Full length article

Television viewing and alcohol advertising with alcohol expectancies among school-aged children in Taiwan

Ying-Ying Chen [a], Yu-Chan Chiu [b], Te-Tien Ting [c], Hsin-Yao Liao [a], Wei J. Chen [d], Chuan-Yu Chen [a,e,f,*]

[a] Institute of Public Health, National Yang-Ming University, Taipei, Taiwan
[b] Department of Bio-Industry Communication and Development, National Taiwan University, Taipei, Taiwan
[c] Institute of Sociology, Academia Sinica, Taipei, Taiwan
[d] Institute of Epidemiology and Preventive Medicine, College of Public Health, National Taiwan University, Taipei, Taiwan
[e] Center of Neuropsychiatric Research, National Health Research Institutes, Miaoli, Taiwan
[f] Children and Family Research Center, National Taiwan University, Taipei, Taiwan

ARTICLE INFO

ABSTRACT

Objectives: This study is aimed to examine the strength of association between television watching and potential exposure to alcohol advertising with multidimensional alcohol expectancies in school-aged children.

Methods: A total of 779 4th (age 10) and 768 6th (age 12) grade students were recruited from 17 public elementary schools in northern Taiwan in 2006, with two waves of follow-up at 6 months apart. Self-administered questionnaires were used to collect information concerning individual characteristics, parental attributes, past-week screen time, drinking behaviors, and alcohol expectancies. Data of aired alcohol advertisements at baseline were obtained from the Nielsen Media Research Advertising Information Services; parenting styles were ascertained from the 1st follow-up. Alcohol Expectancies Questionnaire–Children version was used to measure alcohol expectancies (AEs) at baseline and the 2nd follow-up.

Results: Nearly 27% of students reported watching television for more than two hours per day and 58% watching television after 9 p.m. Dimension-related heterogeneity exists in the relationship between TV viewing and alcohol advertising with AEs. With statistical adjustment for covariates, spending more than two hours watching TV per day was associated with increased levels of positive AEs "Promoting Relaxation or Tension Reduction [PRTR]" ($\beta = 1.52$, 95% CI = 0.92, 2.12; $p < 0.001$); the exposure to alcohol advertising was associated with decline in negative AEs "Deteriorated Cognitive and Behavioral Function" (e.g., >8.0 ads: $\beta = -1.06$, 95% CI = -1.66, -0.47, $p < 0.01$).

Conclusions: Greater screen time is associated with elevated positive expectancies of PRTR and alcohol advertising exposure is linked with lowered negative expectancies in late childhood. School-based anti-underage drinking programs may consider integrating the media literacy curriculum.

1. Introduction

Underage alcohol use and related problems have emerged as an important public health issue in many parts of the world. In the United States, the lifetime prevalence of alcohol drinking was about 27% among the eighth graders in 2014 (Johnston et al., 2014). A report by the 2007 European School Survey Project on Alcohol and Other Drugs found that 90% of 15-year-old adolescents had tried drinking (Hibell et al., 2009). In a 2006 report conducted in Taiwan, 55% of junior high school students (age 13–15 years) had started drinking, and the estimate has continued to rise in the past decade (Health Promotion Administration, 2008). Early onset of alcohol use has been linked with elevated risk of behavioral and health problems, such as poor academic performance, violence, unsafe sexual practices, and use of other drugs (National Research Council and Institute of Medicine, 2004; Windle et al., 2008) National Research Council and Institute of Medicine). To provide insight into the design of preventive programs targeting alcohol-related health and social problems, it is imperative to identify factors that can shape
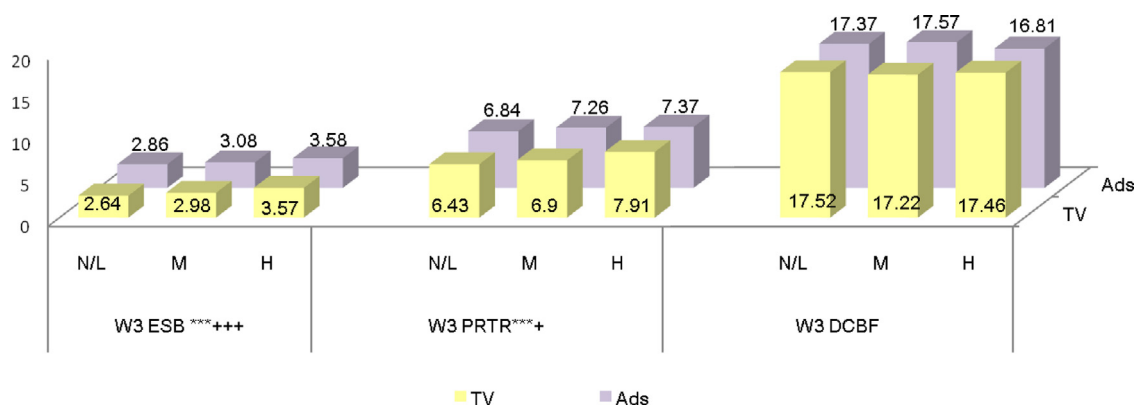
Fig. 1. Estimated alcohol expectancy scores at one-year follow-up, by TV-watching time and potential alcohol ads exposures.
Notes:
Positive AEQs: Enhanced Social Behaviors (ESB) and Promoting Relaxation or Tension Reduction (PRTR); negative AEQ: Deteriorated Cognitive and Behavioral Functions (DCBF).
Weekly TV time, L: 0–209 min, TV-M: 210–839 min, TV-H: 840 min or more Weekly alcohol ads exposure, No. of ads: Ads-N: none, Ads-M:0.1–8.0, Ads-H: > 8.0.
$^{*}P < 0.05$; $^{**}P < 0.01$; $^{***}P < 0.001$ for trend analyses with weekly TV time.
$+P < 0.05$; $++P < 0.01$; $+++P < 0.001$ for trend analyses with weekly alcohol ads exposure.

the earliest experiences of alcohol involvement in a developmental framework (Nixon and McClain, 2010).

To date, television programs and alcohol advertising serve as key sources to obtain information pertaining to alcoholic beverages (Atkinson et al., 2013; Bandura, 2002). Studies showed that youngsters spending more time watching television are more likely to initiate alcohol drinking or to drink more amount (Connolly et al., 1994; Robinson et al., 1998; Van den Bulck and Beullens, 2005). The observed relationship can be attributed to at least three possible explanations. First, young people often are exposed to alcohol-associated information through television programs, such as movies and music videos. Studies using content analyses revealed that 78% of most popular films between 1985 and 2010 contained at least one main character who drank alcohol or whose behaviors implied alcohol consumption (Bleakley et al., 2014), and approximately 20% of music videos contained scenes of alcohol (Primack et al., 2012). Second, TV has been utilized as an effective marketing tool to promote alcoholic drinks and brand images (Chen et al., 2005b). Although alcohol companies and policymakers claimed to protect minor viewers from the effects of such advertising, the underage population appears to be the potential target audience for some alcohol companies (Casswell, 2012). A recent study in the United States found that a 1% increase in adolescent viewers was associated with increases in advertisement placements on cable TV of 7% for beers, 15% for spirits, and 22% for alcopops (Chung et al., 2010). Third, the observed relationship can be due to other uncontrolled factors associated with both television watching and alcohol drinking behaviors or to shared explanatory factors, such as family drinking and unfavorable parenting style (Austin et al., 2000; Vandewater et al., 2006; Warren et al., 2002).

Among theories explaining the emergence and transition of alcohol involvement, the alcohol expectancy theory has received multidisciplinary attention in the past two decades (Cameron et al., 2003; Jones et al., 2001; Smith and Goldman, 1994). In brief, alcohol expectancies (AEs) refer to the memory process that links information about rewarding (or aversive) outcomes to the use of alcohol and to various contexts in which alcohol is usually consumed. AEs, emerging at a very young age, are believed to be acquired directly by learning or indirectly by behavioral modeling (Dunn and Goldman, 1998; Miller et al., 1990). Alcohol expectancies contain both positive (e.g., perceived benefit of drinking in social functioning) and negative domains (e.g., perceived harms of drinking on health). Although a single continuum model of AEs has been proposed in

earlier studies (e.g., the axis from negative to positive direction) (Jones et al., 2001; Miller et al., 1990), recent findings generally supported that the positive and negative expectancies may exist simultaneously and operate independently (Cameron et al., 2003; Goldberg et al., 2002). Empirical evidence showed that alcohol initiation and problematic drinking are associated with positive expectancies and inversely associated with negative expectancies (Christiansen et al., 1989; Jones et al., 2001; Patrick et al., 2010; Reese et al., 1994; Windle et al., 2008), suggesting that AEs may serve as an indicator to identify at-risk population and as a target for intervention (Jones et al., 2001; Smith and Goldman, 1994).

A number of studies have documented individual and contextual characteristics shaping endorsed alcohol expectancies: older age, male gender, drinking experience, and parental drinking are all associated with increased positive alcohol expectancies, and negative expectancies decrease with age and drinking experience (Cameron et al., 2003; Chen et al., 2011a; Goldberg et al., 2002; Miller et al., 1990; Cranford et al., 2010). Although potential effects of TV programs containing alcohol-related messages and alcohol advertising on underage drinking behaviors have been reported and some scholars have probed the underlying mechanisms through the mediating process of AEs (Morgenstern et al., 2011; Dal Cin et al., 2009), the relationship between TV viewing and alcohol advertising with AEs has not been explicitly investigated. To fill in these gaps, the current study assessed the relationship between screen time and potential exposure to televised alcohol advertising with endorsed positive and negative alcohol expectancies among children over one-year period. Given that AEs are a strong indicator for the progression of advanced alcohol involvement, the focus on TV viewing and alcohol advertising may offer an enriched perspective to understand contextual influences on alcohol expectancies, which is especially important for late childhood—the period preceding the escalation of alcohol initiation (Cameron et al., 2003; Windle et al., 2008).

2. Methods

2.1. Study population and data source

The data for this study were from the Alcohol-Related Experiences among Children (AREC) study—a longitudinal study that aims at assessing individual and social characteristics affecting the emergence and transition of alcohol-related experiences among