Beliefs, Motivations, and Opinions about Moderate Drinking: A Cross-Sectional Survey

Kenneth J. Mukamal, MD, MPH, MA; Russell S. Phillips, MD; Murray A. Mittleman, MD

Background: The relationship of moderate alcohol use and health remains controversial and uncertain. How physicians and patients react to this uncertainty is unknown. Methods: We surveyed outpatients at a single urban medical center that provides primary and tertiary care. Participants completed a self-administered anonymous survey regarding their medical history, usual alcohol consumption, and preferences and opinions regarding moderate drinking, defined as a drink every 1 to 2 days. All English-speaking individuals ages 21 years and older were eligible. Results: A total of 878 outpatients participated, with a response rate of 79%. The median age was 47 years, and 57% were women. Approximately 60% of drinkers and 35% of abstainers agreed with the statement that moderate drinking is a healthy activity and that it is safe for most people. About one third of participants cited possible health benefits as part of their motivation for drinking alcohol. Those who cited health benefits tended to be older, consumed alcohol more frequently but with a lower quantity per drinking day, and were more likely to have a history of coronary heart disease. Only about 10% of participants identified breast cancer as a possible risk of moderate drinking. When asked whether they would be willing to consume one drink every 1–2 days if their doctor so recommended, 41% of abstainers and 72% of all drinkers were willing to do so. Conclusions: A substantial number of medical outpatients cite health benefits as a motivation for drinking alcohol and a willingness to drink alcohol regularly if so recommended by a physician, although few recognize health risks from drinking alcohol.

(Fam Med 2008;40(3):188-95.)

The relationship between moderate alcohol use and health is complex. Over the last 30 years, a series of observational studies have suggested a U- or L-shaped relationship between alcohol use and coronary heart disease (CHD), with the lowest risk among people who drink approximately one drink daily.1,2 In many of these studies, all-cause mortality was also found to be lowest among moderate drinkers.3-5 Moderate alcohol use has also been associated with a lower incidence of peripheral vascular disease,6,7 cholelithiasis,8 and type II diabetes mellitus.9

Several concerns have been raised about the studies that link moderate alcohol use and CHD.10-14 Most importantly, all of these studies have been observational, raising the possibility that an unmeasured confounding factor explains the association, and no long-term controlled trial of the issue is apt to be completed in the near future. Recent examples highlight the difficulty that can occur in attempts to interpret the results of observational evidence.15 In addition, even moderate alcohol consumption can have risk. A pooled analysis of 322,647 women demonstrated a dose-dependent increase in breast cancer risk associated with moderate alcohol use.16 Alcohol use also potentiates the hepatocellular injury of hepatitis C, which could explain the increase in cirrhosis attributable to even moderate alcohol intake.15,17 Accidental injuries are also associated with moderate drinking,18 and some investigators have found that moderate alcohol consumption may increase the risk of osteoporotic fractures.19 Finally, concern has been raised that, because of the habituating effect of alcohol, moderate consumption could rise to an excessive level.20 At this time, it is not known whether alcohol abuse is likely to develop after a recommendation for increased alcohol intake is made to a given individual.

Despite these controversies, we know little about how patients view these concerns or whether they
would follow any proposed guideline that recommend-
ed moderate alcohol use. To explore patient preferences
and understanding regarding moderate alcohol, we
surveyed outpatients at a large urban medical center
that provides both primary and tertiary care to a diverse
sample of adults.

Methods
The Moderate Alcohol Use: Preferences and Out-
comes (MAHPO) survey queried a convenience sample
of outpatients at a large, private, nonprofit hospital in
Boston with approximately 530 licensed beds. The
hospital serves as a source of primary care for resi-
dents of eastern Massachusetts and as a tertiary care
center for patients throughout eastern Massachusetts
and surrounding regions. To maximize the clinical het-
erogeneity and geographic distribution of participants,
we included outpatients from multiple clinical units,
including three primary care practices and two card-
iology practices located at the hospital. The primary
care practices see more than 34,000 patients annually,
accounting for more than 70,000 visits. Of the 79% of
primary care patients who self-report their ethnicity,
66% are white, 20% are black, 5% are Hispanic, and
4% are Asian.

For this project, research assistants approached
patients in waiting areas and distributed and collected
surveys, which were completed entirely by participants.
Only one research assistant distributed surveys at any
one time. Surveys were anonymous, with no identifying
information. Exclusion criteria included age younger
than 21 years and inability to speak English. The sur-
vey was approved by the hospital’s institutional review
board with a waiver of written informed consent.

Survey Instrument
A signed introductory letter accompanied each sur-
vey. It described the survey as “for research about how
people feel about alcoholic beverages and how drinking
alcohol affects health.”

The survey assessed the following domains: demo-
graphics, medical history, current alcohol consumption,
beliefs regarding alcohol consumption, motivations
regarding drinking (ie, positive and negative features of
drinking alcohol), knowledge of medical consequences
of drinking, and willingness to change current alcohol
consumption. Medical history questions included items
about cardiovascular and liver disease and cardiovas-
cular risk factors. Family history of CHD was defined
as a myocardial infarction in a first-degree relative
before age 60.

Current alcohol intake was assessed in three ways.
First, we defined current drinkers by affirmative
responses to the question “Do you drink alcoholic
beverages?” with no specific time prompt. Second,
participants reported their usual quantity and frequency
of alcohol consumption, again with no specific time
prompt. Third, respondents completed the “high” ver-
sion of the TWEAK questionnaire (Tolerance, Worried,
Eye-openers, Amnesia, Kut down);21,22 the standard
TWEAK cutpoint for problem drinking is 3 points,
although 2 points has been used extensively.22,23

Beliefs regarding alcohol consumption and positive
and negative features of drinking alcohol were assessed
as a series of items in closed format without filtering.
Response options were formatted in Likert scales with
four categories ranging from strongly agree to strongly
disagree. The Cronbach α coefficients for these three
scales were 0.68, 0.77, and 0.85, respectively. Eleven
closed-format items regarding specific medical conse-
quences of having one drink every 1–2 days followed;
this level of intake was not labeled with any adjective,
such as “moderate.” Finally, willingness to change was
assessed with six items with yes/no response options
regarding personal willingness to drink regularly or
to abstain. The full instrument was pilot tested and
hand timed among otherwise eligible individuals prior
to formal administration to ensure its feasibility in its
administered setting.

Statistical Analyses
We present categorical variables with counts and
frequencies, symmetric continuous variables with
means and standard deviations, and skewed continuous
variables with medians and interquartile ranges. We
performed univariate comparisons of binary variables
with Fisher exact tests, normally distributed continu-
sous variables with ANOVA, and skewed continuous
variables with Wilcoxon rank-sum scores.

Results
Characteristics of Participants
Between 2002 and 2004, a total of 1,116 outpatients
were asked to participate in the survey. A total of 238
individuals declined to participate, for a response rate
of 79%. Characteristics of participants are shown in
Table 1. The median age was 47 years, with a range
from 21 to 90. Approximately 95% of respondents lived
in Massachusetts, their educational level was generally
high, and few were smokers. Cardiovascular risk factors
were relatively prevalent, but established cardiovascular
or liver disease was not. Sociodemographic charac-
teristics appeared to be representative of the medical
center’s primary care practice; 60.4% of the practice’s
population is female, and the median age is between
45 and 54 years.

Current Alcohol Intake
Approximately two thirds of respondents reported
current alcohol consumption (Table 1). Among current
drinkers, 267 (50%) drank less than weekly, 134 (25%)
drank 1–2 days per week, 90 (17%) drank 3–6 days
per week, and 45 (8%) drank daily. Median intake per drinking day among current drinkers was two drinks (interquartile range, 1–2.5). A total of 172 respondents (20%), including similar proportions of drinkers and abstainers, reported that an immediate family member had been treated for alcoholism. TWEAK scores ranged from 0 to 6, with 62 participants scoring 3 or higher and another 118 scoring 2 points. A total of 29% of current drinkers with TWEAK scores of 3 or higher reported that a physician had told them not to drink any alcohol, compared with 5% of other current drinkers ($P<.001$).

Beliefs Regarding Alcohol Consumption

Table 2 shows the responses of participants to the series of questions regarding alcohol consumption, stratified by whether participants currently consumed alcohol. Although abstainers and drinkers differed significantly in their responses to all eight statements, the patterns of response were most distinct for four of the statements. As expected, 89% of the drinkers agreed that they enjoyed drinking alcoholic beverages, while 82% of the abstainers did not. Responses to statements regarding whether moderate drinking is a healthy activity and whether it is safe for most people tended to track together (age- and sex-partial Spearman $r 0.54; P<.001$); approximately 60% of drinkers and 35% of abstainers agreed with each statement, while approximately 25% of abstainers strongly disagreed with each. Finally, 18% of abstainers but only 5% of drinkers strongly agreed that drinking alcohol in moderation can lead to alcoholism. Men were significantly more likely than women to agree with the “healthy” and “safe” statements, but these differences were less pronounced than noted for the comparison of drinkers and abstainers.

Motivations to Drink Alcohol

Table 3 shows the responses of current drinkers to four statements regarding their motivations to drink alcohol. Respondents most commonly cited enjoyment of the taste of alcoholic beverages as a reason to drink alcohol, although relaxation and its role in social activities appeared nearly as common. About one third of participants cited possible health benefits as part of their motivation to drink alcohol.

We next compared the characteristics of the 188 drinkers who cited health benefits as a motivating factor to the 334 who did not. Those who cited health benefits tended to be older (mean age 49.9 ± 15.3 versus 42.6 ± 14.1 years, $P<.001$) and consumed alcohol more frequently (2.3 ± 2.3 versus 1.6 ± 2.1 days per week, $P=.001$) but with a lower quantity per drinking day (median and interquartile range 1.5 (1.0–2.0) versus 2.0 (1.0–3.0) drinks per day, $P<.001$). They were somewhat more likely to be male (51% versus 42%, $P=.05$) but much more likely to have a history of coronary heart disease (19% versus 9%, $P=.003$).

Table 4 presents respondents’ level of agreement to specific motivations to limit their alcohol intake, stratified by current consumption. In general, 50%–70% of abstainers endorsed each statement with varying levels of agreement; health problems, hangovers, and driving were cited most often. Drinkers also commonly cited health problems, hangovers, and driving as limiting factors in their alcohol intake, along with sedation, but were less likely to cite such factors as taste, gastrointestinal upset, medication interactions, or fear of escalation.

Perceived Health Effects of Alcohol

Respondents reported whether they felt red wine, white wine, beer, liquor, or no single beverage was healthier than other alcoholic beverages. Among abstainers, 92 (39%) endorsed no beverage as healthiest,
Table 2
Responses of Abstainers and Drinkers to Statements Regarding Their Beliefs About Alcohol

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>P Value**</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would drink more if it were safe for me to do so.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>16 (6)</td>
<td>28 (11)</td>
<td>79 (30)</td>
<td>142 (54)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td>15 (3)</td>
<td>73 (13)</td>
<td>320 (59)</td>
<td>137 (25)</td>
<td></td>
</tr>
<tr>
<td>I do not drink alcohol because of religious reasons.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.005</td>
</tr>
<tr>
<td>Abstainers</td>
<td>22 (8)</td>
<td>10 (4)</td>
<td>93 (36)</td>
<td>137 (52)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td>15 (3)</td>
<td>25 (5)</td>
<td>218 (42)</td>
<td>262 (50)</td>
<td></td>
</tr>
<tr>
<td>I enjoy drinking alcoholic beverages.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>9 (4)</td>
<td>37 (15)</td>
<td>76 (31)</td>
<td>125 (51)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td>63 (12)</td>
<td>408 (77)</td>
<td>45 (9)</td>
<td>13 (2)</td>
<td></td>
</tr>
<tr>
<td>Drinking alcohol in moderation can lead to alcoholism.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>47 (18)</td>
<td>70 (27)</td>
<td>89 (35)</td>
<td>51 (20)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td>29 (5)</td>
<td>131 (25)</td>
<td>293 (55)</td>
<td>79 (15)</td>
<td></td>
</tr>
<tr>
<td>I believe that drinking is safe for most people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>9 (3)</td>
<td>86 (33)</td>
<td>90 (35)</td>
<td>74 (29)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td>14 (3)</td>
<td>309 (59)</td>
<td>164 (31)</td>
<td>34 (7)</td>
<td></td>
</tr>
<tr>
<td>Drinking alcohol in moderation is a healthy activity.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>4 (2)</td>
<td>86 (34)</td>
<td>99 (39)</td>
<td>66 (26)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td>20 (4)</td>
<td>295 (57)</td>
<td>181 (35)</td>
<td>23 (4)</td>
<td></td>
</tr>
<tr>
<td>Drinking alcohol, even in moderation, is a sign of weakness in a person.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>17 (6)</td>
<td>26 (10)</td>
<td>126 (48)</td>
<td>95 (36)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td>9 (2)</td>
<td>22 (4)</td>
<td>291 (54)</td>
<td>216 (40)</td>
<td></td>
</tr>
<tr>
<td>Drinking any alcohol is a sin.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>15 (6)</td>
<td>16 (6)</td>
<td>88 (34)</td>
<td>142 (54)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td>7 (1)</td>
<td>9 (2)</td>
<td>164 (31)</td>
<td>356 (66)</td>
<td></td>
</tr>
</tbody>
</table>

* Total numbers vary due to nonresponse to selected questions.
** P values derive from exact tests

Table 3
Responses of Drinkers to Statements Regarding Their Motivations to Drink Alcohol

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I drink alcohol in part because . . .</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I enjoy the taste.</td>
<td>62 (12)</td>
<td>390 (75)</td>
<td>58 (11)</td>
<td>11 (2)</td>
</tr>
<tr>
<td>It helps me to relax.</td>
<td>41 (8)</td>
<td>373 (71)</td>
<td>101 (19)</td>
<td>14 (3)</td>
</tr>
<tr>
<td>Drinking is part of having fun with friends and family.</td>
<td>45 (9)</td>
<td>353 (67)</td>
<td>105 (20)</td>
<td>25 (5)</td>
</tr>
<tr>
<td>It may prevent health problems.</td>
<td>7 (1)</td>
<td>181 (35)</td>
<td>240 (46)</td>
<td>94 (18)</td>
</tr>
</tbody>
</table>

* Total numbers vary due to nonresponse
130 (56%) endorsed red wine, and 11 (5%) endorsed another option. In contrast, among drinkers, 102 (20%) endorsed no single beverage, 392 (76%) endorsed red wine, and 21 (4%) endorsed another option ($P < .001$). Men and women did not differ in their responses ($P > .99$).

Respondents were asked whether they felt consumers of one drink every 1–2 days had shorter or longer lives than abstainers. A total of 43% of abstainers and 62% of current drinkers indicated that moderate drinkers lived longer lives ($P < .001$); the corresponding proportions of men and women were 63% and 51%, respectively ($P = .002$).

Table 5 describes respondents’ beliefs regarding the associations of moderate drinking with specific health conditions. Only a minority of participants reported that they perceived that moderate drinking prevented any health condition, even myocardial infarction. Slightly more than half of both abstainers and drinkers believed that one drink every 1–2 days could cause liver damage and birth defects. Abstainers were approximately twice as likely to believe that that level of intake caused myocardial infarction, stroke, gallstones, and diabetes, although the proportions varied somewhat. Only about 10% of all participants identified breast cancer as a possible risk of moderate drinking; among women, 14% of abstainers and 11% of drinkers identified this risk.

### Willingness to Change Alcohol Intake

Lastly, respondents reported their willingness to change alcohol consumption under various scenarios. Among 127 individuals who reported alcohol con-

---

**Table 4**

Responses of Abstainers and Drinkers to Statements Regarding Their Motivations to Limit Their Alcohol Intake

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree # (%)</th>
<th>Agree # (%)</th>
<th>Disagree # (%)</th>
<th>Strongly Disagree # (%)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don’t drink more alcohol than I do because . . .</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I dislike the taste.</td>
<td>56 (26)</td>
<td>55 (26)</td>
<td>70 (33)</td>
<td>31 (15)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>14 (3)</td>
<td>55 (11)</td>
<td>348 (68)</td>
<td>94 (18)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It gives me an upset stomach or heartburn.</td>
<td>33 (17)</td>
<td>45 (23)</td>
<td>77 (39)</td>
<td>45 (23)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>26 (5)</td>
<td>126 (25)</td>
<td>295 (57)</td>
<td>67 (13)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It costs too much.</td>
<td>35 (18)</td>
<td>46 (23)</td>
<td>71 (36)</td>
<td>46 (23)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>16 (3)</td>
<td>97 (19)</td>
<td>312 (61)</td>
<td>87 (17)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It makes me lose concentration or become sleepy.</td>
<td>51 (26)</td>
<td>57 (29)</td>
<td>53 (27)</td>
<td>33 (17)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>23 (5)</td>
<td>237 (46)</td>
<td>201 (39)</td>
<td>50 (10)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It interacts with medicines that I take.</td>
<td>59 (30)</td>
<td>62 (31)</td>
<td>41 (21)</td>
<td>35 (18)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>33 (7)</td>
<td>152 (30)</td>
<td>247 (49)</td>
<td>69 (14)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It affects my ability to drive.</td>
<td>71 (36)</td>
<td>72 (37)</td>
<td>28 (14)</td>
<td>24 (12)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>108 (21)</td>
<td>274 (54)</td>
<td>99 (20)</td>
<td>25 (5)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It causes health problems.</td>
<td>72 (36)</td>
<td>69 (35)</td>
<td>37 (19)</td>
<td>22 (11)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>55 (11)</td>
<td>226 (45)</td>
<td>187 (37)</td>
<td>35 (7)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I fear losing control of my drinking habit.</td>
<td>48 (26)</td>
<td>37 (20)</td>
<td>55 (29)</td>
<td>48 (26)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>23 (5)</td>
<td>78 (15)</td>
<td>296 (58)</td>
<td>112 (22)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It causes “hangovers.”</td>
<td>62 (33)</td>
<td>67 (36)</td>
<td>31 (16)</td>
<td>28 (15)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Abstainers</td>
<td>66 (13)</td>
<td>259 (51)</td>
<td>140 (28)</td>
<td>42 (8)</td>
<td></td>
</tr>
<tr>
<td>Drinkers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Total numbers vary due to nonresponse
consumption at least 3 days per week, 43 (34%) reported willingness to discontinue alcohol altogether if they could be certain that abstainers lived longer than moderate drinkers. Likewise, among 244 abstainers, only 64 (26%) reported willingness to consume one drink every 1–2 days if such intake was certain to prolong life. However, when asked whether they would be willing to consume one drink every 1–2 days if their doctor so recommended, 41% of abstainers and 72% of all drinkers were willing to do so \( \left( P < .001 \right) \); 4% of abstainers reported having actually been told to drink more by their doctor. Those willing to consume one drink every 1–2 days at the recommendation of their doctor also tended to be older (48 versus 44 years, \( P < .001 \)) and more likely to have attended college (80% versus 69%, \( P = .002 \)).

### Discussion

Little is known about how patients view and understand the association of moderate alcohol intake with lower risk of coronary heart disease. A New Zealand telephone survey conducted in 1989 and repeated in 1994 asked a single question about the health benefits of alcohol use: “Do you think there are any benefits to a person’s health from drinking alcohol?” In the 1994 survey, about one sixth of the 3,273 respondents identified cardiovascular benefits of alcohol use, although none had identified such benefits in 1989.24 Similarly, a 1992 Gallup telephone poll asked 1,001 US adults two questions about health benefits of alcohol: “Have you heard or read about the scientific study that found moderate drinkers to have lower rates of heart disease than those who do not drink alcoholic beverages?” and “As a result of what you have heard or read about the study (that found moderate drinkers to have lower rates of heart disease than those who do not drink alcoholic beverages), are you more likely to have one or two drinks on a daily basis, or not?” Of the 58% of respondents who responded yes to the first question, only 50 respondents said they were more likely to drink daily as a result.25

The ongoing need of clinicians to make recommendations regarding alcohol consumption underscores the importance of understanding patients’ opinions and preferences on this issue.26 In the absence of randomized trial data on clinical endpoints, many clinicians explicitly suggest that some subgroups of patients be counseled about benefits of moderate drinking,27-29 while others believe they should not receive such counseling.10,14 Because unequivocal evidence on which to base recommendations is unlikely to be available for years to come, and given the contradictory advice that various clinicians currently offer, patients are left with difficult decisions to make regarding the relative risks and benefits of moderate drinking.

Several features of our results might be considered relevant to this debate. First, about one third of drinkers reported doing so for health benefits. Perhaps more importantly, those who did so tended to be the type

---

**Table 5**

Beliefs of Abstainers and Drinkers Regarding the Health Effects of Intake of One Drink Every 1–2 Days

<table>
<thead>
<tr>
<th>Condition</th>
<th>Causes the Condition</th>
<th>Prevents the Condition</th>
<th>Neither</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstainers</td>
<td>44 (19)</td>
<td>63 (27)</td>
<td>126 (54)</td>
<td>.002</td>
</tr>
<tr>
<td>Drinkers</td>
<td>49 (10)</td>
<td>160 (32)</td>
<td>290 (58)</td>
<td></td>
</tr>
<tr>
<td>Myocardial infarction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td>49 (21)</td>
<td>44 (19)</td>
<td>137 (60)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Cirrhosis or liver damage</td>
<td>135 (57)</td>
<td>5 (2)</td>
<td>96 (41)</td>
<td>.16</td>
</tr>
<tr>
<td>Gallstones</td>
<td>45 (21)</td>
<td>4 (2)</td>
<td>168 (77)</td>
<td>.02</td>
</tr>
<tr>
<td>Diabetes</td>
<td>62 (28)</td>
<td>3 (1)</td>
<td>154 (70)</td>
<td>.008</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>73 (32)</td>
<td>15 (7)</td>
<td>142 (62)</td>
<td>.02</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>24 (11)</td>
<td>4 (2)</td>
<td>184 (87)</td>
<td>.32</td>
</tr>
<tr>
<td>Liver cancer</td>
<td>82 (36)</td>
<td>3 (1)</td>
<td>141 (62)</td>
<td>.13</td>
</tr>
<tr>
<td>Birth defects</td>
<td>124 (55)</td>
<td>6 (3)</td>
<td>95 (42)</td>
<td>.63</td>
</tr>
</tbody>
</table>

*Total numbers vary due to non-response
of individuals for whom the evidence for a net benefit of limited drinking is strongest—adults at highest cardiovascular risk on the basis of age, sex, and previous history and those who reported a pattern of more frequent but less intensive drinking. This observation suggests that the ongoing debate about moderate drinking has been relatively successful in tailoring messages regarding alleged health benefits to the most appropriate recipients. Second, more than half of both drinkers and abstainers viewed red wine as being healthier than other alcoholic beverages. Although most evidence suggests that this is not the case for the association of moderate alcohol consumption with risk of coronary heart disease, at least some studies suggest that red wine may differ from other beverages in their relationships with stroke, cancer, and possibly even alcohol abuse per se. Third, relatively few respondents recognized breast cancer as a possible risk of even moderate drinking, despite strong indications of a link from cohort studies and a plausible candidate mechanism (via sex steroid hormone levels). This suggests one promising area for better public education in the future.

Regarding beliefs about alcohol intake, 45% of abstainers and 30% of drinkers agreed to some extent with the statement that moderate drinking can lead to alcoholism; correspondingly, 45% of abstainers cited fear of losing control of their alcohol use as at least one factor in not drinking. Current scientific evidence is somewhat mixed in this regard. A return to controlled drinking appears to occur in only 1%–10% of alcoholic men, suggesting that moderate drinking may not be a stable condition in predisposed individuals. On the other hand, in a German community study, less than 30% of individuals with a history of alcoholism in both parents developed hazardous drinking habits over time, confirming that even individuals in this very high-risk group can maintain controlled drinking in most cases.

Our results may have implications for practicing primary care clinicians. First, understanding of the potential risks and benefits of moderate alcohol intake appears to be low, and this offers a particular opportunity for education and counseling. For example, respondents tended to mistakenly cite liver cirrhosis rather than breast cancer as a consequence of moderate drinking, presumably because of the relationship of heavy drinking to cirrhosis. Second, patients express considerable willingness to change their alcohol intake in response to counseling, which also should encourage physicians to offer alcohol counseling and education. Third, drinkers and abstainers tend to report multiple, relatively complex rationales for their drinking behavior, and physician recognition of these factors may lead to more patient-centered, better-accepted counseling.

Limitations

Several limitations of our study warrant discussion. All of the information in the MAHPO survey was self-reported; although self-reported alcohol intake generally appears valid, we know of no way to determine the validity of the beliefs and opinions expressed by participants. We examined a convenience sample of outpatients at a single medical center in Massachusetts, and we cannot determine the degree to which our findings would differ from those conducted with a nationally representative sample of adults, especially in populations with lesser degrees of education, although many of our findings have strong face validity. Likewise, we excluded individuals who could not complete the survey in English, and their responses may have differed from those who were included. We did not have a formal mechanism to exclude abstainers with a previous history of alcoholism, although only 7–25 abstainers reported positive responses on the five individual TWEAK questions, and exclusion of the 42 abstainers with any positive response did not substantially change our results.

Conclusions

A substantial number of medical outpatients cite health benefits as a motivation to drink alcohol, particularly those at higher cardiovascular risk. Even many abstainers express a willingness to drink alcohol regularly if so recommended by a physician, although few drinkers or abstainers recognize some of the major health risks of moderate drinking. These results highlight the ongoing uncertainty about the existing observational evidence regarding alcohol consumption and emphasize the importance of randomized clinical trials to determine whether moderate drinking truly prevents coronary heart disease.

Acknowledgments: This study was supported by grant K2300299 from the National Institute on Alcohol Abuse and Alcoholism. The authors thank Kristen MacDermott, Tezera Tadesse, and Marissa Alert for distribution and coding of questionnaires.

Corresponding Author: Address correspondence to Dr Mukamal, Beth Israel Deaconess Medical Center, Division of General Medicine and Primary Care, 330 Brookline Avenue, Boston, MA 02215. 617-754-1401. Fax: 617-754-1440. kmukamal@bidmc.harvard.edu.

References