

Screening and Brief Intervention for Patients Presenting to the Psychiatric Emergency Service  
(PES) with Major Mental Illnesses and At-Risk Drinking

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**Final Report**

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## **Introduction**

The past few decades have seen the focus of service in psychiatric emergency services change from “rapid evaluation, containment, and referral” to one of “definitive treatment” centered around psychopharmacological intervention, such as the tranquilization of the acutely psychotic, agitated patient with an antipsychotic, a benzodiazepine or a combination of the two (Allen, 1996; Gerson, et al, 1980). Advocates of psychiatric emergency care have suggested that psychological approaches such as screening and brief psychotherapy, cognitive treatment, family psychoeducation, and others may be of service to clinicians and patients in the PES (Dhossche & Ghani, 1998; Rosenberg, 1995).

### Prevalence of Comorbid Substance Use Problems

Substance use disorders contribute to substantial problems among people with a severe mental illness such as schizophrenia, schizoaffective disorder, bipolar disorder, chronic major depression, or severe personality disorder (Gonzalez & Rosenhack, 2002; Green, et al, 2002; RachBeisel, et al, 1999; Weaver, et al, 2003). There is a body of research indicating this increased prevalence of alcohol and drug problems in persons with major mental illnesses (Barry, et al, 1995; Blow, et al, 2000; Drake, et al, 1998; Scheller-Gilkey, et al, 2003). While estimates of alcohol abuse in psychiatric populations overall range from 25% to 75% (Barry, et al, 1995; Caton, et al, 1989; Greenfield, et al, 1995), there are even more people with major mental illnesses who have problems related to their alcohol use, but who do not meet the criteria for abuse and/or dependence (Barry, et al, 1996).

In terms of the range of problems related to substance use problems and mental illnesses, several retrospective studies have indicated that coexisting substance abuse disorders are associated with medication noncompliance, more severe depressive and psychotic symptoms, poorer psychosocial functioning, and poorer treatment outcome among seriously mentally ill clients (Green, et al, 2002; Scheller-Gilkey, et al, 2003; Farris, et al, 2003). Other interactions of schizophrenia with a comorbid substance use problem include: increased psychiatric admissions, decreased lengths of stay, more challenging life circumstances, increased financial costs, and a greater emotional toll on patients and family members.

Intoxicated or substance abusing patients present in emergency settings with higher psychiatric acuity, require higher levels of behavioral management, and spend more time in the PES than do non-intoxicated, non substance abusing individuals (Brelsow, et al, 1996). In addition, these individuals raise unique issues related to risk management because of the potential danger to themselves or others while in an intoxicated state. PES staff, faced with the complexity of diagnosis and management of this population, all too often come to believe that they cannot intervene effectively to change behavior patterns and positively affect the lives of these patients.

### At-Risk Drinking Criteria and Mental Illnesses

The U.S. National Institute on Alcohol Abuse and Alcoholism recommends that men under the age 65 drink no more than 2 standard drinks/day or 14 drinks/week (standard drink=12 oz. can or bottle of beer; 5 oz. glass of wine; or 1 ½ oz. of liquor), and women under age 65 drink no more than 1 drink/day or 7 drinks/week. For this study binge drinking is defined as drinking 4 or more drinks/occasion on 2 or more occasions/month. Guidelines for adults over 65 are no more than 7 drinks/week or no more than one drink per day (NIAAA, 1995). Those drinking 4 or more drinks/occasion on 2 or more occasions per month were considered binge drinkers. Those

drinking over these limits were defined as “at-risk” drinkers, that is, drinking at levels that increase their risk of negative health consequences.

Perhaps more important to note in dealing with psychiatric patients is the finding by that alcohol negatively affects persons with serious and persistent mental illness more profoundly at even lower quantity and frequency of use than reported for the general population in primary care settings (Barry, et al, 1995; 1996).

The purposes of this study were to: 1) determine the prevalence of at-risk drinking in patients seen in a large Psychiatric Emergency Service, 2) examine the characteristics and functioning of at-risk drinkers with schizophrenia or bipolar disorder (serious and persistent mental illnesses) as compared to at-risk drinkers who had other diagnoses, predominantly depression and/or anxiety disorders, 3) conduct an initial test of clinician-administered brief alcohol interventions with those patients who screen positive for at-risk drinking; 4) determine if there were differences in the effectiveness of brief interventions with patients who have schizophrenia and bipolar disorder compared to those presenting with depression and/or anxiety at a 6-month interview; and determine covariates of change in alcohol use for the groups.

## **METHODS**

All eligible adult PES patients age 18 and older with major mental illnesses were asked to complete the informed consent procedure (approved by the University of Michigan Medical School Institutional Review Board). They were asked to sign a consent form covering the entire study – screening questionnaire, brief alcohol intervention, if eligible, and 6-month follow-up interview, if they were entered into the brief intervention study. Patients that were too medically ill, were intoxicated, had legal guardians, or who were prisoners at the time of admission to the PES, were excluded from the screening procedure. Patients were not randomized to experimental and control conditions because the object of the study was to pilot test a brief alcohol intervention strategy in a psychiatric emergency service to determine salient elements of the intervention, barriers to conducting brief interventions in a PES, and methods to best enhance provider adherence to BI guidelines and materials, for a larger controlled trial.

All consented subjects were asked to complete the paper-and-pencil screening questionnaire on their own. The questionnaire was administered verbally for patients needed assistance. Ninety percent of patients were able to complete the screening questionnaire on their own; ten percent asked to have the questionnaire read to them. A total of 460 patients were approached (refusal rate: 20%; n=70) resulting in 390 PES patients who completed the screening questionnaire. There were an additional 214 patients in the PES age 18 and older who, based on human subjects exclusionary criteria, were not eligible and, therefore, approached for screening in this study. The majority of the ineligibility reasons fell into the following categories: acute psychosis, intoxication, overdose, incarceration, and/or suicide attempts.

Research assistants were on site in the PES to handling screening, score screening questionnaires, provide the clinicians assigned to patients who screened positive with intervention materials to use with that patient, collate data, conduct follow-up interviews, and enter data.

### Provider Training

Providers were trained to deliver brief alcohol interventions using a standardized workbook with patients who screened positive for at-risk drinking. A total of 26 providers in the PES were trained to deliver standardized, workbook-driven brief alcohol interventions. All providers received a 3-hour training including didactic and experiential content (case studies; role plays), 2 group 'booster sessions', and individual booster sessions on an 'as needed' basis.

### Measures

The health behaviors questions used in this study were adapted from the Health Screening Survey (HSS) (Fleming & Barry, 1991) and were based on results from a previous study with a seriously mentally ill population (Barry, et al, 1996). They included quantity/frequency items for health behaviors (alcohol use, dieting, tobacco, and exercise) in the previous three months; perceptions of a past or current problem; and the seven alcohol consequence questions from the Alcohol Use Disorders Identification Test (AUDIT). The AUDIT is an alcohol-screening questionnaire developed in a 10-Country study by the World Health Organization (Babor & Grant, 1992) and widely used nationally and internationally.

The AUDIT consequence items cover the previous year and include the following constructs: unable to stop drinking, failed to do what was normally expected, needed an eye-opener, felt guilty about drinking, had blackouts, were injured as the result of drinking, and/or had a doctor/health care provider concerned about their drinking. The consequence questions were analyzed individually and then summed for a comparative analysis regarding number of consequences for at-risk drinkers. In addition, the Brief Carroll Depression Scale (CDS) for depression was used to measure levels of depression (Carroll, 1998). The individual items on the scale were summed to provide a total with a possible score of 12.

'At-risk' was defined as 8+ drinks/week for women, and 15+ drinks/week for men; or binge drinking (4+ drinks on two or more occasions in the last month; or perception of a current problem with alcohol; or perception of a past problem with alcohol, or 2 or more consequences on the AUDIT. The analyses in this paper focus on comparing the at-risk drinkers with serious mental illnesses (schizophrenia, bipolar disorder) (SPMI group) and receive their mental health care through a publicly-funded community mental health center, with those at-risk drinkers who predominantly had depression and/or anxiety and generally receive care through private insurance sources.

### Data Analysis

Univariate statistics were calculated for all variables, and bivariate relationships were examined using various measures of association contingent upon the description of the data distribution. Chi-square, McNemar's, Cochran's Q, Sign, and t-tests were used to determine any within and between group differences (SPMI and DEP/ANX), depending on the categorical and/or continuous nature of the variables of interest. Individuals in the study were considered 'at-risk for alcohol problems' based on following criteria: drank over NIAAA guidelines – men: 15+ drinks/week; women: 8+ drinks/week, **OR** binge drinking: 4+ drinks on two or more occasions in the last month; **OR** perception of a current problem with alcohol; **OR** 2 or more consequences on the AUDIT). All analyses were run using SAS software.

### BI analysis

The comparability in pre-intervention participant characteristics between the two groups were examined. For continuous variables such as age, t-tests were used to compare the means between the experimental and control groups. Likewise, for categorical variables such as smoking status, chi-square tests were used to assess association.

The primary objective of this study was to evaluate effectiveness in the PES of a brief alcohol intervention designed to reduce alcohol-related outcomes in at-risk drinkers identified through screening on admission to the PES. The primary outcomes were changes in alcohol-related variables of interest between baseline and six months post-intervention. The mean change in alcohol-related outcomes, such as number of drinks per week, binge drinking, and alcohol consequences was compared within and between the two groups using t-tests and repeated measures analysis of variance (ANOVA).

All analyses were performed using SAS version 8.02 software.

## **RESULTS**

### Demographics

Of the 390 patients who were eligible and completed the screening questionnaire, 148 subjects (37.95%) had serious and persistent mental illnesses (SPMI group) and were currently receiving services from the community mental health center, Washtenaw County Community Support and Treatment Services. A total of 242 subjects (62.05%) presented to the PES with other mental health diagnoses (predominantly depression and/or anxiety) (DEP/ANX group).

In the SPMI group, 42.57% (n=63) were male; 72.97% (n=108) were Caucasian, 16.89% (n=25) were African American, and Hispanic, Asian, Native American, and other comprised the other ~10% of the sample. In terms of education, collapsing across categories, 23.08% (n=33) of the SPMI sample had less than high school education, 23.78% (n=34) had a high school education, and remainder of the sample (~53%) had a greater than high school education.

In the DEP/ANX group, 40.91% (n=99) were male; 79.34% (n=192) were Caucasian and 10.74% (n=26) were African American. Hispanic, Asian, Native American, and other together made up the other ~10% of the subjects in this group. Regarding educational level achieved, collapsing across categories, 9.54% (n=23) of the DEP/ANX sample had less than high school education, 14.52% (n=35) graduated from high school, and the majority (~76%) had a greater than high school education (n=183). There were no statistically significant differences between the groups on gender and race variables (gender: chi-square=.1241; d.f.=1; p=.9398; race: chi-square=10.8338; d.f.=7; p=.1460). Patients in the DEP/ANX group, however, had significantly more education than those in the SPMI group (chi-square=22.4571; d.f.=2; p<.0001).

### Health Behaviors

Within- and between-group analyses were conducted to examine exercise, nutrition (weight loss or gain), smoking, and alcohol use, and to determine any differences between the groups based on those health behaviors. The results of the analyses (see Table 1) indicate that there were no significant differences between the groups in attempts at weight control (chi-square=.3221; d.f.=1; p=.5704), and exercise (chi-square=.3071; d.f.=1; p=.5795). The patients in the DEP/ANX group were significantly more likely to be drinking, than those in the SPMI group

(chi-square=9.3683, d.f.=1, p=0.0022), while the SPMI group were significantly more likely to be smokers than those in the DEP/ANX group (chi-square=11.6494; d.f.=1; p=.0006). Additionally, the majority of patients with serious mental illnesses smoked, regardless of whether or not they drank at risk levels (chi-square=.4372; d.f.=1; p=.5085).

### **Brief Alcohol Intervention Study Component**

There were 87 (n=34 for SPMI, N=53 for DEP/ANX) who met criteria (drank over NIAAA guidelines – men: 15+ drinks/week; women: 8+ drinks/week, **OR** binge drinking: 4+ drinks on two or more occasions in the last month; **OR** perception of a current problem with alcohol; **OR** 2 or more consequences on the AUDIT) and received a brief alcohol intervention. Of those, 53 (n=18 for SPMI, n=35 for DEP/ANX) were drinking over NIAAA guidelines, 80 (n=33 for SPMI, n=47 for DEP/ANX) scored 2 or more on the AUDIT, 54 (n=20 for SPMI, n=34 for DEP/ANX) reported having a current drinking problem, and 69 (n=26 for SPMI, n=43 for ANX/DEP) were binge drinkers.

### Drinking Above NIAAA Guidelines

In terms of drinking over guidelines based on NIAAA criteria only (Men=15+ drinks/week; Women=8+ drinks/week), there were no significant differences in the SPMI vs. DEP/ANX groups at screening (chi-square=1.4922; d.f.=1; p=.2219). Approximately 66% (n=35) of the DEP/ANX group, and 53% (n=18) of the SPMI group drank over recommended NIAAA guidelines for adults. There was a significant difference between the SPMI (76.47%) and DEP/ANX (94.34%) groups in using any alcohol (chi-square=5.9878; d.f.=1; p=.0144). Two people in the DEP/ANX group had incomplete baseline drinking data.

### At-Risk for Alcohol Problem

Using the definition of ‘at-risk for alcohol problems’ applied in brief alcohol intervention part of this study (see Table 1), there were no significant differences between the groups in the rates of risk for alcohol problems. In terms of drinking above guidelines, the SPMI group drank an average of 26.18 drinks/week, and the DEP/ANX group drank 24.47 drinks/week.

### Alcohol Consequences

Alcohol consequence questions from the Alcohol Use Disorders Identification Test (AUDIT) were analyzed individually for the SPMI at-risk drinkers vs. the DEP/ANX at-risk drinkers. For the purposes of this analysis, the items (unable to stop, failed to do what was normally expected, needed eye-opener, felt guilty, had blackouts, injured as the result of drinking, doctor/health care provider concerned about their drinking) were dichotomized into yes/no and cover the previous year. As can be seen in Table 2, both the at-risk drinkers with serious and persistent mental illnesses and those with depression/anxiety reported a number of alcohol consequences. The 7 consequences were summed to create an overall measure of consequences endorsed by each group. There was a significant difference between groups in the mean number of consequences (SPMI: m=5.0; s.d.=1.50; DEP/ANX: 3.83; s.d.=1.87), with the SPMI group experiencing more consequences. Those with serious and persistent mental illnesses were significantly more likely to endorse 3 specific consequences, that they failed to meet expectations, needed an ‘eyeopener’ to get going in the morning, and had a health care provider concerned about their drinking. On the other hand, the item most endorsed by both groups was ‘unable to stop drinking once they start’. The item least reported was an ‘injury resulting from drinking’.

### Depression

Because this sample was composed of patients seeking care in the Psychiatric Emergency Service, depressive symptoms during the previous few days prior to the PES visit was an important issue to examine. With a potential total score of 12 (one point per positive item endorsed on the Brief Carroll) the at-risk drinkers in the SPMI group had a mean score of 9.09 (s.d.=2.35). The DEP/ANX group had a mean depression score of 8.46 (s.d.=2.86). There were no statistically significant differences in the rates of depression for the two groups ( $t = -1.06$ ;  $p = .2934$ ). Both the group with serious mental illnesses and the group with predominantly depression/anxiety scored similarly on the depression scale. If a cut-off score for major depression was set at 4 or more positive items (standard scoring), both groups could be considered to have relatively high depression.

### Brief Alcohol Intervention Results

A total of 87 individuals received a brief alcohol intervention with 55 (n=18 for SPMI, n=37 for DEP/ANX) available for follow-up (63%). The 63% follow-up rate is comparable to that of other studies with similar populations and reflect some of the issues of unstable housing, and the psychiatric conditions in this population. There were no statistically significant differences between those who were in the follow-up and those who could not be reached or refused follow-up in terms of age ( $t = 1.56$ ,  $df = 85$ ,  $p = 0.1227$ ), gender (Chisq=2.4972,  $df = 1$ ,  $p = 0.1140$ ), race (Chisq=2.2126,  $df = 1$ ,  $p = 0.1369$ ), education (Chisq=2.9584,  $df = 2$ ,  $p = 0.2278$ ), or diagnosis (Chisq=2.5351,  $df = 1$ ,  $p = 0.1113$ ). However, those in the SPMI group were more likely to be living with others than those in the DEP/ANX group (Chisq=8.8937,  $df = 2$ ,  $p = 0.0117$ ). In terms of decreases in alcohol use, both groups dropped their drinking by approximately 7 drinks/week over the 6-months of the study (Table 3). At baseline, the 18 SPMI patients who completed the 6-month follow-up drank an average of 16.4 drinks/week (s.d.=24.5) and at follow-up they had decreased their intake to 8.7 drinks/week (s.d.=15.4). The 37 DEP/ANX patients with follow-up data drank 19.8 drinks/week (s.d.=19.3) at baseline and decreased consumption to 13.0 drinks/week (s.d.=25.1) at follow-up. Although the changes between and within groups were not statistically significant (Sign test  $p = 0.1460$  for SPMI, Sign test  $p = 0.0501$  for DEP/ANX), the overall decrease in drinking for the 55 with follow up was statistically significant (Sign test  $p = 0.0096$ ).

The DEP/ANX group had significantly more binge drinkers than the SPMI group (Table 4,  $Q = 10.6875$ ,  $df = 2$ ,  $p = 0.0048$ ), and they showed a significant decrease in the number of binge drinkers from baseline to follow-up ( $S = 8.0667$ ,  $df = 1$ ). The SPMI group also showed a decrease in the numbers of binge drinkers, but it was not statistically significant.

### **Discussion**

This is one of the first studies to address the need for alcohol screening and brief alcohol interventions in the psychiatric emergency service even when the presenting problems does not appear to be alcohol-related. The data revealed no significant differences between seriously mentally ill and predominantly depressed/anxious participants in this study in terms of most demographic characteristics. The findings in this study confirm relatively high rates of current at-risk drinking found in other studies<sup>11,17</sup>, but also the presence of alcohol problems among PES patients, regardless of psychiatric diagnosis. This indicates that, whether or not a PES visit is

directly related to current alcohol use, questions regarding alcohol need to be part of any screening procedures, particularly because these are patients entering the emergency setting with emergent psychiatric disorders and problems. In addition, because of the range of consumption levels for the 'at-risk' groups, a number of those who screen positive for at-risk drinking (drinking above NIAAA guidelines) may actually be drinking at levels that put them into abuse or dependence categories.

Both the number and type of consequences resulting from at-risk drinking endorsed by patients in the SPMI and DEP/ANX groups were similar. In both groups, injury was the least reported negative consequence from drinking (endorsed by less than 30% of at-risk drinkers in both categories). Every other negative consequence was reported by a majority of patients in both the SPMI and DEP/ANX groups. Feeling unable to stop drinking was narrowly the most reported consequence, with doctor or health care provider concern about drinking following close behind. The latter item, doctor or other health care provider concern, indicates that many patients with at-risk drinking or abuse/dependence have had a discussion at some point with a professional regarding their alcohol use. That is one of the reasons that the PES may be an ideal setting to target alcohol problems with motivational brief interventions and follow-up case management that will ensure access to substance use care. A visit to an emergency department has often been considered a 'teachable moment' when a crisis can provide the impetus for the individual to make changes in health behaviors, particularly alcohol use<sup>29</sup>.

Patients presenting to the PES from both groups suffered from high rates of depression. Patients from both groups endorsed approximately 9 of the 12 depression criteria. The findings of this study reveal that depression is clearly an issue that needs to be addressed by clinicians in the PES when dealing with any patient, whether or not that patient is specifically diagnosed with major depression.

A comparison of the brief alcohol intervention data from baseline to 6-month follow-up indicated that the total sample significantly decreased their alcohol consumption by ~ 7 drinks/week, indicating an overall positive effect of the intervention. The group with predominantly depression/anxiety showed a significant change in their consumption and in the number who were binge drinking over time. The sample size in the group with serious and persistent mental illnesses was too small to show a statistically significant change in consumption or binge drinking over time even though the group showed a 47% decrease in consumption, indicating that brief alcohol interventions may have potential with this population in psychiatric emergency settings.

The limitations of the study included the sample size of at-risk drinkers with serious and persistent mental illnesses, the number of patients in the PES who were excluded from the study because they presented in the PES with acute psychosis, intoxication, and/or incarceration, and the follow-up rate (60%). The follow-up rate is similar to that in other longitudinal studies with patients who have serious mental illnesses, some of whom have unstable housing. The exclusionary criteria, important for human subjects considerations, made it less likely that patients with serious and persistent mental illnesses who have more serious problems related to alcohol use would be included in the sample. Further studies will be needed to address the issues inherent in using these exclusion criteria in psychiatric emergency settings.

In sum, this study demonstrates the importance of addressing alcohol use and depression symptoms in all patients presenting to psychiatric emergency services. Most of the patients who

took part in this study were not being seen in the PES for their alcohol use, but rather for symptoms of psychosis, depression/anxiety/panic attacks, family problems, and other concerns. Yet, as this study has indicated, alcohol use and at-risk drinking is a concern for a sizable proportion of this population. The study also showed that patients in the PES who drink at risk levels may benefit from a short, targeted brief alcohol intervention directed at changing their alcohol-related behavior. Motivational brief intervention approaches have been used in a variety of medical settings. This is one of the first studies to address the use of these techniques in the PES with patients who do not necessarily enter the emergency setting for alcohol-related issues. This study provides the background and basis for larger scale trials of this brief alcohol intervention technique with the vulnerable population of individuals who have serious mental illnesses and whose pattern of alcohol use puts them at increased risk for serious physical and mental health complications.

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**Table 1: Reported Health Behaviors by Group (SPMI: schizophrenia, bipolar disorder; DEP/ANX: predominantly depression, anxiety)**

	<u>SPMI (n=148)</u>		<u>DEP/ANX (n=242)</u>		<b>p</b>
	<b>%</b>	<b>(n)</b>	<b>%</b>	<b>(n)</b>	
<b>Dieting</b>	25.17%	37	27.80%	67	n.s.
<b>Exercising</b>	51.03%	74	53.94%	130	n.s.
<b>Smoking**</b>	62.84%	93	45.04%	109	.0006
<b>Any alcohol use</b>	41.89%	62	57.85%	140	.0022
<b>#At-risk for alcohol problems</b>	22.97%	34	21.90%	53	n.s.

(# At-risk for alcohol problems based on following criteria: drank over NIAAA guidelines – men: 15+ drinks/week; women: 8+ drinks/week, **OR** binge drinking: 4+ drinks on two or more occasions in the last month; **OR** perception of a current problem with alcohol; **OR** 2 or more consequences on the AUDIT)

(\*\*significant <.05)

**Table 2: Differences in Alcohol Consequences for At-Risk Category Only**

by CMH Status

	<u>SPMI</u>		<u>DEP/ANX</u>		p*
	%	(n)	%	(n)	
<b>Unable to Stop</b>	82.35%	(28)	66.04%	(35)	n.s.
<b>Failed Expectations</b>	85.29%	(29)	66.04%	(35)	.0469
<b>Eye-opener</b>	64.71%	(22)	35.85%	(19)	.0085
<b>Guilt</b>	76.47%	(26)	67.92%	(36)	n.s.
<b>Blackouts</b>	73.53%	(25)	62.26%	(33)	n.s.
<b>Injured</b>	26.47%	(9)	18.87%	(10)	n.s.
<b>Doctor Concern</b>	91.18%	(31)	66.04%	(35)	.0075

(significance:  $p < .05$ )

**Table 3: Changes in Quantity/Frequency by Mental Health Classification: Baseline to 6-month Follow-Up**

<b>Time Frame</b>	<b>Total Sample</b>		<b>SPMI</b>		<b>DEP/ANX</b>	
	M	(s.d.)	M	(s.d.)	M	(s.d.)
Baseline	18.7	(21.0)	16.4	(24.5)	19.8	(19.3)
6 months	11.6	(22.4)	8.7	(15.4)	13.0	(25.1)
Difference in Mean		-7.1		-7.7		-6.8
% Change in Mean		-38%		-47%		-34%
Sign. test p-value		.0096		0.1460		0.0501

**Table 4: Changes in Number and Percent of Subjects Meeting Binge Drinking Criteria\* by Mental Health Classification: Baseline to 6-Month Follow-Up**

<b>Time Frame</b>	<b>Total Sample</b>	<b>SPMI</b>	<b>DEP/ANX</b>
	N=55	N=18	N=37
Baseline	43 (78%)	12 (66%)	31 (84%)
6-month f-up	28 (51%)	8 (44%)	20 (54%)

McNemar's test for within group differences: P=0.1025 P=0.0045\*

Cochran's Q examining differences between the groups: P=0.0048\*

\* Binge drinking= 2 or more binge drinking episodes (4+ drinks/occasion)/month