Development and Preliminary Validation of the Young Adult Alcohol Consequences Questionnaire*

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ABSTRACT. Objective: A substantial proportion of U.S. college students drink alcoholic beverages and report significant deleterious effects. The present study describes the development and initial validation of a measure designed to capture a broad range of alcohol-related consequences experienced by male and female college students. **Method:** College students (N = 340, 176 women) completed a self-report questionnaire battery consisting of information about demographic characteristics, drinking behaviors, and drinking consequences. Drinking consequences were assessed with a composite measure based on the Drinker Inventory of Consequences, the Young Adult Alcohol Problem Screening Test (YAAPST) and items developed by the researchers. To assess concurrent validity, a subset of the total sample (n = 126) also completed the Rutgers Alcohol Problem Index (RAPI). **Results:** Confirmatory factor analyses supported an eight-factor solution (Social-Interpersonal Consequences, Impaired Control, Self-Perception, Self-Care, Risk Behaviors, Academic/Occupational Consequences, Physical Dependence, and Blackout Drinking), with all factors loading on a single, higher-order factor. YAACQ total scores correlated with alcohol quantity and frequency, and the RAPI. Gender comparisons suggest that the YAACQ assesses constructs of interest equally well for women and men. **Conclusions:** These results offer preliminary support for this measure. Research and clinical applications include the potential to predict future problems by specific type of consequence and to offer detailed feedback about drinking consequences to students as part of a preventive intervention. As such, the YAACQ may serve as an aid in both the description of and intervention for heavy drinking in college. (*J. Stud. Alcohol* **67:** 169-177, 2006)

A SUBSTANTIAL PROPORTION of U.S. college students drink and experience significant consequences (Abbey, 2002; Giancola, 2002; Harford et al., 2003; Montgomery and Haemmerlie, 1993; Perkins, 2002; Wood et al., 2000) that affect both the drinker and the college community (O'Malley and Johnston, 2002; Perkins, 2002; Wechsler et al., 2000). Further, some consequences may be early indicators of the development of drinking problems later in life (e.g., Nelson et al., 1996). Early detection of drinking consequences may help to reduce their short-term impact and may prevent or ameliorate a progression toward long-term alcohol problems. Moreover, as changes in drinking behavior during college may be reflected across an array of life domains, fine-grained assessment of consequences will enable university administrators and health professionals to monitor the success of intervention efforts.

Drinking in young adulthood is somewhat unique from drinking during other life stages (Arnett, 2000; Muthén and Muthén, 2000; Perkins, 1999; Schulenberg and Maggs, 2002; Slutske et al., 2004). Several self-report measures of alcohol-related consequences exist, some of which were developed specifically for use with late adolescents or young adults (e.g., Hurlbut and Sher, 1992; White and Labouvie, 1989; Maddock et al., 2001; O'Hare, 1997). However, such measures may not capture sufficiently the broad spectrum of consequences young adults encounter in college, as they focus on the more severe end of the alcohol-related consequences spectrum. Evidence of this can be found in a recent report by Kahler et al. (2004), who applied a Rasch model analysis to evaluate item performance of the Young Adult Alcohol Problems Screening Test (YAAPST; Hurlbut and Sher, 1992), a widely used measure of alcohol problems in college students. Their results indicated that the majority of college students experienced at least some consequences (e.g., hangovers, vomiting, memory loss) indicative of lower level alcohol problems. However, on a 20-item scale derived from these analyses, half of the sample endorsed 3 or fewer items. These results suggest that a greater diversity of items indicative of less severe alcohol problems may aid in delineating more fine-grained distinctions among college drinkers who are potentially at risk for adverse outcomes.

The Kahler et al. (2004) study also indicated that the multiple response option format did not contribute to the YAAPST's ability to differentiate levels of alcohol problem severity efficiently. The authors suggested that dichotomized response options might yield a more readily

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interpretable total score of alcohol consequences than a scale score based on the frequency of event occurrence. Further, Kahler et al. found some evidence of differential item performance based on gender: Items pertaining to externalizing behaviors such as physical fights, damaging property, and being arrested during intoxication were endorsed at lower levels of alcohol problem severity among men than they were among women. This suggests that externalizing behavior is more common among men and less likely to be indicative of problematic alcohol involvement than it is for women.

Indeed, gender differences in externalizing behaviors have been noted (Crick et al., 2003), and externalizing behaviors such as fighting or damaging property have been those most commonly assessed in young adults. As a result, the problem of alcohol-related consequences among female undergraduates currently may be underestimated, as widely used measures are likely to detect problems more common among men (Lo, 1996; Perkins, 1992). This is consistent with observations by Perkins (2002) that male students exhibit more externalized problems than female students, but that gender differences in drinking consequences are not as notable when more private consequences are measured. However, to date, no measure explicitly attempts to cover the internal and/or interpersonal types of consequences most likely to be relevant for young adult women, such as depression, reduced self-esteem, and damaged relationships.

Finally, although there are advantages to measuring alcohol problem severity as a unidimensional construct (i.e., a single problem severity score), as has been done with most measures, it also may be informative to measure in greater depth multiple domains of consequences related to drinking. In a review of drinking consequences on college campuses, Perkins (2002) noted the potential utility of attempting to cluster alcohol-associated consequences by type of consequence. Such clustering may yield more descriptive data regarding the scope of heavy drinking and its consequences in college and may also be used for intervention and feedback purposes, to point students to particular targets of behavior change. Measures containing content subscales that cluster types of consequences may have particular descriptive and clinical utility.

The present study

College students in the United States are a population unique in developmental life stage, culture, and environment. Alcohol use and subsequent consequences occurring during this life stage also are distinct (Hingson and Howland, 2002; Slutzke et al., 2004). Accordingly, measurement of these consequences must address the particular circumstances of the college ethos and the experiences indicative of problem drinking for both men and women. The present study describes the development and initial validation of a multidimensional measure designed to capture a broad range of alcohol-related consequences experienced by male and female college students.

Method

Participants

Participants (N = 340, 176 women) were college students enrolled in introductory psychology classes at a mid-sized university in the northeastern United States. The majority (84%, n = 285) of participants were white, with 6% (n = 19) reporting Asian, 4% (n = 14) Hispanic/Latino, 2% (n = 8) black (non-Hispanic), and an additional 4% (n = 14) reporting their ethnicity as "other." Just over half (58%, n = 196) were freshmen, and the mean (SD) age was 19 (1.4). Mean grade point average was 3.0 (0.51). Nearly seven percent (n = 22) were fraternity or sorority members. Sixty-three percent (n = 214) of participants lived in residence halls on campus, 19% (n = 64) lived at home with family, 14% (n = 48) lived in an off-campus house or apartment, and 4% (n = 14) lived in nonresidence hall on-campus housing (e.g., fraternity/sorority, on-campus apartment, etc.).

When compared with the 2004 enrollment data for the university we found that this sample was more heavily represented by women (51% vs 44% for the total undergraduate student body) and by younger students than in the university as a whole (average age 21 years). Additionally, more students in this sample were white than in the larger student population (84% vs 64%).

Procedure

Participants were screened for "regular drinking" via a mass-testing procedure, which took place the first week of each university semester during the academic year 2003-2004. The vast majority of university introductory psychology students participated in this procedure. Those who reported drinking alcohol at least once a week in the 3 months prior to initial screening were then contacted by email and invited to participate in the study. Experimental sessions were conducted with groups of 10-20 (mixed-gender) participants. At the session, all participants provided informed consent and then completed a questionnaire battery, which gathered information about demographic characteristics, drinking behaviors, and drinking consequences. Participants received academic credit for their participation. The State University of New York at Buffalo Institutional Review Board approved all procedures.

Measures

Demographic information. The demographic data gathered included information on gender, age, ethnicity, year in

school, residential status, grade point average, and affiliation with a fraternity or sorority.

Alcohol consumption. A range of alcohol use behaviors (past 90 days) was assessed. These included typical quantity and frequency of alcohol consumption, average weekly frequency of heavy drinking (five or more drinks in a single sitting), and average weekly frequency of drunkenness, assessed with an item that asked, "How often in the past 90 days have you been drunk, or high, on alcohol?"

Prior to questionnaire administration, the term "standard drink" was defined as 1 oz of distilled spirits, 6 oz of wine, or 12 oz of beer, and specific examples were given (e.g., how a mixed drink, a "party" tumbler of beer, or a "shooter" would be categorized). Participants were asked to use the standard measurement terms described as they provided drinking information. They also were instructed to query a research assistant with any questions pertaining to quantity estimates.

Alcohol consequences: The Young Adult Alcohol Consequences Questionnaire (YAACQ). An initial pool of 67 items was developed based on the YAAPST (Hurlbut and Sher, 1992) and included additional items from the Drinker Inventory of Consequences (DrInC; Miller et al., 1993) as well as from the Diagnostic and Statistical Manual, Fourth Edition (DSM-IV; American Psychiatric Association, 1994), and items written by the authors. In particular, a conscious effort was made to ensure that all symptoms of alcohol abuse and dependence as defined by the DSM-IV were assessed. Selection and derivation of items was geared toward a measure that would yield a total score representing a broad spectrum of consequences, as well as having subscales focusing on particular domains of consequences. These specific domains were (1) Social-Interpersonal Consequences (SOC); (2) Impaired Control (CONTR); (3) Self-Perception (SELF-P); (4) Self-Care (SELF-C); (5) Risk Behaviors (RISK); (6) Academic/Occupational Consequences (AC-OCC); (7) Physical Dependence (PHYS-DEP), consistent with the DSM-IV definitions; and (8) Blackout Drinking (BLKOUT). These domains were conceptualized early in the course of the development of this measure, during item derivation and selection. Past-year consequences were assessed. Response options were rated dichotomously (Kahler et al., 2004).

The Rutgers Alcohol Problem Index (RAPI). The RAPI (White and Labouvie, 1989) is a 23-item self-report measure developed as a unidimensional index of drinking consequences experienced by adolescents/young adults in the past year. Items are rated by frequency of occurrence on a 5-point scale that ranges from 0 (never) to 4 (more than 10 times). In this sample, coefficient α for the RAPI was .88. The RAPI was administered to the last 126 participants in the study, during the spring semester. *T* test and chi-square comparisons revealed no significant differences on demographic variables of interest, quantity of alcohol consumption (including drinking five or more drinks in a sitting), or YAACQ total score between individuals who were administered the RAPI and those who were not.

Analytic strategy

Univariate analyses were conducted to describe sample demographics and drinking behaviors. Confirmatory factor analyses assessed the factor structure of the YAACQ. Following the preliminary confirmation of the hypothesized factor structure, multiple group models were specified to determine whether the factor pattern of the YAACQ was invariant across gender.

Results

Drinking behaviors

The majority of participants (87%, n = 294) drank one to four times weekly. Eighty-one percent (n = 275) reported drinking four or more drinks on an average drinking occasion. Sixty-two percent (n = 211) of participants drank to intoxication at least once a week and 71% (n = 241) drank five or more drinks in a single sitting at least once a week in the past 90 days. The mean YAACQ total score was 14.7 (7.8), with no significant gender differences on this measure.

Confirmatory factor analyses

Prior to conducting confirmatory factor analyses (CFAs), item endorsement frequencies were examined. Items endorsed by less than 5% of participants were excluded from the CFAs as items with such low endorsement might lead to model instability and problematic solutions in modest sample sizes. The one exception to this rule was a physical dependence item ("I have felt anxious, agitated, or restless after stopping or cutting down on drinking," endorsed by 4%), which we retained because we wanted to have at least four items assessing each of the domains of interest. Thus, 56 items remained. All CFAs were conducted with the MPlus Structural Modeling Program (Muthén and Muthén, 2001) with tetrachoric correlations and weighted least squares-mean and variance adjusted estimation. Only participants with complete data were included in the analyses. A combination of fit indices were used to evaluate our models (see Hu and Bentler, 1995), including the model chi-square, comparative fit index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA).

Our initial CFA specified eight latent factors: SOC, CONTR, SELF-P, SELF-C, RISK, AC-OCC, PHYS-DEP, and BLKOUT. Covariances between the latent factors and error variances were freely estimated. This model resulted

TABLE 1. Alcohol consequences item loadings derived from confirmatory factor analyses

Construct	Item	Loading
SOC[a]	While drinking, I have said or done embarrassing things.	.75
SOC[b]	My drinking has created problems between myself and my boyfriend/girlfriend/ spouse/parents, or other near relatives.	.70
SOC[b]	I have become rude, obnoxious, or insulting after drinking.	.75
SOC[b]	My boyfriend/girlfriend/spouse/parents have complained to me about my drinking.	.59
SOC[a]	While drinking, I have said harsh or cruel things to someone.	.64
SOC[b]	I have said things while drinking that I later regretted.	.74
CONTR[c]	I often drank more than I originally had planned.	.55
CONTR[c]	I have spent too much time drinking.	.68
CONTR[c]	I often have ended up drinking on nights when I had planned not to drink.	.64
CONTR[c]	I often have found it difficult to limit how much I drink.	.75
CONTR[c]	I have tried to quit drinking because I thought I was drinking too much.	.72
CONTR[c]	I often have thought about needing to cut down or to stop drinking.	.73
SELF-P[a]	I have felt badly about myself because of drinking.	.92
SELF-P[a]	I have been unhappy because of my drinking.	.87
SELF-P[a]	I have felt guilty about my drinking.	.80
SELF-P[c]	Drinking has made me feel depressed or sad.	.60
SELF-C[a]	Because of my drinking, I have not eaten properly.	.62
SELF-C[c]	I have been less physically active because of my drinking.	.61
SELF-C[c]	Because of my drinking, I have not slept properly.	.56
SELF-C[a]	My physical appearance has been harmed by my drinking.	.72
SELF-C[a]	I have been overweight because of my drinking.	.66
SELF-C[c]	I haven't been as sharp mentally because of my drinking.	.74
SELF-C[c]	I have not had as much time to pursue activities or recreation because of drinking.	.71
SELF-C[c]	I have had less energy or felt tired because of my drinking.	.63
RISK[b]	I have driven a car when I knew I had too much to drink to drive.	.55
RISK[a]	I have taken foolish risks when I have been drinking.	.83
RISK[a]	I have gotten into physical fights because of drinking.	.56
RISK[b]	I have damaged property or done something disruptive like setting off a fire alarm, or other things like that after drinking.	.58
RISK[b]	As a result of drinking, I neglected to protect myself or partner from an STD or unwanted pregnancy.	.50
RISK[a]	When drinking, I have done impulsive things that I regretted later.	.70
RISK[b]	My drinking has gotten me into sexual situations I later regretted.	.63
RISK[a]	I have injured someone else while drinking or intoxicated.	.48
AC-OCC[c]	The quality of my work or school work has suffered b/c of drinking.	.84
AC-OCC[b]	I have gotten into trouble at work or school because of drinking.	.60
AC-OCC[c]	I haven't gone to work or have missed class because of drinking, a hangover, or other illness caused by drinking.	.58
AC-OCC[c]	I have neglected obligations to family, work, school b/c of drinking.	.75
AC-OCC[b]	I have received a lower grade on an exam or paper than I ordinarily would have because of drinking.	.91
PHYS-DEP[c]	I have felt like I needed a drink after I'd gotten up.	.53
PHYS-DEP[b]	I have had "the shakes" after stopping or cutting down on drinking.	.54
PHYS-DEP[b]	I have found that I needed larger amounts of alcohol to feel any effect, or that I could no longer get high/drunk on the amount that used to get me high/drunk.	.63
PHYS-DEP[c]	I have felt anxious, agitated, or restless after stopping or cutting down on drinking.	.74
BLKOUT[b]	I have had a hangover (headache, sick stomach) the morning after drinking.	.61
BLKOUT[c]	I have passed out from drinking.	.80
BLKOUT[b]	I have felt very sick to my stomach or thrown up after drinking.	.59
BLKOUT[c]	I have woken up in an unexpected place after heavy drinking.	.68
BLKOUT[c]	I've not been able to remember large stretches of time while drinking.	.87
BLKOUT[b]	I have awakened the day after drinking and found I could not remember a part of the evening before.	.80
BLKOUT[c]	I have had a blackout after drinking heavily.	.81

Notes: All factor loadings were statistically significant ($p < .01$). SOC = Social-Interpersonal Consequences; CONTR = Impaired Control; SELF-P = Self-Perception; SELF-C = Self-Care; RISK = Risk Behaviors; AC-OCC = Academic/Occupational Consequences; PHYS-DEP = Physical Dependence; BLKOUT = Blackout Drinking; b/c = because. [a] = Drinker Inventory of Consequences items; [b] = Young Adult Alcohol Problem Screening Test items; [c] = new items.

TABLE 2. Internal reliability, means, standard deviations, and intercorrelations for YAACQ subscales

Subscale	α	Total Mean (SD)	1	2	3	4	5	6	7	8
1. SOC	.79	2.42 (1.51)	–	.38	.23	.28	.54	.36	.34	.41
2. CONTR	.91	2.12 (1.50)		–	.42	.42	.45	.37	.47	.38
3. SELF-P	.85	0.67 (1.03)			–	.31	.26	.33	.17	.27
4. SELF-C	.84	1.32 (1.61)				–	.32	.46	.36	.33
5. RISK	.82	2.56 (1.92)					–	.36	.41	.42
6. AC-OCC	.87	0.98 (1.25)						–	.33	.36
7. PHYS-DEP	.70	0.66 (0.73)							–	.35
8. BLKOUT	.86	3.97 (2.03)								–

Notes: YAACQ = Young Adult Alcohol Consequences Questionnaire; SOC = Social-Interpersonal Consequences; CONTR = Impaired Control; SELF-P = Self-Perception; SELF-C = Self-Care; RISK = Risk Behaviors; AC-OCC = Academic/Occupational Consequences; PHYS-DEP = Physical Dependence; BLKOUT = Blackout Drinking.

in poor model fit (χ^2 = 374.99, 159 df, $p < .001$; CFI = .84, TLI = .88, RMSEA = .06). Modification indices suggested a strong error covariance between two items from the AC-OCC subscale that were conceptually related ("I have gone to school or work late because of drinking" and "I have not gone to school or work because of drinking"). Thus, the first of these was dropped from the item pool to reduce redundancy. Additionally, examination of factor loadings revealed a number of items that cross-loaded (i.e., were .30 or greater) on multiple factors. We examined cross-loading and other item content and determined that the noncross-loading items maintained conceptual representation of each factor. Thus, cross-loading items were deleted. Another model was estimated based on 48 items (12 from the DrInC, 15 from the YAAPST, and 21 written for the YAACQ). This final model provided a good fit to the data (χ^2 = 256.98, 148 df, $p < .001$; CFI = .91, TLI = .93, RMSEA = .05).

All items loaded significantly on their hypothesized factors ($p < .01$), with standardized loadings ranging from .48 to .92 (see Table 1). Subscales showed acceptable internal consistency based on tetrachoric correlations. To examine interfactor correlations, manifest variables for each subscale were summed to create eight subscales. Raw-score correlations among these subscales ranged from .17 to .54. Descriptive statistics and factor correlations are presented in Table 2.

Second-order factor analysis

To test whether the covariances among the YAACQ subscales could be accounted for by a primary alcohol problem dimension, we conducted a second-order factor analysis of the eight factors on a latent "Alcohol Problems" factor. This model provided an adequate fit to the data (χ^2 = 269.88, 148 df, $p < .001$; CFI = .90, TLI = .93, RMSEA = .05), although the fit was somewhat worse than the fit of the single-order factor analysis. Second-order factor loadings ranged from .61 to .92 (all $p < .001$). The second-order factor loadings and R^2 values for each of the first-order latent factors are presented in Figure 1.

Gender invariance analysis

A multiple-group analysis tested the invariance of the CFA across gender. The model chi-square cannot be used to do nested model tests with weighted least squares estimation (Muthén and Muthén, 2001), which precludes testing model constraints using chi-square difference tests. Accordingly, we simultaneously estimated the first-order eight-factor model and constrained the factor loadings to be equal across gender, then examined the fit of this model. This constrained model provided a good fit to the data (χ^2 = 256.25, 160 df, $p < .001$; CFI = .90, TLI = .91, RMSEA = .06), suggesting that the eight YAACQ subscales assess similar underlying constructs for men and women.

Gender differences in individual subscales

Between-subjects analyses of variance were conducted with the eight subscales as the dependent variables to determine whether men and women scored differently on individual consequence subscales. To minimize the risk of Type I error resulting from multiple comparisons, we applied an adjusted α (.01) to these tests. Follow-up comparisons revealed significant gender differences only on the SELF-C subscale, with women showing higher impairment. No other significant differences were observed. The means, standard deviations, and confidence intervals for each subscale are presented in Table 3.

Associations with alcohol consumption variables

Concurrent validity: YAACQ total score. We also examined associations between the YAACQ and the RAPI as well as with the drinking measures and other variables of interest. The YAACQ was significantly positively correlated with scores from the respondents who completed the RAPI (r = .79, $p < .001$; n = 126) and with both past 90-day average frequency (r = .36, $p < .001$; n = 339) and quantity (r = .31, $p < .001$; N = 340). Heavy drinking indices were associated also with the YAACQ: Past 90-day

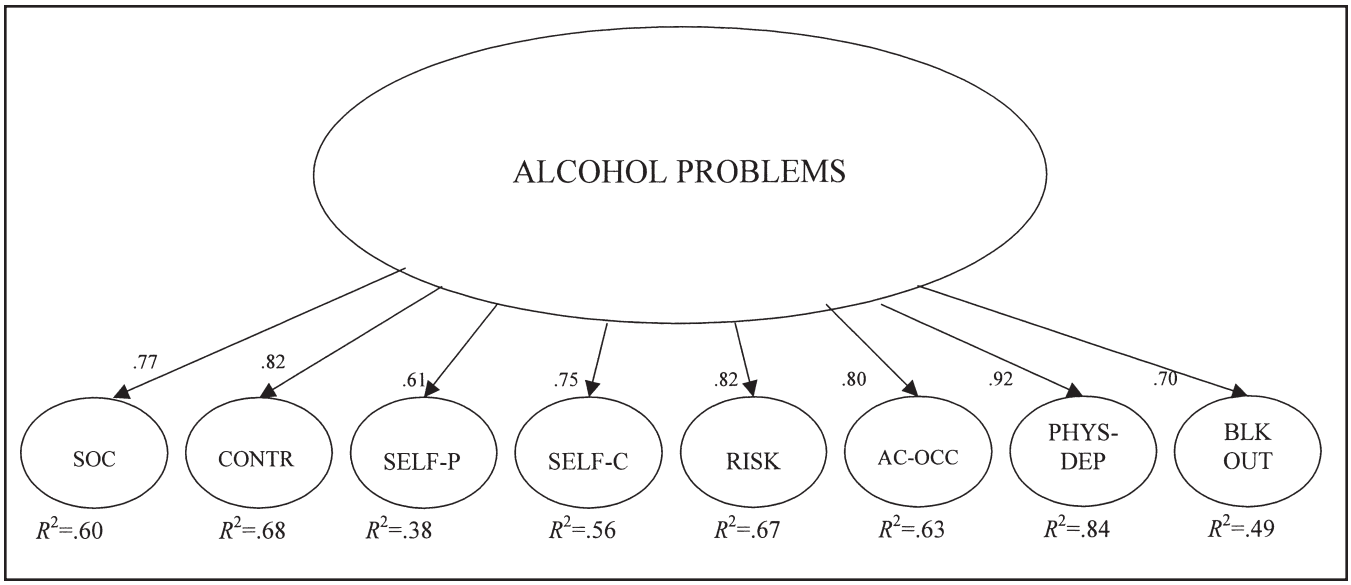

FIGURE 1. Higher-order alcohol problems factor. First-order factor structure not presented. See Table 1 for item factor loadings. SOC = Social-Interpersonal Consequences; CONTR = Impaired Control; SELF-P = Self-Perception; SELF-C = Self-Care; RISK = Risky Behaviors; AC-OCC = Academic/Occupational Consequences; PHYS-DEP = Physical Dependence; BLKOUT = Blackout Drinking.

frequency of drinking to intoxication and frequency of heavy episodic drinking both significantly correlated with our consequence measure (r = .33 and .45, respectively; both p < .001; N = 340). Scores on the YAACQ also correlated negatively with grade point average (r = -.16, p < .01; n = 339).

Concurrent validity: YAACQ subscales. Each of the YAACQ subscales were significantly positively correlated with the RAPI (all p < .001). The YAACQ CONTR, RISK, AC-OCC, and BLKOUT subscales all were significantly negatively correlated with grade point average. The SELF-P subscale was not associated with average quantity of consumption, typical frequency of consumption, or heavy episodic drinking, and was only marginally associated with drinking to intoxication (r = .10, p = .06; N = 340). With the exception of the SELF-C subscale, which was positively associated with typical quantity at the p < .05 level (r = .12; N = 340), all other associations between YAACQ subscales and past 90-day quantity and frequency, drinking to intoxication, and heavy episodic drinking were significant and positive at the p < .01 level.

TABLE 3. Subscale means, standard deviations, and confidence intervals (CIs) by gender

	Men		Women	
Subscale	Mean (SD)	99% CI	Mean (SD)	99% CI
Social	2.43 (1.57)	2.11-2.75	2.40 (1.44)	2.12-2.69
Control	1.96 (1.53)	1.64-2.26	2.27 (1.47)	1.99-2.56
Self-Perception	0.57 (1.07)	0.35-0.79	0.77 (0.98)	0.58-0.96
Self-Care*	1.06 (1.50)	0.76-1.37	1.57 (1.68)	1.24-1.90
Risk Behaviors	2.82 (2.13)	2.38-3.25	2.32 (1.67)	2.00-2.65
Academic/Occupational	0.90 (1.26)	0.65-1.16	1.06 (1.23)	0.82-1.30
Dependence	0.68 (0.74)	0.53-0.83	0.65 (0.72)	0.51-0.79
Blackout	3.87 (2.01)	3.46-4.28	4.07 (2.04)	3.67-4.47

*p < .01.

Discussion

This study's purpose was to develop and to provide initial validation for a multidimensional measure designed to capture a broad range of alcohol-related consequences, many of which are specific to the college environment. Confirmatory factor analyses supported the hypothesized eight-factor structure of the YAACQ. Our findings also suggest that the YAACQ shows concurrent validity with other indices of alcohol involvement and that it appears to assess constructs of interest equally well for women and men. Results of our second-order factor analysis suggest that, although YAACQ items reflect a range of severity and types of problems, each of the dimensions measured appear to map onto a single latent dimension of alcohol problem severity.

A major advantage of the YAACQ is its subscales, which offer a way of aggregating drinking consequences that may be of clinical utility. Many individual-level preventive interventions to reduce heavy drinking in college focus on motivational enhancement and skill-based approaches (Borsari and Carey, 2001; Larimer and Cronce, 2002), which commonly utilize individualized feedback about a student's drinking practices and resulting consequences. Assessment and feedback regarding specific domains of alcohol-related consequences, such as those indexed by the YAACQ subscales, may facilitate the implementation of these types of approaches.

Following findings by Kahler et al. (2004), the YAACQ offers only dichotomous response options. In this study, we found the YAACQ to yield both an interpretable total score of alcohol-related consequences in the past year, as well as individual subscale scores. The dichotomous-response options and resulting YAACQ subscale scores also lend themselves to more fine-grained examination of the meaning of the total score. Measures yielding scores based on frequency of occurrence of items endorsed result in total scores that could reflect repeated occurrences of very minor consequences, or the presence of many consequences. Thus, a person who has been late for class multiple times in the past year could score the same as someone who has experienced several different higher-level consequences only once each. The meaning of such a total score is somewhat ambiguous. In contrast, a score on the YAACQ reflects different consequences that can be examined by type according the subscale on which they fall. For example, a score of 6 indicates that an individual has experienced six different alcohol-related consequences in the past year.

Gender invariance analyses showed the factor structure of the YAACQ to be consistent for men and women. A strength of the YAACQ is that it was designed, in part, to include those consequences that may occur most frequently for or be most relevant to female undergraduates such as internalizing consequences (e.g., negative affect, feeling badly about one's self) and interpersonal consequences (e.g., saying regrettable things, behaving embarrassingly). Examination of mean subscales scores revealed significant gender differences only on the Self-Care subscale. Male and female students otherwise showed generally similar patterns of endorsement.

Although our findings do not suggest differential associations among YAACQ subscales with concurrent measures of alcohol involvement, higher scores on specific subscales may be associated with problematic alcohol use over longer periods of time. Heavy drinking in college can be viewed as part of a developmental life stage, decreasing naturally as the individual evolves into adulthood (e.g., Arnett, 2000; Chassin et al., 2004). Yet it may be that some consequences do not resolve naturalistically, but instead portend more significant alcohol problems later in life. For example, data suggest that some early drinking consequences can be predictive of later onset and even the course of diagnosable alcohol use disorders (Nelson et al., 1996), and work by O'Neill and Sher (2000) points to physiological dependence symptoms in young adulthood as a risk factor for problematic drinking later in life. Similarly, impaired control over drinking long has been thought to be a hallmark of dysregulated drinking patterns (Hasin et al., 2001; Nelson et al., 1996; Rush, 1785/1943) and has been associated cross-sectionally with problem drinking and associated factors in adolescents (e.g., Chung and Martin, 2002) and in college students (e.g., Nagoshi, 1999). Whether impaired control over drinking in young adulthood is predictive of later alcohol problems is yet unknown. As such, it will be of interest to determine whether specific types of consequences (as indexed by YAACQ subscales), rather than negative consequences as a whole, are uniquely associated with long-term problem drinking. In future studies, prospective designs will allow for assessment of psychometric properties such as test-retest reliability and predictive validity of the YAACQ. Of particular interest will be whether lower-level involvement items, when identified early, may presage progression to heavier alcohol involvement and higher-level consequences.

Several limitations to this study should be considered. The relative lack of ethnic diversity in this sample is potentially problematic. In previous work (Kahler et al., 2004), we found evidence of differential item functioning across demographic subsamples for several items from the YAAPST (Hurlbut and Sher, 1992). Studies suggest that the drinking patterns and consequences of white and nonwhite college students differ (Crowley, 1991; Deas et al., 2001; Keefe and Newcomb, 1996). Without being able to assess the psychometric properties of the YAACQ in nonwhite samples, equivalence of measurement across groups is not a certainty.

Although year in school and age of this sample consisted of a fairly inclusive range, over half of the sample were freshman. As participants reported alcohol-related consequences during the past year, in many instances what may have been captured is drinking behavior prior to arriving at college. Similarly, this sample was limited in that it consisted of introductory psychology students. Despite reasonable demographic heterogeneity, a sample more representative of the larger student body would provide a stronger test of the YAACQ's utility for use in general college populations.

The types of validation used here are consistent with those from classical test theory (cf., Nunnally, 1978) and are useful in describing YAACQ items, conceptual clustering of these items, and concurrent associations with other indicators of alcohol involvement. However, these analyses do not shed light on the relative severity of individual items, or the quality of the scale as a function of different *levels* of alcohol problems. We recently analyzed these data using Rasch modeling (Rasch, 1960) to provide such information, and to create a brief unidimensional version of the YAACQ (Kahler et al., 2005) that may be particularly valuable when assessing overall problem severity rather than severity of problems within multiple domains. Thus, the YAACQ can be administered either in the long form described here to provide scores for specific domains, or can be administered and scored in its short form to obtain an efficient global severity problem score.

In summary, results of the present study provide preliminary support for the use of this eight-factor measure of

drinking consequences to evaluate a broad range of outcomes across multiple life domains in college students. The YAACQ offers a number of advantages, including potential research and clinical applications. In particular, the subscale scores serve many functions above and beyond what is offered by existing unidimensional indices of young adult drinking consequences. For example, consistent with suggestions by Perkins (2002), applications of this measure could include examination of type of consequence (by subscale) across different undergraduate populations. The YAACQ also could be used in prospective studies to determine whether specific types of problems predict drinking problems later in life. Other advantages include the inclusion of items specifically geared toward more internalizing types of consequences, as well as scales such as Impaired Control and Self-Care, which are not currently assessed through existing measures of young adult consequences. The YAACQ's dichotomous responses facilitate more streamlined administration and scoring ease, as well as yielding more clinically meaningful subscale and total scores. Finally, this measure may prove useful for providing descriptive feedback to students about their drinking and its effects on different life domains. Together, these strengths suggest promise for the YAACQ as an aid in the description of and intervention for heavy drinking in college.

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