

Investigating the Association Between Childhood Sexual Abuse and Alcohol Use Disorders in Women: Does It Matter How We Ask About Sexual Abuse?

CAROLYN E. SARTOR, PH.D.,^{a,*} VIVIA V. McCUTCHEON, PH.D.,^b ELLIOT C. NELSON, M.D.,^b
ALEXIS E. DUNCAN, PH.D.,^c KATHLEEN K. BUCHOLZ, PH.D.,^b AND ANDREW C. HEATH, D.PHIL.^b

^aDepartment of Psychiatry, Yale School of Medicine, New Haven, Connecticut

^bDepartment of Psychiatry, Washington University School of Medicine, St. Louis, Missouri

^cGeorge Warren Brown School of Social Work, Washington University, St. Louis, Missouri

ABSTRACT. Objective: The purpose of this study was to determine whether the type of questions used to assess childhood sexual abuse (CSA) introduces systematic bias into estimations of the magnitude of the association between CSA and alcohol use disorders (AUDs). **Method:** The Semi-Structured Assessment for the Genetics of Alcoholism was administered by telephone to 3,787 female twins ages 18–29 years (14.6% African American, 85.4% White). Interviews included questions regarding sexual abuse experiences described in behavioral terms and a standard trauma checklist (in a separate section) with the items “rape” and “sexual molestation,” with definitions provided in respondent booklets. *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*, diagnoses of alcohol abuse and dependence, parental history of alcohol-related problems, and psychiatric conditions associated with AUDs were also assessed. **Results:** The majority of women who endorsed one question type also endorsed the other type. Rates of

psychiatric risk factors for AUDs did not vary by pattern of CSA question endorsement. Separate Cox proportional hazards regression analyses using CSA variables derived from behavioral questions (hazard ratio [HR] = 1.67, 95% CI [1.27, 2.19]) and checklist items (HR = 1.41, 95% CI [1.08, 1.84]) each revealed elevated risk for AUDs associated with CSA, and HRs did not differ significantly across models. However, a Cox proportional hazards regression analysis predicting AUD from the pattern of CSA question endorsements revealed a significantly higher risk for AUDs among women who endorsed only behavioral questions (HR = 3.26, 95% CI [1.72, 6.21]) than for all other groups. **Conclusions:** Findings underscore the importance of querying CSA in studies of alcohol-related problems and highlight some of the limitations of assessment methods that can be integrated into studies covering a wide range of psychosocial domains. (*J. Stud. Alcohol Drugs*, 73, 740–748, 2012)

NEARLY ONE IN FIVE WOMEN has experienced childhood sexual abuse (CSA) (Fergusson et al., 1996a; Pereda et al., 2009; Vogeltanz et al., 1999; Walker et al., 2004), a well-documented risk factor for alcohol-related problems in adolescence and young adulthood (Fergusson et al., 1996b; Kendler et al., 2000; Silverman et al., 1996; Wilsnack et al., 1997) that is more common in families with an alcoholic parent (Anda et al., 2002; Dube et al., 2001; Fergusson et al., 1996a). Although a link between CSA and problem alcohol use has been reported relatively consistently, a range of methods have been used to assess CSA, which may contribute to variability in the estimated magnitude of

the association reported in the literature. In the current study, we tested whether the magnitude of the association of CSA with alcohol use disorders (AUDs) varies as a function of assessment—specifically, if behaviorally defined questions about sexual abuse (read by an interviewer) yield different estimates than abuse terms such as *rape* presented with definitions in a trauma checklist (read by the respondent). Large-scale studies of alcohol use that cover a broad range of psychosocial domains are limited in the amount of time that can be devoted to the assessment of CSA and thus typically query CSA with one or two items using the terms *rape*, *sexual abuse*, or *molestation*. A larger number of cases of CSA are typically detected when behavioral descriptions of sexual abuse are used (e.g., “Did anyone ever make you touch their genitals when you didn’t want to?”) (Fricker et al., 2003; Lynch, 1996; Weaver, 1998; Wyatt and Peters, 1986), but it is not yet known whether using questions referencing abuse terms rather than behavioral descriptions of CSA biases results in studies of CSA and alcohol-related outcomes.

The first step in this line of inquiry is to determine the proportion of individuals who endorse behaviorally worded CSA questions who also endorse CSA when queried using abuse terms and the proportion of individuals who endorse abuse terms who also endorse behaviorally worded

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*Correspondence may be sent to Carolyn E. Sartor at Yale School of Medicine at the following address: Veterans Affairs Connecticut Healthcare System, 950 Campbell Ave. (151D), West Haven, CT 06516, or via email at: carolyn.sartor@yale.edu.

questions. The next step is to characterize inconsistent reporters with respect to psychiatric correlates of alcohol-related problems. Individuals who endorse behaviorally worded questions but not questions using abuse terms are of particular interest, given the evidence for this type of inconsistent reporting. An argument could be made for either higher or lower expected levels of psychopathology in this group compared with those who endorse both question types. Individuals whose sexual abuse experiences were of a relatively low severity may not be as likely to label them as abuse, in which case this group would be expected to be healthier. Similarly, if labeling CSA events in abuse terms is associated with engaging in psychotherapy (which often involves exploring stressful events from the past), then lower rates of psychiatric treatment, indicating better overall mental health, might be found in individuals who endorse behavioral but not abuse terms. In this case, an assessment using abuse terms would fail to identify some of the healthier individuals with histories of CSA. This would lead to an overrepresentation of individuals with psychopathology in the CSA group and thus produce an inflated estimate of the association between CSA and alcohol-related outcomes. By contrast, if failure to endorse corresponding abuse terms reflects denial that severe CSA events were abusive, women who endorse behavioral but not abuse terms might have high rates of distress and, consequently, elevated rates of depression and problem substance use. In this second case, assessing CSA using abuse terms would result in an underestimate of its association with alcohol-related problems.

Much of the work in this area has focused on variability in prevalence estimates of CSA and, to a more limited degree, in the observed association of CSA with psychological outcomes resulting from varying definitions of CSA (e.g., inclusion vs. exclusion of non-contact abuse, age cutoffs of 17 years vs. 15 years) (Goldman and Padayachi, 2000; Haugaard and Emery, 1989; Pereda et al., 2009; Roosa et al., 1998). A study by Silvern and colleagues (2000) based on a college sample is among the few to examine the impact of question type. Findings indicated that researcher-defined CSA (i.e., endorsement of specific sexually abusive behaviors) was a better predictor of depression and posttraumatic stress disorder symptoms than was a single item querying "child abuse." No known studies to date have addressed this issue with respect to alcohol-related outcomes.

The overarching goal of this study was to determine whether the association between CSA and AUDs is significant regardless of variations in assessment. That is, will the association be robust both when using trauma checklist items referencing terms such as *rape* and *sexual molestation* read by the respondent (with definitions provided in writing) and when an interviewer uses questions that instead describe behaviors? This is an important consideration in the design of alcohol studies covering a wide range of psychosocial

domains because the checklist method is typically briefer, it allows for integration of items assessing CSA into a general trauma assessment, and it is easier for a lay interviewer to administer. Our first aim, using a large community-based sample of young women queried about CSA with both methods, was to estimate the proportion of women who endorse (a) behavioral but not standard trauma checklist items assessing CSA, (b) checklist but not behavioral questions, and (c) both question types, and to characterize each group with respect to risk factors for AUDs. Our second aim was to determine the influence of question type on the magnitude of the observed association between CSA and AUDs in this sample of young women. We addressed this second aim in two ways: (a) by comparing estimates derived from two separate models using the two different question types and (b) by comparing patterns of CSA question endorsement within the same model to predict AUDs.

Method

Participants

The sample consisted of 3,787 female twins who completed the fourth wave of data collection for the Missouri Adolescent Female Twin Study, a longitudinal study of alcohol-related problems and associated psychopathology in female adolescents and young adults (Heath et al., 2002). Twins born in Missouri between 1975 and 1985 were identified through birth records and recruited from 1995 to 1999 for the Wave 1 assessment. Cohorts of 13-, 15-, 17-, and 19-year-old female twin pairs and their families were ascertained in the first 2 years, with new cohorts of 13-year-old twins and their families added in the subsequent 2 years. Parent interviews were completed by at least one parent in 78% of eligible families. Wave 3 retest interviews were conducted with a subset of Wave 1 participants 2 years after Wave 1 interviews. (Data were not drawn from Wave 2 because it referenced experiences from only the previous 24 months.) Wave 4 was conducted from 2002 to 2005. Mean age at Wave 4 was 21.7 ($SD = 2.8$) years; 14.6% of the sample self-identified as African American, and the remainder self-identified as White.

Procedure and assessment battery

Data were collected by trained interviewers through an interview modified for telephone administration from the Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA/SSAGA-II) (Bucholz et al., 1994; Hesselbrock et al., 1999), an instrument designed to assess AUDs and related psychiatric and psychosocial domains. Verbal consent was obtained before the start of the interview. The study was approved by the Washington University Institutional Review Board before data collection began.

TABLE 1. Questions assessing childhood sexual abuse (CSA) using behavioral descriptions of sexual abuse

Parental discipline and early childhood experiences	
1.	Before you turned 16, was there any forced sexual contact between you and any family member like a parent or step-parent, grandparent, uncle, aunt, brother, sister, or cousin? By sexual contact, I mean their touching your sexual parts, your touching their sexual parts, or intercourse.
2.	Before you turned 16, was there any sexual contact between you and anyone who was 5 or more years older than you were (other than a family member)? By sexual contact, I mean their touching your sexual parts, your touching their sexual parts, or intercourse. Was this sexual contact (always) with your consent, or were you (ever) forced?
Health problems and health habits ^a	
3.	Has anyone ever forced you to have sexual intercourse?

^aCSA criteria met if occurred before age 16.

Behaviorally defined childhood sexual abuse questions (Wave 4). Questions assessing CSA using behavioral descriptions of sexual abuse were asked in the Health Problems and Health Habits section of the SSAGA and in the Parental Discipline and Early Childhood Experiences section of the SSAGA, both of which preceded the traumatic events module. Items are listed in Table 1.

Trauma checklist items (Wave 4). A numbered list of traumatic events (adapted from the National Comorbidity Survey trauma checklist [Kessler et al., 1995]), which included *rape* and *sexual molestation*, was included in the respondent booklets sent to participants before the interview. Brief definitions of events were given in parentheses but not read to respondents; for rape: "Someone had sexual intercourse with you when you did not want to, by threatening you or using some degree of force"; and for sexual molestation: "When you were 17 years old or younger, someone touched or felt your genitals when you did not want them to or forced you to touch his or her genitals." Participants referred to this list as the interviewer read, "Did event [number] ever happen to you?" Age at first occurrence was queried for endorsed events. CSA criteria were met if reported age was below 16 for either rape or sexual molestation (to be consistent with the age cutoff in behavioral questions).

Missing childhood sexual abuse data. Data from respondents who endorsed one question type and had missing data on the other question type were retained in analyses. Data from respondents who did not endorse either behavioral questions or trauma checklist items and did not provide answers to one or more questions assessing CSA were dropped from analyses. Forty-four respondents fell into this category. Analyses were performed on data from the remaining 3,743 participants.

Alcohol use disorders (Wave 4). Alcohol abuse and alcohol dependence were defined according to criteria from the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV;* American Psychiatric Association,

1994). Individuals meeting lifetime criteria for either diagnosis were considered positive on AUD status. Age at onset of AUD was defined as the age full diagnostic criteria were met (for either abuse or dependence).

Risk factors for alcohol use disorders (Waves 1, 3, and 4). Twin reports of maternal and paternal alcohol-related problems/excessive drinking, as well as her own regular smoking, conduct disorder (CD), major depressive disorder (MDD), and cannabis abuse, were elicited in the SSAGA. Maternal and paternal alcohol-related problems (queried separately) were assessed by asking the following: (a) Has drinking ever caused your biological mother/father to have problems with health, family, job or police, or other problems, and (b) have you ever felt that your biological mother/father was an excessive drinker? Endorsement of either item by the twin or her co-twin resulted in a positive value for history of problem alcohol use in that parent. Regular smoking was defined as smoking more than 20 cigarettes (lifetime) and smoking at least once a week for 2 months. Diagnoses of CD, MDD, and cannabis abuse were defined according to DSM-IV criteria. Endorsement at any wave of data collection resulted in a positive value for that risk factor. Age at onset of MDD, regular smoking, and cannabis abuse were queried in the corresponding sections of the interview. When more than one report was available, age at onset was derived from the first report. Age at onset of CD was not queried in Wave 1, and CD criteria were not reassessed for all participants in Wave 4. Analyses were therefore based on a dichotomous CD variable.

Data analysis

Given our goals of examining within-assessment CSA and AUD reporting patterns and the possible influence of psychiatric risk factors for AUDs on those patterns, we used Wave 4 data exclusively for CSA and AUD variables. However, we drew from all three assessments to determine status on MDD, CD, regular smoking, cannabis abuse, and parental alcohol problems.

Consistency in childhood sexual abuse report. Participants were categorized by reporting pattern into one of four groups: (a) endorsed behaviorally worded questions but not checklist items, (b) endorsed checklist items but not behaviorally worded questions, (c) endorsed both question types, and (d) did not endorse either. Rates of MDD, CD, regular smoking, cannabis abuse, maternal alcohol problems, and paternal alcohol problems were calculated by group. Logistic regression analyses were conducted to test the association between CSA question reporting pattern and each of the risk factors. Dummy variables were used to represent behavioral questions only, checklist items only, and behavioral-plus-checklist endorsement groups; participants who did not endorse any questions assessing CSA served as the reference group. Chi-square tests of as-

sociation were conducted to test for differences between groups in the resulting odds ratios.

Predicting alcohol use disorders using behavioral questions versus trauma checklist items. Two Cox proportional hazards regression analyses predicting time to onset of AUD were conducted. The first analysis used behavioral questions, and the second analysis used trauma checklist items to define CSA. This analytic approach was chosen because not all participants had passed through the age of risk for AUDs. Regular smoking, MDD, and cannabis abuse were modeled as time-varying covariates by creating a “person-year” data set using SAS Version 9.2 (SAS Institute Inc., Cary, NC). Ethnicity, maternal and paternal alcohol-related problems, and CD were modeled as time-invariant variables. Models were adjusted for age at Wave 4. Analyses were conducted in Stata Version 9.2 (StataCorp LP, College Station, TX) using the Huber–White correction to adjust for the non-independence of observations in twin pairs.

The proportional hazards assumption that risk remains constant over time was assessed using the Grambsch and Therneau test of the Schoenfeld residuals (Grambsch and Therneau, 1994). In both models, the assumption was violated for ethnicity, CD, and the dummy variable representing the age range of 24–29 years at the time of interview. To adjust for the violations, the period of risk for onset of AUD was split into three subdivisions: up to age 16, 17–22, and 23–29. Terms for the interactions of ethnicity, CD, and age at interview with all three periods of risk were created. In both models, inclusion of the interaction between ethnicity and the period of risk from ages 17 to 22, the interactions of CD with the periods of risk up to age 16 and from ages 17 to 22, and the interaction between age at interview and the period of risk up to age 16 resulted in non-significant outcomes in the proportional hazards assumption tests.

Testing for differences in risk for alcohol use disorders by childhood sexual abuse question endorsement pattern. A third Cox proportional hazards regression analysis was conducted using the CSA endorsement pattern as a predictor of AUDs. Dummy variables representing behavioral questions only, checklist items only, and behavioral-plus-checklist endorsement groups were entered into the model along with variables representing maternal and paternal alcohol-related problems, ethnicity, MDD, CD, regular smoking, and cannabis abuse, as described above. The proportional hazards assumption was violated for ethnicity, CD, age at time of interview (specifically, 24–29 years), the checklist-only group, and maternal alcohol problems. Violations were resolved through the addition of the following interactions to the model: ethnicity by the period of risk from ages 17 to 22, CD by the periods of risk up to age 16 and from ages 17 to 22, age at interview by the period of risk up to age 16, and checklist-only group by the period of risk from ages 17 to 22.

Results

Consistency in childhood sexual abuse report

Three hundred fifty women (9.4% of the sample) endorsed one or more of the behavioral questions assessing CSA. Of those women, 90.0% also endorsed either rape or sexual molestation (occurring before age 16) on the trauma checklist. Four hundred sixteen women endorsed trauma checklist items (11.1% of participants); 76.3% of them also endorsed behavioral questions. Although African American women were nearly twice as likely as White women to report experiencing CSA using either question type (19.7% vs. 10.8%, respectively), $\chi^2(1) = 35.35, p < .0001$, endorsement patterns among those reporting CSA did not differ by ethnicity, $\chi^2(2) = 2.84, p = .24$.

Rates of alcohol use disorder risk factors by childhood sexual abuse question endorsement patterns

In Table 2, the prevalences of MDD, CD, regular smoking, cannabis abuse, maternal alcohol problems, and paternal alcohol problems are shown by patterns of CSA question endorsement: behavioral and checklist ($n = 315$; 8.4%), behavioral only ($n = 35$; 0.9%), checklist only ($n = 101$; 2.7%), and neither question type ($n = 3,292$; 88.0%). As seen in Table 3, logistic regression analyses using the neither-question-type group as the reference group revealed elevated rates of all risk factors in women endorsing both question types. All risk factors other than regular smoking were elevated in the checklist-only group, and elevations in risk were observed for maternal and paternal alcohol problems and MDD in the behavioral-only group. The only significant difference between pairs of odds ratios (behavioral only vs. both, checklist only vs. both, behavioral only vs. checklist only) was for regular smoking; the odds of lifetime regular smoking were higher for those endorsing both question types than checklist items only. Thus, rates of psychopathology and parental alcohol problems were greater in women who reported CSA than in those women who did not. However, no CSA endorsement pattern was associated with an overall higher risk factor profile than others.

Prevalence of risk factors for alcohol use disorders using behavioral questions versus trauma checklist items to define childhood sexual abuse

We compared the rates of MDD, CD, regular smoking, cannabis abuse, maternal alcohol problems, and paternal alcohol problems in women categorized as CSA positive based on behavioral questions ($n = 350$) versus trauma checklist items ($n = 416$) and found nearly identical values across question types. The prevalence of MDD was calculated as 52.4% using behavioral questions and 51.1% using checklist

TABLE 2. Rates of risk factors for alcohol use disorders by pattern of childhood sexual abuse (CSA) question endorsement

Risk factor	Pattern of CSA question endorsement				χ^2 (3 df)
	Both (n = 315) %	Behavioral only (n = 35) %	Checklist only (n = 101) %	Neither (n = 3,292) %	
Maternal alcohol problems	32.7	28.6	33.7	11.8	140.13 <i>p</i> < .0001
Paternal alcohol problems	56.2	71.4	53.5	33.0	100.99 <i>p</i> < .0001
Major depressive disorder	53.3	44.1	44.0	21.2	187.29 <i>p</i> < .0001
Conduct disorder	12.1	6.3	10.5	3.7	50.94 <i>p</i> < .0001
Regular smoking	60.3	48.6	40.6	33.8	90.43 <i>p</i> < .0001
Cannabis abuse	8.9	5.7	8.9	3.3	31.14 <i>p</i> < .0001

items. The corresponding values for CD were 11.5% versus 11.7%; for regular smoking, 59.1% versus 55.5%; for cannabis abuse, 8.6% versus 8.9%; for maternal alcohol problems, 32.2% versus 32.9%; and for paternal alcohol problems, 57.5% versus 55.5%.

Predicting alcohol use disorders using behavioral questions versus trauma checklist items to define childhood sexual abuse

Results of the two Cox proportional hazards regression analyses predicting AUDs—one using behavioral questions and one using trauma checklist items—are reported in Table 4. The HR in the model using behaviorally defined CSA was 1.67 (95% CI [1.27, 2.19]); in the model using trauma checklist items, it was 1.41 (95% CI [1.08, 1.84]). The point estimate for CSA in the checklist-defined model fell well

within the confidence intervals of the CSA variable in the behaviorally defined model, indicating no significant difference in HRs. As expected, nearly identical values for the covariates were also found across models.

Testing for differences in risk for alcohol use disorders by childhood sexual abuse question endorsement pattern

A direct comparison of the three different CSA reporting patterns as predictors of AUDs in a single Cox proportional hazards regression analysis (using no CSA reported as the reference group) revealed significantly higher risk for AUDs in the behavioral-question-only group compared with all other groups. The confidence intervals for the HR of 3.26 (CI [1.72, 6.21]) did not include the point estimate for the behavioral-plus-checklist group (HR = 1.56, CI [1.17, 2.08]) (Table 5). It also did not include the HR for the checklist-

TABLE 3. Differences in rates of risk factors for alcohol use disorders by pattern of childhood sexual abuse (CSA) question endorsement

Risk factor	OR [95% CI] ^a			Difference in ORs χ^2 (1 df)		
	Both	Behavioral only	Checklist only	Behavioral vs. both	Checklist vs. both	Behavioral vs. checklist
Maternal alcohol problems	3.63 [2.80, 4.69]	2.99 [1.42, 6.26]	3.79 [2.47, 5.80]	0.24 <i>p</i> = .62	0.03 <i>p</i> = .86	0.31 <i>p</i> = .58
Paternal alcohol problems	2.60 [2.06, 3.29]	5.07 [2.43, 10.60]	2.33 [1.57, 3.47]	2.91 <i>p</i> = .09	0.23 <i>p</i> = .63	3.36 <i>p</i> = .07
Major depressive disorder	4.25 [3.35, 5.38]	2.93 [1.48, 5.80]	2.92 [1.95, 4.37]	1.04 <i>p</i> = .31	2.63 <i>p</i> = .10	0.00 <i>p</i> = .99
Conduct disorder	3.53 [2.38, 5.23]	1.71 [0.40, 7.25]	3.02 [1.53, 5.97]	0.93 <i>p</i> = .34	0.17 <i>p</i> = .68	0.5 <i>p</i> = .48
Regular smoking	2.98 [2.35, 3.77]	1.85 [0.95, 3.60]	1.34 [0.89, 2.00]	1.77 <i>p</i> = .18	11.77 <i>p</i> = .0006	0.67 <i>p</i> = .41
Cannabis abuse	2.88 [1.87, 4.43]	1.79 [0.42, 7.54]	2.88 [1.42, 5.87]	0.40 <i>p</i> = .53	0.00 <i>p</i> = .99	0.35 <i>p</i> = .55

Notes: OR = odds ratio; CI = confidence interval. ^aUsing "neither" as comparison group.

TABLE 4. Results of Cox proportional hazards regression analyses: Predicting alcohol use disorder from childhood sexual abuse (CSA) defined behaviorally vs. CSA defined by checklist^a

Variable	Behavioral HR [95% CI]	Checklist HR [95% CI]
CSA	1.67 [1.27, 2.19]*	1.41 [1.08, 1.84]*
Maternal alcohol problems	1.21 [0.92, 1.57]	1.22 [0.94, 1.60]
Paternal alcohol problems	1.11 [0.89, 1.38]	1.12 [0.90, 1.40]*
African American ethnicity	0.63 [0.42, 0.93]*	0.64 [0.43, 0.95]
Major depressive disorder	1.58 [1.25, 1.99]*	1.63 [1.29, 2.06]*
Conduct disorder	8.78 [4.56, 16.90]*	8.65 [4.50, 16.64]*
Regular smoking	2.85 [2.26, 3.59]*	2.95 [2.34, 3.72]*
Cannabis abuse	2.22 [1.53, 3.22]*	2.15 [1.48, 3.12]*

Notes: HR = hazard ratio; CI = confidence interval. ^aAdjusted for age and proportional hazards violations.

* $p < .05$.

only group (HR = 0.88, CI [0.45, 1.72]), which was non-significant, indicating no greater risk for AUDs in women who endorsed only rape or molestation items on the trauma checklist than in women who did not report CSA at all.

Discussion

Given the high rates of CSA in women (Fergusson et al., 1996a; Pereda et al., 2009; Vogeltanz et al., 1999; Walker et al., 2004) and the associated elevation in risk for problem alcohol use (Fergusson et al., 1996b; Kendler et al., 2000; Silverman et al., 1996; Wilsnack et al., 1997), it is important to include in alcohol studies CSA assessments that do not introduce systematic bias into the measurement of the association between CSA and alcohol-related outcomes. In the current study, we examined the association between CSA status and AUDs using two types of CSA assessments administered in the same interview to a large community-based sample of young women. Ninety percent of women endorsing behaviorally worded questions about CSA also endorsed either rape or molestation occurring in the same age range on a standard trauma checklist that provided written definitions of rape and molestation. Contrary to expectations, only 76.3% of women endorsing checklist items also endorsed behavioral questions, indicating that the checklist was capturing a substantial number of cases of CSA not identified through behavioral questions. Neither the group of women who endorsed only behavioral questions nor those who endorsed only checklist items differed significantly from consistent reporters with respect to ethnicity, parental alcohol problems, or psychiatric risk factors for AUDs. Both CSA status derived from checklist items and CSA status derived from behavioral questions predicted AUDs, and the HRs in the two models (although slightly lower in the checklist model) did not differ significantly from each other. However, our final analysis comparing patterns of CSA question endorsement revealed that women who endorsed only behavioral questions were at higher risk for AUDs than all other groups.

TABLE 5. Results of Cox proportional hazards regression analysis: Predicting alcohol use disorder from childhood sexual abuse (CSA) question endorsement pattern^a

Variable	HR [95% CI]
Behavioral and checklist	1.56 [1.17, 2.08]*
Behavioral only	3.26 [1.72, 6.21]*
Checklist only	0.88 [0.45, 1.72]
Maternal alcohol problems	1.23 [0.94, 1.60]
Paternal alcohol problems	1.09 [0.87, 1.36]
African American ethnicity	0.61 [0.41, 0.91]*
Major depressive disorder	1.59 [1.26, 2.01]*
Conduct disorder	8.79 [4.56, 16.95]*
Regular smoking	2.90 [2.30, 3.66]*
Cannabis abuse	2.21 [1.52, 3.21]*

Notes: HR = hazard ratio; CI = confidence interval. ^aAdjusted for age and proportional hazards violations.

* $p < .05$.

Consistency in childhood sexual abuse report

Results suggest that nearly all women who report exposure to sexual abuse when queried directly by an interviewer in behavioral terms will also endorse questions using terms such as *rape* or *sexual molestation* to refer to these events when written behavioral definitions are provided and that a smaller percentage (although still a majority) who endorse checklist items will also endorse corresponding behaviorally worded questions. This second pattern of inconsistent reporting (i.e., endorsement of only items referencing rape or sexual molestation) was somewhat surprising and has not been discussed in the larger literature. It may reflect a greater willingness to respond to CSA questions when being read numbers referring to a checklist with written definitions rather than responding directly to an interviewer describing an abusive event. It is possible as well that, in some cases, the behaviorally worded questions did not capture the specific sexually abusive behavior to which a respondent endorsing sexual molestation or rape was referring.

The rate of endorsement of checklist items among those endorsing behavioral questions is greater than would be expected based on comparisons of CSA reporting across studies using different question types (Lynch, 1996; Wyatt and Peters, 1986), but cross-study discrepancies are not unexpected given the difficulty of controlling for the many other possible sources of variance (e.g., sample, age cutoffs). A better indication of how well our results fit with the existing literature is to compare them with findings from studies in which different question types were compared within the same sample (Fricker et al., 2003; Silvern et al., 2000; Weaver, 1998). In the few we identified, behaviorally worded questions yielded far higher rates of CSA than did questions referencing abuse terms. However, these studies differed substantially from ours with respect to sample (two used college students [Fricker et al., 2003; Silvern et al., 2000], and a third used 43 treatment-seeking

battered women [Weaver, 1998]) and design (i.e., one of the college student studies assigned subjects to answer either “label questions” or “specific questions”; Fricker et al., 2003). The college student study by Silvern and colleagues (2000), in which each participant was administered two types of questions, used items from the Sexual Experiences Survey (Finkelhor, 1979) as well as a single item asking respondents if they had ever been abused. Even among participants who endorsed severe sexual acts by incestuous perpetrators from an older generation in the survey, fewer than half endorsed abuse. It is unlikely that this discrepancy with our findings can be attributed entirely to sample differences. One possible contributor to the inconsistency in report in Silvern et al.’s investigation is the absence of any reference to sexual terms (i.e., rape, molestation, or sexual abuse) in the self-defined abuse question, which may have been understood to be referring only to physical abuse. The greater consistency in our study may be explained in part by the use of more than one self-defined abuse item and the provision of definitions of rape and sexual molestation in respondent booklets. These distinctions are important to keep in mind in choosing brief, sensitive measures of CSA to include in studies of alcohol use.

Alcohol use disorder risk factors by childhood sexual abuse question endorsement pattern

We found no evidence that women who reported CSA only when queried with behavioral descriptions of sexual abuse or only when using a trauma checklist differed from those who endorsed both question types with respect to psychiatric risk factors for AUDs. That is, there was no apparent source of systematic bias associated with the use of checklist items, leading to either an overrepresentation or underrepresentation of CSA cases with histories of psychopathology. The virtual absence of statistically significant differences between the behavioral-question-endorsement-only group and the other groups may be attributable in part to low statistical power because of the size of this group ($n = 35$). However, the small size of this group reflects how rare it was for women who reported CSA when described in behavioral terms to fail to endorse CSA when terms such as *rape* and *sexual molestation* were used and written definitions were provided. Thus, even if there were a distinct psychiatric profile associated with this reporting style, it is highly unlikely that failing to detect these few cases when using a checklist type of CSA assessment would affect results.

Alcohol use disorder risk by question type and pattern of childhood sexual abuse question endorsement

Comparison of the results from the Cox proportional hazards regression analyses using the two different CSA

assessments to obtain CSA status revealed no significant differences in the estimated magnitude of risk for AUD associated with CSA. It appears from these results, and from the absence of differences by reporting pattern for psychiatric covariates, that losing CSA cases by using only one question type (35 using only the checklist items and 101 using only behavioral questions) did not change results substantially. However, the significantly greater risk for AUDs associated with the behavioral-only group indicates that in fact we dropped from our analyses a group at very high risk for developing AUDs who, interestingly, did not have a distinct psychiatric risk profile. Thus, our question of whether the association between CSA and AUDs is robust to variations in assessment of CSA is a challenging one to answer. Although the estimated magnitude of the association did not differ significantly by question type, both methods led to an underestimate of CSA. Furthermore, when using only checklist items, the lost cases were few but very high risk for developing an AUD. Our findings underscore the importance of querying CSA in studies of alcohol-related problems and highlight some of the limitations of assessment methods that can be integrated into large-scale studies covering a wide range of psychosocial domains.

Limitations

Certain limitations should be taken into account when interpreting results of the study. First, our aim of identifying and characterizing respondents who endorsed behavioral descriptions of CSA versus questions using abuse labels for those events versus both question types is only one of many methodological issues regarding CSA reporting. Others, such as reliability and validity of various measures, the utility of retrospective versus prospective designs, and how variations in definitions of CSA affect prevalence estimates (Goldman and Padayachi, 2000; Haugaard and Emery, 1989; Nelson et al., 2010; Roosa et al., 1998; Widom et al., 1999), cannot be addressed with our findings. Second, the proportion of women endorsing behavioral descriptions of CSA in our study is somewhat lower than prevalence estimates of CSA in women found in the larger literature (Fergusson et al., 1996a; Pereda et al., 2009; Vogeltanz et al., 1999; Walker et al., 2004). The lower degree of specificity in our behavioral descriptions of CSA (e.g., we did not query vaginal, oral, and anal sexual abuse acts separately) and relatively young age cutoff (15 years) compared with other studies may have contributed to this difference. The narrow birth cohort and limited geographic region from which the sample was recruited may limit comparability to prior studies as well. Third, although comparison of question endorsements within the same assessment has the advantage of allowing subjects to act as their own controls and avoids the potential problem of events occurring

between assessments having an effect on consistency in reporting, it leaves open the possibility that respondents made an effort to respond consistently, thus elevating concordance rates across question types. However, in preliminary analyses of physical abuse data (data not shown), we found a much lower level of consistency between checklist items (with definitions provided) and interviewer-administered behaviorally defined questions than we did across question types for sexual abuse, suggesting that the high level of concordance across CSA question types does not reflect a global within-assessment consistency in reporting. Fourth, results may not generalize to men, whose lower reported rates of CSA may be accounted for in part by gender differences in labeling CSA events as rape, sexual molestation, or sexual abuse (Violato and Genuis, 1993; Widom and Morris, 1997).

Future directions

Further exploration of the factors contributing to selective responses to behaviorally worded versus checklist-type items is crucial to developing a CSA assessment measure that captures the maximum number of cases of CSA with the minimum burden on respondents. Another important next step in this line of research is to test the impact of changes in the definition of CSA (e.g., age cutoffs, minimum age differences between victim and perpetrator) on the magnitude of the association between CSA and AUDs. Examination of other problem drinking behaviors and inclusion of males in future studies are also key to refining the measurement of the relationship between CSA and alcohol-related problems and, even more importantly, to identifying the age range and event types most strongly associated with problem alcohol use.

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