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Prevention of alcohol and other drug use with motivational interviewing among young adults in Ukraine

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Abstract

Background. World Health Organization data show alarming rates of alcohol consumption among those aged 15 and older in Ukraine. This study examined the feasibility and initial efficacy of a brief intervention to reduce risky drinking among adults (age between 18-25) in Ukraine.

Methods. Adults were screened for risky drinking with the Alcohol Use Disorders Identification Test (AUDIT-C). Those with AUDIT-C score (>5) were enrolled in the study: 59 participants from the hospital setting (mean age = 22.6 (2.1), 55.9% male) and 61 participants from the university setting (mean age = 20.1(2.3), 55.7% male). After self-administering a computerized baseline assessment, participants were randomized to receive an in-person brief intervention by telephone or to a control condition; participants underwent a computerized follow-up at 3 months.

Results. Regression analyses for prediction of alcohol outcomes (alcohol consumption and consequences) were conducted separately for each setting; models were controlled for baseline alcohol levels and assigned condition (brief intervention or control). In both settings, the brief intervention group showed significantly less alcohol consumption and consequences at 3-months as compared to the control group ($p<.001$); however, the groups did not significantly differ on other drug use (DAST-10 score).

Conclusion. Findings suggest that brief motivational interventions are promising for reducing risky drinking among emerging adults in the Ukraine in both inpatient hospital and university settings. Future studies are needed to replicate these findings and extend these effects to reduce other drug use among young people in the Ukraine.

Keywords: alcohol, use, brief intervention, motivational interview, youth, Ukraine

1 Introduction

According to a recent World Health Organization (WHO) report, the worldwide average alcohol consumption per person (among 15 and older) in 2010 was 6.2 liters [1]. Of particular concern, in 10 countries the average consumption exceeded 13 or more liters per person, with nearly all of these countries located in Eastern Europe, including Russia and other former Soviet Union nations such as Belarus, Lithuania, Moldova, and Ukraine. For example, in Ukraine, residents consumed 13.9 liters on average. Even more concerning, the pattern of drinking score (PDS), which reflects the alcohol-attributable burden of disease based on risky drinking patterns (e.g., quantity, festive drinking, proportion getting drunk, daily consumption), is highest in the world in the Ukraine and Russia.

In terms of cultural context, emerging adults are a particularly interesting cohort to examine in the Ukraine given that these youths were born following the collapse of the Soviet Union in 1991 and there is ongoing current conflict with Russia. Specifically, in 2014 Russian invaded eastern Ukraine, annexing Crimea and occupying eastern regions the country (as of April 2016), with nearly 9000 deaths and 20,000 injured thus far according to the United Nations. The conflict has also negatively affected the economy, including slowed economic growth and increases in inflation. In terms of alcohol use, the effects of the current conflict are largely unknown. In 2013, data published from the Ukrainian Longitudinal Monitoring Survey shows about 4 in 10 males and 1 in 10 females drank alcohol in the last month, with typical age of initiation being 10 – 13 years old. Notably, 60% of poisoning among youth in the Ukraine was caused by alcohol [2]. Although the legal drinking age in the Ukraine is 18 years old, beer was not legally classified as an alcoholic beverage until 2010 legislation was passed restricting access to low alcohol content beverages (e.g., beer). Underscoring the need for efforts to prevent and reduce risky drinking among emerging adults, recent neuroscience research shows that binge drinking may interfere with neuromaturational development of brain.

Early intervention for emerging adults with risky drinking may be a more effective use of resources than exclusive focus on treatment of those with alcohol use disorders [3]. A pilot study conducted in the Ukraine surveyed emerging adults in an inpatient hospital and found that most did not think they had an alcohol problem; this study also found that common motives for alcohol use were related to coping with negative affect (e.g., stress, anxiety) and social influences (e.g., because my friends use alcohol) [4]. These findings are similar to that of American studies with college students, in which common motives for drinking included: coping-anxiety, coping-depression, social, enhancement, and conformity (Grant et al., 2007). In this regard, brief motivational interventions (BMIs) may be useful to enhance desire to change behavior and address motives for use in order to reduce risk of future alcohol problems.

In spite of the available literature from the United States regarding the efficacy of alcohol brief interventions (BIs) among emerging adults [5], [6],[7], there is a critical lack of information about efficacy of BIs to reduce alcohol use among emerging adults in Ukraine. In Europe, a few studies have examined efficacy of BIs. Specifically, a German study provided a BI to medically referred alcohol intoxicated adolescents and emerging adults and examined the differences between "help accepters" and "help avoiders" with regard to socio-demographic characteristics and substance use patterns. Although promising, this study did not include a control group; thus, the efficacy of the BI remains to be determined. Another study conducted in the Czech Republic showed a BI reduced cannabis use, but not alcohol use, among adolescents in primary care in this regard, the authors noted cultural factors a potential barrier, including a drinking age of 18.

Thus, there remain unanswered questions around the effectiveness of BIs across different cultural contexts, and specifically among young adults in the Ukraine. The objective of our research was to explore the efficacy of an alcohol BI among emerging adults in the Ukraine with risky drinking. We adapted an evidenced-based therapist-delivered alcohol BI from the U.S. (Cunningham et al., 2014) and conducted parallel pilot studies in a university and an inpatient hospital setting. Primary hypotheses were that youth in the BI conditions would report significantly less alcohol consumption and consequences than youth in the control condition. Secondary analyses examined outcomes for other variables, including drug use consequences, depression and anxiety levels, sleep disorders, aggression, and quality of life. Findings provide novel data regarding the efficacy of BIs in the Ukraine, which is particularly important given unique cultural norms and history related to the fall of the Soviet Union and risky alcohol consumption patterns.

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2 Methods

2.1 Design and Setting

Over a one year period (October 2014-September 2015), this pilot study used a randomized controlled trial design to determine the efficacy of BI as compared to a control condition among two samples of youth screening positive for risky drinking. Researchers from the Psychoneurological Department recruited participants from two locations: the Railway Clinical Hospital, and classes at Bogomolets National Medical University (BNMU). Inclusion criteria were: adults ages 18-25 able to provide informed consent (adults presenting to the Railway Clinic Hospital for medical problems except for exclusion criteria below, and students of BNMU); speaks and writes Ukrainian or Russian. Exclusion criteria were: adults classified as "psychotic patients" (who need special treatment and were not able to follow the requirements of the protocol); adults deemed unable to provide informed consent by hospital personnel or research staff (e.g., intoxication, mental incompetence), and adults with suicide attempts in their history or with suicidal thoughts in the past (because they present in high psychological distress requiring intensive attention and intervention by staff); and pregnancy.

Potentially eligible emerging adults self-administered a screening survey on tablet computers. Those with risky drinking (Alcohol Use Disorders Identification Test-Consumption (AUDIT-C score >5)) were enrolled in the study, self-administered an additional baseline survey, and were randomized to condition (stratified by recruitment site): BI or control. The randomization was made in a "flip a coin" way using a list in which every other person was assigned to the BI condition. Participants self-administered a computerized follow-up assessment after 3 months, either during a return visit at the clinic or school, or online from home. Before the follow-up assessments our participants were reminded that their therapist won't see their answers.

For the screening survey, participants completed the AUDIT-C [8], with a score of 5 or more indicating risky drinking and eligibility for the study. Those eligible self-administered an additional computerized baseline assessment. We used the Rutgers Alcohol Problem Index (RAPI) scale [9] to identify alcohol related consequences, the Quality of Life Scale (QLS) [10] to evaluate quality of life of our patients, the Drinking Motives Questionnaire-Revised (DMQ-R) [11] to measure drinking motives, the Patient Health Questionnaire (PHQ-9) 9-item scale for depression [12], Generalized Anxiety Disorder (GAD-7) 7-item scale for anxiety [13], the Brief Sensation Seeking Scale (BSSS) [14],[15] to measure sensation seeking, the Buss Perry Aggression Questionnaire (BPAQ) [16], and the Drug Abuse Screening Test (DAST-10) 10-item scale [17] to measure drug problems. We also assessed number of days abstinent in the past 30 days from alcohol and other drugs.

2.2 BI Description

The BI was delivered using a motivational interviewing framework, in which a team of four psychologists and/or psychiatrists explored the participant's motivation to change, as opposed to being prescriptive to a specific course of action [18], with ambivalence about change being viewed as dynamic and common. The BI session consisted of a 50 minute in-person session at a baseline visit (see below: Step 1 and Step 2), structured using a booklet. Then, we conducted a 10-15 minute booster session (2-4 weeks after baseline visit) when we called the participant and supported them (Step 3). Given expected ambivalence, the BI and booster elicited the participant's perspective about stopping or changing their alcohol use [19], while avoiding stigmatizing them as alcoholics, problem drinkers, or in denial. Instead, the session were based on the premise that if participants do not feel judged, most will be open to at least discussing their alcohol

or drug use and possibly considering the goal of avoiding future injuries and hospitalization.

Our BI included three steps. The first step was "Ask About Alcohol Use and Assess". We asked our participants "Do you sometimes drink beer, wine, or other alcoholic beverages?" Considering the fact that all participants included into the study drank alcohol (inclusion criteria), they answered "Yes". The next question was about heavy drinking days: "How many times in the past year have you had more than 4 drinks in a day? We tried to determine whether, in the past 12 months, our participants' drinking has repeatedly caused or contributed to risk of bodily harm (drinking and driving, operating machinery, swimming), relationship trouble (family or friends), role failure (interference with home, work, or school obligations), or run-ins with the law (arrests or other legal problems). One or more positive answers may indicate alcohol abuse. Also, we identified whether, in the past 12 months, our participants have not been able to stick to drinking limits or cut down/stop drinking, shown tolerance or signs of withdrawal, kept drinking despite problems, spent a lot of time drinking, and less time on other matters. Three or more positive answers may indicate alcohol dependence whereas fewer positive answers may indicate risky drinking. Thus, during this step we tried to understand the nature of their alcohol problems and raise the possible of change as a possibility in order to proceed to the next step.

The second step was "Advise and Assist". We summarized consequences and medical concerns, made recommendations for reducing or stopping drinking, and identified their readiness to change drinking habits. If the participant was ready to commit to change, we helped to set a goal, agreed on a plan and provided them with educational materials. If not, we restated our concerns, encouraged reflections, identified barriers to change, and reaffirmed our willingness to help.

The third step was "Continue Support". At this stage, we tried to determine if the participant was able to meet and sustain the chosen drinking goal. If yes, we reinforced and supported continued adherence to recommendations, renegotiating drinking goals as indicated (e.g., if the medical condition changes or if an abstaining patient wishes to resume drinking), encouraged them to return if unable to maintain goal, with recommendations for rescreening at least annually. If not, we acknowledged that changes are difficult, supported positive changes and addressed barriers, renegotiated goals and plans, considered a trial of abstinence and engaging significant others, and reassessed diagnosis if they were unable to either cut down or abstain.

2.3 Statistical Design

Data from computer surveys were transferred to SAS software version 9.2 (SAS Institute, Inc., Cary, NC) for analyses. To begin, we compared the two samples, patients and students (e.g., chi-square, t-tests). Next, regression analyses (e.g., Poisson, negative binomial, or logistic, based on variable examined) were conducted (for the combined total sample, and separately for patients and students) predicting alcohol consumption, non-drinking days, and consequences, with treatment group (BI vs. control) as a predictor variable and including baseline levels of the variable examined. Next, regression analyses were used to examine the effects of the BI (vs. control) on secondary outcomes of other drug use (non-drug use days, DAST-10 score), including baseline levels of the variable examined. Finally, regression analyses were used to explore the effects of the BI (vs. control) on other outcomes including depression, anxiety, aggression, sensation seeking, number of sexual partners, and quality of life (including baseline level of the variable examined).

3 Results

3.1 Screening

The total number of participants in the screening was n=587: 289 patients and 298 students. The total number of our subjects screening positive on the AUDIT-C was n=148 (120 successful screening and 28 refusals). Risky drinkers enrolled in the RCT were 60 patients (n=29 BMI and n=30 control) and 61 students (n=31 BMI and n=30 control). Follow-up rates were 100%, and occurred after 3 months (mean = 179.4; standard deviation= 39.3; range: 97-237).

3.2 Sample Description

The sample was 55% male, mean age = 21.3 (standard deviation = 2.5), 62.5% married, 69.2% had not completed university education, and 45.8% had a child/children. As compared to participants in the hospital setting, participants from the university setting were significantly younger, and

single (as opposed to married), with fewer children, with lower rates of verbal aggression, anger and hostility (BPAQ) (data not presented). The two samples did not significantly differ based on gender, marital status, anxiety, depression, physical aggression, quality of life, sensation seeking, or motives. Finally, the two samples did not differ on motives for drinking or any of the alcohol or drug variables examined (AUDIT-C score, RAPI score, days abstinent, DAST score). Baseline characteristics are presented in (Table 1).

3.3 Efficacy of BMI vs. Control: Primary Outcomes

Regression analyses were conducted, separately for each setting, predicting alcohol outcomes (consumption, non-drinking days and consequences); models controlled for baseline alcohol levels and condition assignment (brief intervention or control). In the combined sample, the brief intervention group showed significantly less alcohol consumption and consequences and more non-drinking days at 3-months as compared to the control group ($p<.001$). Note that these findings were also significant when examining the hospital and university samples separately. Also, we examined efficacy separately for males and females; as compared to the control, the BI reduced alcohol consumption, consequences, and increased non-drinking days for both males and females (data available upon request) (Table 2).

3.4 Efficacy of the BMI vs Control: Secondary Outcomes

However, when examining other drug use (DAST-10 score), the brief intervention groups were not significantly different from the control groups when examined together, or separately based on the hospital or university sample (not presented). Finally, exploratory analyses showed that there were significant decreases of depression, anxiety, physical aggression, verbal aggression, anger, hostility, number of sexual partners and sensation seeking in the BI group as compared to the control group; quality of life significantly increased in the BI group as compared to the control group. Note that these outcomes were consistent for the hospital and university samples for all variables except for sexual partners, which significantly decreased in the hospital sample but not the university sample (data available upon request). Finally, findings for the efficacy of the BI, as compared to the control, on secondary outcomes were consistent for males and females (data available upon request), with no significant effects on drug use outcomes, and significant effects on the other variables described above.

4 Discussion

Data from this pilot study contributes to the literature by examining screening and brief intervention approaches adapted to a specific cultural context, namely emerging adulthood in the Ukraine. Although replication is required, results suggest that BI approaches may be efficacious for reducing risky drinking and consequences in the short term (e.g., 3-months) among emerging adults in both university and inpatient hospital settings. In addition to being the first of study on this topic in the Ukraine, this study also explored intervention effects on other outcomes to help understand potential mechanisms underlying changes following BI. Together, these findings inform research and clinical practice to enhance early identification in order to potentially alter problematic alcohol use trajectories among emerging adults in the Ukraine.

Data from this pilot study showed that as compared to a control condition, the BI, which included a telephone booster, reduced alcohol consumption and consequences, and increased non-drinking days, among both the university and hospital samples. Thus, even though clinician's noted that patients the hospital sample seemed more receptive to the BI, whereas the university students were less enthusiastic, both samples reduced their alcohol consumption. The sample differences, in which students were younger and single, did not appear to affect the efficacy of the BI on alcohol outcomes. These findings are consistent with the literature in which BIs are effective for reducing alcohol consumption in clinic and university samples [5],[6]; [7]. It is important to note that 100% of participants received the assigned BI and the booster, and the follow-up, potentially reflecting cultural norms in which patients and students comply with the requests of their doctors; alternatively, given the limited availability of services, these "free" services were viewed as beneficial. Such high rates of compliance have been found in other countries formerly part of the Soviet Union (e.g., Czech Republic).

Although primary outcomes related to alcohol were re-

duced following the BI, there were no effects upon drug use, as measured by DAST-10 score and non-drug use days. These findings could reflect the focus of the intervention on alcohol use, and the screen– which was for risky drinking. Also, the study was limited in that no questions were asked regarding specific illicit or prescription drug used. In this regard, clinicians anecdotally noted that other drug use was fairly uncommon, consisting mostly of the use of sedative medications, which do not require a doctor's prescription. Future studies are needed to determine how this intervention can be adapted to reduce other drug use in the Ukraine. Another BI study in the Czech Republic did not reduce alcohol use among a younger sample of adolescents, but did reduce other drug use. It may be that the focus on the intervention is important as research shows BIs only reduce targeted substances, even when multiple substances are targeted. For example, when alcohol and cannabis were targeted, both were reduced.

When translating the evidenced BI from the U.S. to the Ukraine, sensitivity to several cultural issues had to be considered. To begin, it was important to translate the interventions into the multiple languages used within countries, in this case Ukrainian and Russian, to increase comfort in the discussion of sensitive topics. Also, given the ongoing conflict with Russia that occurred during the time the BIs were delivered, motives for drinking were important to discuss in the context of coping with anxiety and depression, due to economic instability and financial stressors as well as concerns for safety of loved ones. Also, it was important to discuss social support for abstinence, and reduced drinking, as it is uncommon for young people to abstain in Ukraine. Under the war conditions in the Ukraine, young people may be particularly receptive to BIs which are "free" care, which may explain the positive outcomes from the BI found in this study. Future studies are needed during peacetime conditions.

We explored the effects of the BIs on other related factors to provide clues to potential mechanisms of BI effects.

Table 1: Baseline Background, Violence and Substance Use Characteristics

Characteristics	Hospital(N=59)	University(N=61)	Total(N=120)
Age (mean, SD)***	22.6 (2.2)	20.1 (2.3)	21.3 (2.5)
Male (n, %)	27 (45.8%)	27 (44.3%)	66 (55.0%)
Married or Living together	36 (61.0%)	39 (63.9%)	75 (62.5%)
Incomplete University***	22 (37.3%)	61 (100%)	83 (69.2%)
Have Child(ren)*	33 (55.9%)	22 (36.1%)	55 (45.8%)
Alcohol Consumption (AUDIT-C score)	5.6 (0.9)	5.7 (0.8)	5.6 (0.8)
Alcohol Consequences (RAPI score)	16.9 (4.0)	17.4 (3.7)	17.2 (3.8)
Non-Drinking Days (Past 30 days)	3.3(1.3)	3.2 (1.3)	83 (69.2%)
DAST-10 Score	9.2 (1.6)	9.3 (1.4)	9.3 (1.5)
Non-Drug Days (Past 30 days)	11.2 (3.4)	11.1 (3.6)	11.2 (3.5)
DAST-10 Score	9.2 (1.6)	9.3 (1.4)	9.3 (1.5)
Quality of Life	22.2 (3.1)	22.8 (3.0)	22.5 (3.0)
Depression (PHQ-9)	8.1 (4.0)	8.2 (3.4)	8.2 (3.7)
Anxiety	12.2 (3.3)	13.0 (3.1)	12.6 (3.2)
Sensation Seeking	25.9 (4.0)	26.3 (3.6)	26.1 (3.8)
Violence-Related Variables			
Physical Aggresion	29.3 (5.0)	30.3 (4.2)	29.8 (4.7)
Verbal Aggresion*	15.9 (3.2)	17.0 (2.3)	16.5 (2.8)
Anger*	21.5 (3.3)	22.9 (2.6)	22.2 (3.0)
Hostility*	25.6 (4.7)	27.4 (3.7)	26.5 (4.3)

*p<0.05, **p<0.01 and ***p<0.001

Caution is required when interpreting these findings, however, given their exploratory nature, the small sample size, and the design, which precluded complex statistical modeling (e.g., mediation/moderation) and causal determination. As compare to the controls, the BI reduced depression, anxiety, anger, aggression, and sensation seeking, but increased quality of life. These findings are consistent with the focus of the BI, which included alternatives for coping with negative affect and alternative ways to have fun and enjoy life. Future research is needed to examine the importance of these factors in sustaining reductions in drinking.

Several limitations require acknowledgement. To begin, data was collected by self-report, thus reactivity (e.g., underreporting, participants wanting to please) can't be entirely eliminated. However, the fact that assessments were self-administered partly alleviates this concern. Still, it may be that participants in the BI condition, who could not be blind to condition assignment, underreported because they did not believe their data would be confidential, that is, kept private from their clinicians. Culturally, mistrust of government and disbelief of privacy is a common perspective among many Ukrainians. On the other hand, the control group did not show reductions in alcohol related outcomes, and thus appeared to believe their answers were confidential. Although they did not receive a BI, they did answer ques-

Table 2: Descriptive Data at Baseline and 3-Month Follow-up (N=120)

Variable	Group	Baseline, Mean (SD)	3M Follow-up, Mean (SD)	Regression, IRR
Alcohol Consumption	BI	5.6 (0.7)	1.5 (1.5)	0.29 (0.23-0.37)***
	Control	5.6 (0.9)	5.0 (1.8)	
Alcohol Consequences	BI	17.0 (3.6)	10.3 (5.9)	0.54 (0.47-0.63)***
	Control	17.3 (4.1)	19.3 (4.6)	
Non-Drinking Days	BI	3.3 (1.3)	11.4 (3.5)	2.04 (1.79-2.33)***
	Control	3.2 (1.3)	5.7 (3.0)	
DAST-10	BI	9.2 (1.5)	9.9 (0.5)	1.05 (0.93-1.18)
	Control	9.3 (1.5)	9.4 (1.1)	
Non-Drug Days	BI	10.7 (3.9)	12.6 (1.6)	1.09 (0.98-1.21)
	Control	11.6 (3.1)	11.6 (2.9)	
Depression	BI	8.0 (3.3)	2.1 (3.3)	0.30 (0.22- 0.42)***
	Control	8.3 (4.1)	6.9 (3.2)	
Anxiety	BI	12.5 (3.0)	2.7 (3.4)	0.42 (0.32-0.55)***
	Control	12.7 (3.4)	6.4 (2.5)	
Physical Aggresion	BI	29.5 (4.5)	19.5 (5.6)	0.69 (0.64-0.75)***
	Control	30.1 (4.8)	28.0 (3.7)	
Verbal Aggresion	BI	16.2 (2.9)	10.8 (3.7)	0.68 (0.62-0.75)***
	Control	16.7 (2.7)	15.8 (2.1)	
Anger	BI	21.9 (3.2)	17.0 (4.4)	0.78 (0.72-0.85)***
	Control	22.5 (2.9)	21.8 (2.4)	
Hostility	BI	26.3 (4.6)	17.2 (5.5)	0.68 (0.63-0.74)***
	Control	26.9 (3.9)	25.2 (3.3)	
Sensation Seeking	BI	26.5 (3.7)	16.5 (4.6)	0.69 (0.63-0.74)***
	Control	25.8 (3.8)	23.8 (5.2)	
Quality of Life	BI	22.7 (3.0)	30.7 (3.6)	1.30 (1.22-1.40)***
	Control	22.3 (3.1)	23.7 (3.1)	

*p<0.05, **p<0.01 and ***p<0.001

tions about alcohol use and receive a brochure. Regardless, the sample size was small, and representativeness can't be established; thus, replication is required with additional longitudinal follow-ups to determine whether initial efficacy is sustained. Nonetheless, given that this is the first BI study in the Ukraine, the data presented are novel and make an important contribution to the literature.

5 Conclusions

Ideally, clinicians should be knowledgeable about substance abuse to be able to recognize risk factors for alcohol and other substance use among adolescents and emerging adults, screen for use, provide appropriate brief interventions, and refer to treatment [23,24]. Once replicated, study findings support the integration of alcohol use prevention programs into the medical and educational system among emerging adults in the Ukraine. Further research is needed to replicate and extend these promising findings with other samples of adolescents and emerging adults in various healthcare and educational settings in Ukraine.

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Competing interests

The authors declare that no competing interests exist.

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