

CORRELATIONS FOR ALCOHOL USE, ABUSE, AND TREATMENT WITH SUICIDE AND HOMICIDE ACROSS 21 NATIONS¹

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Summary.—In this study which followed Lester's work of 1998 and 2001 for 27 nations of the world, membership in Alcoholics Anonymous, but not alcohol consumption or cirrhosis mortality as measures of alcohol use, abuse, and treatment, correlated with homicide but not suicide rates. Changes in Alcoholics Anonymous membership were not associated with changes in age-adjusted rates of homicide or suicide.

The association between alcohol use and personal violence has been noted. Lester (1992) reported that those who abuse alcohol have a high rate of suicide and suicidal persons have high rates of alcohol abuse. At the time of homicide many victims and their murderers were intoxicated on alcohol (Hollis, 1974). Lester (1998) reported that this relationship between alcohol and personal violence was noted at both the aggregate and individual levels of measurement. One analysis showed alcohol consumption was positively associated with rates of suicide across states of the USA in 1980; however, alcohol consumption was not associated with rates of homicide (Lester, 1994).

Researchers reported that increases in the treatment of alcohol abusers, as indicated by membership in Alcoholics Anonymous, was associated with a decrease in the mortality rate from cirrhosis of the liver (Smart & Mann, 1993). From this study one may ask whether increases in treatment of alcohol abusers have been followed by a decrease in the rates of suicide. Several studies examined data to answer this question. These studies indicated correlations for suicide or homicide rates over 48 states in the USA with three measures of alcohol use, abuse, and treatment, i.e., alcohol consumption, cirrhosis mortality, and membership in Alcoholics Anonymous, respectively. For example, Lester (1998, 2001) found that in over 48 states in the USA and in 27 nations of the world, alcohol consumption, but not mortality from cirrhosis or membership in Alcoholics Anonymous, predicted rates of suicide. In 1998 Lester reported that in these 48 states, Alcoholics Anonymous membership predicted rates of homicide.

Because these previous findings are somewhat different, the present study was done to examine whether the increase in treatment of alcohol

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abusers is associated with a decrease in rates of suicide. In addition, the present study (1) checked the reliability of previous findings for suicide by using a subset of 19 (21) out of his 27 nations, but for two different years (Lester, 2001), i.e., 1965 and 1986 (instead of 1965 and 1991), (2) extended Lester's study (2001) by adding homicide, and (3) used age-adjusted rather than raw rates of suicide and homicide.

METHOD

Lester (2001) obtained his data for Alcoholics Anonymous groups per 100,000 cirrhosis death rates, and per capita consumption of alcohol, from Smart, Mann, and Suurvali (1998). These researchers reported using raw rates of cirrhosis mortality which were not age-standardized for the years 1965 and 1991 (or the closest year available) and indicated that their data may have been influenced by the changing age distributions for source countries.

First and unlike Lester (2001), in the present study the number of Alcoholics Anonymous groups per 100,000 people were calculated using the number of Alcoholics Anonymous groups (Peele, 1997) and the estimated population per country was obtained from the United Nations (2000). Second, the present analysis used age-adjusted rates ("Old" European standard) of suicide, homicide, and cirrhosis mortality per 100,000 population (code number 571 assigned in the 9th Revision of the International Classification of Diseases) which were obtained from World Health Organization (WHO) and the United States National Vital Statistics System (WHO, International Mortality Database; 1995). This "standard has been used by the World Health Organization to calculate age-adjusted rates for many years and is routinely presented in the World Health Statistics Annual" (WHO, 1992, pp. 8-9). Third, data by country for consumption of alcohol per capita (WHO, 1995) were available online at the Global Alcohol Database.² According to the WHO website, adult per capita alcohol consumption is measured in liters of pure alcohol per adult (15+ yr.), that is, the "estimated amount of pure ethanol in liters of total alcohol, and separately beer, wine, and spirits consumed per adult (15 yr. and older) in the country during a calendar year, as calculated from official statistics on production, sales, import and export, taking into account stocks whenever possible."

RESULTS AND DISCUSSION

Using data for 19 of the 27 nations (Lester, 2001), only two of the 24 correlations, i.e., between Alcoholics Anonymous groups and rates of homicide, were statistically significant, as shown in Table 1. In both 1965 and

²(<http://www3.who.int/whosis/menu.cfm?path=whosis,alcohol&language=english>)

1986, rates of Alcoholics Anonymous membership were significantly and positively associated with age-adjusted rates of homicide. For these same 19 nations, none of the measures of alcohol use, abuse, and treatment (per capita alcohol consumption, cirrhosis mortality, and per capita membership in Alcoholics Anonymous) were associated with rates of suicide. This analysis was repeated using 21 nations after adding data from Costa Rica and Uruguay which are two nations not included in Lester's original study (2001). In both 1965 and 1986, rates of Alcoholics Anonymous membership and age-adjusted rates of homicide remained statistically significantly associated. Again, for these 21 nations none of these measures were associated with rates of suicide. Thus, for both 19 and 21 nations those with higher per capita membership in Alcoholics Anonymous had lower rates of homicide.

TABLE 1
PEARSON CORRELATIONS OF ALCOHOL USE, ABUSE, AND TREATMENT
MEASURES WITH SUICIDE AND HOMICIDE RATES

| | Suicide Rate | | Homicide Rate | |
|------------------------|--------------|------------|---------------|------------|
| | 19 Nations | 21 Nations | 19 Nations | 21 Nations |
| 1965 Data | | | | |
| AA Membership | -.02 | -.17 | .48* | .48* |
| Cirrhosis Mortality | -.06 | -.05 | .09 | .07 |
| Alcohol Consumption | -.22 | -.12 | -.14 | -.22 |
| 1986 Data | | | | |
| AA Membership | -.02 | -.21 | .49* | .51† |
| Cirrhosis Mortality | -.18 | -.17 | -.06 | -.05 |
| Alcohol Consumption | -.26 | -.22 | -.15 | .07 |
| 1965-1986 | | | | |
| Absolute Differences | | | | |
| AA Membership | .17 | .19 | .35 | .06 |
| Cirrhosis Mortality | .40 | .45‡ | .10 | .15 |
| Alcohol Consumption | .24 | -.31 | .16 | -.48* |
| Percentage Differences | | | | |
| AA Membership | .04 | -.07 | .15 | .06 |
| Cirrhosis Mortality | -.07 | -.02 | -.08 | -.05 |
| Alcohol Consumption | -.11 | -.16 | -.20 | -.19 |

Note.—The 19 nations were Australia, Belgium, Canada, Denmark, Finland, West Germany, Ireland, Italy, Japan, The Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, United States of America, and The United Kingdom. In the group of 21 nations were included Costa Rica and Uruguay. *Two-tailed $p < .04$. † $p < .02$. ‡ $p < .05$.

With regard to changes in these measures for the 21 nations from 1965 to 1986, absolute changes in cirrhosis mortality and in suicide were positively associated and negatively with rates of homicide. For the 21 nations, the associations among measures of alcohol use, abuse, and treatment with rates of suicide and homicide were larger than those for the 19 nations. See Table 1.

Like Lester's use of different years (1998), the present analysis indicated that per capita membership in Alcoholics Anonymous was the only predictor of national rates of homicide, but changes in the per capita membership did not predict changes in the rates of homicide (neither absolute or percentage). Unlike present results, Lester (1995) reported a positive, moderate association between the rate of suicide but not of homicide with alcohol consumption. It has been suggested that a high per capita membership in Alcoholics Anonymous in a location may indicate both high alcohol use and abuse and more treatment (Lester, 1998). Further, higher rates of suicide may be the consequence of high alcohol use and abuse. On the other hand, lower rates of suicide may be the result of more treatment. Lester speculated that these effects may cancel each other out. However, Lester reported that "Cirrhosis mortality was not associated with rates of suicide over the states, and this may be because cirrhosis mortality is the consequence of alcohol abuse over a long period of time, and thus fails to show up in a single-year aggregate cross-sectional study. Membership in Alcoholics Anonymous also failed to correlated with suicide rates, and this perhaps is a result of the complex meaning of this measure" (p. 24).

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