Published in final edited form as:

Int J Adolesc Med Health. ; 29(5): . doi:10.1515/ijamh-2015-0112.

Implications for Visually Stimulating Advertisements on NYC Subway Platforms

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Keywords

Advertising; Alcohol; Subways; New York City

Introduction

In the United States (US), surveillance data reported in the past 30 days, 35% of youth drank some form of alcohol in 2013 ^[1]. Therefore, underage drinking in the United States remains a problem. The immediate effects of alcohol consumption create problems for children and adolescents in different settings. Children and adolescents aged 12-20 years that consume alcohol contribute to the three leading causes (unintentional injury, homicide, and suicide) of death ^[2]There is a consequence spectrum of resultant associated negative behaviors. Research studies find underage drinking to have direct association with physical fighting, sexual activity, and smoking ^[2]. Moreover, underage drinking has been linked to neurological structural changes in the hippocampus ^[3], that can impair brain development ^[4], leading to poorer adolescent health and well-being factors such as decreased academic performance, loss of memory, blackouts, broken friendships, and unprotected and unwanted sexual intercourse ^[5]. Evidence-based research demonstrates these behaviors and outcomes are shaped by many factors, particularly alcohol advertising ^[6]. The consequences associated with alcohol extend way further than settings related to school, legal, social, and physical problems.

Several reports highlight the fact that youth who are exposed to alcohol advertisements have a heightened affinity and frequency to drink and a consequent increase in negative alcohol related consequences ^[7]. Recommendations from the US Congress, the Surgeon General, and national health promotions that advocate “just say no” campaigns typically fall upon deaf ears since more than \$25 billion per year is spent on “just say yes” by the alcohol industry to possibly change children and adolescent’s ambivalence toward the initiation into early drinking at greater levels ^[2,8,6]. Anderson (2009) points out that children and adolescents lack awareness about the harmful effects of drinking ^[6]. Potentially, these vulnerabilities may increase the likelihood of future alcohol dependence and diminished quality of life. Therefore, intentional alcohol product placement embedded on the platforms of NYC subway stations, presenting an alcohol beverage for consumption or purchase

similar to clothing or shoe purchase products [9] should be addressed as a serious point of concern for impressionable children and adolescents.

The advertising landscape in NYC Metropolitan Transportation Authority (MTA) subway stations display a multitude of products that may influence consumer decision-making. In 2014, the annual ridership in NYC subway stations was expansive at 1,751,287,621 and provides the unique opportunity to connect and engage with adults and children during their travels [10]. Overall alcohol spending by United States consumers totaled more than \$170 billion even though per capita consumption declined from 28.8 gallons per person in 1982 compared to 24.5 gallons per person in 2012 [11]. Despite this decrease, the rate of alcohol advertisement exposure rated for youths aged 12-20 years represent some of the highest levels [9] serving as potential contributors to “subsequent drinking behavior” among youths [12] that may encourage participation (activation) of other unhealthy behaviors. Several reports identify advertising as playing a role in youth initiation to consume alcohol [13]. Awareness of alcohol advertising on New York City subway platforms may influence or predispose children and adolescent to initiate that first drink. To date, there are no published studies describing the prevalence of alcohol advertising in New York City subways. Therefore, the purpose of this pilot study was to evaluate the frequency of alcohol-related advertising content on the platforms of two populated subway lines in New York City.

Methods

During the summer of 2015, advertisements were evaluated on one subway line (the green line) that runs through Bronx (a lower income borough) and Manhattan (a higher income borough) in New York City [14]. This line was chosen because it has more stops when on a local schedule than other lines running through the two boroughs. A total of 17 stations were included in the sample. Exclusion criteria included all major transfer stations (n= 28) as well as outside stations (n= 56) on these subway lines, due to the absence of advertisements.

Three major subway stations, which were not on this line, and consequently were not part of this study, were used to develop and test a coding sheet. In the stations included in the study, the total number of advertisements were tallied and classified according to the type of advertisement. When an advertisement for alcohol was identified, it was determined whether the ad was for an alcoholic beverage, or it if was for a different product but exhibited an alcoholic beverage in some way (e.g., a person consuming an alcoholic beverage).

United States Census data on median income was linked to the zip code of each station. Annual ridership statistics were documented for each station in the sample using the MTA website [15]. The Institutional Review Boards at Teachers College and William Paterson University do not review protocols that do not involve human subjects research.

Results

A total of 26 advertisements were identified which marketed an alcohol product. An additional 24 advertisements were noted for marketing another product or service whereby, alcohol was depicted as being consumed. These advertisements were located across 33

stations. The median household income across the stations was \$100,021.36 ($SD = \$86,450.83$). The mean ridership across the stations was 7,341,143.06 ($SD = 7,225,020.97$).

The number of alcohol related ads that were present on the uptown versus downtown lines were compared using independent t-tests. The results showed a statistically significant difference in ads between the different lines $t(20.04) = 7.62, p < .001$, with an average of 1.5 ads on the uptown lines versus .06 ads on the downtown lines.

A Pearson correlation was done to compare median incomes at station locations and the number of advertisements at stations that portrayed alcohol. No statistically significant correlation was found with $r = .08, p = .67$. A correlation was also done to compare median income to the number of alcohol advertisements where alcohol was being consumed. Again, no statistically significant correlation was found with $r = .24, p = .19$.

Discussion

This study found a substantial amount of advertisements on subway lines running uptown toward the Bronx, which is the borough with the lowest median household income for New York City [14]. Advertisements on uptown subway lines may be higher in the Bronx compared to other boroughs because this study did not evaluate other subway lines. Nevertheless, the pattern of advertisements identified uptown reflect low-income population density saturated with unhealthy advertisements. Typically, low-income populations tend to have higher rates of cardiovascular disease and other co-morbidities that diminish their quality of life.

Researchers in Boston investigated alcohol advertisements in the local subway system. They used gross impressions as well as gross rating points to estimate the amount of advertisement exposure for residents and student commuters. The reach of these gross advertisements extended a net to capture an entire population of residents and commuters using public transportation [16]. The findings from this study align with Gentry and colleagues who reported a greater prevalence of alcohol advertisements in higher poverty neighborhoods. Prior research reports confirm that location of advertisement placement such as billboards that display unhealthy products (alcohol and tobacco) are more likely to appear in lower income areas [17–19] rather than higher income neighborhoods. Recent study reported advertisement that depict “intent to strike” or acts of violence were commonly distributed more frequently located on NYC subway platforms traveling toward poorer NYC neighborhoods [20].

The high prevalence of alcohol advertisements identified in NYC subways is problematic for young and old populations but especially for impressionable youth. Visually stimulating advertisements that depict young people consume alcohol beverages in a positive fun-filled context may increase the potential or simply encourage children and adolescents to consume alcoholic beverages. The consequences associated with encouragement were found in longitudinal studies to be two-fold. After exposure to advertisement media content, children and adolescents were more likely to consume alcohol or their alcohol consumption increased in terms of volume [6]. The ramifications of media exposure indicated by the authors

represent one of many factors for children and adolescents such as perceptions about drinking, viewing parents, peers, and characters portrayed by mass media lenses. Media solicitation through cued recall of television exposure predicted a link toward multiple drinking outcomes even though alcohol advertisements seen by underage adolescents compared to legal drinking age participants were slightly less likely ^[21].

Given the impact and reach of subway advertisements provides numerous opportunities to spread positive messages. In the subways of Rio de Janeiro, researchers attacked the behavior of smoking through placing large posters with both negative and positive message content along with an encouragement to call a quit helpline. Smokers that viewed the positive-content messages were more likely to call the quit line. These findings demonstrate how subway advertisements can serve as an invaluable social marketing tool for the dissemination of other health issues ^[22]. Over a decade ago, the NYC MTA banned the advertisement of tobacco citing having an obligation to protect children from exposure to a product that can cause death ^[23]. Perhaps future efforts could be set on diminishing advertising of other harmful products (i.e. alcohol).

The current study design is not without limitations. This was a cross-sectional study that involved only one coder on one of several NYC subway lines. Future studies could focus on all NYC subway lines at various points throughout the year. Perhaps focus on the direct impact of these advertisement on children and adolescent populations that tend to represent an impressionable mindset. Despite these limitations, this study fills a gap in the media literature as the first study of alcohol advertising on the subway in NYC.

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Table 1

Descriptive Statistics for Alcohol Components

	N	Min	Max	Mean	Standard Deviation
Median Household Income	33	\$23,217.00	\$250,001.00	\$100,021.36	\$86,450.83
Total Alcohol	26	0.0	2.0	0.788	0.8929
Alcohol Consumed Ads	24	0.0	3.0	0.75	0.762
Ridership	33	927	20,735,032	7,341,143.06	7,225,020.97