



# **The Results of a Traditional Alcohol Intervention Approach with Alcohol Abusers in a Heavy Industry Setting in Russia**

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Chestnut Global Partners (CGP), LLC, is a wholly owned subsidiary of Chestnut Health Systems, Inc. CGP has provided Employee Assistance Programs and related workplace services since 1984. Corporate Health was formed in 2009 by Chestnut Global Partners and BEAC, LLC; it was the first professional occupational health and employee support provider in Russia.

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Alcohol Abusers in a Heavy Industry Setting in Russia

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## **Abstract**

Motivating alcohol abusers to enter treatment, comply with recommendations and make significant changes in their behavior is no easy task. In the West, professionals learned the importance of motivation early on, and they learned it first from those recovering in Alcoholics Anonymous - AA. Early occupational alcoholism programs used job performance and disciplinary steps to motivate problem drinkers to take action. The threat of job loss proved significant in breaking through denial and in motivating clients to begin a recovery process. This approach was incorporated into the Employee Assistance Program (EAP) and EAP professionals have used job performance and disciplinary steps to motivate those with many types of personal issues. In the Russian Federation, no such history exists. This workplace-based alcohol intervention program is a first for Russia, and it uses the work performance approach successfully deployed in the West for many decades. KEY WORDS: motivation; intervention; alcoholism; addiction; recovery; treatment; behavioral change; treatment method; motivational interviewing; Russia; Russian Federation; Eastern Europe.

## **Introduction**

There is no question as to the extent that alcohol abuse negatively affects both the quantity and quality of human life. Studies have also linked alcohol consumption to all types of unintentional injuries (Hingson and Howland 1993; English et al. 1995; Ridolfo and Stevenson 2001). While questions remain pertaining to the actual link between alcohol use and abuse both on-and-off the job, and injuries and fatalities at the workplace, research continues to show that the involvement of alcohol in unintentional injury is high (Gmel and Rehm, 2003). From the literature we find

that alcohol is frequently found in the blood (BAC) of those being treated for injury, and cumulative findings from many studies position the drug as having at least some causal role.

Alcohol use disorders (AUDs) have been significantly underestimated and undertreated by health professionals in the Russian Federation (Nemfson, Korolen, and Pridemore, 2002) (Gmel and Rehm, 2003). From the World Health Organization (2011) we learn that alcohol use disorders rank seventh among the leading causes of premature death and disability worldwide. The countries with the highest alcohol usage are clustered in Eastern Europe, particularly Russia and among the countries of the former Soviet Union (WHO, 2014). Moldova, for example, ranks first in the world (WHO, 2014). In addition to contributing heavily to chronic morbidity, AUDs contribute causally to 13 of the top 20 reasons for mortality (Rehm et. al., 2003) (Mathers, Boerma and Fat, 2009). Important to this study, cultural differences do appear to play a role in drinking, particularly with regard to how much one drinks, when one drinks and where one drinks (WHO, 2007).

According to the Russian government, at 18 liters, alcohol consumption is more than double the critical level set by the World Health Organization at 8 liters of ethanol per-individual annually (Rionovasti, 2009). And, Russia has long exceeded this level of consumption. On September 11, 2009, then President Dmitry Medvedev ordered his government to prepare draft laws to counter alcohol abuse.

The heavy use of alcohol certainly impairs job performance and safety and results in expensive medical, social and related personal problems affecting employee lives, productivity and

families. Productivity losses in Russia have not been officially quantified, but elsewhere, such losses have been estimated at billions of euros/dollars annually. Drug use is also on the rise in Russia, adding to workplace concerns.

The alcohol intervention program that was developed at this Russian industrial site deals directly with these issues using methodologies proven effective at other world locations. Western companies recognized the importance of addressing alcohol abuse early on, and today we learn from the Society of Human Resource Management (2008) that almost 90 percent of large organizations in the United States (those with more than 500 employees) have some type of workplace intervention service in place. This was a strong selling point for management at this Russian company who were concerned about the problem at their worksites, and concerned too, about their government's announcements as to the extent of the problem in Russia.

### **Alcohol Interventions in a Resource-Limited Setting**

The implementation of an alcohol intervention service in a resource-limited region presents problems. The models in place elsewhere reflect the work of alcoholism specialists where there have traditionally been a great deal of treatment resources available. Treatment services are scarce in Russia, particularly outside of the large metropolitan areas of St. Petersburg and Moscow. In the region where this program operates, services were almost non-existent. You will see how this program addressed these concerns by putting a great deal of time and effort into training local medical professionals, company management, and others from the community.

## **The Advantage of the Workplace Setting**

In the West, beginning first in the U.S. as early as 1940, workplaces proved to be ideal locations from which to provide alcohol intervention. Workers spend a great deal of their time "on-the-job" and employers have well-developed means at their disposal to deal with problem drinkers (Trice and Roman, 1972; Roman and Bloom, 2002)).

The goal of the industrial alcoholism program is to use corrective action (discipline) to confront an employee and to facilitate a corrective action intervention. The program at this location uses this approach, maintaining the employee's job while he/she receives necessary treatment. And, corrective action continues should he/she fail to adhere to recommendations: up to and including termination. Work plays a very important role in one's life. Because the adults' role in a family is to maintain an income, employers have a substantial amount of leverage. And, one's overall status and prestige in society, particularly for men, is largely based on one's employment (Gannett, 2013). We began our work for this company with these concepts in mind and implemented the company's Alcohol Program based on an approach that made earlier programming in the West successful. No such effort has ever been implemented in the Russian Federation and this employer is receiving country-wide recognition for the results achieved.

## **How the Program Works**

### **The Program Professional**

At this industrial worksite, there is a full-time employee who serves as the program interventionist. A local female social worker with limited prior experience in alcoholism treatment, the company's interventionist was trained by the professional staff at Corporate Health (CH). The CH Director in Moscow, a physician, has substantial knowledge and experience in the addictions' field, having also completed training in this area in the United States. A Russian, he also fully understood the challenges the company faced in putting this service in place. The program interventionist was trained at the CH offices in Moscow and during the first year of operation she received regular, on-going telephonic clinical supervision from the CH staff. She also received input and guidance from the partner organizations in the U.S.

The interventionist provides a diagnostic, referral and follow up service to those referred by supervisors, managers, HR and Medical representatives. All such referrals are based on work performance, safety violations and/or health concerns. Employees are guided to the service by their immediate supervisor (or an HR or Medical official). These referrals are firm, but the employee does have the right to reject help. Should work problems continue, a stronger referral is made with the employee expected to follow the interventionist's recommendation(s). In the event that an initial violation is severe, that is, a major violation, the employee is expected to present himself/herself to the interventionist in lieu of being terminated. And, those who are terminated are referred back to the program as part of the termination process. Such employees

are told that “they may have an opportunity to return to work, but only after they complete the program successfully.”

There are generally four types of referrals made to the program:

1. Self-Referral

Employees seek help from the interventionist on their own. The identity of the employee is kept highly confidential and while expected to complete the program offered, adherence is voluntary.

2. “Soft” or “Recommended” Referral

Employees with less severe performance problems are asked by their supervisor to contact the program and work with the interventionist. The referring supervisor is kept informed (through a signed release of information) as to the employee’s compliance.

3. Formal Referral

The employee is referred in lieu of being terminated with successful completion of the services expected. Failure to complete services results in termination.

4. Formal Referral after Termination

Employees who are terminated are referred back to the program and expected to complete services in order to be eligible for re-hire.

The results of such referrals appear in the research findings.

## **The Intervention Team**

We involved all medical professionals (contractors) who worked for the company in a 4-day team building training effort. A number of community-based medical professionals also participated. This training was directed by the CH Program Director (a physician), and included input from a US physician consultant, a psychiatrist highly skilled in addiction, who participated using an internet connection:

- Physicians and nurses reviewed internationally recognized criteria for the diagnosis of alcohol and other substance dependency with the Program Director and US consultant;
- Methods of drug/alcohol detection were presented and discussed;
- Medical intervention points were presented and discussed;
- The interventionist was introduced and her role clearly defined;

A small local treatment group (of five psychologists) received a similar training. The medical training was conducted at the local hospital; the other sessions were held at the city's municipal offices. This effort was fully supported by the town mayor and her government team.

To ensure local support, we held one-hour introductory presentations at City Hall and invited the media, law enforcement, the clergy, school officials, and others from the community to attend. We also presented the program to the company's union representatives, and they, in turn, hosted 6 "open" sessions with union membership at the union hall. And, we attended five "open" A.A. meetings to ask for understanding and assistance from those who best understood the problem.

While still formative, we found A.A. to be growing in this region of Russia and we also found strong support for this effort from the recovering community.

### **The Plant Program Committee**

An in-plant Program Committee was initiated with management and the union. This Committee has twelve members and represents a cross-section of the various departments/groups found at the plant. .

The Committee was initiated with high-level representatives from Management, Human Resources, Social Services, Safety, Medical and the Union as members. This group developed the program policies and procedures for the plant. After the completion of their work, this high-level representative appointed an individual from their division to serve on the Committee. This Committee met monthly for the first six months of operation, but now holds its meetings quarterly. (Although, they do meet according to need, and special meetings are often called to address any emergent issue.) The clearly defined role of those serving on the Committee is to provide program support, recommendations, and to address any concerns that may arise. They do not provide any clinical input or direction.

## **Program Policies/Procedures**

HR policies and procedures were revised to support this intervention effort. The Committee reviewed policy/procedural statements from Western organizations and revised accordingly. Corporate Health (and its US organizations) provided consultation in this effort. On-going program operational procedures (including a program manual) were developed;

- The initial Program Committee was established and they developed a position description and Committee guidelines for those who would follow.

The Intervention Program began its work on 1 May, 2011, after the completion of all of these action steps.

## **Evaluation of the program**

Our study compared 66 workers referred to the Intervention Program who were identified as having drinking problems, with 338 workers from the general population at another similar company work location (control group). Both received a questionnaire containing measures of alcohol use, absenteeism, presenteeism, work engagement, life satisfaction, and workplace distress. This comparison formed a 2 X 2 mixed factorial research design. The treatment condition (experimental vs. control) was a between-groups factor and time (pretreatment vs. follow-up) was a within-subject factor. *The treatment hypothesis was that the treatment and control conditions would differ at baseline reflecting the fact that the treatment group had identified alcohol problems, with a control group representing the general population.* Program effectiveness would presumably remove the difference between these groups at follow-up. These hypotheses were tested using an analysis of variance. Support for the hypotheses would be

expected to produce a statistically significant interaction between the treatment group and time factors.

### **Research Design**

This study used a quasi-experimental design with non-equivalent groups. Two groups were compared: the treatment group receiving the intervention/program at one company site and a control group from another company work location having a work population similar in age, gender, and other important demographics.

Using a pre-test/post-test design, we tracked the changes in the outcome measures via a repeated measures component. With this design, the subjects also served as their own controls. The design used a covariate analysis to remove pre-existing differences in outcome measures caused simply by differences in comparison between the groups.

### **Measures**

The full Global Appraisal of Individual Needs (GAIN) is a standardized and scientifically validated bio-psychosocial tool that integrates clinical and research assessment for people presenting to behavioral health treatment (Dennis, Titus, White, Unsicker, & Hodgkins, 2003.) It asks about symptoms from DSM-IV-TR that can be used to generate dimensional symptom count measures or categorical diagnostic impressions of specific disorder in the four main dimensions of interest (i.e., internalizing, externalizing, substance, and crime/violence). While well received (it is currently used by more than 750 agencies across the U.S., Canada, and Mexico), it typically takes 2-3 months of training and feedback to get a staff person certified on

GAIN administration and then takes 90 to 120 minutes per patient/staff person to actually administer. This takes too much time for use as a screener in settings like the workplace or internet based health risk assessments where it may only be one of several components and there is limited time or limited staff resources. Thus, there was a need to develop a GAIN-Short Screener (GAIN-SS) that could be (a) easily trained, (b) used in 5 minutes or less to identify people who have a disorder and rule out people who do not, and (c) provide guidance for referral to further assessment and treatment. Consistent with the full GAIN, the GAIN-SS (Dennis, Feeney, & Titus, 2006; Dennis, M. L., Chan, Y.-F., & Funk, 2006). is designed to (a) be valid for both adolescent and adult populations, (b) provide measures of severity overall and the four main dimensions of emotional/ behavioral problems (internalizing, externalizing, substance, crime/violence), and (c) triage these dimensions to provide guides to support clinical decision making about detailed diagnosis and treatment needs. In this particular study, the crime/violence scale of the GAIN-SS was eliminated at the request of the sponsoring multi-national employers who permitted the use of the other GAIN-SS scales among its expatriate or U.S. domestic workforce.

The 3-to 5-minute GAIN-SS, the instrument used in this study, was designed to serve as a screener in general populations to quickly and accurately identify clients whom the full 1.5-to 2-hour full GAIN would identify as having one or more behavioral health disorders (e.g., internalizing or externalizing psychiatric disorders, substance use disorders, or crime/violence problems), which would suggest the need for a referral to a mental health professional. It also rules out those who would not be identified as having behavioral health disorders. The GAIN-SS is designed for self-or staff administration with paper and pen, on a computer, or on the web.

GAIN-SS responses are given in terms of the recency of the problem described in the questions: 3 = past month; 2 = 2 to 12 months ago; 1 = 1+ years ago; 0 = never. The number of past-month symptoms (number of 3's) is used as a measure of change; the number of past-year symptoms (number of 3's or 2's) is used to identify who is likely to have a current diagnosis; and, the number of lifetime symptoms (number of 3's, 2's, or 1's) is used as a covariate measure of lifetime severity. The recency measures can also be combined to create course specifics (e.g., early remission means having a lifetime problem but not in the past month; sustained remission means having a lifetime problem but not in the past year).

Dennis, Chan, & Funk (2006) found that for both adolescents and adults the 20-item total disorder screener and its 45-item sub-screeners (internalizing disorders, externalizing disorders, substance disorders, and crime/violence) have good internal consistency (alpha of .96 on the total screener), were highly correlated ( $r = .84$  to  $.94$ ) with the 123-item scales in the full GAIN, had excellent sensitivity (90% or more) for identifying people with a disorder, and excellent specificity (92% or more) for correctly ruling out people who did not have a disorder.

A confirmatory factor analysis of the structure of the GAIN-SS showed that it is also consistent with the full GAIN after allowing adolescent and adult path coefficients to vary and cross-loading paths between conduct disorder items with crime/violence items. The confirmatory factor analysis was slightly less accurate than the full-scale version in terms of the confirmatory fit index (CFI; .87 for the GAIN-SS vs. .92 for the full GAIN, whereas the CFI approaches 1 the model fits the data better), and slightly more precise in terms of the root mean square error of approximation (RMSEA; .05 for GAIN-SS vs. .06 for the full GAIN, whereas the RMSEA goes

down there is less unexplained variance). This suggests that each of the sub-screeners has good discriminate validity and that the total structure is consistent with the model used with the full GAIN.

It is generally believed that the strongest evaluation design for a program-level intervention involves a random assignment of subjects to a treatment condition and an isolated no-treatment or alternative control condition with an active manipulation of the independent variable. Such an approach is generally regarded as a “true experiment” in that it assures that post-treatment change is unequivocally linked to the treatment program and not extraneous factors, and as such, benefits from strong internal validity. Unfortunately, random assignment to isolated treatment and control condition is difficult to achieve in real world setting without creating a contrived situation that is low in external validity. For example, medical studies that test the efficacy of the treatment in laboratory settings often fail to appreciate the complications of the operational environment in which the programs exist and thus fail in field implementation. Regarding workplace-based alcohol interventions, failure to consider the complications of workplace implementation is likely to create a sterile program that does not adhere to the real world. Because it is not feasible to randomly assign workers to a treatment and control condition, we employed a quasi-experimental design that tracked the changes in outcome(s), tracking those who used the service against those who did not.

The evaluation design was a 2 X 2 within subjects design, using an experimental group that received the intervention (and were questioned before services began), then questioned again 90-days after their intervention. The control group (workers from another similar company site) did not receive an intervention and did not receive program services. The controls were questioned at

the beginning of the study and were then (follow up) questioned approximately 120-days after their initial questioning. This thirty-day differential allowed for the passage of time for the experimental group and created roughly an equal pre-treatment post-treatment lag.

A Russian language version of the short screener of the Global Appraisal of Individual Needs (GAIN SS) along with the Substance Problem Index and the Substance Frequency Scale from the GAIN served as the primary behavioral health outcome measures for this study and test the primary hypotheses regarding the effectiveness of the program in reducing alcohol use. A newly translated version of the Workplace Outcome Suite (WOS), which included self-report measures of absenteeism, presenteeism, work engagement, life satisfaction and workplace distress was used to test secondary outcomes related to improvements in workplace functioning and quality of life measures.

The Workplace Outcome Suite (WOS) provides secondary outcome measures of absenteeism, presenteeism, work engagement, life satisfaction and workplace distress with which to measure secondary outcomes (Lennox, **Sharar, D.**, Schmitz, E., & Goehner, D, 2010). This 5-item measure is a psychometrically-derived version of a longer scale questionnaire (25 items) aimed at assessing quality of life issues surrounding productivity in the workplace and at home.

AUDIT. Another secondary measure used was the World Health Organization's 10-item AUDIT which helped to provide us with ancillary measures of alcohol problems and alcohol dependence (Saunders, Aasland, Babor, de la Fuente, & Grant, M. (1993

## **Subjects**

Subjects were 66 workers from a single worksite who received the intervention (the experimental group), and 330 workers from a very similar site who served as the treatment control group.

## **Procedures**

Upon referral to the program, treatment subjects received an intake interview during which the baseline variables were collected. The exact treatment services that individual workers received was determined by the treatment professional at the program. In order to standardize the effects of the study, treatment subjects were reassessed (post-treatment follow-up) 90-days after their entry into the program, regardless of the actual services they received. Control subjects at the control site were randomly recruited and did not receive any services from the program. The control subjects were followed up with the questionnaire at approximately 120 days.

## **Statistical Analysis**

The main hypotheses was tested using an analysis of covariance (ANCOVA) of the average scores on outcome measures at the 90 day follow-up for the treatment group; 120 days for the controls. Baseline alcohol use measures from the SFS were used to remove the effect of pre-treatment differences between the treatment group/controls regarding their (initial) alcohol intake. Type III sums of squares were used to implement the statistical controls for any pre-existing differences. Table 1 presents the descriptive statistics for the items in all questionnaires used in this study.

**Table 1: Descriptive Statistics of the Pre-treatment Questionnaire (Treatment Group, N=66)**

<b>GAIN Short Screener (Substance Use Disorder Screener)</b>		
	% Yes	% No
1. You used alcohol or other drugs weekly or more often?	63.6	36.4
2. You spent a lot of time either getting alcohol or other drugs, using alcohol or other drugs, or feeling the effects of alcohol or other drugs?	9.1	90.9
3. You kept using alcohol or other drugs even though it was causing social problems, leading to fights, or getting you into trouble with other people?	19.7	19.7
4. Your use of alcohol or other drugs caused you to give up, reduce or have problems at important activities at work, school, home, or social events?	33.3	66.7
5. You had withdrawal problems from alcohol or other drugs like shaky hands, throwing up, having trouble sitting still or sleeping, or that you used any alcohol or other drugs to stop being sick or avoid withdrawal problems?	39.4	60.6
<b>AUDIT</b>		
	% 0	% 4
1. How many times do you have a drink containing alcohol?	3.0	9.1
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	6.1	13.6
3. How often do you have six or more drinks on one occasion?	9.1	0.0
4. How often during the last year have you found that you were not able to stop drinking once you had started?	40.9	1.5
5. How often during the last year have you failed to do what was normally expected of you because of drinking?	47.0	3.0
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	47.0	0.0
7. How often during the last year have you had a feeling of guilt or remorse after drinking?	19.7	6.1
8. How often during the last year have you been unable to remember what happened the night before because of your drinking?	45.5	0.0
9. Have you or someone else been injured because of your drinking?	75.8	9.1
10. Has a relative, friend, doctor, or other health care workers been concerned about your drinking or suggested you cut down?	19.7	72.7

<b>Workplace Outcome Suite (5 Items Version)</b>		
	M	SD
1. For the period of the past thirty (30) days, please total the number of hours your drinking caused you to miss work including, complete 8-hour days and partial days when you came in late or left early.	6.52	12.15
2. My personal problems keep me from concentrating on my work.	2.86	1.51
3. I am often eager to get to the work site to start the day.	2.79	1.18

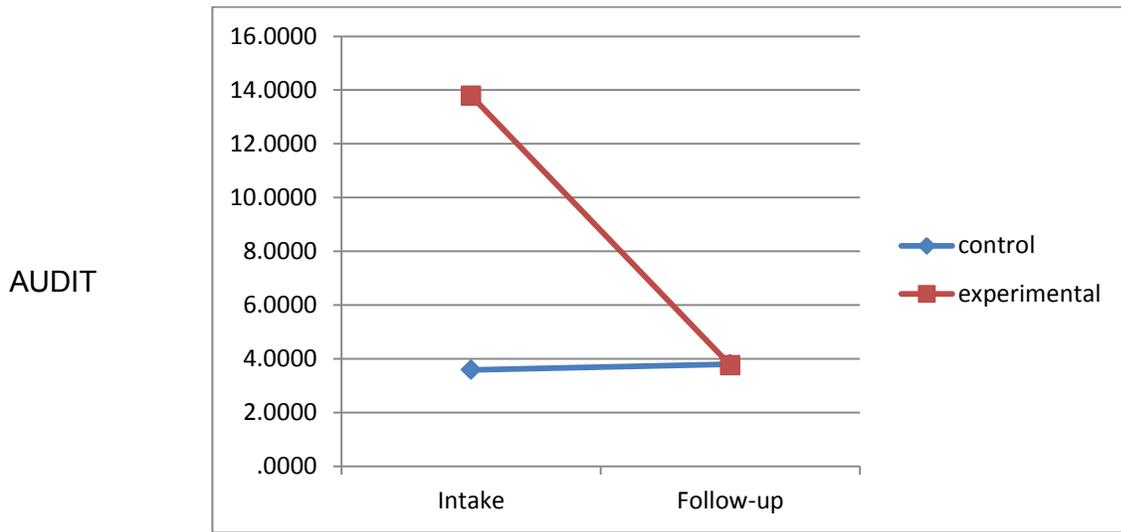
In this quasi-experimental study we compare a general control groups that is expected to have the normal amount of alcohol problems with an experimental groups specifically selected to be in need of an alcohol intervention. The main test of the effectiveness of the intervention is necessarily an overall lack of alcohol use and/or problem, but rather a return to a state that is similar to a general population. Because the treatment group was selected for its alcohol problems, we expect it to show more alcohol use and workplace dysfunction than the more heterogeneous control group. There should be some differences between the two groups are intake, but we expect these difference to statistically disappear to at least be substantially less at the follow-up assessment.

Absenteeism and self-reported alcohol use in the past 30 days among the 66 treatment subjects did not produce enough variance to allow statistical tests of the hypotheses. None of the 66 subjects reported any alcohol uses during that time, and on the surface this finding supports the efficacy of the program. However, the fact that none of the subjects reported any use is needs to be carefully considered. It is possible that subjects were unwilling to admit to any alcohol use. It is also possible that that threat of being fired for drinking was so potent as to provide sufficient motivation to remain abstinent. Only 2 of the 66 subjects reported any absenteeism during the 90

the follow-up period. Here again, such a uniform lack of absenteeism is extremely rare in social research. Taken together, the two variables raise some question about the veracity of the report, but they cannot by themselves vitiate the results. Further post hoc interview of the 66 treatment subjects may be useful in providing insight into the validity of the self-reported measures of alcohol use and absenteeism. It may also be useful to conduct informal interview of the supervisors of a small subset of the treatment subjects. It is worth noting that the interventionist collecting the reports did not get the impression that the subjects were providing false reports of either of these variables.

**Figure 1** presents the results of the tests of the treatment hypotheses for the AUDIT alcohol outcomes measures. As shown in the figures there are substantial difference between the 66 subjects in the treatment group (experimental) and the 337 in the control groups at the beginning of the study on the Audit measures. These differences reflect the fact that the treatment group was selected for their apparent misuse of alcohol and its adverse impact on job performance. However, as shown in the figure and the table these differences essentially disappear after treatment, indicating that the intervention brought the AUDIT scores to a level consistent with the general working population.

Figure 1: Descriptive statistics of Audit Scores for treatment and control groups at intake and Follow-up.



	Condition	Intake	Follow-up
Mean	control	3.5905	3.7959
	experimental	13.7879	3.7576
	Total	5.2605	3.7896
N	0 control	337	338
	1 experimental	66	66
	Total	403	404
Std. Deviation	0 control	4.36964	4.28887
	1 experimental	6.65759	2.63153
	Total	6.11573	4.06190

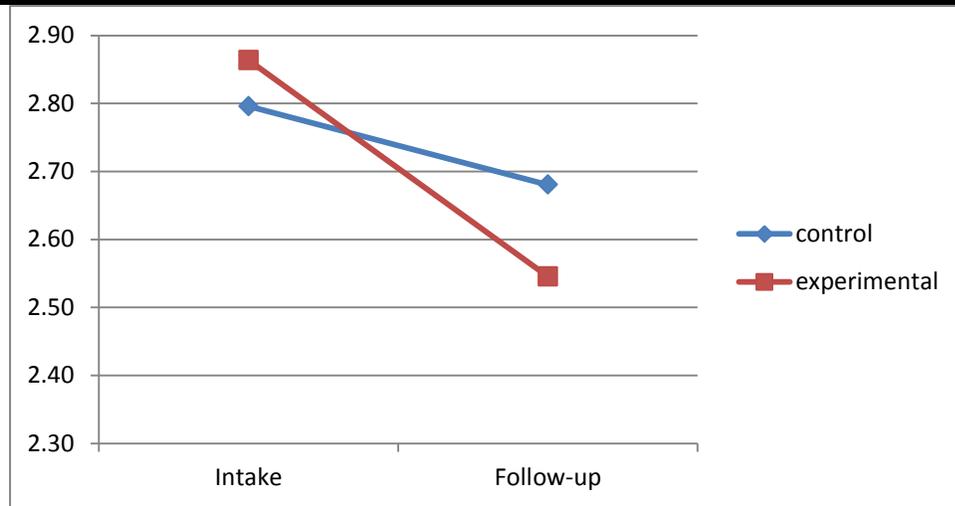
The test of the statistical interaction between condition and time was statistically significant ( $F = 145.630$ ,  $1, 803$ ,  $p < .000$ ) indicating that the slope of the lines presented in the graph are different from one another and specifically that steep declining slope for the treatment group suggesting a pronounced reduction on the Audit scores from intake to follow-up is very different from the

relatively flat line for the control group. The treatment group decreased from intake to follow-up to the point where they were statistically equivalent to the control group, and thus the treatment group was essentially returned to the normal state of the general population. The results of the core analysis provides the strongest support for the alcohol programs ability to ameliorate the drinking problem in this group.

We used an analysis of covariance implemented with Type III sums of squares to statistically control for the possibility that the treatment and control groups contained pretreatment differences that would confound the outcome differences. A Type II sums of squares was used to partial out any variance in the outcome variables attributed to pre-treatment differences between treatment and control groups.

**Figure 2** presents the intake and follow-up patterns for the presenteeism scale with high scores indicating that one's alcoholism has an adverse effect on work. Lower scores therefore indicate better functioning. Unlike the AUDIT the Presenteeism score at Intake for the two groups are quite small. However, the scores diverge at follow-up, to the point where the treatment shows the better functioning. On the surface, this pattern of means also shows support for the treatment hypotheses in showing that the treatment group improved at a better rate than did control, finally achieving the lowest score for all comparisons. That is, whereas the treatment group initially showed the highest amount of adverse effect on the job, by the end of the follow-up it was the lowest.

Figure 2: Descriptive statistics of Presenteeism Scores for treatment and control groups at intake and Follow-up.



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The background statistics, however, show that these differences are not statistically different, and thus do not provide strong support for the treatment hypotheses ( $F = .463$ ,  $1, 804$ ,  $p = .497$ ).

However, because of the small sample, this test did not provide adequate statistical power for the presenteeism effect. The observed power statistic in the appendix gauges the statistical power of

the test on a scale of 0-1.00, with 0 being a total lack of power and 1.00 being very high statistical power. The observed power of .104 suggests that the sample was just not large enough to provide a sensitive test of the presenteeism effect, and thus we are unable to say with certainty whether the treatment can affect presenteeism as a construct.

## **In Summary**

This study evaluated the efficacy of workplace alcohol interventions by comparing the alcohol use and workplace outcomes of 66 workers identified as having drinking problems who received the intervention, with 338 workers from the general population of a similar company (the control group). Both groups received a questionnaire containing measures of alcohol use, absenteeism, presenteeism, work engagement, life satisfaction, and workplace distress. This comparison formed a 2 X 2 mixed factorial research design. The treatment condition (experimental versus control) was a between-groups factor and time (Pretreatment versus Follow-up) was a within-subject factor. The treatment hypothesis was that the treatment and control conditions would differ at baseline reflecting the fact that the treatment group had identified alcohol problems, with the control group representing the general population. Program effectiveness would presumably remove the difference between these groups at follow-up. The hypotheses were tested using an analysis of variance. Support for the hypotheses would be expected to produce a statistically significant interaction between the treatment group and time factors.

Statistically significant interaction for the AUDIT scores and life satisfaction clearly supported the effectiveness of the program by showing that large differences between the experimental and control groups at baseline, essentially disappeared at follow-up. The results of the follow-up

survey for the experimental group suggested that there was no self-reported drinking and little absenteeism thirty-days after intervention. The low variance in these measures precluded formal statistical analysis. The pattern seen favored the effectiveness of the intervention. Workplace outcomes measures for Work Engagement and Workplace Distress showed the same pattern, but did not reach traditional levels of statistical significance. The results of the presenteeism scale did not support the hypothesis.

The results of the primary outcome measures provided strong support for this intervention. Large differences on the AUDIT between the high scores for the experimental group and the low scores for the general population (control group) essentially disappeared at follow-up. The consistent pattern for mean-differences in all but the Presenteeism scale suggests that the sample size was not large to permit a sensitive testing of the hypotheses and that if additional subjects had been provided there would have been stronger evidence in support of the intervention. However, it is impressive to note that positive evidence emerged even with this small sampling. The results of our work suggests that continuing this research using larger samples (300 or more individuals within each group) could provide an extremely robust statement of the effectiveness of the workplace alcohol program in Russia.

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