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Predictors of alcohol-related negative consequences in adolescents: A systematic review of the literature and implications for future research

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ABSTRACT

Objective: To conduct a systematic review of the literature examining risk and protective factors of alcohol related negative consequences (ARNCs) among adolescents.

Methods: We conducted a systematic search of original empirical articles published between January 1, 1990 and June 1, 2015. The qualitative synthesis was performed using the Theory of Triadic Influence as a framework.

Results: Fifty-two studies were reviewed. Intrapersonal (e.g., personality traits, drinking motives and expectancies, depression), interpersonal (e.g., parental and peer alcohol use, violence exposure) and attitudinal factors (e.g., media exposure to alcohol, religiosity) influence ARNCs. Emerging evidence of new trends contributing to ARNCs include ready mixed alcohol drinks and childhood trauma and abuse.

Conclusions: Risk factors from all domains of influence were observed. More research is needed on protective factors and how alcohol use interacts with preventive factors in predicting ARNCs. The conceptualization of negative consequences varies significantly between studies and may impact the external validity of previous research.

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Despite a decline in alcohol use involvement among United States (U.S.) adolescents in middle school and high school in the last several years (Miech, Johnston, O'Malley, Bachman, & Schulenberg, 2015), the social costs of alcohol involvement among adolescents remain high. In 2011, almost 40% of adolescent emergency department visits for drug related issues were alcohol related (SAMSHA, 2013) and recent estimates suggest that 8–10% of adolescents report drinking and driving (CDC, 2012; Eaton et al., 2012). Moreover, early to mid adolescence is a normative time for alcohol use initiation and directly precedes the increase in rates of clinical alcohol abuse and dependence that are highest among late adolescents and emerging adults (Grant et al., 2004).

Alcohol related negative consequences (ARNCs) are the proximal and deleterious effects of alcohol that impact a drinker psychologically (being unable to cut down on use, etc.), physically (needing a drink first thing in the morning, etc.), interpersonally (getting into fights with friends, etc.) and socially (neglecting responsibilities, being late for school/work, etc.). Previous literature reviews have documented risk and protective factors for alcohol use (rather than consequences) among

adolescents—measured commonly as quantity or frequency of alcohol use in a specified time period—and have identified important biological, psychological, interpersonal, social, and cultural factors that lead to alcohol use (Donovan, 2004; Ryan, Jorm, & Lubman, 2010; Stautz & Cooper, 2013).

Zucker et al. (2008) reviewed early developmental processes in relation to underage drinking and problem drinking while other researchers have focused on predictors of co-occurring problems involving alcohol (Saraceno, Munafó, Heron, Craddock, & Van Den Bree, 2009) or initiation of alcohol in adolescence leading to future problem alcohol use (Petit, Kornreich, Verbank, Cimochowska, & Campanella, 2013). However, no systematic review has focused on adolescent ARNCs despite a number of reviews that catalog risk and protective factors for ARNCs in college students (Ham & Hope, 2003; Perkins, 2002; Mallett et al., 2013). This gap within the scientific literature limits our understanding of alcohol misuse and hinders our ability to develop effective prevention and intervention programs for youth currently using alcohol. This is an important period in which effective interventions could substantially reduce the likelihood of progression towards chronic drinking and ARNCs later in the life course. Research and theory suggest that problem alcohol use—continuing to drink despite incurring negative consequences—is a disparate indicator of alcohol involvement (Smith, McCarthy, & Goldman, 1995), suggesting that those experiencing ARNCs are a distinct subgroup of alcohol users. Moreover, recent evidence indicates that experiencing higher levels of negative consequences from alcohol use predicts alcohol dependence in young adulthood (Dick, Aliev, Viken, Kaprio, & Rose, 2011) underscoring the need to understand problematic drinking and the manifestation of ARNCs in adolescence to facilitate the development of efficacious secondary prevention programs for this subset of alcohol users.

Theoretical framework

We use the Theory of Triadic Influence (TTI; Flay & Petraitis, 1994) as a heuristic framework to guide the global research questions for the present line of inquiry. The TTI incorporates elements of many existing theories on health behavior and organizes the influences on behaviors into three substantive domains of influence (interpersonal, attitudinal/cultural, and intrapersonal) while discussing the extent to which different factors influence behavior as ranging from very proximal to distal and ultimate. The TTI is flexible in that it expects influences from multiple streams of influence to interact and have a combined effect on behavior. This, in combination with the exhaustive list of causal factors and applicability to continued behaviors, makes it desirable as a theory to explain substance use behaviors.

Within the interpersonal domain, ultimate variables can include stress in the household, distal variables include drug use role models, and proximal variables include peer norms (e.g., perceived social approval for drug use and estimates of prevalence of drug use). Within the attitudinal/cultural domain, ultimate variables include community disorganization (community stress), distal variables include development of hedonic values or alienation, and proximal variables include expectancies regarding drug use benefits minus costs. Finally, within the intrapersonal domain, ultimate variables include biological temperament (i.e., biological stress), distal variables include depression and poor coping, and proximal variables include refusal self-efficacy and intentions to use drugs. One may interpret this theory to describe the degree to which an individual may suffer negative experiences or stressors in the intrapersonal, interpersonal and cultural domains of their life.

Goal of review

We conducted a systematic review of the literature from 1990 to 2015 to evaluate risk and protective factors for adolescent alcohol-related negative consequences. This timeframe was selected as (1) prior reviews captured this phenomenon for studies conducted prior to 1990 (Hawkins, Catalano, & Miller, 1992) and (2) standardized alcohol consequence measures have become available and more widely used during this timeframe (White & Labouvie, 1989). We organize the findings of the review, using the TTI as a theoretical framework, according to domain of influence.

Methods

To ensure accuracy and transparency, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement has been followed where applicable (Moher, Liberati, Tetzlaff, & Altman, 2009). In June 2015, computer based searches of Google Scholar, PubMed and PsycINFO were conducted. We combined search terms for alcohol consumption (alcohol OR drink OR "binge drinking"), negative consequences (consequence OR "negative consequence" OR "problem use") and age group (adolescent OR teen OR "middle school" OR "high school") factors.

The following inclusion criteria were used to select articles for the review: 1) measure predictors and outcomes during adolescence defined as the age group of 12–17 years old, 2) published between January 1, 1990 and June 1, 2015, 3) the outcome had to be measured using a self-report scale that captured the type and/or frequency of negative consequences experienced following the use of alcohol, and 4) presented results from non-clinical (i.e., community or school) samples. Studies that defined "problem use" as a risky drinking behavior (e.g., binge drinking) were not considered as we were not interested in alcohol use behavior, but rather in predictive factors for alcohol related consequences that result from drinking (e.g., accidents, injuries, neglecting responsibilities).

Fig. 1 demonstrates the literature search and selection process. An initial 1114 records were identified after screening titles and abstracts for keywords in the initial search and 572 remained after removal of duplicates. Five additional articles were identified from the reference sections of identified papers. We screened 140 manuscripts and retained 65 full-