Gender Differences in Self-Reported Alcohol Use Prior to Alcohol-Related Motor Vehicle Crashes: Preliminary Findings

M. SOMMERS, J. DYEHOUSE, S. HOWE, T. VOLZ and M. MANHARTH
University of Cincinnati, ML 0038, Cincinnati, OH USA 45221-0038

INTRODUCTION

Motor vehicle crashes (MVC) are known to be associated with alcohol use and abuse (CDC, 1995; National Safety Council, 1995). In the United States (US), from 40% to 45% of all traffic fatalities involve an intoxicated or alcohol-impaired driver or nonmotorist (National Safety Council, 1995). Self-reported alcohol use is an important adjunct to the treatment of many alcohol-related health problems (Brown, Kranzler, & Del Boca, 1992) and is useful in the management of injury following an alcohol-related MVC (Sommers & Dyehouse, 1995). Self-reported data on alcohol use can also be used for screening and to plan interventions with the goal of prevention of recurrent trauma after an MVC (Gentilello et al., 1995).

Studies reporting the validity of self-reported alcohol use in populations other than trauma patients show that self-reports can generally be trusted when gathered under proper conditions (Sobell & Sobell, 1990). Validity of self-reported alcohol use is enhanced when the interview occurs after the subject is alcohol-free (Brown et al., 1992). Other conditions that reduce the likelihood of false reports include the use of collateral informants, use of accompanying breath or blood alcohol testing, and insurance of confidentiality (Sobell & Sobell, 1986). The purpose of this study was to determine the validity of self-reported alcohol consumption for the hours immediately prior to injury in patients hospitalized for trauma following an alcohol-related MVC.

METHODS

Eligible subjects included patients 18 to 45 years admitted to two Trauma Centers in the state of Ohio, US, with injuries following an MVC. Subjects had to speak English, be mentally alert, and be nondependent drinkers to participate in the study. Subject's blood alcohol concentration (BAC) was obtained upon admission and analyzed by either gas chromatography or the enzymatic method of blood alcohol analysis depending on the Trauma Center. When the subject was no longer intoxicated, self-reported alcohol consumption on the day of injury was obtained.
by the Timeline Followback (TLFB) method (Sobell & Sobell, 1992) by specially trained nurse clinicians. To assist subjects recall their drinking, TLFB contains a visual calendar with key dates highlighted and a standard drink conversion card. The calendar serves as a temporal framework used to recall dates and identify periods of invariant drinking or extended abstinence. The subject was asked only to report when drinking began prior to injury as well as the total amount of alcohol consumed.

Following the interviews, the subject's estimated blood alcohol concentration (EBAC) was determined from self-report data with the Blood Alcohol Content Estimator, a computer program (Department of Transportation, National Highway Traffic Safety Administration, 1994). This program provides an estimate of BAC based on a person's weight, gender, number of drinks consumed, and time period of consumption.

RESULTS

As of March 15, 1997, we had enough information to calculate EBAC using the NHTSA program for 9 women and 45 men. Seven other subjects, all male, denied drinking the day of the MVC in spite of laboratory BAC > 10 mg/dL. The women reported data that lead to an estimated BAC of 131.1 mg/dL, which was not significantly different than the laboratory BAC of 167.0 mg/dL (t < 1; df 8; n.s.) although the small sample size raises the possibility of a Type II error. Men significantly under-reported the amount that they had been drinking. EBAC was only 45.9 mg/dL even among the men who admitted drinking, versus a laboratory BAC of 148.82 mg/dL (t = 6.99; df 38; p < .001). The correlation between the EBAC and BAC was $r = 0.38$ for female subjects and $r = 0.36$ for male subjects.

Four subjects, two women and two men, over-reported the amount of alcohol they consumed (or under-reported the number of hours they had been drinking). Many more subjects under-reported their drinking by enough drinks that their estimated levels were zero.

SUMMARY

Subjects tended to under-report total alcohol ingestion prior to the alcohol-related motor vehicle crash. EBAC was an average of approximately 36 mg/dL less than BAC (about two standard drinks) in women and 100 mg/dL (about 5 standard drinks) in men (n=42). Although seven male subjects denied alcohol ingestion prior to injury, they comprised only 11% of the sample. These subjects tended to be younger and more severely injured than those who acknowledged drinking prior to injury. In spite of this subset of subjects who denied drinking at all, 89% of subjects when no longer intoxicated provided a self-report that was a reflection of the general patterns of drinking.
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REFERENCES


