

Using One Question to Identify Women at Risk for an Alcohol-Exposed Pregnancy

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Context: Consumption of 8 alcoholic drinks per week or 5 alcoholic drinks on one occasion by a pregnant woman can affect the developing fetus. However, it can be difficult to determine which patients are at risk.

Objective: To evaluate how well the answer to a single question about binge drinking could help identify women at risk of an alcohol-exposed pregnancy (AEP).

Methods: Using data from a study of methods to prevent AEPs, the authors compared the efficacy of self-reported answers to a screening question about binge drinking (5 or more standard drinks on one occasion) within the past 90 days

90 days.

Results: The participants were 354 women of childbearing age who met screening criteria for being at risk of an AEP. The binge question was answered positively by 346 women (97.7%) at risk, while only 209 women (59.0%) reported that they drank 8 or more drinks in a week.

Conclusion: A single question about binge drinking can effectively and quickly identify the majority of women at risk of an AEP.

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Birth defects and developmental disabilities related to prenatal alcohol exposure are preventable if women do not drink alcohol when pregnant. The adverse effects of prenatal alcohol exposure can be conceptualized along a continuum referred to as fetal alcohol spectrum disorders,¹ and the effects range from mild to severe. The adverse effects of alcohol exposure to the developing fetus, while wide ranging, often focus on the most severe form of the disorder, known as fetal alcohol syndrome. Such cases involve very heavy drinking by the mother,² and the physical effects include facial defects, growth retardation, and central nervous system and neurodevelopmental abnormalities.³

ne in the United States, but it is estimated that 3 additional children born per 1000 births have alcohol-related neurobehavioral deficits without the physical characteristics of fetal alcohol syndrome.^{4,5} Such less severe forms of fetal alcohol spectrum disorders (eg, alcohol-related birth defects and alcohol-related neurodevelopment disorders) are typically associated with lower levels of maternal alcohol consumption than those associated with fetal alcohol syndrome. These disabilities have been described as problems in sustaining attention, focusing attention, executive function, and working memory.⁶

While the amount of alcohol that will put an unborn child at risk of developmental disabilities has not been clearly established, research suggests that drinking 8 or more standard drinks per week or 5 or more standard drinks on one occasion can cause adverse effects,^{4,7-9} and that binge drinking (ie, 5 standard drinks on one occasion) is especially likely to cause problems.⁵ Drinking at or slightly above these levels is not uncommon for women of childbearing age, especially those who are young and dating regularly. Further, in most cases such drinking would not be considered an alcohol use disorder. Nevertheless, this pattern of drinking is associated with alcohol-exposed pregnancies (AEPs). Because the amount of drinking associated with adverse effects on pregnancy can be far below the levels typically associated with serious alcohol problems, it is important that physicians have tools available that can be used to easily identify women who may be at risk of an AEP.

Because almost half of women who become pregnant report that their pregnancy was unplanned,¹⁰ many are unaware that they are pregnant until a few months into the

pregnancy; by that time, they may have already consumed alcohol at levels that put them at risk of an AEP.¹¹ In contrast, when women find out they are pregnant most will stop or reduce their drinking.^{12,13} Because the social and economic burdens of having a child with fetal alcohol spectrum disorders is substantial and lifelong,¹⁴ prevention of AEPs is an important public health priority and opportunity.

A critical first step in preventing AEPs is to identify women who are at risk. As noted in the report of the National Task Force on Fetal Alcohol Syndrome and Fetal Alcohol Effects, "physicians often have difficulty identifying problematic alcohol use,"^{5,p4} especially among women, and screening instruments developed to identify alcohol problems are less sensitive in identifying risk of AEPs.⁵ Although guidelines exist for evaluating risk in terms of contraceptive practices and frequency and intensity of drinking, several barriers have been identified (eg, lack of time, no reimbursement, lack of training, no perceived need) to explain why screening and counseling related to women's reproductive health is not more prevalent.^{15,16} Moreover, maintenance of screening practices can also be difficult. For example, in one study it was found that primary care physicians could be trained to effectively screen their patients for unhealthy behaviors, including risky alcohol use, but that a year after training their screening levels had returned to baseline.¹⁷ Consequently, one means of identifying women at risk of an AEP is to make screenings uncomplicated and expeditious.^{15,18}

The objective of the present study was to determine how well a single question inquiring about binge drinking (consumption of 5 or more drinks on one occasion) could identify women at risk of an AEP due to their drinking.

Methods

The Institutional Review Board of Nova Southeastern University in Fort Lauderdale, Florida, approved the present study, and the subjects consented to participate in the study.

Participants were part of a study to evaluate a mail-based intervention to prevent AEPs. The details of the interventions are not relevant to the present report, because this report is restricted to an analysis of assessment data. Women responded to media solicitations (eg, posters, flyers, and newspaper advertisements) placed throughout Florida from 2005 through 2007 and that stated, "If you drink alcohol, even in small amounts, you may be eligible to participate in an important research study." Respondents were contacted and screened by telephone for eligibility (ie, at risk for an AEP) on the basis of the following criteria: the subject had to be of child-bearing age (18-44 years) and in the 90 days prior to screening (a) had heterosexual vaginal intercourse, (b) used no or ineffective contraceptive methods, and (c) either consumed an average of 8 or more standard drinks per week, had engaged in binge drinking (ie, consumed 5 or more standard drinks on one occasion), or both. A standard drink was defined as 14 g of any ethanol

(eg, 12 oz of 5% [alcohol] beer, 5 oz of 12% [alcohol] wine, or 40% [alcohol] hard liquor or spirits).¹⁹ Eligibility according to drinking criteria was determined during the phone screening by using the Quick Drinking Screen,²⁰ a self-report measure, and Quick Drinking Screen data were used in the analyses.

The women were randomly assigned to one of two interventions; one group received personalized feedback about their risk, while the other group received a pamphlet titled, "Think Before you Drink," published by the Centers for Disease Control and Prevention (CDC). As part of the study procedures, eligible participants were sent assessment materials that they completed and returned by mail. These materials included a brief questionnaire to gather demographic, drinking, and health behavior information, as well as validity checks on reported contraceptive practices or their absence. These materials elicited more detailed data about participants' drinking habits, and the health behavior questions broadened the focus beyond drinking and birth control practices. The assessment included the Timeline Followback, a psychometrically sound assessment tool²¹⁻²³ that uses a retrospective self-report calendar format. The Timeline Followback provided a validity check on eligibility screening by confirming that participants exceeded the drinking minimums on both the screening and the assessment inquiries. Participants also took part in a 6-month follow-up interview to determine the relative efficacy of the two interventions for the risk of AEP. Because AEPs can be avoided by reduced drinking, effective contraception, or both, data were gathered on drinking and birth control practices over the interval.

Participants were paid \$20 after completing the assessment materials and an additional \$20 after completing the 6-month follow-up interview.

For data analysis, the percentage of women who fulfilled one of the two risk-drinking criteria (binge drinking, average weekly consumption) was calculated, and this analysis allowed an evaluation of each measure's sensitivity for identifying the risk of AEP.

Results

A total of 354 women were eligible and were included in the study. The mean (standard deviation [SD]) age of the 354 participants was 26.34 (6.36) years, and 198 participants (55.9%) were white, 88 (24.9%) were Hispanic, 38 (10.7%) were black, 12 (3.4%) were Asian, and 18 (5.1%) were of other race or ethnicity. One hundred forty-five participants (41.0%) were students. Among nonstudents (n=209), 168 (80.4%) were employed full- or part-time, and 92 (46.0%) of 200 nonstudents for whom occupational status was available were working in white collar jobs.²⁴ A total of 332 women completed the materials in English, and the other 22 completed the materials in Spanish. These groups were combined for the present analysis, as pooling their data did not affect the results.

On the basis of the Timeline Followback results, the

354 participants reported drinking a mean (SD) of 2.95 (1.59) days per week and consuming a mean (SD) of 3.81 (1.83) drinks per drinking day in the 90 days preceding the intervention.

The *Table* presents a contingency table based on data from the Quick Drinking Screen reports and shows the percentage of women at risk for an AEP who reported in their assessment that they drank 8 or more standard drinks per week on average or that they engaged in at least 1 day of binge drinking (defined as 5 or more standard drinks on one occasion) during the 90 days prior to the study. This cross-tabulation clearly demonstrates that the binge drinking question identified almost the entire sample of women (346 women [97.7%]) at risk of an AEP; by contrast, their answers to the question about weekly consumption identified only 209 (59.0%) of the at-risk women.

Discussion

The present findings suggest that asking a single question about binge drinking is a quick and highly sensitive method for identifying women whose alcohol use would place them at risk of an AEP if they were not using contraceptives effectively. Thus, it is recommended that all health care professionals, particularly those in obstetric/gynecology settings who are treating women of childbearing age, incorporate a question about binge drinking days into their regular medical assessment. When the present study was conducted, the existing epidemiologic data suggested a risk criterion of 5 or more drinks on one occasion.⁶ More recently, the CDC adopted a threshold level of 4 or more drinks on one occasion.^{14,25} The criterion of 5 or more drinks captured all but 2.3% of the current study participants, but if it had been lowered to 4 or more drinks, the use of a single question would have had even greater sensitivity. To be consistent with the current CDC recommendation, the inquiry should be adjusted to reflect the new criterion: "How many days during the past 90 days did you consume 4 or more drinks in 1 day?" A woman who responds that she drank 4 or more drinks on any 1 day would be considered as possibly at risk of an AEP. The use of a binge cri-

terion also is consistent with research summarized by Maier and West,²⁶ suggesting that the blood alcohol concentration of the mother (reflected more in binge drinking) rather than the overall exposure to alcohol (reflected in drinks per week) is more likely to pose a risk to the fetus. It also should be noted that there were a few women (2.3%) whose alcohol consumption did not satisfy the binge drinking criterion but whose weekly consumption would put their pregnancy at risk. Such cases could be identified by asking the binge drinking question first and then asking women who screened negative on the binge drinking question about their weekly consumption.

While it might seem that use of a single question is not sufficient to identify women at risk of an AEP, use of a single question is common when screening for alcohol problems generally.^{18,27-29} Since many women could drink enough to be at risk of an AEP yet not meet criteria for an alcohol use disorder, it is vital to have a screening measure that is sensitive to risk of AEP. Importantly, compared with use of longer screening instruments, use of a single, minimally intrusive question to identify women possibly at risk of an AEP could easily be incorporated into routine health care screenings, where time is at a premium.

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(continued)

Table Number (%) of Women Who Were at Risk for Alcohol-Exposed Pregnancy by Weekly Consumption and Binge Drinking			
Average Weekly Consumption of 8 or More Standard Drinks*	Binge Drinking		Total
	Yes	No	
Yes	201 (56.9)	8 (2.3)	209 (59.0)
No	145 (41.0)	0	145 (41.0)
Total	346 (97.7)	8 (2.3)	354 (100.0)

* A standard drink is defined as 14 g of any ethanol (eg, 12 oz of 5% [alcohol] beer, 5 oz of 12% [alcohol] wine, or 1.5 oz of 40% [alcohol] hard liquor or spirits).

SPECIAL COMMUNICATION

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