Published in final edited form as:

J Subst Abuse Treat. 2011 October ; 41(3): 261–264. doi:10.1016/j.jsat.2011.03.003.

Who uses online interventions for problem drinkers?

John A. Cunningham, Ph.D.^{1,2}, T. Cameron Wild, Ph.D.³, and Keith Humphreys, Ph.D.⁴

¹ Centre for Addiction and Mental Health

² University of Toronto

³ University of Alberta

⁴ Veterans Affairs and Stanford University Medical Centers

Abstract

The goal of this research was to understand why some people use online interventions for drinking problems while others with comparable access to the interventions do not. As part of a randomized controlled trial, 92 participants in the experimental condition were provided access to a password protected version of a web-based personalized feedback intervention (the Check Your Drinking screener; CYD; www.CheckYourDrinking.net). Information collected at baseline was compared between those who accessed the website and those who did not. Those who accessed the website tended to be more frequent users of the Internet, to drink less, and to perceive that others of the same age and sex drank less as compared to those who did not access the intervention. Some of these results are troubling as the preferred target of this type of intervention would be those who drink more and perceive that others are also heavy alcohol consumers.

Keywords

Alcohol; Internet; brief intervention; adherence

1. Introduction

Recent years have seen the development and evaluation of a number of different Internet-based interventions (IBIs) for problem drinkers (Cunningham, Wild, Cordingley, van Mierlo, & Humphreys, 2009; Dumas & Hannah, 2008; Murray et al., 2007; Riper et al., 2008). This development has been motivated by a desire to provide easily accessible services to the many problem drinkers who do not seek treatment (Cunningham & Breslin, 2004). The basic rationale is that many problem drinkers voice an interest in alternate forms of help besides traditional treatment (Koski-Jännes & Cunningham, 2001). IBIs have the advantage of being readily accessible, available at any time of the day or night, and many are available free-of-charge for the end user.

© 2011 Elsevier Inc. All rights reserved.

Address correspondence to John Cunningham, Centre for Addiction and Mental Health, 33 Russell St., Toronto, Ontario, Canada, M5S 2S1. Tel: 416 535 8501. John_Cunningham@camh.net.

Declaration of Interest

All authors declare that they have no conflict of interest for this work.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

In general, the results of the trials published to date have been positive, finding that problem drinkers using an IBI had improved drinking outcomes compared to those who were not provided access (Cunningham, Wild, Cordingley, van Mierlo, & Humphreys, 2009; Dumas & Hannah, 2008; Riper et al., 2008). These trials have used a variety of different methods to recruit participants, randomize them to condition, and provide access to the IBI. For those trials that have provided the IBI in a naturalistic setting (i.e., the participant accesses the intervention in their own home or other place of their choice), an interesting finding is that some participants never accessed the intervention (Cunningham, Wild, Cordingley, van Mierlo, & Humphreys, 2009; Riper et al., 2008). Although these participants were still included in the analyses in an intent to treat approach, a question arises: Why do some problem drinkers who agree to take part in a study to evaluate an IBI and are provided convenient access to it not actually use the intervention? Some studies have investigated who returns to use websites after their first visit (Brouwer, Oenema, Raat et al., 2009; Linke, Murray, Butler, & Wallace, 2007) but little research has been able to compare those who do versus do not use an IBI at all (Brouwer, Oenema, R. Cutzen et al., 2009; Spittaels & De Bourdeaudhuij, 2007). The present study will examine the characteristics of participants in a recently completed randomized controlled trial who were provided access to an IBI but never accessed the intervention in comparison to participants who did access the intervention. Any differences observed are hoped to shed light on what types of problem drinkers may access IBIs when they are offered outside of the research context.

2. Materials and methods

Participants were recruited for a trial to help develop and evaluate an online intervention for drinkers through a general population telephone survey. Details of the recruitment process are described elsewhere (Cunningham, Wild, Cordingley, van Mierlo, & Humphreys, 2009). Briefly, the target group for the intervention study was risky drinkers, as defined by an AUDIT-C score of 4 or more (Dawson, Grant, Stinson, & Zhou, 2005). Further inclusion criteria were stating that they would be hypothetically interested in an Internet program that would help them evaluate their drinking, and had home access to the Internet. These potential participants were asked if they would be willing to participate in the trial ($n = 710$). Those who voiced interest provided their name and address and were sent a consent form outlining the study along with a baseline survey ($n = 397$). Participants who returned the signed consent and completed survey were randomly assigned to the experimental ($n = 92$) or the control condition ($n = 93$).

Participants in the experimental condition were sent a unique password along with instructions about how to access the study website. The website recorded which passwords had been used.

Participants who accessed the website ($n = 57$) were compared to those who did not access the website ($n = 35$) on the following information collected at baseline: 1) demographic characteristics; 2) drinking in the year prior to baseline (alcohol consumption in a typical week, AUDIT score, highest amount consumed on one occasion); 3) perceived risk about drinking (Cunningham, Neighbors, Wild, & Humphreys, 2008); and 4) perceptions about how much others their age and sex drink during a typical week. The AUDIT (Alcohol Use Disorders Identification Test) is a standardized scale developed by the World Health Organization (Babor, De La Fuente, Saunders, & Grant, 1989; Saunders & Conigrave, 1990). Perceived risk and normative perceptions of how much others of the same age and sex drink were moderator and mediator variables that were available from the data set of the larger randomized controlled trial.

To explore the relation between perceptions of how much others consume and the actual amount others consume, population norms (grouped by age and sex) were generated using data from the 2008 Canadian Alcohol and Drug Use Monitoring Survey (CADUMS, Health Canada, July 2009). The actual amount Canadians of the same age and sex drank during a week was subtracted from the participants' estimates of how much others of the same age and sex drank during a typical week.

3. Results

Table 1 presents demographic and drinking characteristics of participants who accessed the website ($n = 57$) and those who did not access the website ($n = 35$). Compared to those who did not access the website, those who accessed the website tended to be older [Mean (SD) Did use = 41.4 (13.3) versus Did not use = 36.2 (13.4); t -test (90) = 3.3, $p = .07$], to use the Internet more often [as measured by number of days used the Internet in the last year; Mean (SD) Did use = 315.0 (97.7) versus Did not use = 269.5 (123.3); t -test (90) = 3.8, $p = .05$], and there was some indication that they drank less (as measured by their self-reported highest number of drinks on one occasion [Mean (SD) Did use = 9.0 (5.8) versus Did not use = 12.4 (8.2); t -test (90) = 5.3, $p = .02$]).

Of the two possible moderators, perceived risk and normative perceptions about how much others drink, only normative perceptions were significantly different between the two groups. Compared to those who did not access the website, those who accessed the website estimated that others of their age and sex drank significantly less in a typical week [Mean (SD) Did use = 11.7 (7.2) versus Did not use = 15.7 (11.0); t -test (90) = 4.4, $p = .04$]. Further analyses were conducted of the difference between actual levels of alcohol consumption in the Canadian population and participants' perceptions of the amount of this alcohol consumption. Participants who did not access the website overestimated the amount others of the same age and sex drank more than those who did access the website [Mean (SD) Did use = 8.3 (6.0) versus Did not use = 12.4 (10.9); t -test (90) = 4.2, $p = .04$].

4. Discussion

There were some differences between participants who accessed and those who did not access the website. Not surprisingly, those participants who were more regular users of the Internet were more likely to access the IBI used in this trial. Slightly more puzzling was the trend towards older participants being more likely to access the website. This could be unexpected as younger people are more likely to have Internet access (Internet World Stats, 2009). However, previous research has shown that problem drinkers who use IBIs tend to be older than those seen in traditional face-to-face treatment settings (Cunningham, Humphreys, & Koski-Jännes, 2000; Humphreys & Klaw, 2001) and agreeing to participate in an IBI study has been shown to be positively associated with increased age in recruitment to a web-based nutrition intervention (Stopponi et al., 2009). In addition, it is possible that age is correlated with some other factor (e.g., motivation or concern about drinking; compliance with following medical advice) that could explain this trend.

Somewhat surprisingly, perceived risk about one's own drinking was not significantly related to use of the website. Previous correlational research has concluded that there is a need to consider perceived risk as well as objective problem status when designing and evaluating interventions to help heavy drinkers (Wild & Cunningham, 2001) deriving from the assumption "that anticipation of a negative health outcome and the desire to avoid this outcome or reduce its impact creates motivation for self-protection" (p. 234, Weinstein, 1993). In the current study, study participants may not have varied sufficiently in their perceived risk to detect a predictive relationship: all were recruited from a general

population survey rather than being recruited from a help seeking population. Also, perceptions of one's own risk associated with drinking are anchored to a certain extent by the amount of alcohol consumed. The present study did find some indication that participants who accessed the website were actually drinking less than those who did not. However, participants who accessed the website displayed no difference in their perceived risk from those who did not. Thus, it is possible that, for the amount of alcohol they were consuming, their perceptions of risk were higher. This issue deserves further study as it is important to understand whether, or in what way, drinkers who access IBIs perceive their drinking as more or less risky or deviant than that of the general population.

There was also some indication that participants who were drinking more were less likely to access the website compared to those who were drinking less. Similarly, previous research has found that, of people who do register for an IBI, those with less severe problems at baseline were more likely to complete the intervention as compared to those with more severe problems (Linke, Murray, Butler, & Wallace, 2007). This is worrisome because heavier drinkers are typically more in need of help to deal with their alcohol concerns as compared to those who drink less. Also a concern was the fact that participants who accessed the website perceived that others of the same age and sex were drinking less compared to those who did not access the website. Separate analyses were also conducted to show that the discrepancy between actual population levels of drinking (controlled for age and sex) and participant perceptions of how much people of their age and sex drank was greater for those who did not access the website compared to those who did. Taken together, these findings indicate that people who accessed the website had more accurate perceptions of population norms regarding drinking prior to using the intervention than those who did not access the website. This is troubling as a major component of the CYD screener under evaluation here is targeted towards correcting normative misperceptions about alcohol consumption. Thus, it raises the question as to whether correcting the normative fallacy about drinking was actually the active ingredient underlying the impact of the intervention observed in this randomized controlled trial (although those who used the IBI still had normative misperceptions about how much others drank and these could have been corrected by the intervention).

These questions also underline some of the limitations of this secondary analysis. That is, we were restricted to measures that were available as part of the randomized controlled trial. We were left to speculate that a good measure of motivation for change would have helped to elucidate why some participants accessed the website while others did not. In addition, future research might consider collecting qualitative information that assesses the experience of why participants accessed the website or not. Some participants may have accessed the website while others did not simply because they were less busy or distracted at the time they opened the letter with instructions on how to access the CYD screener through the password protected portal. Similarly, people who are sitting in front of a computer at the time they receive the instruction letter may be more likely to use the website than those who are not. These speculations underline the lack of knowledge we have about why some people access online interventions while others do not. Finding ways to encourage use of online and other interventions for problem drinking will increase the number of people seeking help for their alcohol concerns.

Acknowledgments

Funding provided by the National Institute on Alcohol Abuse and Alcoholism, Research Grant No. 1 R01 AA015056-01A2. In addition, support to CAMH for salary of scientists and infrastructure has been provided by the Ontario Ministry of Health and Long Term Care. The views expressed in this article do not necessarily reflect those of the Ministry of Health and Long Term Care. Finally, John Cunningham is supported as the Canada Research

Chair in Brief Interventions for Addictive Behaviours. Dr. Humphreys was supported by a VA Career Research Scientist Award.

References

- Babor, TF.; De La Fuente, MF.; Saunders, JB.; Grant, M. AUDIT - The alcohol use disorders identification test: Guidelines for use in primary health care. Geneva, Switzerland: World Health Organization; 1989.
- Brouwer W, Oenema AR, Cutzen J, de Nooijer J, De Vries NK, Brug J. What makes people decide to visit and use an internet-delivered behavior-change intervention? *Health Education*. 2009; 109:460–473.
- Brouwer W, Oenema A, Raat H, Crutzen R, de Nooijer J, de Vries NK, et al. Characteristics of visitors and revisitors to an Internet-delivered computer-tailored lifestyle intervention implemented for use by the general public. *Health Education Research*. 2009
- Cunningham JA, Breslin FC. Only one in three people with alcohol abuse or dependence ever seek treatment. *Addictive Behaviors*. 2004; 29(1):221–223. [PubMed: 14667433]
- Cunningham JA, Humphreys K, Koski-Jännes A. Providing personalized assessment feedback for problem drinking on the Internet: A pilot project. *Journal of Studies on Alcohol*. 2000; 61:794–798. [PubMed: 11188484]
- Cunningham JA, Neighbors C, Wild C, Humphreys K. Ultra-brief intervention for problem drinkers: research protocol. *BMC Public Health*. 2008; 8:298. [PubMed: 18727823]
- Cunningham JA, Wild TC, Cordingley J, van Mierlo T, Humphreys K. A randomized controlled trial of an internet-based intervention for alcohol abusers. *Addiction*. 2009; 104(12):2023–2032. [PubMed: 19922569]
- Dawson DA, Grant BF, Stinson FS, Zhou Y. Effectiveness of the derived Alcohol Use Disorders Identification Test (AUDIT-C) in screening for alcohol use disorders and risk drinking in the US general population. *Alcoholism: Clinical and Experimental Research*. 2005; 29(5):844–854.
- Doumas DM, Hannah E. Preventing high-risk drinking in youth in the workplace: A web-based normative feedback program. *Journal of Substance Abuse Treatment*. 2008; 34(3):263–271. [PubMed: 17600650]
- Health Canada. Canadian Alcohol and Drug Use Monitoring Survey 2008: Microdata User Guide. Ottawa: July. 2009
- Humphreys K, Klaw E. Can targeting nondependent problem drinkers and providing Internet-based services expand access to assistance for alcohol problems? A study of the moderation management self-help/mutual aid organization. *Journal of Studies on Alcohol*. 2001; 62(4):528–532. [PubMed: 11513231]
- Internet World Stats. Internet World Stats: Usage and Population Statistics. 2009. Retrieved 2/11/2009, from <http://www.internetworldstats.com/stats14.htm>
- Koski-Jännes A, Cunningham JA. Interest in different forms of self-help in a general population sample of drinkers. *Addictive Behaviors*. 2001; 26:91–99. [PubMed: 11196295]
- Linke S, Murray E, Butler C, Wallace P. Internet-based interactive health intervention for the promotion of sensible drinking: patterns of use and potential impact on members of the general public. *Journal of Medical Internet Research*. 2007; 9(2):e10. [PubMed: 17513281]
- Murray E, McCambridge J, Khadjesari Z, White IR, Thompson SG, Godfrey C, et al. The DYD-RCT protocol: an on-line randomised controlled trial of an interactive computer-based intervention compared with a standard information website to reduce alcohol consumption among hazardous drinkers. *BMC Public Health*. 2007; 7(1):306. [PubMed: 17963483]
- Riper H, Kramer J, Smit F, Conijn B, Schippers G, Cuijpers P. Web- based self-help for problem drinkers: a pragmatic randomized trial. *Addiction*. 2008; 103(2):218–227. [PubMed: 18199300]
- Saunders JB, Conigrave KM. Early identification of alcohol problems. *Canadian Medical Association Journal*. 1990; 143:1060–1069. [PubMed: 2224674]
- Spittaels H, De Bourdeaudhuij I. Who participates in a computer-tailored physical activity program delivered through the Internet? A comparison of participants' and non-participants' characteristics. *Int J Behav Nutr Phys Act*. 2007; 4:39. [PubMed: 17880696]

- Stopponi MA, Alexander GL, McClure JB, Carroll NM, Divine GW, Calvi JH, et al. Recruitment to a randomized web-based nutritional intervention trial: characteristics of participants compared to non-participants. *Journal of Medical Internet Research*. 2009; 11(3):e38. [PubMed: 19709990]
- Weinstein ND. Testing four competing hypotheses of health-protective behavior. *Health Psychology*. 1993; 12:235–245. [PubMed: 8500454]
- Wild TC, Cunningham JA. Psychosocial determinants of perceived vulnerability to harm among adult drinkers. *Journal of Studies on Alcohol*. 2001; 62:105–113. [PubMed: 11271958]

Table 1

Demographic and drinking characteristics of participants who did versus did not access the intervention website

Variable	Used (n = 57)	Did not use (n = 35)	p
Mean (SD) Age	41.4 (13.3)	36.2 (13.4)	.07
% Male	50.9	68.6	.13
% Some post-secondary education	82.5	71.4	.30
% Married/Common law	52.6	34.3	.13
% Full/Part-time employed	61.4	64.7	.82
Mean (SD) Days used Internet/year	315.0 (97.7)	269.5 (123.3)	.05
Mean (SD) AUDIT score	10.4 (6.2)	12.5 (8.3)	.18
Mean (SD) typical weekly drinking	13.1 (10.4)	15.3 (11.6)	.35
Mean (SD) highest number one occasion	9.0 (5.8)	12.4 (8.2)	.02

Table 2

Perceived risk and normative perceptions about drinking for participants who did versus did not access the intervention website

Variable	Used (n = 57)	Did not use (n = 35)	p
Mean (SD) Perceived risk	20.5 (11.3)	19.6 (12.8)	.73
Mean (SD) Perceived typical week ^a	11.7 (7.2)	15.7 (11.0)	.04
Mean (SD) Difference actual and perceived typical weekly drinking ^b	8.3 (6.0)	12.4 (10.9)	.04

^a Perception of how much alcohol others of the same age and sex consume during a typical week.

^b The difference between participants' perception of how much alcohol others of the same age and sex consume during a typical week and the actual amount that others of the same age and sex consume in a week.