Letters to the Editor

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The Validity of Self-Reported Condom Use

In their article "Condom Use in Multi-Ethnic Neighborhoods of San Francisco: The Population-Based AMEN (AIDS in Multi-Ethnic Neighborhoods) Study,"[1] Catania et al. reported cross-sectional data on sexual behavior and conclude that interventions that target communication skills and the eroticization of condom use hold promise in promoting condoms. As part of a condom promotion intervention,[2] we have collected similar survey data from predominantly heterosexual Black and Hispanic patients recruited from urban sexually transmitted disease clinics. Using a confidential self-report survey, we measured respondents' ability to eroticize condoms (average of six items, Cronbach's alpha [α] = .71), their technical skill in using condoms (average of five items, α = .59), the frequency of sexual intercourse (average of three items, α = .59), the availability of

TABLE 1—Reported Condom Use, Attitudes, and Subsequent Treatment for Sexually Transmitted Disease (STD) among STD Patients in Los Angeles

	Frequency of Condom Use (Always vs Not Always) OR (95% CI)	Will Use Condoms Next Time They Have Sex OR (95% CI)	Treatment for a New STD over Subsequent 9 Months OR (95% CI)
Women (n = 190)			
Condom skills	6.0 (1.9, 25.2)	1.8 (0.8, 4.4)	0.6 (0.3, 1.3)
Condom availability	3.9 (1.3, 14.1)	1.7 (0.7, 4.0)	1.1 (0.5, 2.1)
Would try to change mind of partner who did not want to use a condom	3.9 (1.9, 8.0)	6.2 (2.2, 17.4)	0.6 (0.3, 1.2)
Ability to eroticize condoms	3.2 (1.1, 10.5)	1.3 (0.6, 3.1)	1.0 (0.5, 2.0)
Would refuse sex with partner who did not want to use a condom	1.9 (1.0, 3.6)	2.4 (1.0, 5.6)	0.6 (0.3, 1.3)
Female friends use condoms	1.7 (0.9, 3.2)	2.0 (0.8, 5.0)	1.4 (0.7, 2.7)
Partner makes the first move during sex	1.5 (0.7, 3.5)	0.4 (0.1, 1.6)	1.1 (0.5, 2.7)
Can talk about condoms with partner	1.3 (0.6, 2.9)	1.2 (0.5, 3.1)	1.0 (0.4, 2.1)
Black	1.3 (0.5, 3.0)	0.8 (0.2, 2.2)	1.3 (0.5, 3.0)
Hispanic	1.1 (0.4, 2.9)	1.3 (0.3, 3.3)	1.1 (0.4, 2.9)
Believes strongly in religion	0.9 (0.3, 2.4)	1.6 (0.7, 3.6)	2.0 (1.0, 4.0)
High frequency of sex	0.8 (0.3, 2.1)	0.6 (0.3, 1.4)	0.8 (0.4, 1.6)
Uses drugs during sex	0.7 (0.2, 1.8)	2.0 (0.8, 5.1)	0.8 (0.4, 1.7)
Men (n = 319)			
Would refuse sex with partner who did not want to use a condom	4.9 (1.9, 15.3)	1.5 (0.7, 3.1)	0.9 (0.5, 1.5)
Would try to change mind of partner who did not want to use a condom	4.1 (1.7, 10.6)	2.3 (1.0, 5.2)	0.9 (0.5, 1.5)
Condom skills	3.7 (1.2, 15.0)	4.5 (2.1, 9.7)	2.4 (1.2, 4.7)
Ability to eroticize condoms	3.2 (1.3, 9.7)	2.6 (1.2, 5.6)	1.3 (0.7, 2.2)
Availability	2.2 (0.9, 5.5)	2.3 (1.1, 4.7)	1.3 (0.7, 2.3)
Partner makes the first move during sex	2.2 (0.9, 5.3)	2.3 (1.1, 4.9)	1.2 (0.7, 2.1)
Male friends use condoms	2.2 (0.9, 5.3)	3.6 (1.6, 8.3)	0.7 (0.4, 1.2)
Hispanic	2.0 (0.8, 5.2)	1.6 (0.6, 4.8)	0.5 (0.2, 1.1)
Frequency of sex	2.1 (0.9, 5.5)	0.7 (0.3, 1.5)	1.2 (0.7, 2.1)
Can talk about condoms with partner	1.9 (0.7, 6.5)	1.5 (0.7, 3.1)	0.7 (0.4, 1.4)
Believes strongly in religion	0.7 (0.3, 1.6)	0.5 (0.3, 1.2)	1.2 (0.7, 2.2)
Black	0.7 (0.3, 1.7)	0.7 (0.3, 1.6)	2.3 (1.1, 4.7)
Uses drugs during sex	0.4 (0.2, 0.9)	1.0 (0.4, 2.0)	1.2 (0.7, 2.3)

Note. All variables and scales are ordered from low to high, so that a low value means a lower frequency of the item and a higher value corresponds with a higher frequency.

condoms (average of five items, α = .65), and individual items regarding communication, religious beliefs, drug use during sex, and friends' use of condoms. In addition, we were able to abstract patients' medical records in order to correlate self-report with some objective measure of safer sexual behavior. We recorded any instance of treatment for a new sexually transmitted disease within the 9 months after the survey was completed.

For the purposes of comparison, we calculated odds ratios (OR) between the hypothesized risk factors and the self-report of frequency of condom use, the intention to use condoms, and any treatment for a new sexually transmitted disease within the 9 months subsequent to the survey (Table 1). Results from our cross-sectional data are similar to those of the AMEN study, with measures of communication and the ability to eroticize condom use correlating with reported condom use and intentions to use condoms. However, the risk factors we identified at baseline had little predictive value for long-term safer sexual behavior. Patients with both high and low communication skills and an ability to eroticize condoms had an equal risk of being treated for a new sexually transmitted disease in the subsequent 9 months.

This discordance between self-reported cross-sectional and objective longitudinal data may be explained in several ways. First, good communication skills and the ability to eroticize condom use may not be etiologically related to condom-use behavior but only associated with a third variable that is related to such behavior. Second, there is likely to be a strong self-report bias, because patients who report more positive communication skills and the ability to eroticize condoms may overreport their use of condoms. Third, as Francis Bacon wrote over 350 years ago, "it is impossible to love and be wise." It may be that, during sexual liaisons, even the best of intentions are neglected. Indeed, there are weak associations between intentions and behaviors for other health domains such as substance use and diet. Lastly, our subjects were particularly high-risk and may not be representative of the general population surveyed in the AMEN study, because they may not be as likely to follow through on their intentions.

While our data are limited in that we only have reinfection data on patients who voluntarily returned for subsequent treatment to the same clinic, our results raise legitimate questions on the validity of self-reported sexual behavior and the relevance of cross-sectional data to behavioral inter-

ventions on barrier contraceptives. Our experience with high-risk populations leads us to believe that the greatest promise for the promotion of barrier contraceptives lies in improving individuals' skills in using them and in increasing societal norms for the acceptability of condoms,[2] rather than in counseling to either improve or sever dysfunctional relationships. The latter would require intensive, long-term programs, unlikely to be feasible for mass populations. □

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References

1. Catania JA, Coates TJ, Kegeles S, et al. Condom use in multi-ethnic neighborhoods of San Francisco: the population-based AMEN (AIDS in multi-ethnic neighborhoods) study. *Am J Public Health.* 1992;82: 284–287. (Erratum, *Am J Public Health,* 1992;82:998.)
2. Cohen DA, Dent C, MacKinnon D, Hahn G. Condoms for men, not women: results of brief promotion programs. *Sex Transm Dis.* 1992; in press.

Catania and Colleagues Respond

Cohen and Dent address an important issue in AIDS behavioral research, namely the psychosocial antecedents of sexual behavior and the validity of self-report measures. They report significant correlations between various psychosocial variables and self-reported condom use, but they then fail to find significant relationships between the psychosocial predictors and medical-record reports of a "new" sexually transmitted disease (STD). The authors conclude that "our results raise legitimate questions on the validity of self-reported sexual behavior and the relevance of cross-sectional data to behavioral interventions on barrier contraceptives."

We are pleased to see that Cohen and Dent's data replicate our earlier findings.[1] We also agree with Cohen and Dent regarding the limitations of cross-sectional data. However, there are a number of conceptual and methodological problems with the interpretation of their results.

First, Cohen and Dent's argument rests on the assumption that self-reported condom use and reported STDs are or should be isomorphic. This assumption is apparent in their observation that "the risk factors identified at baseline had little pre-

dictive value for long-term sexual behavior," when in fact the authors did not assess behavior in the "long term"—rather, they measured STDs. As with other biological markers of sexual behavior, STDs do not have a one-to-one relationship with frequency of sexual behavior.[2] For example, research has shown that not all wives of HIV-infected male hemophiliacs have seroconverted even after years of unprotected vaginal intercourse.[3] Clearly, STDs are not a gold standard by which we can judge the validity of self-reported condom use. Oddly enough, Cohen and Dent did not report the relationship between the self-reported condom-use measure and the STDs occurring over the ensuing 9 months.

Second, Dent and Cohen also assume that the behavior reported at baseline is generalizable to the subsequent 9-month interval. This assumption is implicit in their expectation that the correlates of self-reported condom use at baseline should also correlate with the occurrence of STDs over the following 9 months. In making this assumption, the authors have not taken into account the issue of relapse. Longitudinal studies of gay men indicate considerable relapse in condom use over time.[4–7] There is little reason to believe that heterosexual condom users might not also show relapse. In brief, people reporting 100% condom use at baseline may have relapsed over the ensuing 9 months and as a consequence contracted another STD. From this perspective, it is important to consider that the correlates examined by Cohen and Dent may primarily be the correlates of the process of adopting condom use, which may be quite different from the correlates of relapse. Thus, the significant correlates of condom use in their baseline survey (characteristics of people who adopted condom use) could not uniformly be expected to be significantly correlated with STDs (an outcome of relapse) over the following 9 months.

Third, there are an array of studies that support the validity of self-reported condom use and sexual behavior. Prior cross-sectional and longitudinal studies indicate that self-reported condom use is related to HIV seroconversion[4,8,9]; for reviews see Catania, Gibson, Chitwood, and Coates,[2] Shelton and Harris,[10] and Catania, Gibson, Marin, Coates, and Greenblatt.[11] Other studies using different methods have also addressed the issue of validity of self-reported sexual behavior.[12,13] In general, it is not possible to precisely validate exact frequency reports of behavior, but it is possible to validate