences. Most of the previous studies have focused on the shared themes of alcohol advertisements, concluding that alcohol ads were quite similar and content themes did not change very much over time (Madden and Grube, 1994, Finn and Strickland, 1982, Grube, 1993, Atkin and Block, 1981). While generally true, given that humor and camaraderie/friendship have been identified as shared themes in all of the studies, there might also be relevant differences between ads, making some more influential for youth than others. In the present analysis we were able to identify a new theme, the “social partying”, which was not common in the earlier work. This might be an indicator of changes in emphasis over time and/or result of new products being marketed (e.g., flavored spirits and alcopops). The “emergence” of a new theme might also be due to our implemented method, as latent class analysis enables the clustering of unobservable similarities: Partying itself was only present in about 15% of the ads, but the joined matrix of humor, friendship, partying, love, and sex was indicative of 42% of all advertisements.

Alcohol, like most consumer products, is promoted through specific brands, and youths decisions about consumption are also very likely affected by brand (Evans and Hastings, 2008, Ross et al., 2014, Saffer, 2002). The theory of brand capital explains the process through which advertising influences demand and can also explain effects on knowledge, attitudes and intentions of youths to drink (Saffer, 2002). Brand capital is defined as the sum of positive associations that individuals have about a brand and targeted advertising is used to create the “personality” for a brand. It is known that youth prefer to drink different brands than adults (Siegel et al., 2014). One reason for this could be the successful exploitation of content themes youths respond to. For example, systematic differences between brands in the use of risk codes (injury, overconsumption, addiction content) and sex-related codes (sexism, sexual connotations) have been reported in a recent study of alcohol advertisement in youth-oriented U.S. magazines (Rhoades and Jernigan, 2013). It found that that more than half of the occurrences containing addiction content traced back to only 3 brands: Heineken, Stolichnaya, and Absolut. Corona, Heineken, and Keystone are the top-three beer brands with a disproportionate underage youth consumption (ratio of youth market share/overall market share) (Siegel et al., 2014). Two of these have now been identified to use the party/love/sex theme more often than other beer brands (Keystone was not included in the present analysis).

The study has several limitations which need to be taken into account. First, even though it is the most comprehensive content analysis of alcohol advertising in TV that has been conducted to date, about one fourth of the national airings were not captured. Hence, conclusions might not be completely generalizable to all ads shown during the time period. However, selection of most highly advertised brands would tend to emphasize the brands

most popular with adolescents (Ross et al., 2014). Second, content analysis is a highly subjective undertaking. Inter-rater agreements were satisfactory, but the results are influenced by the final choice of indicators, and it can never be ruled out that important indicators have been neglected. However, one strength of the coding system is that it can be implemented by non-experts and that the coders were within the age range with respect to the audience the alcohol industry is actually targeting (Austin et al. 2007). Third, the five reported classes of ads turned out to be the best way to describe the data. However, the labels for the classes are not empirically determined, but imply interpretation processes. Finally, even though it is compelling to assume that some ad content is more influential among youths than others, this study has not shown that this is the case.

Despite these limitations, the present study is the most recent content analysis of alcohol advertising and the first to use a latent class model to describe the ads. Future studies can use these results as a starting point for differential effect analyses.

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Table 1

Alcohol advertising airing data, by product type and alcohol brand

	Airing time*					Airing day					TV channel theme**							
	night time	early morning	daytime	early evening	prime time	weekend	entertainment	sports	home & leisure	educational	others	Sum	%	%	%	%	%	%
Total	32.8	10.0	14.4	21.6	21.2	33.9	40.3	37.6	6.1	14.4	1.6	272,828	100.0					
Type of product***																		
Beer	31.1	9.9 ^a	15.4	22.3	21.3 ^b	35.1 ^d	37.4 ^a	36.5	7.1	17.2	1.9	173,577	63.6					
Spirits	38.2	10.0 ^a	11.1 ^a	19.0 ^a	21.8 ^b	31.7 ^{ab}	42.6	38.1 ^a	4.0 ^a	13.6	1.7	38,045	13.9					
Flavored Spirits	32.5 ^a	15.8	14.5	18.3 ^a	19.0 ^a	31.6 ^{ab}	37.5 ^a	56.8	0.7	4.6 ^a	0.5	25,994	9.5					
Alcopops	32.8 ^a	6.5	16.4	25.8	18.5 ^a	31.3 ^a	50.5	38.4 ^a	5.4	4.8 ^a	0.9 ^a	15,921	5.8					
Flavored Beer	35.3	9.3 ^a	11.1 ^a	23.6	20.6 ^b	33.8 ^{cd}	47.1	29.6	3.8 ^a	18.6	0.9 ^a	11,639	4.3					
Liqueur	41.4	4.3	6.9	18.7 ^a	28.6	33.2 ^{bc}	73.9	5.5	17.3	3.2	0.1	7,652	2.8					
Brands																		
Miller	28.2	11.8	18.3	21.1	20.7	36.6	40.5	36.2	10.0	11.1	2.3	47,168	17.3					
Sam Adams	35.3	8.6	11.0	25.1	20.0	34.0	42.2	28.7	0.7	27.9	0.5	40,316	14.8					
Bud Light	32.2	8.8	14.7	21.5	22.8	34.6	52.0	34.5	6.0	5.0	2.7	24,942	9.1					
Captain Morgan	30.1	18.3	16.3	17.9	17.5	31.1	29.3	65.4	0.0	4.9	0.4	20,758	7.6					
Coors	28.4	19.8	14.6	19.0	18.2	31.8	17.2	67.9	0.0	14.7	0.2	18,224	6.7					
Budweiser	31.3	6.3	13.5	22.5	26.5	38.7	42.6	14.9	19.1	17.0	6.4	12,718	4.7					
Smirnoff	38.0	10.9	9.7	20.2	21.3	33.8	64.9	18.6	7.4	7.4	1.7	12,540	4.6					
Dos Equis	31.6	5.0	16.2	24.3	22.9	35.3	22.9	37.4	9.7	29.9	0.1	11,517	4.2					
Mike's Hard Lemonade	29.8	4.4	19.8	28.5	17.5	31.4	45.3	48.3	3.1	2.1	1.2	10,129	3.7					
Heineken	31.3	4.2	17.3	24.3	22.9	34.5	33.3	21.0	11.2	34.1	0.3	9,594	3.5					
Michelob	33.2	4.9	15.2	21.8	24.9	38.6	28.3	29.1	14.5	25.0	3.0	8,801	3.2					
Jack Daniels	42.9	1.8	9.0	21.1	25.3	28.0	22.1	39.8	6.0	31.8	0.3	8,180	3.0					
Corona	34.9	11.1	14.3	21.9	17.9	30.7	39.1	54.8	0.0	1.8	4.3	7,608	2.8					
Ketel One	31.0	16.3	16.2	18.3	18.1	33.0	36.0	49.2	1.8	12.2	0.9	7,172	2.6					
Bacardi	42.3	4.4	9.7	17.4	26.3	36.5	68.4	13.1	1.8	16.6	0.2	4,254	1.6					

	Airing time*			Airing day			TV channel theme**				
	night time	early morning	daytime	prime time	weekend	Entertainment	Sports	Home & Leisure	Educational	Others	
	%	%	%	%	%	%	%	%	%	%	
Sum	1.3	7.2	8.4	22.3	38.5	67.9	0.0	28.6	3.3	0.2	
Baileys	41.7	7.2	8.4	22.3	38.5	67.9	0.0	28.6	3.3	0.2	
Jose Cuervo Tequila	37.7	16.2	12.1	19.0	29.9	40.3	51.1	0.0	4.3	4.2	
Grey Goose	43.4	7.8	8.6	22.3	28.6	40.2	41.2	12.0	1.4	5.3	
Guinness	21.8	16.1	24.8	24.5	27.0	20.4	76.8	0.0	2.8	0.0	
Malibu Rum	44.9	0.8	2.0	13.8	24.7	90.0	4.8	0.0	5.2	0.0	
Stella Artois	32.8	2.1	12.6	24.5	39.2	57.6	0.1	26.2	15.5	0.6	
Crown Royal	32.5	18.5	16.3	11.4	29.5	13.3	77.4	0.0	9.1	0.1	
Jim Beam	45.7	14.8	4.9	14.7	23.2	56.1	34.9	0.0	7.9	1.1	
Stolichnaya	34.1	4.1	10.3	24.7	43.5	64.3	35.4	0.0	0.0	0.3	
Absolut	39.3	5.4	0.8	11.9	26.3	76.0	22.2	0.0	0.0	1.9	
Grand Marnier	35.3	3.9	11.2	22.7	36.3	63.7	14.8	21.4	0.0	0.0	
Southern Comfort	47.9	2.3	10.9	15.8	26.7	53.5	36.4	0.0	10.0	0.1	
Patron Tequila	64.1	0.6	2.4	14.7	71.2	19.4	68.8	0.0	5.9	5.9	

* nighttime (11.00 pm - 2.59 am), early morning (3.00 am - 8.59 am), daytime (9.00 am - 3.59 pm), early evening (4.00 pm - 7.59 pm), prime time (8.00 pm - 10.59 pm)

** Entertainment (n=24: ABC, American Movie Classics, Arts & Entertainment, Black Entertainment Television, Bravo, CBS, Comedy Central, E! Entertainment Television, FOX, FX, G4, Learning Channel, NBC, Oxygen, Spike TV, Syfy Channel, TruTV, Turner Broadcasting System, Turner Network Television, TV Guide Channel, USA Network, VHI Classic, Women's Entertainment), Sports (n=8: ESPN, ESPN Classic, ESPN News, ESPN2, Golf Channel, NBC Sports Network, NFL Network, Speed (now: FOX Sports 1), Home & Leisure (n=5: Do It Yourself, Food Network, Home & Garden Television, Style Network (now: Esquire Network), Travel Channel), Educational theme (n=5: Discovery Channel, Military Channel, History Channel, National Geographic Channel, Science Channel), Others (n=38).

*** Product types sharing superscripts within columns are not significantly different from each other after bonferroni adjustment

Table 2

Content themes by type of product and brand

	Unique ads		Content theme (%)												
	n	%	Humor	Friends	Artistic	Sports	Relax	Sexy	Partying	Quality	Love	Manly	Taste	Luxury	Tradition
Total	581	100.0	51.3	44.9	18.6	18.1	17.0	15.5	15.3	14.3	13.8	12.6	11.2	10.2	6.9
Type of alcohol															
Beer	385	66.3	57.7	45.5	10.9	22.9	14.8	11.2	11.4	17.1	13.5	13.8	7.5	8.3	3.9
Spirits	88	15.1	21.6	44.3	47.7	11.4	12.5	29.5	18.2	6.8	8.0	18.2	1.1	28.4	27.3
Flavored Spirits	39	6.7	66.7	33.3	17.9	10.3	0.0	10.3	41.0	10.3	20.5	5.1	23.1	0.0	0.0
Alcopops	27	4.6	81.5	29.6	7.4	11.1	18.5	7.4	14.8	3.7	7.4	7.4	25.9	0.0	0.0
Flavored Beer	23	4.0	0.0	87.0	52.2	0.0	82.6	34.8	8.7	17.4	47.8	0.0	82.6	0.0	4.3
Liqueur	19	3.3	47.4	31.6	15.8	0.0	36.8	36.8	36.8	10.5	0.0	0.0	0.0	10.5	0.0
Brands															
Miller	75	12.9	66.7	53.3	5.3	18.7	8.0	14.7	2.7	14.7	12.0	25.3	14.7	0.0	0.0
Sam Adams	32	5.5	0.0	50.0	0.0	0.0	9.4	0.0	0.0	81.3	0.0	0.0	46.9	0.0	6.3
Bud Light	94	16.2	68.1	54.3	22.3	18.1	26.6	17.0	27.7	2.1	21.3	0.0	18.1	0.0	0.0
Captain Morgan	25	4.3	92.0	48.0	0.0	16.0	0.0	8.0	52.0	0.0	28.0	4.0	12.0	0.0	0.0
Coors	66	11.4	71.2	66.7	1.5	56.1	9.1	10.6	3.0	19.7	18.2	4.5	0.0	0.0	9.1
Budweiser	51	8.8	31.4	39.2	3.9	19.6	5.9	7.8	9.8	23.5	15.7	5.9	7.8	0.0	5.9
Smirnoff	20	3.4	25.0	15.0	25.0	0.0	0.0	5.0	45.0	20.0	0.0	0.0	10.0	0.0	0.0
Dos Equis	20	3.4	100.0	5.0	45.0	5.0	0.0	5.0	0.0	0.0	0.0	100.0	0.0	85.0	0.0
Mike's Hard Lemonade	18	3.1	94.4	27.8	0.0	16.7	27.8	11.1	11.1	0.0	11.1	11.1	27.8	0.0	0.0
Heineken	9	1.5	77.8	22.2	0.0	22.2	22.2	44.4	22.2	11.1	33.3	0.0	0.0	66.7	0.0
Michelob	12	2.1	0.0	75.0	33.3	8.3	66.7	0.0	8.3	25.0	0.0	0.0	8.3	8.3	0.0
Jack Daniels	11	1.9	0.0	18.2	81.8	0.0	0.0	0.0	0.0	18.2	0.0	9.1	9.1	0.0	45.5
Corona	24	4.1	41.7	25.0	4.2	4.2	95.8	25.0	20.8	0.0	25.0	0.0	0.0	0.0	0.0
Ketel One	11	1.9	0.0	100.0	100.0	0.0	0.0	9.1	0.0	0.0	0.0	100.0	0.0	90.9	100.0
Bacardi	10	1.7	40.0	60.0	0.0	40.0	0.0	50.0	50.0	0.0	10.0	10.0	0.0	0.0	30.0
Baileys	8	1.4	25.0	50.0	0.0	0.0	12.5	12.5	0.0	25.0	0.0	0.0	0.0	0.0	0.0
Jose Cuervo Tequila	7	1.2	71.4	57.1	28.6	0.0	0.0	28.6	14.3	0.0	28.6	0.0	0.0	14.3	0.0
Grey Goose	18	3.1	5.6	55.6	100.0	11.1	50.0	55.6	22.2	16.7	0.0	5.6	16.7	72.2	0.0

Unique ads	n	%	Content theme (%)												
			Humor	Friends	Artistic	Sports	Relax	Sexy	Partying	Quality	Love	Manly	Taste	Luxury	Tradition
Guinness	14	2.4	35.7	42.9	35.7	35.7	0.0	0.0	21.4	0.0	0.0	50.0	0.0	0.0	35.7
Malibu Rum	8	1.4	87.5	25.0	0.0	0.0	75.0	37.5	87.5	0.0	0.0	0.0	0.0	0.0	0.0
Stella Artois	11	1.9	27.3	0.0	63.6	0.0	0.0	18.2	0.0	18.2	45.5	9.1	0.0	72.7	0.0
Crown Royal	4	0.7	0.0	75.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jim Beam	11	1.9	45.5	18.2	27.3	0.0	0.0	36.4	9.1	0.0	36.4	18.2	9.1	0.0	45.5
Stolichnaya	5	0.9	100.0	20.0	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Absolut	6	1.0	16.7	0.0	33.3	0.0	0.0	33.3	0.0	16.7	16.7	0.0	16.7	0.0	0.0
Grand Marnier	2	0.3	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
Southern Comfort	2	0.3	0.0	0.0	100.0	0.0	0.0	50.0	50.0	0.0	0.0	0.0	50.0	0.0	0.0
Parron Tequila	7	1.2	14.3	14.3	0.0	57.1	14.3	14.3	0.0	14.3	0.0	14.3	0.0	14.3	0.0

Table 3

Top-five class indicators and proportion of ads of each product type and brand belonging to a class

	Class 1: "Partying"		Class 2: "Quality"		Class 3: "Sports"		Class 4: "Manly"		Class 5: "Relax"	
	Indicator	Prob.	Indicator	Prob.	Indicator	Prob.	Indicator	Prob.	Indicator	Prob.
	Humor	0.73	Quality	0.55	Humor	0.78	Manly	1.00	Artistic	0.77
	Friends	0.34	Friends	0.31	Sports	0.75	Humor	0.63	Relax	0.70
	Partying	0.32	Artistic	0.30	Friends	0.73	Artistic	0.58	Friends	0.65
	Love	0.26	Taste	0.25	Manly	0.09	Luxury	0.57	Sexy	0.40
	Sexy	0.23	Tradition	0.12	Relax	0.08	Friends	0.42	Taste	0.35
	% of ads (n=581)									
Total	41.5	24.3	16.7	9.8	7.7					
Type of alcohol										
Alcopops	74.1	14.8	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flavored Spirits	66.7	20.5	10.3	2.6	0.0	0.0	0.0	0.0	0.0	0.0
Liqueur	63.2	21.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.8
Beer	40.5	24.4	21.3	10.9	2.9	0.0	0.0	0.0	0.0	0.0
Spirits	30.7	29.5	9.1	15.9	14.8	0.0	0.0	0.0	0.0	0.0
Flavored Beer	0.0	21.7	0.0	0.0	78.3	0.0	0.0	0.0	0.0	0.0
Brands										
Malibu Rum	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stolichnaya	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Corona	91.7	0.0	4.2	0.0	4.2	0.0	0.0	0.0	4.2	0.0
Captain Morgan	84.0	0.0	16.0	0.0	16.0	0.0	0.0	0.0	0.0	0.0
Mike's Hard Lemonade	77.8	5.6	16.7	0.0	16.7	0.0	0.0	0.0	0.0	0.0
Jose Cuervo Tequila	71.4	28.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Heineken	66.7	11.1	22.2	0.0	22.2	0.0	0.0	0.0	0.0	0.0
Bacardi	60.0	0.0	40.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0
Smirnoff	60.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jim Beam	54.5	27.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bud Light	52.1	9.6	18.1	0.0	18.1	0.0	0.0	0.0	0.0	20.2

	Class 1: "Partying"		Class 2: "Quality"		Class 3: "Sports"		Class 4: "Manly"		Class 5: "Relax"	
	Indicator	Prob.	Indicator	Prob.	Indicator	Prob.	Indicator	Prob.	Indicator	Prob.
	Humor	0.73	Quality	0.55	Humor	0.78	Manly	1.00	Artistic	0.77
	Friends	0.34	Friends	0.31	Sports	0.75	Humor	0.63	Relax	0.70
	Partying	0.32	Artistic	0.30	Friends	0.73	Artistic	0.58	Friends	0.65
	Love	0.26	Taste	0.25	Manly	0.09	Luxury	0.57	Sexy	0.40
	Sexy	0.23	Tradition	0.12	Relax	0.08	Friends	0.42	Taste	0.35
	% of ads (n=581)									
Baileys	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Miller	46.7	20.0	17.3	17.3	13.3	13.3	13.3	2.7	2.7	2.7
Michelob	41.7	33.3	8.3	8.3	0.0	0.0	0.0	16.7	16.7	16.7
Sam Adams	0.0	93.8	0.0	0.0	0.0	0.0	0.0	6.3	6.3	6.3
Jack Daniels	0.0	90.9	0.0	0.0	0.0	0.0	9.1	0.0	0.0	0.0
Crown Royal	25.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Absolut	33.3	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Southern Comfort	0.0	50.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0	50.0
Budweiser	31.4	47.1	17.6	17.6	3.9	3.9	3.9	0.0	0.0	0.0
Stella Artois	27.3	36.4	0.0	0.0	9.1	9.1	9.1	27.3	27.3	27.3
Patron Tequila	14.3	28.6	57.1	57.1	0.0	0.0	0.0	0.0	0.0	0.0
Coors	27.3	13.6	56.1	56.1	3.0	3.0	3.0	0.0	0.0	0.0
Dos Equis	0.0	0.0	0.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0
Ketel One	0.0	0.0	0.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0
Guinness	14.3	21.4	14.3	14.3	50.0	50.0	50.0	0.0	0.0	0.0
Grand Marnier	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0
Grey Goose	0.0	22.2	0.0	0.0	5.6	5.6	5.6	72.2	72.2	72.2

Appendix Table

Coding operationalizations

Theme (Kappa)	Description	Common content features
Humor (0.68)	A humorous theme is one that is attempting to make the consumer laugh. Sometimes this is accomplished through spoof and satire of existing television shows, movies, or even other advertising campaigns.	<ul style="list-style-type: none"> Humorous messages Spoof/satire Exaggeration Jokes
Friendship (0.81)	An ad with a friends theme will be centered on a small group of people who are clearly intimate with one another. This may be at a bar, a restaurant, at a personal house, outside, or many other locations.	<ul style="list-style-type: none"> Small group of intimate friends Bar or restaurant scene Low-key gathering at a friend's house
Artistic (0.63)	An artistic ad will clearly be focused on artistic imagery, whether focused on the product. The ad will be focused on visual stimulation primarily.	<ul style="list-style-type: none"> Specific color schemes Illustrated images Digital enhancement, graphic design Abstraction
Sports (0.67)	An ad with the theme of sports usually takes place at a sporting event, involves the subjects playing sports, or the subjects watching sports at home.	<ul style="list-style-type: none"> Subjects at a sports event Subjects playing sports Subjects watching sports
Relax (0.70)	An ad with the theme of relaxation will typically involve a scene that is clearly different from normal, hectic life. This can include, but is not limited to, a beach scene, an outdoors scene, at the park, or any other leisure activity. Also, this theme can show how the product helps to deal with stress.	<ul style="list-style-type: none"> Beach Vacation After work Golf or other leisure activities
Sex (0.54)	An ad with the theme of sex appeal will objectify either a female or a male as an object of pure sexuality. This often involves swimsuits, little clothing, and sexy body language.	<ul style="list-style-type: none"> Low cut or tight clothing Objectification of the male or female Swanky, jazzy, sultry music
Partying (0.75)	Partying typically has a sense of anonymity, although sometimes one or two people will be singled out as central subjects of the advertisement. The location is usually at someone's house or outdoors, somewhere where everyone is interacting at the same time. Often there are a lot of people present and a lot of alcohol viewed.	<ul style="list-style-type: none"> Group of people Fun atmosphere House party, or some other large space party
Quality (0.75)	Quality will typically mentioned, with an emphasis on comparisons. Often the ad will center on the ingredients that go into the product, the process used to make it, and how it is to be consumed. Also, any reference to being voted or chosen as the best would indicate quality.	<ul style="list-style-type: none"> Images of ingredients Images of production Mentioning of unique aspects of the product
Love (0.68)	An ad with the theme of love and romance will typically be focused on one man and one woman who either know each other already or are initiating contact for the first time. Subjects are more than just objects to look at, but are more often initiated in conversation and dating behavior.	<ul style="list-style-type: none"> Interactions between one man and one woman More than just physical interaction
Manly (0.73)	An ad with the theme of manliness will typically center around values and traits praised as being manly, such as macho-ness, man time, and confidence. There may be some women in the ad, but they	<ul style="list-style-type: none"> Men together Words that exude a feeling of being a man (e.g., strong, independent,

Theme (Kappa)	Description	Common content features
	will be focused on the male subjects. They will typically glorify the stereotypes of typical male roles.	competitive, ambitious, experienced, hard, rugged, husky, macho, etc.)
Taste (0.54)	An ad with the theme of taste will typically talk about how the product tastes and what makes the product taste so good. It often talks about refreshment and flavor, sometimes in comparison with other products. Taste must be a main theme, not simply part of the slogan.	<ul style="list-style-type: none"> • Taste mentioning • Clear acts of being refreshed
Luxury (0.67)	An ad with the theme of luxury will usually show money, an expensive and sophisticated lifestyle, more extravagant settings, and more high-class themes. They will usually portray the subjects as being successful, giving them as examples for the consumer to aspire to be.	<ul style="list-style-type: none"> • Expensive products • Expensive locations • Hipness • Sophistication
Tradition (0.74)	Tradition typically entails a long history of the product and the success and reputation it has been able to maintain. Usually it cites some historical references in terms of the brand. It can also highlight traditional values that existed when the product originated.	<ul style="list-style-type: none"> • Historical perspective • Historical imagery • Consumption by multiple generations