

# Alcohol Drinking Patterns among Jewish and Arab Men and Women in Israel\*

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**ABSTRACT.** *Objective:* Jews and Muslim Arabs comprise the bulk of modern Israeli society. Jewish tradition permits controlled alcohol drinking, whereas Muslim tradition prohibits the use of any alcohol. Increasing exposure of the traditionally conservative Arab sector to the Western culture of modern Israel might impact on and be reflected in the drinking patterns of these two populations. The influence of religiosity and other factors on drinking patterns of Jewish and Arab adults are examined using data from a 1995 national household survey. *Method:* Past-month drinking is assessed in this nationally representative sample of nearly 5,000 Jews and 1,000 Arabs ( $N = 5,954$ , 60% women). Unadjusted and adjusted odds ratios (ORs) are presented to describe associations between any and heavy drinking and nationality group, religiosity, education and marital status among men and women. Modification of the nationality-drinking relationship by religiosity is also examined. *Results:* Any past-month drinking was reported more often by Jewish respondents than Arab respondents (OR = 2.9, 95% CI: 2.5-3.4),

and this difference remained statistically significant after accounting for the effects of the other covariables. This cross-nationality difference was more pronounced among women (OR = 6.4, 95% CI: 4.6-8.8) than men (OR = 2.3, 95% CI: 1.8-2.9). The proportion of drinkers who reported heavy drinking in the past month, however, was lower among Jews (OR = 0.3, 95% CI: 0.2-0.4). Significantly higher rates of drinking were noted for secular men and women than for religious respondents in both nationality groups. Rates of drinking were more similar among secular Arabs and Jews than among religious respondents of these nationality groups. *Conclusions:* These results add support to the theory that adherence to religious traditions continues to serve as a barrier against drinking among both Arabs and Jews. Further work is required to determine if these patterns are stable over time and whether genetic factors are contributing to the sociocultural influences. (*J. Stud. Alcohol* 62: 443-447, 2001)

ISRAELI SOCIETY comprises primarily two coexisting cultural groups or "nationalities": Jewish (about 5 million) and Arab (about 1 million) citizens. The Arab population is predominantly Muslim (approximately 75%); 17% are Christian and 8% Druze. Muslim tradition prohibits the drinking of alcohol (Baasher, 1981; Bales, 1946) although historically this prohibition has been less than completely adhered to (Bales, 1946). The Jewish (and Christian) tradition tolerates, and even advocates, moderate and controlled alcohol consumption, at least within religious contexts (Kottek, 1989). Indeed, alcohol is sold freely (except to minors) and is widely available in Jewish communities throughout the country.

Jews and Arabs in Israel often work and live in close geographic proximity. The Arab community is increasingly being exposed to the predominating Western culture. This coexistence of disparate religious and cultural mores with regard to the drinking of alcohol within a changing social

milieu provides fertile ground for investigating cross-cultural patterns of alcohol consumption. We use data from a national epidemiologic survey to examine the issue of cross-cultural and gender differences in the patterns of alcohol consumption in Israel.

## Method

Details of the sampling methods for the Jewish respondents have been described previously (Hasin et al., 1998; Rahav et al., 1999). Respondents were chosen from a national multistage probability sample designed to represent Israeli household residents between the ages of 18-40, excluding those living in kibbutz settlements, individuals in compulsory military service not living at home and institutionalized persons. For the Arab sample, 22 large towns (of 5,000 or more residents) were selected at random from within four geographical regions of the country (North, Haifa, Central and Tel Aviv). Age- and gender-stratified quota samples of persons aged 18-40 years were drawn from each of the selected communities. The quotas were determined relative to the size of the community. The quota technique was adopted due to the absence of a complete listing of households within each of the communities and the multiplicity of persons with the same first and last names residing in the same dwelling clusters. Women were

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TABLE 1. Demographic characteristics of the Arab and Jewish study populations by gender

|                           | Jews               |                      |                      | Arabs            |                    |                    |
|---------------------------|--------------------|----------------------|----------------------|------------------|--------------------|--------------------|
|                           | Men<br>(n = 1,992) | Women<br>(n = 2,980) | Total<br>(N = 4,972) | Men<br>(n = 392) | Women<br>(n = 590) | Total<br>(N = 982) |
| Marital status            |                    |                      |                      |                  |                    |                    |
| Married                   | 46.9               | 58.6                 | 53.9                 | 41.6             | 46.0               | 44.2               |
| Not married               | 53.1               | 41.4                 | 46.1                 | 58.4             | 54.0               | 55.8               |
| Education (yrs)           |                    |                      |                      |                  |                    |                    |
| ≤8                        | 3.5                | 2.2                  | 2.7                  | 16.1             | 18.3               | 17.4               |
| 9-12                      | 70.1               | 66.4                 | 67.9                 | 60.9             | 60.6               | 60.7               |
| ≥13                       | 26.4               | 31.4                 | 29.4                 | 23.1             | 21.1               | 21.9               |
| Religiosity               |                    |                      |                      |                  |                    |                    |
| Secular                   | 48.6               | 40.4                 | 43.7                 | 34.4             | 25.1               | 28.8               |
| Religious                 | 51.4               | 59.6                 | 56.3                 | 65.6             | 74.9               | 71.1               |
| Mean age (SD)             | 27.5 (7.0)         | 28.1 (7.0)           | 27.9 (7.0)           | 27.0 (6.2)       | 25.6 (5.6)         | 26.1 (5.9)         |
| Mean no. of children (SD) | 2.1 (1.5)          | 2.3 (1.5)            | 2.2 (1.5)            | 2.7 (2.0)        | 2.7 (1.9)          | 2.7 (1.9)          |

oversampled to constitute 60% of the sample. A total of 5,954 respondents were interviewed. Response rates for the survey samples are not available.

After informed consent was obtained, all participants were interviewed in Hebrew or Arabic by trained Jewish and Arab interviewers using a closed-ended questionnaire. The alcohol measures employed in this survey have been used repeatedly in household- and school-based surveys in Israel, and have shown good reliability (Barnea et al., 1987). Current drinking is defined as the report of nonritual alcohol consumption in the month prior to the interview. Heavy drinking is defined as having consumed five or more drinks within "a few hours," at least once in the month prior to interview. Level of religiosity was assessed on a five-point scale ranging from "very religious" to "secular." This scale was dichotomized for the purposes of this report into "religious" or "secular."

Odds ratio (OR) point estimates, together with their 95% confidence intervals (CI), are used to describe associations between drinking patterns and nationality group. Heterogeneity of odds ratios across subgroups of gender was examined. Multiple logistic regression was employed to appraise the independent associations between alcohol consumption and nationality while adjusting for the effects of religiosity,

education and marital status and age. Last, we tested for the modification of the nationality-drinking relationship by religiosity through the introduction of multiplicative interaction terms into the logistic models.

## Results

Demographic characteristics of the survey population are presented in Table 1. In keeping with the sample design, 60% of both Arab and Jewish respondents were women. Significant differences between the groups were found with regard to marital status, education and religiosity, with a greater proportion of Arab respondents being not married at time of interview, reporting 8 or fewer years of education and classifying themselves as religious. Arab respondents were significantly younger, on average, than were Jewish respondents, although they reported having a greater number of children.

The rate of past-month (current) drinking was significantly higher among Jewish respondents (46.6%) than Arab (22.9%) respondents (OR = 2.9, 95% CI: 2.5-3.4). Due to the relatively low rate of drinking among Arab women, as seen in Table 2, the magnitude of this difference was significantly greater between Jewish and Arab women (OR

TABLE 2. Rates (%) and estimated odds ratios (95% confidence intervals) of past-month drinking among Arab and Jewish men and women by religiosity, education level and marital status, 1995

|                 | Men  |       |               | Women |       |                 |
|-----------------|------|-------|---------------|-------|-------|-----------------|
|                 | Jews | Arabs | OR (95% CI)   | Jews  | Arabs | OR (95% CI)     |
| Total           | 66.5 | 46.4  | 2.3 (1.8-2.9) | 33.4  | 7.3   | 6.4 (4.6-8.8)   |
| Religiosity     |      |       |               |       |       |                 |
| Secular         | 71.6 | 62.9  | 1.5 (1.0-2.2) | 43.4  | 19.6  | 3.2 (2.0-4.8)   |
| Religious       | 62.0 | 37.3  | 2.7 (2.1-3.6) | 26.6  | 3.5   | 9.9 (5.9-16.8)  |
| Education (yrs) |      |       |               |       |       |                 |
| ≤8              | 62.9 | 56.5  | 1.3 (0.6-2.6) | 23.1  | 3.8   | 7.6 (2.4-24.3)  |
| 9-12            | 65.6 | 47.7  | 2.1 (1.6-2.8) | 30.2  | 8.0   | 5.0 (3.4-7.4)   |
| ≥13             | 69.3 | 36.0  | 4.0 (2.5-6.4) | 40.9  | 9.0   | 7.0 (3.7-13.2)  |
| Marital status  |      |       |               |       |       |                 |
| Married         | 68.7 | 42.9  | 2.9 (2.1-4.1) | 32.4  | 3.7   | 12.3 (6.5-23.4) |
| Not married     | 64.9 | 48.7  | 2.0 (1.5-2.6) | 34.8  | 10.2  | 4.7 (3.2-6.9)   |

= 6.4) than between Jewish and Arab men (OR = 2.3) ( $p < .05$  from  $\chi^2$  heterogeneity test of odds ratios). The higher rates of current drinking among Jewish men and women were noted in all categories of religiosity, education and marital status (Table 2).

We also examined whether the nature of the associations between drinking and these independent variables differed across nationality-gender groups. The rate of current drinking was significantly higher among secular respondents than among religious respondents of both genders and nationality groups. This association was strongest among Arab women (OR = 6.7, 95% CI: 3.4-12.9) and also present among Jewish women (OR = 2.1, 95% CI: 1.8-2.5), although significantly less strong ( $\chi^2$  heterogeneity  $p < .05$ ). Similarly, the association among Arab men (OR = 2.8, 95% CI: 1.8-4.4) was significantly stronger than among Jewish men (OR = 1.6, 95% CI: 1.3-1.9).

A trend toward higher rates of drinking with increased education was noted for Jewish men and for women of both nationalities, whereas among Arab men the reverse trend was evident (Table 2). For Jewish women and Arab men these trends were significant. Married Arab women were significantly less likely to report current drinking than unmarried Arab women (OR = 0.3, 95% CI: 0.2-0.7). No association between drinking and marital status was noted among Jewish women or for men of either nationality. Neither was there a consistent pattern of current drinking by age across nationality groups or genders.

Results of multivariate logistic regression indicate that, upon controlling for the effects of education, marital status and age, the likelihood of current drinking remains significantly higher among Jews than Arabs of both genders, and among secular men and women of both groups compared with religious respondents. These models also revealed significant interaction between nationality group and religiosity in both sexes. The adjusted odds ratios for men and women are significantly lower than that expected based on a multiplicative model (OR<sub>observed</sub> = 4.7 vs OR<sub>expected</sub> = 9.0

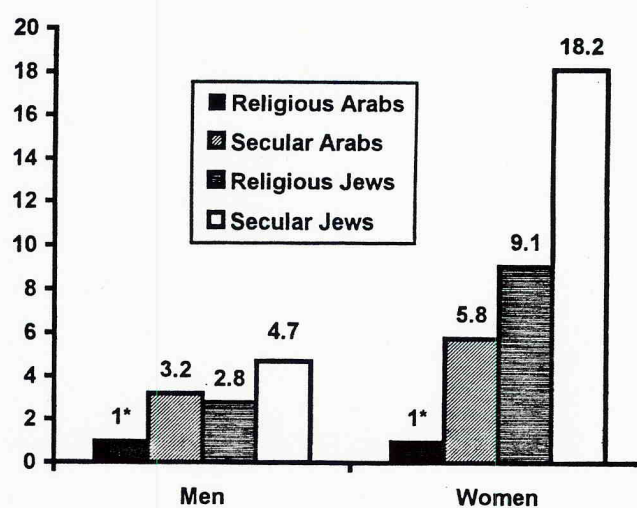


FIGURE 1. Odds ratios for current drinking by nationality and religiosity, adjusted for education, marital status and age, Israel, 1995 (\*reference category)

in men, OR<sub>observed</sub> = 18.2 vs OR<sub>expected</sub> = 52.8 in women, respectively) (Figure 1).

We investigated patterns of heavy drinking among current drinkers. In this subsample, the proportion that reported past-month heavy drinking (i.e., five or more drinks within a few hours) was significantly lower among Jewish respondents (16%) compared with Arab (39%) respondents (OR = 0.3, 95% CI: 0.2-0.4). This was true for both genders (Table 3). The rate of heavy drinking was similar between Arab men and women (although the rate of past-month drinking was six times higher among men than women). It is interesting to note that differences between Jews and Arabs with regard to heavy drinking were significant among secular respondents of both genders, but not among respondents who classified themselves as religious. Also, religious Jewish men and women tended to report heavy drinking more often than secular Jews, whereas the opposite was true among Arab men and women.

TABLE 3. Rates (%) and estimated odds ratios (95% confidence intervals) of past-month heavy drinking among Arab and Jewish men and women who reported past-month drinking, by religiosity, education level and marital status, 1995

|                 | Men  |       |               | Women |       |                  |
|-----------------|------|-------|---------------|-------|-------|------------------|
|                 | Jews | Arabs | OR (95% CI)   | Jews  | Arabs | OR (95% CI)      |
| Total           | 21.8 | 39.6  | 0.4 (0.3-0.6) | 8.1   | 34.9  | 0.2 (0.1-0.3)    |
| Religiosity     |      |       |               |       |       |                  |
| Secular         | 19.2 | 50.6  | 0.2 (0.1-0.4) | 6.3   | 50.0  | 0.1 (0.0-0.2)    |
| Religious       | 24.7 | 30.9  | 0.7 (0.5-1.2) | 9.7   | 6.7   | 1.5 (0.2-11.7)   |
| Education (yrs) |      |       |               |       |       |                  |
| ≤8              | 27.3 | 40.0  | 0.6 (0.2-1.4) | 26.7  | -     | -                |
| 9-12            | 23.2 | 40.2  | 0.4 (0.3-0.7) | 9.7   | 28.6  | 0.3 (0.2-0.4)    |
| ≥13             | 17.6 | 40.6  | 0.3 (0.1-0.7) | 4.8   | 63.6  | 0.03 (0.02-0.05) |
| Marital status  |      |       |               |       |       |                  |
| Married         | 20.0 | 31.9  | 0.5 (0.3-0.9) | 8.5   | 40.0  | 0.1 (0.0-0.5)    |
| Not married     | 23.6 | 42.7  | 0.4 (0.3-0.6) | 7.6   | 31.3  | 0.2 (0.1-0.4)    |

With regard to education, significant Jewish-Arab differences in heavy drinking were noted for respondents with 9 or more years of schooling (Table 3). Arab men with 8 or fewer years of education also had a higher rate of heavy drinking than comparable Jewish men, although this difference was not significant. A significant inverse relationship between heavy drinking and education was evident among Jewish men and women, whereas the opposite trend ( $p < .001$ ) was noted for Arab women. Among Arab men, the rate of heavy drinking was constant across education categories. Significantly higher rates of heavy drinking were also found among married and nonmarried Arab men and women compared with Jews (Table 3).

The higher rates of heavy drinking among Arab respondents remained significant upon adjustment for religiosity, education level, marital status and age among men (OR = 0.4, 95% CI: 0.3-0.6) and women (OR = 0.2, 95% CI: 0.1-0.3).

### Discussion

Findings from this national household survey indicate that, in Israel, nearly half of Jewish adults and just over 20% of Arab adults report nonritual past-month alcohol consumption. This cross-nationality difference, which was more pronounced among women, remained significant after accounting for differences in religiosity, education level and other sociodemographic factors. Past-month heavy drinking, however, was more often reported by Arab drinkers than by Jewish drinkers. In both nationality groups, the rate of past-month drinking was higher among secular men and women than among religious respondents. The rate of heavy drinking, however, was higher among religious Jews compared with secular Jews, whereas the opposite was true among Arabs.

We also show that the rate of past-month drinking among secular Arab men is not very different from the rate among secular Jewish men (63% and 72%, respectively), whereas the rate among religious Arab men (37%) is almost half that of religious Jewish men (62%). Among women, the Jewish-Arab difference in drinking rates was also less pronounced for secular than for religious respondents. These findings seem to support the notion that the secularization of the Arab population has reached a point at which religious affiliation (i.e., belonging to the Islam faith, if those who reported drinking are Muslim) has little effect on actual behavior, and it is only the actual observance of religious laws and traditions that may serve as a barrier against alcohol consumption (Teichman et al., 1994; Weiss et al., 1999). Indeed, only about 20% of Muslim and Druze high school seniors in Israel indicate that "religious intolerance of alcohol use" is the major reason for abstaining (Moore and Weiss, 1995).

Surveys conducted during the 1980s indicated that some 30% of Israeli Jewish adults drink alcohol nonritually at least once a month (Bar et al., 1990). These earlier surveys also found lower rates of drinking among religious respondents than among secular respondents. In a recent review of the published literature on alcohol consumption patterns among Israeli Arabs (Weiss et al., 1999), only one report referred to adults. In that report of a 1991 survey of Arab (Muslim and Christian) and Jewish schoolteachers ( $N = 553$ ), past-month drinking was reported by about 36% of Arab teachers (39% of men and 32% of women; no Muslim women reported drinking) (Weiss and Moore, 1992). Among Jewish teachers, 67% of men and 39% of women reported drinking, for an overall rate of about 43%. These rates are very similar to those found in the current study. In the 1991 study, heavy drinking (there defined as four or more drinks on any single drinking occasion) was reported more often by Arab (4%) than by Jewish (1%) teachers, although the higher proportion of male teachers in the Arab school system may explain this difference.

A recent cross-cultural examination of gender differences in drinking patterns found that, although women do not differ drastically from men with regard to the likelihood of reporting past year drinking, men are considerably more likely to experience heavy episodic drinking in the past year (Wilsnack et al., 2000). These findings were consistent across survey samples from 10 different countries (including an earlier national Israeli sample, based on unpublished data), with male:female ratios for heavy episodic drinking ranging from 1.8-4.3. In that comparative analysis, Israel presented the largest gender difference for past year drinking (m:f ratio = 1.5) and the second highest gap for episodic drinking (m:f ratio = 2.9). The present data reveal similar gender patterns, with heavy drinking being reported 1.6-5.0 times more by men than by women of both nationality groups. Whereas Arab women are considerably less likely to report past month drinking than are Arab men, the m:f ratio among Jewish respondents is more in keeping with those reported for the various countries (1.0-1.5).

Several limitations of the present study warrant mention. First, although our findings seem to confirm earlier reports, it is recognized that point-prevalence rates of alcohol consumption obtained from self-report survey data may underestimate true drinking habits. This would be particularly true with regard to heavy drinking, as it is generally agreed that heavy drinkers tend to be underrepresented in population-based surveys (Feunekes et al., 1999; Rehm, 1998). The degree of underreporting may be greater among Arab respondents, who may be more reluctant to report religiously prohibited behaviors. It should be noted once again that information as to the religious affiliation of Arab

respondents (i.e., Muslim or Christian) was not available in this dataset.

A second potential limitation of the survey concerns the extent to which the results can be generalized to the broader population of Israel, especially as information is not available for calculating response rates. Although the questionnaire data do not necessarily allow for direct comparisons with official national statistics, some indicators suggest that the sample population is largely representative of the general population of the country. In the present study, for example, 24% of Jewish respondents stated their father's country of birth as "Asian" and 32% as "African," compared with 27% and 28%, respectively, recorded in the annual Statistical Abstract of Israel for the same year (Central Bureau of Statistics, 1995). One quarter (25%) of Arab respondents reported that one to three persons resided in their household on a regular basis and 51% reported three to six residents, compared with national figures of 25% and 47%, respectively.

Bearing these caveats in mind, this report provides valuable information about the drinking patterns of two distinct nationality groups, coexisting within a single small country steeped in tradition and religious influence. Drinking rates of male secular Jews and Arabs were very similar, in contrast to the sharp difference between religious men in the Jewish and Arab groups; this suggests a degree of Westernization of secular Arabs, who do not have strong ties to the tradition or religion of their culture. The higher rates of heavy drinking among Arabs who do drink may indicate that, once the constraints of tradition and religion are lifted, a pattern of heavier drinking is adopted. Another possibility is that the finding of a higher rate of heavy drinking among Arabs is an artifact, resulting from a culturally determined difference in the understanding of the term "drink," which does not have an exact translation in many languages. It is also possible that a genetic factor constrains members of the Jewish group who drink from drinking heavily (Neumark et al., 1998), and that this genetic factor is not present or is rare among Arabs. These speculations are issues that could be investigated further in future studies.

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