

## **Protocol: Effect evaluation of Internet-based treatment for problematic alcohol use among anonymous help seekers on the Internet: A randomized controlled study**

### **Background**

Alcohol consumption is increasing worldwide and is today one of the major risk factors for premature death and disability globally [1]. In Sweden, 20 per cent of men and 14 per cent of women are estimated to have a risk consumption of alcohol [2], while four per cent of the adult population fulfill the criteria for alcohol dependence [3]. This problematic alcohol use results in an annual cost to society of SEK 49 billion [4].

A meta-analysis of treatment outcomes in alcohol treatment showed that short-term average abstinence was 21% for untreated individuals, compared to 43% for treated individuals, suggesting that current treatments are more effective than no treatment [5, 6]. Evidence-based treatment for alcohol dependence includes cognitive behavioral interventions (CBT), motivational talks (MI), 12-step treatment and pharmacological treatment (acamprostate, naltrexone and disulfiram) [7].

Although effective treatment methods can be offered through addiction care, only a small proportion of individuals with harmful alcohol use seek professional treatment [8-14]. A survey conducted in the UK showed that only one out of 18 people who met the alcohol abuse criteria had received formal treatment for this [15]. Likewise, a Swedish study found that only 20 percent of those who had left an alcohol addiction had received treatment [11]. Common reasons for not seeking professional help are shame, fear of stigmatization and the desire to solve the problem on their own [16-18].

Since most of the population in middle and high income countries use the Internet, researchers, but more recently decision makers, have started to see the internet as a possible platform for delivering treatment for harmful alcohol use. Today, 86 percent of the Swedish population use the internet and Sweden is one of the countries in the world where internet use is the highest and most widely distributed in society [19]. A Swedish attitude survey from 2009 showed that 78 percent of respondents would use the internet to obtain information about alcohol and other drugs [20] and in focus group interviews with risk

consumers of alcohol it appeared that they would like help in the form of internet-based interventions [21]. Interesting in this context is a Canadian study showing that the majority of people with alcohol and / or drug problems use the Internet to an even greater extent than those without such problems [22].

The advantages of delivering treatments via the internet are many: One advantage is that internet-based treatments increase the anonymity of those who seek help and thus reduce the risk of shame and stigmatization. Another advantage is that treatment can be delivered immediately to many individuals at the same time regardless of time and place and that the cost of the treatment delivered does not increase with the increase in the number of individuals receiving the treatment [23, 24]. At the same time, costs for training and supervision of personnel are avoided [25]. Costs for Internet-based treatments where a living therapist is partly involved are also considered to be lower than costs for interventions delivered in the traditional addiction care [26, 27].

Both Swedish and international studies have shown that internet-based interventions reach those who have alcohol problems [28-30] but who, in lesser extent, come into contact with addiction care [31] and are more effective in reducing problem alcohol use than no treatment [31-33].

#### Gaps in knowledge

To our knowledge only one study published so far in the field has examined how effective Internet-based treatment for problematic alcohol use with therapist support is in relation to the same treatment that is provided without therapist support. This study has shown that internet therapy with therapist support is more effective than a corresponding self-help program without the support of a therapist [34]. Furthermore, studies in the research field have mainly tested the effects of internet-based interventions among individuals with risky use of alcohol, while our focus will be on testing the effects of individuals with significantly more harmful alcohol consumption, namely those with alcohol dependence. This makes the current research program unique both in Sweden and internationally.

#### A Swedish internet-based treatment program

The internet-based treatment is inspired by a Dutch program [34] that has been tested in a Swedish pilot study [36].

The internet-based treatment program that is the focus of this research program consists of 5 assignments.

- Module week 1: Motivation
- Module week 1-2: Goal formulation
- Module week 2: Self-control strategies
- Module week 3: Risk situations / behavior analysis
- Module week 4: Plan alternatives (including: manage suction, feelings and social pressure).
- Module week 5: Relapse prevention and crisis plan

Modules consist of information text including film, images, exercise, fact sheets and a summary page where the information in the modules and the participant's entries in the modules are summarized. The participant must also, daily or once a week, register their alcohol consumption and possibly information about the situation when it drank or felt sucked to drink. The participant has access to statistics on his registrations. 5 weeks program that is carried out for a maximum of 3 months.

### **Overall purpose**

The specific purpose of the study is to investigate the effect of the Swedish internet-based treatment program among anonymous help seekers on the internet when the program is delivered together with treatment support compared to when it is delivered as pure self-help without treatment support and compared to brief information.

The hypotheses to be tested through the planned study are to:

1. The Swedish internet-based alcohol treatment program is more effective (reduced alcohol consumption).
2. The Swedish internet-based alcohol treatment program with the support of therapist is more effective (reduced alcohol consumption) than minimal intervention for individuals with alcohol dependence?

3. The Swedish internet-based alcohol treatment program with the support of therapist is more effective (reduced alcohol consumption) than internet-based treatment without the support of advisors for individuals with alcohol dependence?

In the design for the planned study, a survey will also be included with the aim of describing the study participants' reasons for wanting to use internet-based treatment and what they want such a treatment to contain and how it should be designed.

### **Project description**

To test our hypotheses, we will conduct a randomized controlled trial with a parallel study design and 1: 1: 1 randomization ratio.

### **Recruitment procedure and baseline measurement**

Individuals who visit alkoholhjälpen.se will through an advertisement on the front page and on the new user account page to be asked whether they are interested in participating in a study to develop and test various forms of internet-based support intended to reduce alcohol problems. Interested individuals come to an information page where they can read about the purpose of the study and what it means to participate in the study and that participation is completely voluntary and can be interrupted at any time without any explanation. They will further be informed that all information they register on the page will be used in the research and interested individuals must approve these conditions, by ticking a box. Then they will create a user account by registering user names, passwords, telephone and email address, as well as answering questions about gender, age, country of birth, degree of education, employment, marital status, housing situation, alcohol consumption, and alcohol-related problems (Alcohol Use Disorders Identification Test - AUDIT [37, 38]) and alcohol dependency (International Statistical Classification of Diseases and Related Health Problems - ICD-10 criteria).

### **Inclusion criteria and randomization**

Individuals 18 years of age or older who are dependent on alcohol defined as 15 points or more on AUDIT or at least 3 of the ICD-10 alcohol dependency diagnosis criteria, who verify their email address and provide informed consent to participate in the study are eligible to participate. They will via a fully automated system to be randomized, in blocks of 30, to:

Intervention group 1 with access to

- The Swedish internet-based treatment program without the support of alcohol counselors
- Information on how alcohol use affects health as well as where to turn to seek help to change their alcohol habits
- An internet-based discussion forum.

Intervention group 2 with access to

- The Swedish internet-based treatment program with the support of alcohol counselors
- Information on how alcohol use affects health as well as where to turn to seek help to change their alcohol habits
- An internet-based discussion forum.

Control group that receives minimal intervention in the form of access to

- Information on how alcohol use affects health as well as where to turn to seek help to change their alcohol habits
- An internet-based discussion forum.

### **The intervention groups**

Individuals who have been randomized to any of the intervention groups will complete a seven-day Timeline Followback (TLFB [40]) immediately after the randomization, where they will record which days, during the last seven, they have used alcohol and how many standard glasses. they have drunk on every occasion and answer three questions on the use of drugs other than alcohol. The study participants in the intervention groups will also answer questions about readiness for change in alcohol consumption (Visual Analog Scale - VAS [41]), depression (Montgomery Asberg Depression Rating Scale - MADRS [42]), on anxiety (Generalized Anxiety Disorder Assessment - GAD-7 [43]), on Diagnostic and Statistical Manual of Mental Disorders (DSM-5 [44]), on the quality of life (The EuroQol generic health index - EQ5D [45]) and whether they have received help during the last 12 months to change their alcohol consumption and whether they have raised this issue with their relatives or friends during the same period.

After this, they will complete a survey on Internet-based treatments for individuals who wish to change their alcohol use. In connection with this, the study participants will be randomized to the intervention groups, and both via the internet-based platform and via email be informed that within two days they will have access to an internet-based treatment program intended to help

them change their alcohol consumption. (Study participants randomized to intervention group 2 will also be informed that they will, within the framework of the internet-based treatment program, be able to communicate with an alcohol advisor via the platform. The communication takes place through asynchronous messages on the summary page that completes each assignment, with approximately 1-5 messages from. The communication between the study participant and the alcohol counselor will contain personal feedback on the information they have registered when they have worked with each specific assignment with the possibility for the study participant to ask questions.)

Within the next two days, the study participants will be randomized to one of the intervention groups via email to be informed that they now have access to the current program, that the program is running for two months and that we will contact them again after 3, 6, 12 and 24 months to ask them to answer questions about their alcohol use and how they feel.

Furthermore, they will be informed that the study participants participating in all four follow-ups for the study will participate in a lottery organized by Save the Children or another non-profit organization where an iPad plate per 120: follow-uped individual will be awarded. In the event of a win, however, the otherwise anonymous study participant will need to give the name and address where they want the profit to be sent.

All participants will be informed that the internet-based support offered through the study is not intended for use by individuals at risk of severe withdrawal symptoms, ongoing or past psychosis, schizophrenia, bipolar disorder and ongoing suicidal thoughts. This is to avoid worsening symptoms of such serious psychiatric disorders. Individuals with such symptoms will be recommended to seek professional help in traditional addiction or psychiatry.

Furthermore, the study participants will be informed that individuals who have difficulties with or not Swedish will not be able to benefit from the internet-based support offered through the study.

### **The control group**

Study participants who have been randomized to the control group will undergo just the same procedure as the intervention groups. The difference, however, is that study participants randomized to the control group will, after completing the survey on internet-based treatments, be informed via the internet-based platform and via email that we will contact them again after 3, 6, 12 and 24 months to ask them answer questions about their alcohol use and how they feel. They also get information that via Alkoholhjälpen.se they have access to information about

how alcohol use affects health as well as where to turn to seek help to change their alcohol habits and to an internet-based discussion forum.

### **Two measurements during the intervention time**

In order to enable a measurement of how the work alliance between study participants and the intervention they have been randomized to develop, two measurements of the experience of this alliance will be made during the intervention period. The first measurement will be made two weeks after the randomization to the intervention. Automated email will be sent to participants in all three groups who offer them to answer a questionnaire about the experience of the intervention (Appendix 5.14) by pressing a personal link included in the email. To be able to measure the development of the work alliance, the same procedure will be repeated 5 weeks after the randomization to the intervention.

### Procedures for follow-up

Study participants who have been randomized to one of the intervention groups will have access to the intervention for two months. The information and discussion forum will be available to participants from all three groups as these are available through a public page. Study participants from all three groups will receive an automated mail with the invitation to participate in the three-month follow-up 3, 6, 12 and 24 months after the recruitment to the study. The mail will contain a personal link which, when clicked, will redirect the participant to a follow-up page where the participants will be asked to once again fill in questions about their alcohol consumption, depression and anxiety, seeking professional help for alcohol consumption as well as help from relatives or friends and questions about whether they have used any other internet or telephone services to change their alcohol consumption. The entire follow-up procedure will take place via the internet.

Individuals who have not answered the follow-up questions no later than five days after the invitation to follow-up has been sent to them will receive a reminder email where they will be asked to participate in the follow-up according to the procedure described above. In total, six reminders will be sent out every five days.

Additional reminders will be sent out via manual mail and SMS to those who have not answered 12 and 22 days after the follow-up invitation has been sent. At 12 and 24 months, people who have not responded will also be called up 28 days after the follow-up invitation has

been sent. During the phone call, they will be asked to answer the AUDIT questions and TLFB for the last 7 days.

### **Outcome measures**

The primary outcome measure is weekly consumption of alcohol as measured by the number of standard glasses consumed in the last seven days.

The secondary outcome measures are:

- 1) Number of days with alcohol consumption in the last seven days, measured by TLFB.
- 2) Number of days with intensive alcohol consumption in the last seven days, defined as more than 3 glasses per day for women and 4 glasses per day for men, measured by TLFB.
- 3) Number of standard glasses of alcohol per day, over the last seven days, measured by TLFB.
- 4) Alcohol consumption (frequency, quantity and intensive consumption), measured by AUDIT-C timed for each follow-up period.
- 5) Alcohol consumption as well as alcohol related problems measured by AUDIT timed for each follow-up period.
- 6) Number of addiction criteria for alcohol according to ICD-10, timed for each follow-up period.
- 7) Number of criteria for alcohol syndrome according to DSM-5 criteria, timed for each follow-up period.
- 8) Applying for professional help for alcohol consumption, issues timed for each follow-up period.
- 9) Application for help for alcohol consumption by relatives or friends, questions timed for each follow-up period.
- 10) Depression, measured by MADRS timed for each follow-up period.
- 11) Anxiety, measured by GAD-7 timed for each follow-up period.
- 12) Quality of life measured with EQ-5D timed for each follow-up period.

### **Statistical analysis**

The primary outcome measure, as well as several of the secondary outcome measures, will be analyzed with independent two-sided t-tests to test the differences in mean values between two

groups at a time (for continuous variables). The difference between the groups, regarding categorical variables, will be tested by Chi-Square test.

### **Power calculation, recruitment of study participants and non-response**

We performed a power calculation to find out how large a number of study participants needed to be able to detect desirable differences in mean values between the intervention and control groups. This calculation was carried out with the program G \* Power 3.1.9.2 and based on the plan to carry out independent two-sided t-tests with equal number of study participants in both groups. With  $\alpha = 0.05$  and 80 percent power, the result of our calculation showed that the required number of study participants that we must have in our statistical analysis is 394 per group, in order to be able to detect a power size as small as  $d = 0.20$ .

Based on a follow-up frequency of 50% of those recruited to the study, we need to recruit 2400 individuals, which on the basis of previous experience is expected to take 24 months.

Previous research has shown that the effect size for this type of intervention is on average 0.44 compared to untreated controls [33] and that the difference between internet-based treatment with treatment aid compared to treatment without treatment support has a power size of 0.20 [34].

Schedule: The recruitment to the study is planned to start in November 2014 and run until October 2016. The follow-up is planned to be completed in December 2018. Data analysis is planned to continue in spring 2019 and article writing in autumn 2019.

### **Ethical considerations**

One of the most important ethical aspects related to research on Internet-based interventions is that study participants should be sure that no unauthorized person will be able to access the information they provide and is about data storage, data security and data intrusion. In order to avoid the risk of hacking, the access to the database (where all data will be saved) requires a password and a special encrypted key that is only available on two or three computers. Tasks that possibly enable identification of the study participants will also be encrypted in the database itself. Only two people in the research group have access to the database. Upon completion of the data collection, personal information that enables the identification of study participants will be deleted from the database.

Furthermore, participation in this study means that participants will be asked about, among other things, alcohol use, drug use and mental illness. Such information can be perceived as sensitive. Therefore, we will inform participants that all questions are asked to all patients. The study participants should also be informed that they have the opportunity at any time and without any explanation to terminate the participation in the study if they know it without this affecting their ability to receive a thorough treatment.

Another important ethical aspect concerns individuals who, when recruiting, are considered to have such problems that require more efforts than we can offer through the intervention whose effects we want to investigate in this study (very serious alcohol or drug use, withdrawal and serious mental illness). Individuals who report symptoms of such conditions during the recruitment process will be informed that the intervention is not intended to help individuals with such symptoms and these are recommended to seek help in traditional addiction care or in psychiatry instead.

Another potential ethical dilemma concerns research participants who at the end of the study, based on their response to the questionnaires, have a persistent serious problem with regard to measures of depression and anxiety, continued increased consumption of alcohol and / or impaired quality of life. Study participants with such permits will be advised in a supportive way to seek help within traditional addiction care or within psychiatry.

## **Benefits for the research field, practitioners and the public**

### **For the research subjects and the public**

An internet-based treatment program with established efficacy increases the availability of evidence-based treatment methods in a group of individuals who largely do not seek traditional professional help for their alcohol consumption. Internet-based interventions are therefore a step between self-help and professional treatment that can both help people to deal with their alcohol problems on their own and make it easier to seek professional help when needed. Since users of the internet-based treatment program are not limited by special opening hours or geographical distances, these can work with the program on their own terms. The motivation to change their alcohol consumption is a volatile condition that can vary not only from day to day but also from hour to hour. Therefore, it is of the utmost importance that the individual in question has access to evidence-based treatment methods in that particular moment when this feels motivated. An internet-based program could in itself be enough to help individuals change their alcohol use or possibly help confirm the problem picture of the individual and

eliminate the obstacles that stand in the way of the individual seeking the traditional drug abuse. Since individuals with substance use usually seek professional help only when negative consequences of an abuse are clearly felt, this means that individuals who seek professional help have already managed to establish a properly developed abuse. With an Internet-based treatment program, the individuals in question would be able to get help earlier and spared from the physical and psychosocial suffering that a more developed abuse entails.

### **For the practitioners**

This study will respond to how effective the current internet-based alcohol treatment program is, the role of counselor support plays in terms of effectiveness and the extent to which the current internet-based treatment program can be offered as an effective treatment option in addiction care, but also in other healthcare facilities where individuals encounter harmful individuals alcohol use (primary care and psychiatry). Being able to offer an effective internet-based alcohol treatment program means that healthcare could expand its treatment offering with a modern treatment that is natural with the idea of the technological development that has taken place in our society and that individuals with problematic alcohol use themselves have demanded [21]. The hope is thus to be able to reach a new patient group.

### **For the research field**

The interest in internet-based treatment programs is increasing and its potential to reach more individuals who otherwise would not seek professional help for their alcohol consumption is increasingly recognized by both politicians and practitioners. Research studies that examine the effects of such programs are still relatively few and much more well-executed randomized controlled studies are needed to strengthen the evidence base for such interventions. Likewise, more studies are needed that increase understanding of the importance of treatment support for the effectiveness of internet-based treatment programs designed to help individuals reduce their alcohol consumption. Furthermore, a scientific basis needs to be built around which internet-based alcohol treatment programs are effective for individuals with an alcohol dependence, which is currently lacking. The results of the planned study will provide a basis for further development of existing and new internet-based treatment programs. These studies will therefore contribute, for the research field, unique knowledge.

### **Previous experience of methods**

The internet-based intervention is built up by one social worker and two psychologists from the Dependency Center Stockholm with long experience both of therapist work and of the development of internet-based interventions for individuals with problem alcohol consumption. An earlier version of the treatment has been tested in a Swedish pilot study that examined the importance of contact with a therapist. The result showed that Internet-based treatment was more effective in reducing alcohol use when the user also had contact with a therapist [36].

### **Access to relevant staff**

The internet-based alcohol treatment program that is the focus of this research program will for one of the intervention group include advisor support, which means that study participants randomized to these group will continuously have contact with a therapist during the treatment period. Study participants who are randomized to the internet-based program without counselor support or to the control group will via a map on the site where the study is conducted have access to information on where to find clinics within county councils or municipalities that offer professional support for people with alcohol problems. On several occasions, they will also be provided with contact information to the research group, which will, if necessary, encourage and help them to seek professional treatment in addiction care or in psychiatry.

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