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Validity and Reliability of the Alcohol Expectancy Questionnaire-Adolescent, Brief

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Abstract

The purpose of this study was to evaluate a brief version of the Alcohol Expectancy Questionnaire-Adolescent (AEQ-A; Brown, Christiansen, & Goldman, 1987). The original AEQ-A was reduced to seven items (called the AEQ-AB). Principal Components Analysis (PCA) was performed and two factors emerged (General Positive Effects and Potential Negative Effects) accounting for 46% of the variance. Internal consistencies are comparable to those of the original AEQ-A (0.50). Scales correlate with criterion variables such as average drinks per week and average number of drinks per heavy drinking day ($p < 0.05$). It is concluded that this questionnaire may be useful to clinicians providing brief assessment and intervention. Cross-validation in other samples and other settings is recommended.

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Keywords

Alcohol effect expectancies; delinquents

Expectancies have been implicated in the initiation and maintenance of drinking (Goldman et al., 1991). In expectancy theory, thoughts affect behavior and consequences related to drug use; these thoughts or expectancies are learned (directly or indirectly through others), and are linked to memories; and as a result, expectancies can affect behavior voluntarily and involuntarily (Brown, 1993). One method clinicians may utilize to reduce drinking behavior is to alter alcohol effect expectancies.

Numerous studies have found that the more expectancies endorsed by an individual, the greater the amount of reported alcohol use (Greenbaum, Brown, & Friedman, 1995). Alcohol expectancies appear to be linked to relapse after alcoholism treatment (Brown, 1985; Marlatt, 1978). The relationship of expectancies to drinking has been widely supported in a variety of adolescent samples (Smith et al., 1995; Christiansen, Goldman, & Inn, 1982; Christiansen & Goldman, 1983; Webb et al., 1993). Among youth with serious emotional disorders, adolescents with Conduct Disorder seem to have the highest risk for drinking (Boyle & Offord, 1991). The drinking behavior of these high-risk adolescents appears to be the same with regard to expectancies: The greater the expectancy, the greater the consumption of alcohol (Greenbaum et al., 1995).

There is an assortment of instruments that can be used to measure alcohol effect expectancies; however, none of them appear to increase prediction of drinking beyond results obtained by using the Alcohol Expectancy Questionnaire-Adolescent (AEQ-A; Greenbaum et al., 1995). The AEQ-A is 90 items long. A short form exists (AEQ-SF; Rather, 1990), which consists of the 17-item Subscale 2 (enhanced social facilitation) and the 10-item Subscale 3 (enhanced cognitive and motor skills). However, the AEQ-SF has the disadvantage of not tapping the additional five constructs of the AEQ-A (Global positive changes, sexual enhancement, cognitive and motor impairment, increased arousal, and relaxation and tension reduction), and it is still 27 items long. Clinicians working in fast-paced environments with few resources may be interested in a very brief but useful alcohol expectancy tool during short-term clinical interventions.

The purpose of this study is to describe the psychometric characteristics of a brief version of the AEQ-A. Starting with the AEQ-A was ideal since this parent instrument has been shown to be valid for use with delinquent adolescents (Brown, Christiansen, & Goldman, 1987). Many adolescents in substance abuse treatment settings also exhibit antisocial behaviors (Grella et al., 2001). The literature indicates that expectancies are useful factors to target during treatment (Brown, 1993; Brown et al., 1998). The AEQ-AB is meant to be a brief measure used by clinicians to address and challenge adolescent alcohol effect expectancies during brief interventions. We will describe components analysis, internal consistencies, and criterion validity data.

METHODS

Participants

The sample was recruited at a state juvenile correctional facility in the Northeast. It is the state's sole juvenile correctional facility and charges range from simple truancy to murder. About 1,000-1,200 teens per year are detained at the facility, about 500-600 teens per year are adjudicated to the facility, and annual recidivism is about 35%. Teens receive group treatment

as well as individualized attention (as indicated) on a variety of topics (e.g., sex-offending, drug dealing, reducing crime, developing empathy, preventing violence, anger management).

Adolescents routinely attend an eight-week psycho-educational group treatment for substance use/abuse that meets twice per week for an hour (Standard Care [SC]). Enrollment usually begins shortly after adjudication. Limited medical, dental, psychiatric, and psychological care is available to teens, and the facility houses its own education department. More in-depth substance abuse services are available as indicated, and Alcoholics Anonymous is also available on a weekly basis. Community religious organizations also have a relationship with the facility. Limited vocational programming is available for teens as are transitional services that include substance use counseling, case management, mentoring, and other services.

Procedures

Screening and Consent—Immediately after adjudication, teens were identified as potential candidates for the study if they were between the ages of 14 and 19 years and were sentenced to the facility for between 4 and 12 months. Consent was obtained from legal guardians and assent was obtained from adolescents. Adolescents and guardians provided permission for adolescent participation in a larger treatment outcome study, of which the current study is a part. Guardians and adolescents were informed that all information was entirely confidential, except for plans to escape, hurt self or others, or reports of child abuse.

Adolescents were included in the study if they met any of the following substance use screening criteria: (1) in the year prior to incarceration they used marijuana or drank regularly (at least monthly) or they binge-drank (> 5 standard drinks for boys; > 4 for girls); (2) they used marijuana or drank in the four weeks before the offense for which they were incarcerated; or (3) they used marijuana or drank in the four weeks before they were incarcerated. All procedures utilized received Internal Review Board approval. Of 144 adolescents approached for the study, 126 met screening criteria and completed our consent procedure. Of those 126, all initially agreed to participate; two adolescents subsequently dropped out of the study, leaving a baseline (BL) $N = 124$.

Assessment—The assessments consisted of a 90-minute interview by a trained BS or MA-level staff member. Interviewers had about 20 hours of training with one hour of individual and one hour of group supervision per week. *In-vivo* observations were conducted regularly by a PhD-level project member. All assessment data were reviewed by a MA- or PhD-level project member. Record reviews were completed following completion of the interviews. Assessments occurred at BL, shortly after adjudication. Adolescents received snacks during assessments and a \$50 gift certificate for completion of the larger study.

Measures

Record Review (RR)—The record review was used to enhance truthfulness of self-reported alcohol/marijuana use and illegal activity. Teens were informed at the start of the study that records would be reviewed to verify self-reports. Records consist of legal and medical/clinical information on each teen and included prior charges, and psychosocial history, including substance use history.

Background Questionnaire (BGQ)—Socio-demographic information was recorded including age, gender, race, number of years of school completed, and parent/guardian educational level.

Timeline Follow-Back (TLFB)—Timeline Follow-back is a calendar-assisted measure based on a subject's retrospective account of his/her drinking behavior over a specified time

period (Sobell & Sobell, 1992, 1995). TLFB has been shown to have excellent reliability (α 's = 0.79-0.98; Sobell et al., 1979) and high content, criterion, and construct validity in clinical and non-clinical populations (Allen & Columbus, 1995). A 90-day TLFB is collected at baseline. The TLFB is scored to yield several summary scores including average drinks per week and average number of drinks per heavy drinking day.

Center for Epidemiological Studies Depression Scale (CES-D)—The CES-D (Radloff, 1991) is assessed during baseline because there is a high rate of depression among adolescents with conduct disorder and among youths who abuse substances (Loeber & Keenan, 1994; Wiersen, Forehand, & Frame, 1992). Coefficient α 's on the CES-D for alcohol abusers have ranged from 0.85 to 0.90, and the CES-D has been found to discriminate depressed from non-depressed alcoholics (Addiction Research Foundation, 1993). The CES-D is reliable and valid for use with adolescents (Radloff, 1991). It was used in this study to assess divergent validity.

Structured Clinical Interview for DSM-IV (SCID-I)—This diagnostic interview was developed by First et al. (1996) and is reliable and valid. Modules for alcohol abuse and dependence were administered.

Alcohol Expectancy Questionnaire-Adolescent, Brief (AEQ-AB)—The original AEQ-A (Brown, Christiansen, & Goldman, 1987; Brown, Creamer, & Stetson, 1987) was reduced to seven items (called the AEQ-AB, see Appendix). The wording of each item on the AEQ-AB corresponds to the seven original scales of the AEQ-A: (1) global positive changes, (2) changes in social behavior, (3) improved cognitive and motor abilities, (4) sexual enhancement, (5) cognitive and motor impairment, (6) increased arousal, and (7) relaxation and tension reduction. In parentheses for each item, examples are provided that reflect the two questions that loaded most highly on the original scale. The AEQ-AB items are rated using a visual analog with a Likert scale ranging from 1 = Strongly disagree to 5 = Strongly agree.

RESULTS

The BL sample ($N = 124$) was comprised of adolescents from the following racial/ethnic backgrounds: 28.9% Hispanic, 33.1% African American, 31.4% White, 0.8% Asian American, 4.1% Native American, and 1.7% self-identified as "other." Most were boys (90.9%), average age was 17.2 years ($SD = 1.1$), and on average, the sample had been incarcerated 2.8 times before the current incarceration ($SD = 3.2$). In the last year, 62.9% qualified for an alcohol use disorder.

PCA and Internal Consistency

Components analyses were conducted using minimum average partial correlation (MAP) and parallel analysis (PA) procedures, both highly recommended in determining the number of components to retain (Velicer, Eaton, & Fava, 2000). The two-component solution provided by PA was superior to the one-component solution obtained from MAP, in terms of total variance, average loadings, and interpretability. The two components accounted for 46.2% of the variance. Average loading per item was 0.66. Table 1 contains component loadings. Component 1 (AEQ-ABp) has four items (items 1, 3, 4, 7) and accounts for 24.1% of the variance with Cronbach $\alpha = 0.49$. Items reflect positive alcohol expectancies (alcohol has powerful positive effects, makes a person think better, improves sex, and helps a person relax). Component 2 (AEQ-ABn) has three items (items 2, 5, 6) and accounts for 22.1% of the variance with Cronbach $\alpha = 0.51$. Items reflect negative effects on cognition and physical status, as well as potential negative effects on relationships. The correlation between AEQ-ABp and AEQ-ABn at BL was non-significant ($r = 0.10$; $p > 0.05$).

Concurrent Validity Data

As expected, AEQ-ABp correlates significantly and positively with a number of alcohol consumption variables. AEQ-ABn correlates significantly with heavy alcohol consumption as shown in Table 2. Significant correlations are generally in the small-medium effect size range (Cohen, 1988). Neither AEQ-AB component correlates significantly with the CES-D item, “people are unfriendly to me” (demonstrating divergent validity).

DISCUSSION

Results indicate that the above measure comprises a brief and useful method for clinicians to use in measuring alcohol effect expectancies in incarcerated teens. Analysis clearly identified two components (positive and potential negative expectancies). Low Cronbach α can be expected for scales with only four to five items, but generally scales produced internal consistencies ($\alpha \leq 0.50$) that are comparable to those of the original AEQ-A (α ranged from 0.47 to 0.82; Brown, Christiansen, & Goldman, 1987). The array of moderate (small-medium effect size) but significant correlations with constructs related to substance use behaviors demonstrates acceptable concurrent validity for a brief clinical tool. Of particular interest is that both components were related to increased alcohol use; however, the AEQ-ABp is more consistently and highly related to use levels. This is consistent with previous alcohol expectancy studies on adults and adolescents (Brown, 1993).

Although results are encouraging, replication and cross validation are recommended. Given the generally high loadings found, we can be relatively confident that components would replicate in cross validation (see Guadagnoli & Velicer, 1988). We recommend studying these measures in other settings to see if results can be duplicated (for example, in day treatment settings). More research is needed to determine whether the two components provide complementary but different information, and whether use of separate items is more useful during clinical discussions than the more global components.

Further research is recommended to better establish psychometric properties. When used by clinicians, respondents must know and trust that their responses are private, confidential, and will not impact them adversely. This will enhance veridicality of reports. Generally, the higher the score on a component or scale, the higher the expectancy. We recommend using the average score on a particular component for ease of interpretation. For example, on AEQ-ABn, add the three Likert responses and divide by the three items. The minimum value is one and the maximum is five. An average closer to five indicates more potential negative expectancies for alcohol. Alternatively, clinicians may wish to discuss with an adolescent an item that represents a particularly noteworthy expectancy (“sexual facilitation” with a youth who does not use condoms).

We recommend researchers continue to use the longer version of the AEQ-A. However, for clinicians wishing to quickly assess and then provide intervention, the AEQ-AB may be used. It is important to address effect expectancies in alcohol treatment (Brown, 1993; Brown et al., 1998). During treatment, the AEQ-AB is a quick clinical tool that can be used to open discussion regarding alcohol effect expectancies. During these discussions, counselors and adolescents can explore evidence of countering expectancies that are related to adolescent drinking. This is an ideal instrument for brief interventions and for settings with few resources.

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TABLE 1

Component Loadings for the Alcohol Expectancy Questionnaire-Adolescent, Brief (AEQ-AB) Scales

Items	Positive Alcohol Expectancies (AEQ-ABp ^a)	Potential Negative Effects on Relationships; Negative Effects on Cognition/Coordination (AEQ-ABn ^a)
1. Global positive changes	0.56	0.26
2. Changes in social behavior	0.27	0.73
3. Improved cognitive and motor abilities	0.66	−0.06
4. Sexual enhancement	0.70	0.00
5. Cognitive and motor impairment	−0.23	0.72
6. Increased arousal	0.01	0.65
7. Relaxation and tension reduction	0.57	−0.06

Note. Loadings on corresponding factors are in bold.

^a AEQ-ABp = Alcohol Expectancy Questionnaire, Adolescent Brief-positive scale; AEQ-ABn = Alcohol Expectancy Questionnaire, Adolescent Brief-negative scale.

TABLE 2

Correlations Between AEQ-AB^a Positive and Negative Components and Alcohol Use Patterns During the Last Three Months

Drinking Pattern	AEQ-ABp ^b	AEQ-ABn ^b
<i>N</i> = 119 ^c		
Average drinks/week ^d	0.29 ^e	0.08
Number of days drank	0.24 ^f	0.01
Average drinks/day ^d	0.28 ^e	0.09
Percent drinking days	0.23 ^g	0.02
<i>N</i> = 89 ⁱ		
Total number of drinks on heavy drinking days ^d	0.31 ^e	0.08
Average number of drinks/heavy drinking day ^d	0.11	0.21 ^h

^a AEQ-AB = Alcohol Expectancy Questionnaire-Adolescent, Brief.

^b AEQ-ABp = Alcohol Expectancy Questionnaire, Adolescent Brief-positive scale; AEQ-ABn = Alcohol Expectancy Questionnaire, Adolescent Brief-negative scale.

^c Number of teens (*N*) = 119 rather than 124 because four participants did not have alcohol access for ≥ 45 days in the 3 months prior to incarceration and so timeline follow-back variables were not computed; one participant had missing data.

^d Data were log-transformed to meet distributional requirements.

ⁱ *N* = 89 because not all drinking participants drank heavily.

^e $p \leq 0.001$;

^f $p < 0.005$;

^g $p \leq 0.01$;

^h $p \leq 0.05$.