Brief Intervention in Alcohol-Dependent Versus Nondependent Individuals*

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ABSTRACT. **Objective:** Randomized trials examining the effects of brief alcohol interventions by primary care providers have consistently excluded individuals with alcohol dependence. The purpose of this study was to examine whether a diagnosis of alcohol dependence, according to the criteria in Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, predicted differential effectiveness of a brief intervention (BI). **Method:** Retrospective analyses were performed on participants ($N = 326$) enrolled in a randomized trial designed to examine the impact of interactive voice response following BI. All participants had received a BI from their primary care provider before enrolling in the study. Daily consumption data were collected using the Timeline Followback for the period before the BI (mean = 71days) and for 6 months following the BI. We compared nondependent and dependent participants on a number of consumption-based outcomes. **Results:** Dependent participants had significantly higher pre-BI consumption. At the index assessment (median = 15 days after BI), both dependent and nondependent participants reported significant reductions in total drinks per week and drinking days per week after BI. Dependent participants significantly reduced their drinks per drinking day. After BI, dependent participants no longer differed significantly from nondependent participants on these measures. Similar decreases from before BI were observed in both groups through 6 months, although dependent participants drank on fewer days and significantly more on days on which they drank than did nondependent participants. Regression analyses showed that baseline consumption was the only significant predictor of post-BI consumption. **Conclusions:** We found no evidence that dependent participants realized less benefit on measures of alcohol consumption following a BI than nondependent participants. (*J. Stud. Alcohol Drugs* **69:** 243-250, 2008)

BRIEF INTERVENTIONS (BIs) performed in primary care settings repeatedly have been found to be efficacious in assisting patients in reducing their alcohol consumption. A number of randomized, controlled trials (Chick et al., 1988; Fleming and Manwell, 1999; Mundt et al., 2005), as well as comprehensive reviews (Bertholet et al., 2005; Kaner et al., 1999; Whitlock et al., 2004), have shown a robust treatment effect for BIs performed when compared with control conditions. Considering reviews that include but are not confined to primary care provides further evidence of efficaciousness (Bien et al., 1993; Kahan et al., 1995; Moyer et al., 2002; Wilk et al., 1997). In addition, these and other studies have found no evidence of differential efficacy between BIs and more extensive forms of therapy. What specifically defines a BI varies considerably across studies in length, format, and style of delivery (Bien et al., 1993). For the purposes of this article, we will focus on the primary care setting. According to Miller et al. (2006), BI consists of an interaction between a provider and a patient and comprises the following features: (1) screening; (2) feedback on personal risk; (3) advice on changing drinking behavior; (4) self-help information for changing drinking practices; and (5) referral for specialty treatment, if necessary.

There is also considerable heterogeneity among BI trials regarding the outcomes chosen to measure efficacy. Moyer et al. (2002) listed 12 different outcome measures employed in the literature, ranging from level of alcohol consumption to more subjective measures such as "life problems resulting from drinking." Other outcomes included in longer-term studies identify mortality, health care use (Kristenson et al., 1983), and associated costs to society (Fleming et al., 2000).

Across all these variations in delivery and outcome measurement, the therapeutic impact is relatively consistent. BI has become a well-established and cost-effective method for helping primary care patients decrease their alcohol consumption (Chisholm et al., 2004; Fleming et al., 2002).

Interestingly, the majority of randomized studies of BI effectiveness have excluded patients with a current diagnosis of alcohol dependence. Meta-analyses conducted by Moyer et al. (2002) and Bertholet et al. (2005) reported the

percentage of studies that excluded dependent participants as 79% and 74%, respectively. In many studies, alcohol dependence was one of several exclusion criteria among a constellation of others that included severe problems relating to consumption, a high level of consumption, and prior treatment. Another recent review by Littlejohn (2006) that investigated the impact of socioeconomic status on BI outcomes included only studies (18 in total) that involved nondependent drinkers. Littlejohn concluded that socioeconomic status did not affect treatment outcome and "[b]rief interventions should remain available to all *non-dependent* hazardous and harmful drinkers in primary care (italics added) (p. 540)."

This systematic exclusion suggests an implicit assumption that dependent individuals are not good candidates for a BI, although a search of the literature failed to reveal any early studies that present justification for such reasoning. Systematic investigation of this assumption appears to be lacking. Two studies examining the relationship between dependency status and outcome in bibliotherapy trials found no evidence that dependency status or level of consumption mitigated the effectiveness of the treatment (Heather et al., 1986; Miller and Baca, 1983). A meta-analysis of trials comparing BI with control conditions reported an increased effect size of BI when studies excluding dependent patients were omitted (Moyer et al., 2002). However, this omission left only 7 studies for comparison, because the other 27 studies (79% of the original group of 34 studies) excluded dependent participants. Moreover, many of the studies that used alcohol dependence as a basis for ineligibility also excluded individuals who had been previously treated for substance use, potentially confounding any relationship that may exist between effectiveness and dependency status.

A separate meta-analysis in the report from Moyer et al. (2002) found no evidence of differences in effectiveness between BIs delivered by substance-abuse specialists and more extensive treatment. Because these studies involved a treatment-seeking group, samples comprised considerable concentrations of dependent participants (Chick et al., 1988; Edwards et al., 1977; Miller and Baca, 1983; Sitharthan et al., 1996). These BIs were more extensive than those generally associated with primary care, often consisting of one or more sessions with a specialist. Nonetheless, it is still notable that this type of BI has been demonstrated to be as effective as the more intense forms of treatment with samples comprising dependent participants. According to Drummond et al. (1990), there was no significant treatment difference in reductions in consumption and alcohol-related problems between brief advice from specialists and more extensive treatment for all participants, regardless of dependency status. A review by Fleming and Manwell (1999) concludes that BIs can reduce the drinking level of nondependent drinkers and recommends that BIs are pri- marily helpful to dependent drinkers by enhancing the effect of other forms of treatment, rather than by directly reducing consumption.

Overall, there appears to be a lack of consensus in the literature regarding the utility of BIs for dependent individuals. For this reason, we explored the differential impact of BIs in dependent and nondependent participants who enrolled in our large, randomized, prospective trial.

Method

The current study is based on data from 326 participants who were randomized in a prospective trial designed to investigate whether access to an interactive voice-response system following a BI served to enhance the therapeutic effect of the BI. All participants received a BI by his or her primary care practitioner at 1 of 15 clinics collaborating with our research team in Chittenden County, VT. The participating practitioners were trained to perform BI using the "FRAMES" model (Miller and Sanchez, 1994). A more detailed account of our recruitment methods is available elsewhere (Helzer et al., 2008).

Participants were scheduled for their initial research assessment as soon as possible after their BI (median = 15 days). At this assessment, upon confirmation of eligibility (criteria listed later) and signed informed consent, participants were randomized to one of four treatment conditions, one of which was a control group consisting of no further treatment other than periodic assessments.

The three experimental treatment arms involved calling an interactive voice-response system daily to report alcohol use along with other measures such as mood and stress levels. The three calling groups differed as follows: one of the groups was asked to make daily calls for 6 months with no feedback; the second group received monthly feedback based on their calls in the form of graphs sent via mail with a note from the principal investigator to heighten saliency; the third group was identical to the second but also received a financial incentive for maintaining a calling rate above 90%.

Participants completed a battery of questionnaires that included the CAGE (Ewing, 1984), Alcohol Expectancy Questionnaire (Brown et al., 1987), and the two instruments that provided data most relevant for the current study: the Composite International Diagnostic Interview-Substance Abuse Module (CIDI-SAM) and the Timeline Followback (TLFB; Sobell and Sobell, 1992). The CIDI-SAM was administered to obtain dependency diagnoses according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association, 1994), and International Classification of Diseases, 10th Revision (World Health Organization, 1992). A DSM-IV diagnosis of current alcohol dependence was assigned to participants if three or more dependence symptoms

clustered within the 1-year period before the initial assessment. The TLFB obtained self-reported daily alcohol consumption, measured as standard drink units (12 oz of beer, 5 oz of wine, or 1 oz of distilled spirits). The initial TLFB covered the prior 90 days, therefore ascertaining reports of alcohol consumption for a period both before and approximately 2 weeks after receiving a BI. The TLFB was administered again at follow-up assessments 3 and 6 months after index and dating back to participant's previous assessment.

Inclusion/exclusion criteria

Participants were excluded from the randomized trial for any of the following reasons: (1) received specialty care for alcohol or depression within the past year; (2) had a DSM-IV diagnosis of substance dependence other than alcohol, nicotine, or marijuana; (3) met current DSM-IV criteria for any psychotic illness or had current suicidal ideation; (4) had a recent adjustment to medication for any mood disorder; (5) had plans to move out of the area within 6 months of our initial contact; or (6) had no access to a telephone on a daily basis. All participants included were 21 years or older and indicated they were current drinkers, exceeding the National Institute on Alcohol Abuse and Alcoholism (NIAAA) consumption guidelines (14 alcohol units per week or more than 5 per occasion for men, 7 per week or more than 4 per occasion for women; NIAAA, 2005). We excluded 12 participants who entered the trial but reported fewer than 7 days of pre-BI drinking data on their initial TLFB.

Statistical methods

Dependent and nondependent participants were compared on demographic characteristics and baseline measures of alcohol consumption using t tests and chi-square tests. Repeated measures analyses of variance were used to compare dependent and nondependent participants with respect to initial BI effects and those sustained for 6 months. F tests corresponding to simple effects, which were based on preplanned linear contrasts, were used to compare groups on post-BI measures of consumption and to evaluate changes in consumption within each group. Because participants' 6-month post-BI measures of consumption had the potential to be influenced by differential treatment effects, treatment group and its interactions with dependency status were included as additional factors in the analysis of variance. There was no evidence that differences between dependent and nondependent participants on any of the outcome measures examined depended on treatment group assignment. Means presented for 6-month data correspond to least square means, which adjust for different sample sizes between dependent and nondependent participants across the four treatment groups. McNemar's tests were used to examine changes from pre-BI in the percent of subjects meeting NIAAA weekly consumption guidelines. In addition to the analyses described here, multiple regressions were used to examine differences in BI outcome at each assessment as a function of dependency status, demographic characteristics, pre-BI measures of consumption, and specific dependency criteria satisfied at baseline. Regression analyses corresponding to 6-month data included treatment group as an additional factor.

Results

Demographic and alcohol use characteristics

Approximately two thirds (68%) of participants met DSM-IV criteria for current alcohol dependence in the previous 12 months (Table 1). Dependent participants were younger ($t = 4.9$, 324 df, $p < .01$) and less educated ($t = 2.4$, 324 df, $p = .02$) than nondependent participants. There were no significant differences between dependent and nondependent participants with respect to gender, marital status, employment status, or race. It should be noted that the sample was primarily white (97%), which reflects the race distribution of the underlying Vermont population. Dependent participants were more than twice as likely to be current smokers (41% vs 18%; $\chi^2 = 15.8$, 1 df, $p < .01$) and were more likely to report a history of depression (63% vs 44%; $\chi^2 = 10.3$, 1 df, $p < .01$). Finally, dependent participants started drinking regularly 2 years earlier than the nondependent participants ($t = 3.1$, 324 df, $p < .01$) and were more likely to have had legal problems related to their alcohol use (39% vs 27%; $\chi^2 = 4.7$, 1 df, $p = .03$).

Although dependent participants consumed more alcohol per drinking day than nondependent participants (5.8 vs 4.4 standard alcohol units; $t = 3.6$, 324 df, $p < .01$), the two groups did not differ on their frequency of alcohol use (5.7 vs 5.8 days per week, respectively; $t = 0.6$, 324 df, $p = .54$). Not surprisingly, dependent participants were more likely than nondependent participants to satisfy *each* of the seven dependence criteria ($p < .01$ for all items) and satisfied a total of approximately three more criteria on average ($t = 22.3$, 324 df, $p < .01$).

Initial effects of brief intervention

Initial effects of BI were estimated based on participants' TLFB completed at their initial research assessment (median days after BI = 15 days, interquartile range: 11-21 days). Although both dependent and nondependent participants significantly reduced their weekly consumption from their pre-BI levels ($F = 40.8$, 1/324 df, $p < .01$ and $F = 5.07$, 1,324 df, $p = .03$, respectively), alcohol-dependent participants reported an almost twofold greater decrease than nondependent participants (mean [SE] = 4.97 [0.77] vs 2.55

TABLE 1. Baseline characteristics

Variables	Overall Mean (SD) or % (*n* = 326)	Dependent Mean (SD) or % (*n* = 222)	Nondependent Mean (SD) or % (*n* = 104)	*p*
Characteristic				
Age, years	45.63 (12.65)	43.35 (11.61)	50.52 (13.42)	<.01
Education, years	14.89 (2.81)	14.64 (2.72)	15.43 (2.93)	.02
% Male	64	63	66	.56
% White	97	97	97	.90
% Married	55	52	62	.10
% Employed full time	78	80	75	.30
% Ever depressed	57	63	44	<.01
Age of first regular use				
of alcohol, years	19.40 (5.86)	18.73 (5.28)	20.84 (6.76)	<.01
% With history of legal				
problems owing to drinking	35	39	27	.03
% Smoked cigarettes in				
past 7 days	34	41	18	<.01
No. of drinks per week	30.31 (22.12)	32.55 (22.61)	25.48 (20.51)	<.01
No. of drinking days per week	5.71 (1.68)	5.67 (1.64)	5.79 (1.75)	.54
No. of drinks per drinking day	5.32 (3.26)	5.76 (3.38)	4.37 (2.76)	<.01
% Within NIAAA weekly				
consumption guidelines[a]	10	7	14	.04
Alcohol dependency criteria,				
% endorsed				
Drink more or longer than				
they want to	61	76	29	<.01
Tolerance	42	55	13	<.01
Desire to quit	92	96	84	<.01
Spent a lot of time drinking	23	33	1	<.01
Gave up or reduced important				
activities	19	27	1	<.01
Withdrawal symptoms	59	79	16	<.01
Drank despite causing				
medical/other problems	64	84	19	<.01
Total no. of dependency				
criteria	3.60 (1.73)	4.52 (1.24)	1.63 (0.64)	<.01
Physical dependency, %	73	93	29	<.01

Notes: Statistical significance is based on *t* tests for continuous measures and chi-square tests for categorical variables (α = .05). NIAAA = National Institute on Alcohol Abuse and Alcoholism. [a]Less than 7 drinks per week for women or less than 14 drinks per week for men, excludes instances of heavy drinking on a single occasion.

[1.13] drinks per week; F = 3.07, 1,324 df, p = .08 for Group × Time interaction; Table 2). In contrast to the findings before BI, dependent and nondependent participants no longer significantly differed in total weekly consumption after BI (F = 3.07, 1/371 df, p = .08).

Significant reductions in the mean number of drinking days per week were observed in both groups following their BI (0.75 [0.12] days, F = 42.5, 1/324 df, p < .01 for dependent participants; and 0.53 [0.17] days, F = 10.0, 1/324 df, p < .01 for nondependent participants). There was no evidence that these reductions differed across dependency groups (F = 1.15, 1/324 df, p = .28 for Group × Time interaction). As was the case before BI, dependency groups did not significantly differ in the average number of days per week they consumed alcohol after their BI (F = 2.12, 1/468 df, p = .14).

Both groups decreased their reported mean drinks per drinking day following their BI; this decline was significant for the dependent participants (0.18 [0.08] drinks, F = 5.87, 1/308 df, p = .02) but not for the nondependent participants (0.16 [0.11] drinks, F = 1.99, 1/308 df, p = .16). There was no evidence that these decreases differed across dependency groups (F = 0.04, 1/308 df, p = .84 for Group × Time interaction). However, dependent participants continued to drink significantly more alcohol on drinking days than their nondependent counterparts following their BI (5.57 [0.20] vs 4.21 [0.31] drinks, F = 13.0, 1/349 df, p < .01). This difference of nearly 1.5 drinks per drinking day was similar in magnitude to that reported before BI.

Finally, there was no evidence of differences between the two groups immediately after the BI in the percentage of subjects that were within NIAAA weekly consumption guidelines (20% vs 24% for dependent and nondependent participants, respectively; χ^2 = 0.6, 1 df, p = .44). As compared with before BI, both groups exhibited a statistically significant increase in the percentage of participants drinking within these guidelines (McNemar's test, p < .05 for both groups).

TABLE 2. Alcohol consumption outcomes at initial post-BI assessment

Outcome at post-BI	Dependent (n = 222)	Nondependent (n = 104)	p
Change in drinks per week, pre-BI to post-BI	-4.97 (0.77)	-2.55 (1.13)	.08
Change in drinking days per week, pre-BI to post-BI	-0.75 (0.12)	-0.53 (0.17)	.28
Change in drinks per drinking day, pre-BI to post-BI	-0.18 (0.08)	-0.16 (0.11)	.84
Drinks per week, post-BI	27.57 (1.49)	22.94 (2.18)	.08
No. of drinking days per week, post-BI	4.92 (0.13)	5.25 (0.19)	.14
Drinks per drinking day, post-BI	5.57 (0.20)	4.21 (0.31)	<.01
% Within NIAAA weekly consumption guidelines[a]	20	24	.44

Notes: Statistical significance is based on repeated measures analyses of variance for continuous outcomes and chi-square tests for categorical variables (α = .05). BI = brief intervention; NIAAA = National Institute on Alcohol Abuse and Alcoholism. [a]Less than 7 drinks per week for women or less than 14 drinks per week for men, excludes instances of heavy drinking on a single occasion.

Brief intervention effects at 6-month follow-up

Approximately 80% (256/326) of the original cohort were assessed at 6 months, which included a TLFB dating to the previous assessment. This sample was older, somewhat more educated, more likely to be married, less likely to smoke, and less likely to be dependent on alcohol at the intake than the original cohort. Comparisons between dependent and nondependent participants in this subset on demographic characteristics, pre-BI measures of consumption, and initial BI effects paralleled those previously reported for the larger cohort (data not shown).

At the 6-month assessment, both dependent and nondependent participants significantly decreased their weekly alcohol consumption from their pre-BI levels (F = 54.5, 1/262 df, p < .01 for dependent participants and F = 14.2, 1/253 df, p < .01 for nondependent participants; Table 3). Although dependent participants showed a somewhat greater mean decrease than nondependent participants (9.44 [1.28] vs 6.48 [1.77] drinks per week), this difference was not significantly different (F = 1.6, 1/256 df, p = .21 for Group × Time interaction). At the 6-month assessment, dependent participants continued to consume more drinks per week than the nondependent participants (23.02 [1.49] vs 18.65 [2.08]), but this difference was no longer statistically significant (F = 2.9, 1/464 df, p = .09).

Both groups significantly reduced their number of drinking days per week (0.98 [0.15] days, F = 44.9, 1/295 df, p < .01 for dependent participants; and 0.51 [0.20] days, F = 6.3, 1/282 df, p = .01 for nondependent participants). There was no evidence that these reductions differed between groups (F = 3.5, 1/287 df, p = .06 for Group × Time

TABLE 3. Alcohol consumption outcomes at 6-month assessment

Outcome measure	Dependent Mean (SD) or % (n = 171)	Nondependent Mean (SD) or % (n = 91)	p
Change in drinks per week, pre-BI to 6 months	-9.44 (1.28)	-6.68 (1.77)	.21
Change in drinking days per week, pre-BI to 6 months	-0.98 (0.15)	-0.51 (0.20)	.06
Change in drinks per drinking day, pre-BI to 6 months	-1.03 (0.16)	-0.86 (0.22)	.54
Drinks per week, 6-month assessment	23.02 (1.49)	18.65 (2.08)	.09
Drinking days per week, 6-month assessment	4.72 (0.15)	5.27 (0.20)	.02
Drinks per drinking day, 6-month assessment	4.70 (0.21)	3.49 (0.30)	<.01
% Within NIAAA weekly consumption guidelines[a]	32	25	.29

Notes: Statistical significance is based on repeated measures analyses of variance for continuous measures and chi-square tests for categorical variables (α = .05). NIAAA = National Institute on Alcohol Abuse and Alcoholism. [a]Less than 7 drinks per week for women or less than 14 drinks per week for men, excludes instances of heavy drinking on a single occasion.

interaction). Interestingly, dependent participants reported drinking fewer days per week than nondependent participants at their 6-month assessment (4.72 [0.15] vs 5.27 [0.20], $F = 5.2$, 1/525 df, $p = .02$).

Both groups also significantly reduced their mean drinks per drinking day (1.03 [0.16], $F = 40.6$, 1/257 df, $p < .01$ for dependent participants and 0.86 [0.22], $F = 14.7$, 1/251 df, $p < .01$ for nondependent participants). However, these reductions were not significantly different between the two dependency groups ($F = 0.4$, 1/253 df, $p = .53$ for Group × Time interaction). Consistent with the findings relating to pre-BI and initial post-BI consumption, dependent participants continued to report drinking more on drinking days than nondependent participants (4.70 [0.21] vs 3.49 [0.30], $F = 10.9$, 1/439 df, $p < .01$).

Both groups continued to demonstrate a greater percentage of participants drinking at or below NIAAA weekly consumption guidelines at the 6-month interval than before the BI (McNemar's test, $p < .05$ for both groups).

Analyses of outcomes based on stepwise regression analyses

Stepwise regression analyses were performed to evaluate differences in BI effects between dependent and nondependent participants while considering participants' baseline demographic characteristics, pre-BI levels of consumption, and alcohol-related measures (e.g., age at regular use, individual dependency criteria, total number of criteria satisfied) as potential predictors. More specifically, we examined predictors of both change in weekly consumption and absolute levels of weekly consumption after BI. These analyses were done separately for initial BI effects and for those evaluated at the 6-month follow-up assessment.

Greater consumption at baseline was associated with larger decreases at both the initial assessment ($F = 15.0$, 1/323 df, $p < .01$) and the 6-month follow-up ($F = 121.5$, 1/256 df, $p < .01$). Each additional drink per week at baseline was associated with an additional expected decrease of 0.11 drinks per week initially and 0.47 drinks per week at the 6-month assessment, explaining 4% and 31% of the variability, respectively. Dependency status was not a significant predictor of the decrease in consumption at either time point after accounting for initial consumption ($F = 1.4$, 1/323 df, $p = .23$ for initial post-BI, and $F = 0.1$, 1/256 df, $p = .74$ for 6-month change).

Greater consumption at baseline was associated with more consumption at the initial post-BI assessment ($F = 957.9$, 1/323 df, $p < .01$) and also at the 6-month follow-up ($F = 157.2$, 1/256 df, $p < .01$). Each additional drink per week at baseline was associated with an additional 0.89 drinks per week at the initial post-BI assessment and 0.53 drinks per week at the 6-month assessment, explaining 74%

and 37% of the variability, respectively. Again, dependency status was not a significant predictor of consumption at either time point after adjusting for baseline consumption ($F = 1.4$, 1/323 df, $p = .23$ for initial and $F = 0.1$, 1/256 df, $p = .74$ for 6-month assessments). No demographic characteristics or other alcohol-related measures met the criteria for entry into the regression model.

Discussion

The results of the current investigation directly challenge the assumption that patients diagnosed with alcohol dependence are poor candidates for BIs in primary care clinics. Data collected in the current study provide no evidence that dependent participants benefit less than nondependent individuals with respect to reductions in their alcohol consumption. Dependent and nondependent participants did not differ in their decrease in total weekly consumption, reduction in number of drinking days per week, or in their decrease in number of drinks per drinking day. Although dependent participants continued to consume somewhat more alcohol than their nondependent counterparts after the BI, the magnitude of the difference decreased and was no longer statistically significant.

This brings into question the definition of what constitutes a successful BI. Many studies have shown that more comprehensive treatment is rarely *more* effective for dependent participants than BI. The results presented in the current study suggest that BI is likely to produce at least an equivalent consumption change in dependent versus nondependent drinkers.

Furthermore, regression analyses revealed that, after accounting for baseline levels of consumption, dependency status per se was not a significant independent predictor of either post-BI levels of consumption or the reduction in consumption following BI. These results do not support excluding dependent persons from receiving a BI, either in a research protocol or in clinical practice.

One interesting facet of the data that is worth noting is that dependent participants were actually drinking fewer days per week 6 months after the BI than nondependent participants but continued to consume more on the days they drank. Before the BI, the dependent participants were also drinking more per drinking day than the nondependent participants, but the two groups did not differ in the number of drinking days per week. Dependent participants showed a larger decrease in number of drinking days per week than those who were nondependent.

Aside from baseline consumption, no other subject characteristic predicted the consumption outcome associated with BIs. The absence of differential outcomes between men and women is consistent with the findings of a review by Ballesteros et al. (2004). However, the fact that no other demographic variable predicted efficacy of BIs provides

new support for the robustness of the BI effects, independent of participants' characteristics.

Limitations

In our sample, women represented 36% of participants. However, this proportion is reasonably reflective of the general population of alcohol consumers. A feature that may limit the generalizability of our findings to drinking populations was the racial homogeneity: Our sample was almost exclusively white, reflecting the demographics of the study location.

The treatment-based nature of our study introduces a potential bias. After the initial post-BI assessment, participants were randomized to one of four treatment conditions. In the research trial, there were approximately equal proportions of dependent and nondependent participants across the treatment conditions. Although there was evidence of differential reduction across the groups, analyses resulted in no evidence that treatment condition interacted with dependency status when examining consumption outcomes.

A somewhat different bias may have been introduced because all participants had to agree to come into our office to participate in an experimental alcohol-treatment study. In addition to possibly changing the characteristics of the sample, this also likely impacted the diagnostic prevalence of alcohol dependence. Because "wanting to quit" was so often endorsed, participants had to meet only two additional criteria to qualify for a DSM-IV diagnosis of alcohol dependence.

On a related note, one of our exclusion criteria omitted potential participants who had received any specialty care within the past year for alcohol or depression. Although this was done with the intent of distilling the measurement of the impact of BI alone on drinking, it also may have served to exclude participants with more severe alcohol problems.

Outcome measures for these analyses were limited to those measuring consumption. As previously stated, there is a wide range of outcome measures that can be used to assess and measure problems associated with drinking. As a result, it is possible that potential gains or deficits related to drinking were missed in this sample.

A final limitation imposed by the methods used to ascertain the data is the retrospective nature of the initial TLFB data. The participants were reporting their consumption for the period before the BI after the BI had actually occurred. Although this design is imperfect, to have administered a TLFB before the BI may have played a confounding role in raising the salience of patients' alcohol consumption. Moreover, there is no compelling reason to assume that the consumption data may have been systematically inflated or diminished between dependent and nondependent individuals.

Directions for future research

A future BI trial might examine a host of characteristics including dependency status in clinical samples. Many studies to date have examined characteristics of the delivery of the BI, including length (McIntosh et al., 1997) and source (Ockene et al., 1997). However, aside from gender (Ballesteros et al., 2004), readiness to change (Maisto et al., 2001), and socioeconomic status (Littlejohn, 2006), patient characteristics have been largely ignored in the evaluation of the BI effectiveness. Any prospective studies of this nature might also consider a wider range of outcomes than was possible in this study. Potential outcomes might include subsequent diagnoses of dependence or indices of alcohol-related problems such as work-related absences or health status.

Conclusions

Overall, the results contained in this report suggest that patients who are alcohol dependent show a significant reduction in their drinking subsequent to a BI and that the magnitude of the reduction is analogous with that of nondependent patients. At a 6-month follow-up, the best predictor of consumption levels among BI recipients was their level of baseline drinking, regardless of their dependency status. Furthermore, 6 months after a provider-based BI, a significant percentage of both dependent and nondependent patients reported drinking at or below levels recommended as safe by the NIAAA. These results indicate that patients with alcohol dependence should not be denied the demonstrated benefits of a brief intervention.

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