

Health literacy

Health literacy, alcohol expectancies, and alcohol use behaviors in teens

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ABSTRACT

Objective: Alcohol expectancies are developed, in part, through exposure to health messages, the understanding of which may be influenced by health literacy. This study explores the relationships among health literacy, alcohol expectancies, and alcohol use behaviors in teens.

Methods: We studied alcohol use behaviors in the past six months in youths aged 14–19 recruited from two adolescent medicine clinics. We assessed covariate-adjusted bivariate relationships between HL, expectancies, and four measures of alcohol use and tested health literacy as a moderator of the relationship between expectancies and use.

Results: Of the 293 study teens, 45 percent reported use of alcohol in the past six months. Use behaviors were positively associated with higher health literacy and positive expectancies. Our moderation model suggested that health literacy moderates the relationship between expectancies and use, with the expectancy/use relationship being significantly stronger in higher literacy teens.

Conclusion: Findings suggest that health literacy can influence alcohol expectancies and behaviors.

Practice implications: Health literacy should be explicitly considered in the design of alcohol prevention messages.

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1. Introduction

In 2012, 41 percent of U.S. 12th graders and 27 percent of U.S. 10th graders reported using alcohol in the past 30 days. Twenty-eight percent and 14 percent, respectively, reported having been drunk [1]. While use rates have declined in the past decade, they remain unacceptably high particularly because individuals who begin heavy drinking as teens are more likely to become problem drinkers as adults [2]. These issues make understanding precursors of adolescent alcohol use behaviors a significant public health concern.

Expectancy theory has long been used as a model for understanding health behaviors including alcohol use [3] and, in teens, multiple alcohol expectancies have been identified as strong predictors of adolescent alcohol use behaviors [4–6]. Expectancy

theory posits that an individual's behavior can be explained by his or her expectations for specific outcomes from that behavior [7]. For example, an alcohol expectancy could be stated as “I believe that if I drink alcohol, I will have more fun.” A person who believed this outcome to be true and who had a positive value for the outcome would be more likely to engage in drinking. Expectancies and their values can be developed and stabilized over time through personal experiences and through observed experiences of others. Importantly, they can also be influenced by educational and persuasive messages delivered interpersonally or through media [8]. Expectancy theory-based anti-drinking interventions, therefore, use messages that attempt to reduce positive expectancies and enhance negative ones for the effects of alcohol. Alcohol marketers and some peers, hoping to increase alcohol use, implicitly or explicitly, take the opposite approach.

Health literacy, defined as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions” [9], may be an important factor in how such messages influence expectancies. In adults, health literacy is associated with disease knowledge, disease management, health outcomes,

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and healthcare cost [10–15]. General adolescent literacy is a compelling problem in the US and a significant number of adolescents are unable to read at the appropriate grade level [36]. Health literacy research among adolescents is still a developing field but recent studies show links with health behaviors and outcomes and has established some independent associations between lower health literacy levels and poorer understanding of preventive care information as well as limited access to preventive care services [16–19]. In addition, children of parents with lower literacy skills are more likely to have worse outcomes [37]. Recent studies in health literacy among adolescents link literacy rates with health behaviors and outcomes including online health information seeking, over-the-counter medication use, and obesity [16–19]. These studies further suggest that adolescents with limited literacy skills are less likely to receive benefits of preventive care [37].

As teens with low levels of health literacy come into adulthood, they face a variety of challenges in the healthcare system including completing medical forms, understanding instructions for prescription medications and comprehending provider instructions [28]. They also may be challenged in understanding and evaluating messages designed to influence health-related behaviors like alcohol use.

Few studies have examined relationships between alcohol usage and health literacy among adults. Among the few studies, associations between health literacy and alcohol consumption have been weak at best [38,39]. However one study in an adult population with alcohol dependency indicates that lower levels of literacy are positively associated with increased addiction severity [40]. Another recent study found that high and appropriate levels of alcohol literacy are a prerequisite for moderate alcohol consumption [41].

On the other hand, studies on alcohol usage and literacy among youths demonstrate stronger associations between adolescents' reading below their grade level and substance use behaviors. Boys with low literacy levels, in particular, have been reported to be almost three times more likely to use alcohol than boys with high literacy levels [42] and chances of having misused alcohol were higher among students with lower literacy levels than among students with higher literacy levels [43].

In this analysis, we explore the relationships between health literacy, alcohol expectancies, and alcohol use behaviors in adolescents. Understanding how health literacy is associated with teen alcohol expectancies and alcohol use behaviors could provide important guidance for the development and improvement of messages targeted at populations with varying health literacy levels. We also test a hypothesized model of health literacy influences or moderates of the relationship between expectancies and alcohol use behaviors (Fig. 1). In this model, the effect of alcohol expectancies and use behaviors would be expected to be different at different levels of health literacy.

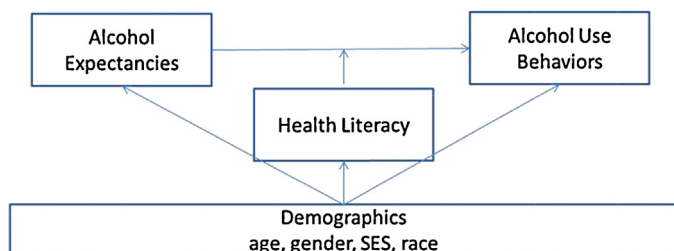


Fig. 1. Theorized model of the relationship among expectancies, health literacy, and behaviors.

2. Methods

This analysis is conducted using data from an adolescent health and wellness study involving youths between the ages of 14 and 19 recruited from adolescent medicine clinics in Columbus, Ohio and Pittsburgh, Pennsylvania. Both recruitment clinics are associated with urban, academic medical centers and offer a broad range of primary care, family planning, sexual health, and specialty care services. Beginning in 2008, teens have been enrolled in the study through a purposive recruitment process designed to balance our population by age, gender, race, and sexual orientation. Participants were recruited using a combination of physician referral and computerized eligibility screening. Youths are eligible for the study if they meet the age requirements and if they can read English at a 6th grade level. No clinical conditions were used as inclusion or exclusion criteria. All elements of the study were approved by IRB committees at each institution.

Recruited youths attend study visits where parental informed consent and youth assent are obtained for youths ages 14–17 and participant consent is obtained for those ages 18 and over. Each participant then completes a health literacy assessment and a computer-assisted battery of questionnaires on health behaviors and potential mediators and moderators of health behavior development.

Measures used in analysis are described below:

Demographics—Demographic information collected from each participant includes gender, race (summarized for this analysis as white, black, and other), and date of birth. Same-sex attraction is assessed by two items asking how much sexual attraction the respondent has to males and to females. Any response other than 100 percent attraction to the opposite sex is coded as “same-sex attraction”. This is not a key variable of interest in this study but it is included for adjustment in multivariate models to account for the oversampling within that population. No direct measure of socio-economic status (SES) is collected in this study because all of the data is reported directly from youths who may not be able to reliably report household incomes [20]. Instead, we used two proxy measures of SES: parental education and free lunch status. Any parental college was coded as “yes” if the youth reported that at least parent had at least some post-high school education. Free lunch was coded as “yes” if the youth reported that they were currently eligible for free lunch or if they were eligible for free lunch in the last year that they attended school.

Health literacy—Adolescent health literacy is assessed using the Rapid Estimate of Adult Literacy in Medicine, teen version (REALM-Teen) [21] which was validated in teens ages 10 to 19 and correlates with measures of general literacy and with health behaviors known to be associated with health literacy. This interviewer-administered tool requires respondents to read a list of 66 health-related terms. Scoring is based on the number of items correctly read. While the REALM does not comprehensively measure the construct of health literacy, research in teens and in adults has found high correlations between it and the Test of Functional Health Literacy in Adults (TOFHLA), a longer, more comprehensive (often considered “gold-standard”) tool that measures understanding of words in context [44,45]. For our analyses health literacy is dichotomized as LOW—below 8th grade equivalent (REALM-teen score ≤ 58) and HIGH—8th grade equivalent or higher (REALM-Teen score ≥ 59). This cut point was chosen so that all persons classified as low actually scored below their current grade level.

Alcohol use behaviors—Four alcohol use variables were chosen for study in order to determine if relationships varied by nature of use. All variables are measured based on behaviors in the past six months. “Any alcohol” is coded as “yes” if the respondent indicated any response other than “not at all” to the question “In the past 6

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