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CALLING FOR CHANGE:
the effectiveness of helpline counselling and spontaneous change in problematic alcohol use

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CALLING FOR CHANGE - the effectiveness of helpline counselling and spontaneous change in problematic alcohol use
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ABSTRACT

Population studies have estimated the remission rate from alcohol use disorders as well as the life course trajectory of alcohol consumption. However, less is known about the spontaneous change to low-risk use in populations of hazardous and heavy drinkers. There are many pathways to change problematic alcohol use, and most people seem to do so without seeking formal help or treatment. Even so, effective prevention and treatment strategies have the potential to minimise the consequences caused by alcohol. For populations with hazardous and harmful use, such interventions can be brief and delivered in healthcare or digital settings. Another commonly implemented strategy is counselling via population-based telephone helplines. Until now, telephone counselling has mainly been evaluated in healthcare settings, and the evidence for helplines as stand-alone interventions for problematic alcohol use is sparse.

Thus, this thesis aims to evaluate a population-based alcohol helpline, investigating the relative effectiveness of two counselling models delivered to a help-seeking population; and to compare the rates of change from levels of problematic alcohol use to low-risk levels in this help-seeking population to the spontaneous change occurring in the general population.

Data for study 1 was derived from the Stockholm Public Health Cohort. We included data from two of the sub-cohorts: 2002 (follow-up 2010 and 2014) and 2010 (follow-up 2014). The study included participants who had at least hazardous alcohol consumption at baseline, measured by average volume or frequency of heavy drinking occasions (n=8946). Study 2 was based on a randomised controlled trial at the Swedish National Alcohol Helpline, which included two counselling groups 1) brief structured intervention; and 2) usual care at the helpline. First-time callers with at least hazardous use, who sought help for problematic alcohol use, and who gave consent to participate, were randomly allocated to one of the two groups (n=261). Participants were followed at six months for the collection of outcome data. The primary outcome was a downward change in AUDIT risk level (Alcohol Use Disorders Identification Test).

In the general population, change from problematic use to low-risk consumption was frequent in the medium- to long-term (study 1). The majority who changed sustained low-risk consumption over time. In the help-seeking population, the superiority of one counselling model over the other could not be established (study 2). However, both groups displayed high proportions of change to lower AUDIT risk levels at six months follow-up.

In conclusion, brief structured and tailored models of counselling seem to provide similar effects when delivered in a population-based helpline setting. Further, help-seeking seemed to increase the rate of change to low-risk alcohol use in comparison to that of problem drinkers in the general population. This justifies the continued delivery of easily accessible self-help interventions, such as the alcohol helpline.

LIST OF SCIENTIFIC PAPERS

I.   Säfsten E, Forsell Y, Ramstedt M, Galanti MR. Health behaviours as a predictor of quitting hazardous alcohol use in the Stockholm Public Health Cohort. Eur J Public Health. 2017:ckx193-ckx.
II. Säfsten E, Forsell Y, Ramstedt M, Galanti MR. Counselling at the Swedish National Alcohol Helpline - A randomised control trial of two models. [Manuscript]

Related publication in appendix
Säfsten E, Forsell Y, Ramstedt M, Galanti MR. Comparing counselling models for the hazardous use of alcohol at the Swedish National Alcohol Helpline: study protocol for a randomised controlled trial. Trials. 2017;18.

CONTENTS

LIST OF ABBREVIATIONS

AUDIT	Alcohol Use Disorders Identification Test
UWAC	Usual Weekly Alcohol Consumption
HOAC	Heavy Occasional Alcohol Consumption
AUD	Alcohol Use Disorders
ICD 10	The International Statistical Classification of Diseases and Related Health Problems
DSM 5	The Diagnostic and Statistical Manual of Mental Disorders
SPHC	Stockholm Public Health cohort
SAH	Swedish National Alcohol Helpline
MI	Motivational Interviewing
CBT	Cognitive Behavioural Theory
RCT	Randomised Controlled Trial
ITT	Intention-to-treat
RR	Risk Ratio
CI	Confidence Interval
SD	Standard Deviation
DALYs	Disability Adjusted Life Years

1 INTRODUCTION

With links to 200 adverse health conditions, alcohol consumption is a priority for public health policies (1). Alcohol-related harm extends beyond the individual and has profound societal costs. Globally, alcohol consumption and its related consequences have increased since the 1990s (2). Alcohol policies to limit use include availability and marketing restrictions, taxation, and drink and driving countermeasures (3). Despite widespread implementation of such policies in Sweden and a decrease in the overall alcohol consumption the last decade (4), a large part of the Swedish population displays consumption patterns that have substantial consequences for both individual health and society.

Over a lifetime, a significant proportion of consumers curtail their problematic alcohol use without formal help (5, 6). Evidence indicates that help-seeking increases with prolonged use and severity. In a Swedish sample of former risk drinkers, only 6% reported help-seeking for their problematic drinking, while help-seeking in people with dependence symptoms was estimated to be 20% (6). Thus, in addition to public health policy and community-level measures, easily accessible interventions at an individual-level are needed. The World Health Organization's 2014 Global Status Report on Alcohol and Health endorsed the development and evaluation of such interventions (1).

Secondary prevention and psychological treatment alternatives are available in numerous modes and settings including: internet interventions; brief face-to-face interventions in primary care; and therapy in specialised treatment. Previous studies focused on these settings, while commonly used population-based telephone helplines for problematic alcohol use have been overlooked for many years. To increase the knowledge of counselling via population-based alcohol helplines, a randomised controlled trial (RCT) was set up within the Swedish National Alcohol Helpline (SAH), a nationwide counselling service intended for individuals with hazardous and harmful alcohol consumption.

One crucial question in relation to the RCT is if there is an added value of helpline interventions aiming to change problematic alcohol use, compared to that occurring spontaneously in the population, for which the reasons for change are unknown.

Thus, this thesis aims to investigate the effectiveness of two counselling models within a population-based alcohol helpline and to compare these assisted changes to the spontaneous change of problematic alcohol use in a population sample.

2 BACKGROUND

2.1 PROBLEMATIC ALCOHOL USE

2.1.1 Impact on health

Problematic alcohol use is one of the key risk factors for premature death and disease. Expressed as Disability Adjusted Life Years (DALYs), a combined measure of years of life lost due to premature death and years lived with disability, alcohol ranked as the 7th leading risk factor and accounted for 4.2% (3.7-4.6) of the global DALYs in 2016. On a global level, the DALYs attributable to alcohol have increased over the past 25 years (2). Contrary to the global pattern, alcohol-attributable DALYs decreased in Sweden, mainly driven by a decrease in YLL (years of life lost), despite higher overall consumption from 1990 (7). Over the past decade however, the trend in the overall consumption reversed and decreased by 8% (4).

With the decrease in the overall consumption, a less substantial, yet parallel decline in hazardous alcohol consumption has been observed among males (8). In 2016, the prevalence of hazardous alcohol consumption was estimated to be 17% among Swedish adults (16-84 years) (8), while about 4% of the general population fulfil criteria for alcohol dependence (9). Hazardous alcohol consumption is an important aspect of alcohol use, as it showcases increased potential for harm and dependency and thus is central to public health policy. Furthermore, the economic burden of alcohol to society is carried by the majority of consumers, which do not have severe alcohol problems (10).

2.1.2 Classification

2.1.2.1 Dimensions of drinking

Alcohol-related harm is associated with both volume and pattern of drinking. The majority of disease and deaths attributable to alcohol show a dose-response relationship with total volume of alcohol consumed during a defined period, such as one year. However, heavy drinking on one occasion (also called binge drinking, heavy episodic drinking) is also linked with numerous acute conditions such as violence, injuries, intoxication as well as disease (11).

2.1.2.2 Levels of problematic alcohol use

The overarching term 'problematic alcohol use' includes different risk levels defined by volume and pattern of alcohol consumption and the related health and social consequences. The levels of problematic alcohol use can be defined as (12):

- *hazardous alcohol use* - increases the risk of harmful outcomes;
- *harmful alcohol use* - already causing physical or mental consequences for health and frequently adverse social consequences;
- *dependence* - a cluster of cognitive, behavioural and physiological symptoms that indicate a person has impaired control of substance use and continues use despite adverse consequences.

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There is no universal agreement of what specific level constitutes low-risk drinking, yet no level is considered risk-free. As a consequence, the threshold of transition between low-risk and hazardous alcohol use differs across national recommendations and studies (13). In Sweden, a widely-used cut-off for hazardous levels is consumption in excess of 9 standard drinks per week for women and 14 standard drinks for men; or in a single event, consuming 4 and 5 standard drinks for women and men, respectively. One standard drink contains 12 grams of alcohol. These cut-offs were established to be coherent with other countries guidelines, as well as in accordance with epidemiological evidence (14).

2.1.2.3   Diagnostic classifications of problematic alcohol use

In the research community, problematic alcohol use is commonly defined by diagnostic criteria. Classification systems formulate criteria based on problems associated with alcohol use that is moderate to severe and thereby include cognitive, behavioural and physiological symptoms such as a strong desire to drink, loss of control, and increased tolerance. The two main diagnostic classification systems are described below.

The International Statistical Classification of Diseases and Related Health Problems - Tenth Revision (ICD 10), encompasses two classifications for problematic substance use. Harmful use, defined by the actual damage caused to the mental or physical health of the user; and dependence syndrome, a cluster of physiological, behavioural and cognitive signs, with a strong desire to drink as a central theme. The latter is determined when three out of six criteria are fulfilled during the past year: strong desire; difficult to control use; physiological withdrawal; increased tolerance; ignorance of other interests than the use; and continued use despite harmful consequences (15).

The Diagnostic and Statistical Manual of Mental Disorders (DSM 5), classifies alcohol use disorder (AUD) as mild, moderate or severe by the number of symptoms (2-3, 4-5, or ≥ 6 respectively) experienced in the past year. A list including 11 symptoms is used to classify AUD. In brief, these are: drinking more than intended; inability to stop; excessive time spent on drinking or the subsequent consequences of drinking; strong desire to drink; impact on responsibilities; continuation despite social consequences; prioritize drinking; harmful situations due to drinking; continuation despite mental health/health problems; increased tolerance; and withdrawal symptoms (16). The previous version, DSM IV, used another terminology, alcohol abuse and alcohol dependence, defined by distinct criteria.

2.2   CHANGING PROBLEMATIC ALCOHOL USE

There are many reasons to change problematic alcohol use, among the most common being health problems, and concerns over economy and relationships (17). Characteristics associated with changing heavy drinking and AUD in general population samples include older age, being female, having children, higher education level, higher income, getting married, ethnicity (non-white), and smoking cessation (6, 18-20).

Moreover, similar drivers for sustained remission were reported in a clinical and a population sample, after controlling for demographics and problem severity (21). Other studies found positive associations between lower problem severity and change (22-24). However, problem severity has also been associated with the pathway of change, i.e. non-help seeking or help-seeking behaviour (25-27).

2.2.1 Spontaneous change in the population

Here the term spontaneous change of problematic alcohol use describes the occurrence in general population samples when the reason for change is unknown.

It is common to change problematic alcohol use during the life-course (23), but the reported change rates vary across studies and populations. Reasons for this include the definition and operationalisation of problematic alcohol use, as well as differences in classification of treatment, outcome, and follow-up period (28, 29). The literature is largely based on AUD remission rates, measured by the fulfilment/non-fulfilment of diagnostic criteria. A recent meta-analysis on this topic estimated the yearly remission rate as 10-15%, for substance use disorders (30). Moreover, the average remission rate for AUD was estimated as 50% after an average of 17 years follow-up, with substantial variation of the cited rates (28% to 82%). The conservative remission rate, (i.e. adjusted for attrition), was 30%. The study reveals considerable uncertainty with regard to remission rate, with higher rates being explained by longer follow-up and lower retention rates (30). These findings were mainly based on clinical samples and included only one population-based sample.

General population samples show a favourable course in remission from AUD. A recent study of the general population in Sweden reported change rates of 50% (no diagnosis or 'abuse') from dependence (DSM IV) after one year (31). Another general population sample from the Netherlands reported 68% and 74% change from dependence and 81% and 85% change from abuse (DSM IV) after one and three years, respectively. When using no diagnosis as criteria for remission, the dependence rates were lower, at 46% and 58% after one and three years, respectively. For those that were dependent, estimation of the relapse rate from one to three years follow-up was 13.6%. The main limitation of the study was that attrition (30%) was related to the presence of AUD diagnosis at baseline (32). In contrast to the study from the Netherlands, a U.S. population-based study reported a remission rate of 11% from dependence (DSM IV) at three-year follow-up (23). The main differences with respect to the former were the definition of remission, which was low-risk use measured by drinking quantity in addition to the absence of DSM IV criteria.

Like the AUD remission rates, population studies of drinking trajectories measured by consumption data display a favourable change in heavy drinking over time (19, 33). An overall reduction in alcohol consumption for drinkers with hazardous and harmful patterns were more pronounced among the heaviest drinkers (33). The change was attributed to a general reduction over time rather than sudden transitions into abstention.

Most individuals with problematic alcohol use never seek help and the majority cease their alcohol-related hazardous behaviour without professional support (5, 6, 17, 34). Studies show that as many as three-quarters of individuals with previous AUD report low-risk drinking achieved without seeking formal help or treatment (23, 25). Similar patterns have been found in the natural reduction of heavy drinking over time in hazardous and harmful drinkers (24).

Although previous studies show a favourable development in problematic alcohol use, little is known about the rate of attaining low-risk drinking in populations with problematic drinking, defined by hazardous to harmful consumption levels.

2.2.2 Help-seeking

Though a significant proportion of hazardous and heavy drinkers decrease alcohol consumption over time, many continue to drink above the limit of low-risk levels (20, 33). Additionally, hazardous alcohol consumption is a strong predictor of successive drinking problems and though many curtail their problematic drinking, one study found the prevalence of dependence syndrome is kept constant in the population due to the incidence of new cases (31). Regarding the use of formal help, uptake is usually postponed, and only a minority ever seek help for problematic alcohol use, revealing a major treatment gap (35). In Sweden, reported help-seeking was lower than 6% (36). Commonly stated reasons not to seek help include lack of problem awareness, stigma or shame, barriers to treatment and the wish to cope alone (37). Older age, increased problem severity, and limited social support have been linked to difficulties for change outside of the treatment context (24, 38).

The gap in care utilisation between the help-seeking and non-help-seeking population has been described as the "two worlds of alcohol problems" (27). To bridge this gap, accessible self-help and treatment interventions that meet the continuum of problematic alcohol use are necessary.

2.3 BRIEF INTERVENTIONS

A range of interventions target problematic use of alcohol, from brief interventions (BIs) to stepped-care models to specialised treatments. Generally, BIs are aimed at populations of risk drinkers not meeting AUD criteria. Research on these interventions have been extensive over the past few decades (39). A goal of BIs is to reduce the problematic use of alcohol to low-risk levels, rather than to attain abstention. Typically, BIs are short, individual counselling sessions that occur over a limited period. The interventions vary in number and duration, ranging from very brief (≤5 minutes, single-contact), to brief (10-30 minutes single- or multiple-contact) sessions.

2.3.1 Primary healthcare settings

Brief interventions in primary care include a screening component, personalised feedback and non-confrontational motivational approaches delivered by healthcare providers.

Reviews of brief face-to-face interventions in primary care settings show that these are effective (39, 40), and cost-effective to lower alcohol consumption in adults with hazardous and harmful use (41). A recent Cochrane review found an average reduction of about 1.5 standard drinks per week after screening and BIs, as compared to the control condition. The study found no additional effect with increased duration of the intervention (39). However, another meta-analysis suggests a trend of increased effect for multi-contact interventions compared to very brief and brief interventions (42). In a review including treatment-seeking populations, no superiority was found for extended treatment versus BIs (43). There is limited evidence for the optimal content of BIs and the effect of BIs for AUDs (40, 44).

Although policy frequently emphasises the use of screening and brief interventions (SBIs) in high coverage primary healthcare settings (45, 46), the reach has been limited due to poor implementation (47). Thus other strategies have been developed in an attempt to increase the reach of brief interventions for problematic alcohol use.

2.3.2 Digital interventions

To increase the access and reach of low-cost brief interventions outside healthcare settings a diverse set of digital interventions have been developed. Internet interventions vary from brief screening with personalised feedback programs to individual therapy programs (48-50).

A recent Cochrane review found moderate quality evidence that personalised digital interventions reduced hazardous and harmful alcohol use in adults who entered digitally-delivered interventions after screening (51). The average weekly reduction at follow-up was about two standard drinks less compared to minimal or no intervention control conditions. Analysis of a limited number of studies found no difference in effect between digital and face-to-face interventions (51). Another meta-analysis found e-help without counselling to be more effective than either wait-list or leaflet control conditions for self-referred adults recruited via media advertisements (52). Further, extended interventions were more effective than single personalised normative feedback sessions (52). These reviews on digital interventions did not include the widespread, more low-tech telephone counselling interventions.

2.3.3 Telephone counselling

Telephone helplines are a common strategy to intervene in various areas, such as substance abuse, gambling, and suicide prevention. Telephone interventions remains a low-tech alternative that appears to be as satisfactory as face-to-face counselling to clients (53). The results from telephone counselling are promising for mental health problems (54), and the use of population-based quitlines for smoking cessation are recognised as an effective and cost-effective method (55, 56). There are numerous advantages of telephone counselling. Besides the public health importance of toll-free counselling services, accessibility is one crucial feature

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characterised by convenience, easy access and instantaneous response to help-seeking. Further, it preserves a certain level of anonymity, conducive to the client's initial sense of safety, and feeling of control and freedom over the conversation (53). Disadvantages of telephone counselling include the lack of visual cues and body language and switching counsellors between sessions. Other potential limitations are connection failures, and contact attempts hindered by misinformation.

The field of counselling via population-based helplines for alcohol use has received a limited amount of attention despite their frequent use. The evidence base is scarce, and the support for the effectiveness of telephone counselling mainly rests upon studies in clinical populations and includes a range of telephone counselling methods, from multi-session motivational interviewing (MI) and cognitive behavioural therapy (CBT) programs to single boost sessions (57). Findings are somewhat inconsistent for studies in clinical populations using telephone counselling as the central intervention component. For example, telephone counselling lead to significant reductions in the hazardous and harmful use of alcohol compared to that of the control conditions in primary healthcare and psychiatric out-patient settings (58, 59), while no apparent effect was found in trauma patients (60). Factors explaining such differences might be related to intervention design, follow-up time, population characteristics and study limitations (e.g. selection bias, blinding).

The existing studies of population-based alcohol helplines include a previous observational study of the Swedish alcohol helpline, in which participants demonstrated significantly reduced AUDIT (Alcohol Use Disorders Identification Test) scores at 12 months follow-up (61). With regards to randomised controlled trials (RCT), a Brazilian study is the only one that evaluated the effectiveness of a population-based alcohol helpline. The MI telephone counselling significantly improved abstention rates compared to self-help materials (62). The trial had some methodological shortcomings, one being the high attrition rate (77%). In other settings, self-help materials have shown to be effective for changing hazardous and harmful alcohol use (63). In brief face-to-face behavioural interventions, increasing the number of sessions does not necessarily provide a better effect (51). These inconsistent findings demonstrate the need to implement and evaluate counselling models with varying content and intensity in helpline settings. Additionally, the widespread use of population-based alcohol helplines further justifies the need to evaluate their effectiveness.

2.3.4 **The Swedish National Alcohol Helpline**

The Swedish National Alcohol Helpline (SAH) is a service with national coverage developed to provide easy and accessible counselling for the problematic use of alcohol (64). The service started in 2007, operates on weekdays and offers free-of-charge, confidential counselling with the possibility to remain anonymous. The primary target group is people with hazardous or harmful use, though many of the clients calling the alcohol helpline have more severe problems. In one year, the SAH receives nearly 2000 calls, of which approximately one third are first-time callers seeking help for their problematic alcohol use.

3 AIM

The overall aim of this thesis is to evaluate a population-based alcohol helpline by investigating the relative effectiveness of two counselling models for problematic alcohol use delivered to a help-seeking population. Furthermore, the rates of change from problematic alcohol use to low-risk levels in this help-seeking population is compared to the observed spontaneous change occurring in the general population.

3.1 RESEARCH QUESTIONS

In the general population, what is the proportion of problem drinkers who change to low-risk drinking, in the medium to long-term? (Study 1)

Is a brief structured intervention superior to the usual care at the Swedish alcohol helpline to change problematic alcohol use? (Study 2)

4 MATERIALS AND METHODS

4.1 STUDY 1

4.1.1 Study population

The Stockholm Public Health Cohort (SPHC) is a prospective population-based cohort, which enrolled sub-cohorts in the years 2002, 2006, and 2010, followed-up every 4th year until 2014. In the years 2002 and 2010, the sampling frame consisted of approximately 50,000 randomly selected residents, aged 18 years and above, with response rates of 47% and 56%, respectively. Data was collected via postal or web-based questionnaires following a pre-notification letter (65). We included data from two of the sub-cohorts, 2002 (follow-up 2010 and 2014) and 2010 (follow-up 2014). The 2002 sub-cohort was followed for 12 years and is therefore used to define the long-term and sustained outcomes, whereas the 2010 sub-cohort was followed for four years and is used to define the medium-term outcomes. Participants with self-reported problematic alcohol use at baseline who completed the follow-up survey in 2014 (n=8946) were included (see figure 1). The baseline prevalence of problematic alcohol use was 25% in the 2002 sample, and 29% in the 2010 sample.
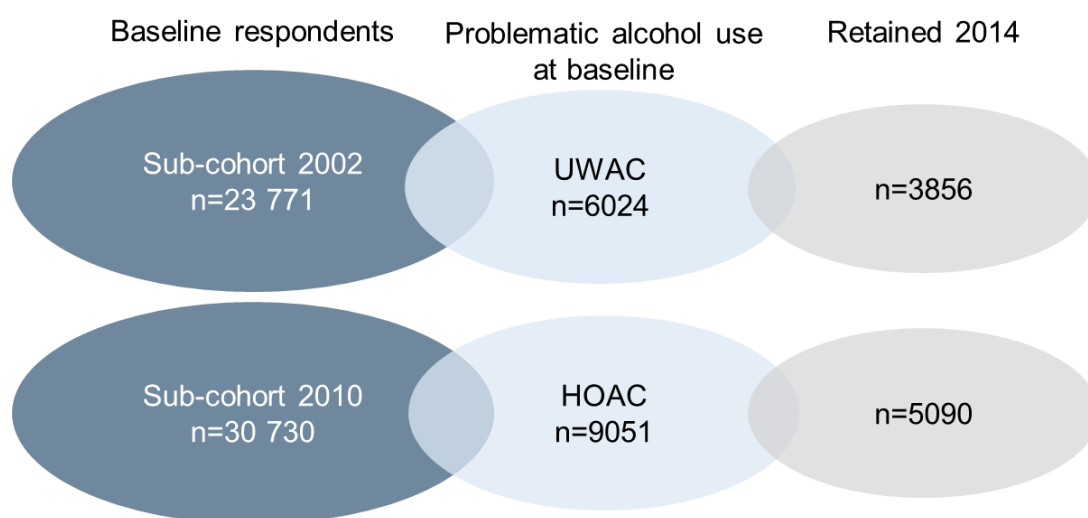

Figure 1. Selection in the Stockholm Public Health Cohort, respondents at baseline, respondents reporting problematic alcohol use at baseline retained at follow-up. Problematic alcohol use measured by usual weekly alcohol consumption (UWAC), and heavy occasional alcohol consumption (HOAC).

4.1.2 Outcome measurements

In the 2002 sub-cohort, alcohol consumption was measured by usual weekly alcohol consumption (UWAC) with the question: "What are your alcohol consumption habits during a typical week? This may vary over the year, but try to state an average". In the 2010 sub-cohort, we measured heavy occasional alcohol consumption (HOAC) with the question: "During the last 12 months how often have you, on the same occasion, consumed alcoholic beverages equivalent to at least: e.g. one bottle of wine," which is equal to five standard drinks.

The self-reported UWAC was measured in centilitres by quantifying alcoholic beverages (e.g. beer, wine, cider, and spirits) consumed per day during a 'typical week'. This was exemplified as glasses, bottles, or cans (2002) and 'standard drinks' equal to 12 grams of pure alcohol per drink (2010 and 2014). From the beverage-specific centilitres, a measure of grams of pure ethanol per week was derived.

UWAC was dichotomised into hazardous or low-risk consumption based on the generally used drinking level in Sweden defined as hazardous if consumption is more than 9 standard drinks for women and 14 standard drinks for men (14). Sustained low-risk consumption was defined as reporting low-risk use in two consecutive follow-up surveys (2010 and 2014).

Heavy occasional alcohol consumption (HOAC) was measured as 5 standard drinks on a single occasion for both men and women. This threshold was suggested as sensitive and specific for alcohol-related harm, (66) used in the burden of disease studies (67). HOAC was dichotomised into hazardous and low-risk consumption by monthly frequency, i.e. hazardous if 1 time per month or more. Low-risk alcohol consumption was defined as reporting heavy drinking less than monthly at follow-up (2014).

4.1.3 Additional study variables

Health behaviours were self-reported in the questionnaires. Current daily smoking and the daily use of snus was used to measure the current use of tobacco (68). The frequency of fruit intake the past year was used as a proxy for favourable eating patterns, using intake of fruit at least daily as the cut-off for sufficient fruit intake (69). Physical activity was measured by the habitual level of leisure time physical activity during the past year (2002) and by hours of exercise (2010 and 2014) (70). Information about sex, age, and education were based on register data, while cohabitation and employment were based on self-reports.

4.1.4 Statistical analysis

The baseline characteristics of the sub-samples were presented separately for change into low-risk and continued hazardous alcohol use. Logistic regression was used to calculate the odds ratios (OR) and the corresponding 95% confidence intervals (CI) for low-risk alcohol consumption at follow-up. In model 1 we added baseline health behaviours as predictors for low-risk alcohol consumption. In model 2 we restricted the sample to participants with unfavourable health behaviours at baseline and used favourable modifications of health behaviours, e.g. 'quitting the daily use of tobacco' as a predictor of low-risk alcohol consumption. Potential confounders were retained in the two models only if significantly associated with the outcome.

4.2   STUDY 2

4.2.1   Study design

The study is a superiority RCT with two groups designed to compare a new, brief structured intervention to the usual care at SAH. Clients seeking help for their current problematic alcohol use at the SAH were recruited between May 2015 and May 2017. The participants were allocated in a 1:1 ratio using sealed envelopes in a random sequence generated through a computer algorithm. Data collection were completed via structured telephone interviews at baseline and six months after, using assessors independent from the alcohol helpline. A detailed description of the design has been previously published in a study protocol, see appendix (64).

4.2.2   Recruitment

Inclusion criteria were: ≥18 year of age; first-time callers or at least 12 months since last SAH contact; AUDIT score above the cut-off for hazardous alcohol use; and ability to speak and read Swedish. Exclusion criteria included severe comorbidity, the reported use of illicit drugs, and having problems that required referral to medical treatment or treatment for alcohol dependence. Counsellors assessed the client eligibility according to criteria during their first call to the SAH.

Eligible clients were informed about the study. Interested clients received written information, and were contacted for consent and baseline interview within one week. The interviewers clarified any questions about the study, collected consent, conducted the structured baseline interview and allocated the participants using sealed envelopes. The full process is described in the study protocol (see additional study) (64).

4.2.3   Trial groups

In both groups, the AUDIT was introduced in the first call as a means to assess clients' alcohol use and related problems. The clients were then offered feedback on their AUDIT assessment.

4.2.3.1   Brief structured intervention

The brief structured intervention contains the delivery of a self-help booklet and one proactive call, i.e. a counsellor-initiated call. The self-help booklet provides a guide to change problematic alcohol use and includes: goal setting; strategies for change; evaluation and self-monitoring; coping strategies; and resistance skills. Two weeks after dispatching the booklet a counsellor called the client to facilitate the use of the material. After that call, no further contacts were initiated by the alcohol helpline. However, clients were not prevented from calling the SAH again.

4.2.3.2   Usual care

The usual care at SAH aims to enhance the client's motivation and commitment to change alcohol-related behaviour. The counselling follows MI to guide and support the change process, and has components of CBT mainly to prevent relapses. The counselling is client-

driven and the intervention is adapted to the need of each client. Thus it is characterised by varying frequency, duration and a mix of proactive and reactive sessions. After five sessions, a choice is made about the continuation of the counselling. The core content of each session is documented in an electronic record to allow for counselling continuity.

4.2.4 Outcome measurements

The Alcohol Use Disorders Identification Test (AUDIT), was used to measure problematic alcohol use (71). AUDIT was developed by the World Health Organization as a screening instrument for hazardous and harmful alcohol consumption. It encompasses three dimensions: consumption patterns, dependence symptoms, and harmful alcohol use and includes ten items, scored from 0 to 4, yielding a maximum score of 40. AUDIT can be divided into four risk levels based on the sensitivity and specificity of the sum score and the associated alcohol problem. In this study, cut-offs were based on the Swedish manual, Table 1 (72). The first three items measure consumption and can be used separately, i.e. AUDIT-C (71).

The primary outcome was a downward change in AUDIT risk level between baseline and six months follow-up. Additional outcomes were the mean change in AUDIT score and mean change in AUDIT-C score between baseline and six months follow-up.

Table 1. Cut-off scores for each AUDIT risk level and their description.

Risk level	Description	Cut-off score Women	Men
Low-risk drinking	Low risk of harm	0–5	0–7
Hazardous drinking	Increases the risk of harm to the user and others	6–13	8–15
Harmful drinking	Social, physical and mental health consequences	14–17	16–19
Probable dependence	Behavioural, cognitive and physiological consequences including reduced control over use and the strong desire to drink alcohol	18-40	20-40

4.2.5 Statistical analysis

The analysis followed an intention-to-treat (ITT) approach, i.e. retained participants with complete outcome information were analysed according to random allocation. To assess the success of the randomisation, the baseline differences between groups were analysed using the Pearson´s $\chi 2$ test for proportions and t-test to compare means. We used risk ratios (RR) to assess the treatment effect, with the probability of downward change in AUDIT risk level as the outcome. Further analyses included the mean difference in AUDIT score and AUDIT-C score between baseline and follow-up using a t-test for differences in means.

Two sensitivity analyses were conducted to investigate the effect of lost to follow-up on the primary outcome. First, we analysed the RR with all cases lost to follow-up, coded as no change in AUDIT risk level at follow-up. Second, we analysed the mean difference in AUDIT score, coding all cases lost to follow-up by last observation carried forward (LOCF).

5 RESULTS

5.1 SPONTANEOUS CHANGE IN POPULATION SAMPLES

The participants retained until the 2014 follow-up were more likely to be females, born in Sweden, non-smokers and have higher education and age than drop-outs. Further, usual weekly intake of alcohol was slightly lower in the retained sample than in participants lost to follow-up. In both subsamples, 36% had changed their hazardous alcohol use at the first follow-up, Figure 2. The proportion who changed increased to 46% at the second follow-up in the 2002 sub-cohort. Sustained low-risk use—low-risk in both 2010 and 2014—was reported by 28% of the baseline sample.
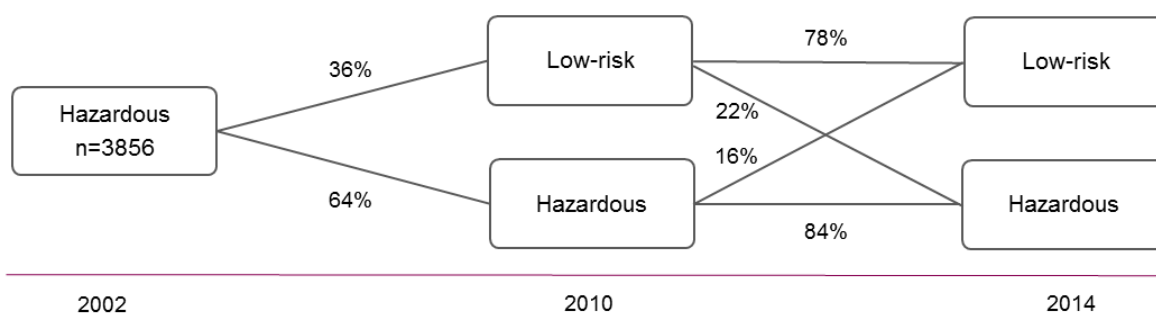

Figure 2. The proportion who changed their alcohol use in sub-cohort 2002 measured by UWAC (usual weekly alcohol consumption).

5.1.1 Additional findings

A healthy lifestyle at baseline, defined as non-smoking, physical activity, and high fruit intake, was associated with higher odds of sustained low-risk use of alcohol at follow-up, as seen in model 1, Table 2. Increasing fruit intake to recommended levels and tobacco cessation (HOAC) during the follow-up increased the odds of low-risk drinking at follow-up, as seen in model 2, Table 2.

Table 2. Health behaviours and their associated change in hazardous alcohol use, by baseline favourable vs unfavourable behaviour (model 1) and change from unfavourable to favourable behaviour (model 2). Estimates are adjusted for associated baseline characteristics. Baseline samples n=5090 (UWAC) and n=3856 (HOAC).

| | Low-risk sustained UWAC | | | | Low–risk HOAC | | | |
| | Model 1 | | Model 2 | | Model 1 | | Model 2 | |
Health behaviour	OR	95 % CI	OR	95 % CI	OR	95 % CI	OR	95 % CI
No tobacco use	1.63	1.38-1.93	1.16	0.86-1.56	1.74	1.52-1.99	1.31	1.01-1.71
Fruit intake	1.59	1.36-1.85	1.30	1.02-1.66	1.23	1.09-1.39	1.64	1.33-2.01
Physical activity	1.19	1.03-1.38	1.10	0.88-1.39	1.21	1.07-1.37	0.98	0.82-1.18

5.2 TELEPHONE ASSISTED CHANGE

Of the 1327 clients that initiated contact with the SAH, 50% met the eligibility criteria. The main reasons for not being eligible were that inclusion criteria were not met and/or that clients were not considered able to process the study information at the time of the first call. A total of 261 individuals agreed to participate and were randomised to the brief structured intervention (n=128) and usual care (n=133), of which 71% had complete outcome information at six months, as detailed in Figure 3.
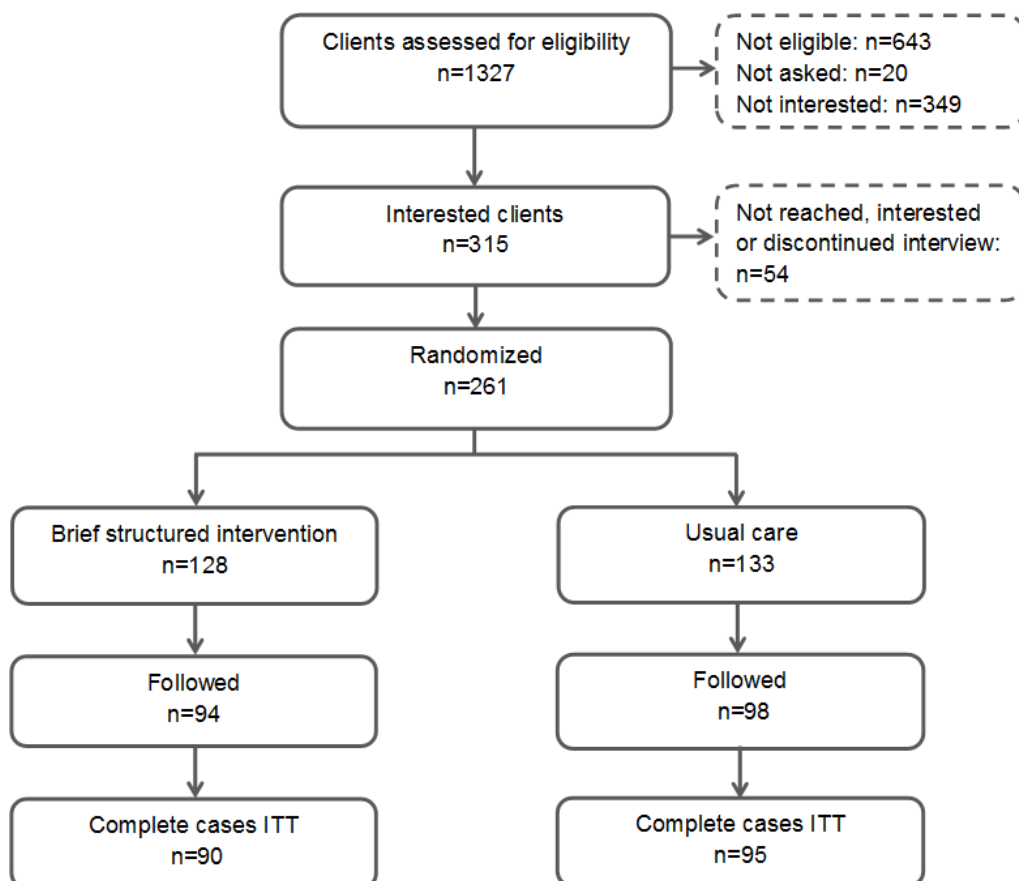

Figure 3. Flowchart of the recruitment procedure, May 2015 to May 2017.

The main reasons for attrition were that participants could not be reached (75%) or refused to participate (25%). In the brief structured group, four cases discontinued the intervention, while none discontinued usual care. Participants lost to follow-up had significantly higher AUDIT scores (mean 21 vs 19) and were more likely to be employed (85% vs 70%) than the retained sample. Baseline characteristics of the retained sample and information about the interventions is presented in Table 3.

Table 3. Baseline characteristics by intervention group and intervention information about contact with the alcohol helpline.

Baseline characteristics	Brief intervention n=90	Usual care n=95
Age, mean ± sd	48.8 ± 13.9	51.0 ± 13.9
Male (%)	72	73
Employed (%)	77	66
Post-secondary school (%)	59	51
Self-assessed health good-excellent (%)	76	57
Help-seeking past 12 months (%)	19	23
Readiness ruler mean ± sd	9.3 ± 1.7	9.3 ± 1.2
AUDIT score mean ± sd	19.6 ± 5.4	18.8 ± 5.9
Intervention information		
Proactive call received %	76	na
Number of calls, mean ± sd	1.9 ± 0.8	3.6 ± 2.4
Duration minutes, mean ± sd	44 ± 27	94 ± 79

The two groups were balanced concerning characteristics at baseline except for self-assessed general health (see table 3). The distribution of AUDIT risk level at baseline and follow-up for the two groups is shown in Figure 4. At follow-up, 30% and 25% had shifted from a higher risk level to low-risk in the brief structured intervention and usual care, respectively. In both groups 6% shifted to a higher AUDIT risk level. In total, 69% in the brief structured intervention and 58% in usual care shifted to any lower AUDIT risk level. The brief structured intervention was associated with an increased probability of downward shift compared to usual care, RR=1.19, 95% CI 0.95 to 1.49. There were no differences between groups with respect to the mean change in AUDIT score or AUDIT-C score.
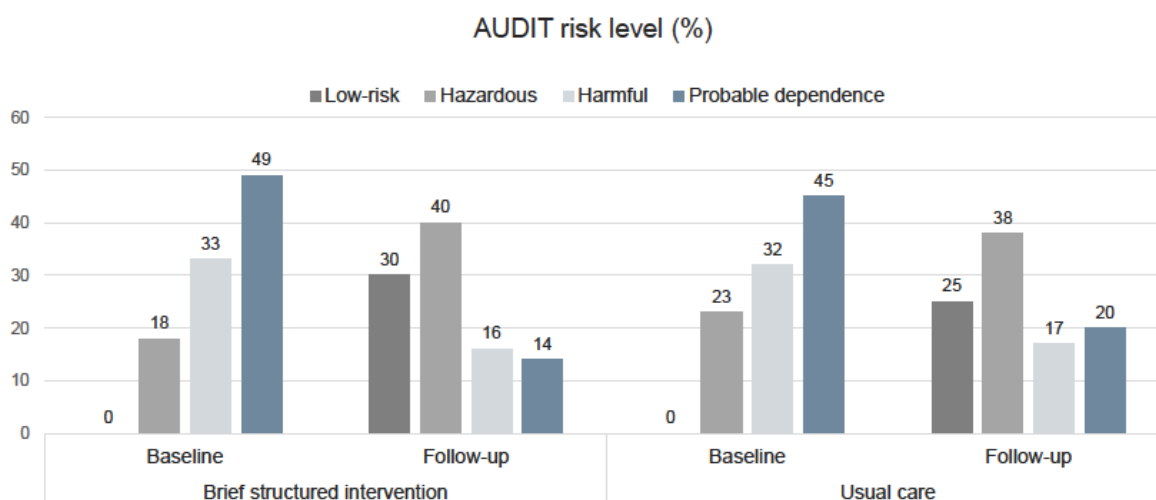

Figure 4. Distribution of AUDIT risk levels at baseline and follow-up for the brief structured intervention (n=90) and usual care (n=95).

6 **ETHICAL CONSIDERATIONS**

One major consideration for planning an RCT is that the most effective counselling model should not be withheld from participants. Based on previous research, both the models included in the trial were assumed to be effective in of themselves, but evidence was lacking with regards to their relative effectiveness.

Concerning the study procedures, information about the study was provided at several occasions, and by different modes (i.e. oral and written), to ensure that participants understood on what premises they entered the study. Further, as participants with problematic alcohol use can be viewed as a potentially vulnerable group, they were not prohibited from seeking other help or treatment during follow-up. Participants in the brief structured intervention were allowed to contact the alcohol helpline again if they felt the need to do so.

Concerning the results of the study 2, an insufficient number of participants resulted in an underpowered study, which could be considered unethical. It raises questions about the contribution of the study to the evidence base. Furthermore, underpowered studies could result in misinterpretation of effectiveness and the benefit of participation can be questioned as the study did not provide firm evidence to improve the intervention. A potential negative indirect effect of study 2 could occur if the null results are misinterpreted as the helpline service itself being ineffective.

The observational research in study 1 carries minimal risk for the participants. The risk that individual integrity is breached is extremely small. There may be indirect effects of the study that could be harmful, for example in the case of incorrect results interpretation, used to inform policy on treatment regimen on a national level. However, this is unlikely.

The two studies were approved by the Ethical Review Board of Stockholm Region: study 1 (DNR 2016/749-2) and study 2 (DNR 2016/749-2).

7 DISCUSSION

This thesis has evaluated the relative effectiveness of two alternative counselling interventions delivered by a population-based alcohol helpline intended to change problematic alcohol use in help-seeking individuals. These results were compared to the spontaneous change in problematic alcohol use in a population sample.

7.1 SUMMARY OF MAIN FINDINGS

The included studies captured problematic alcohol use modification in two populations, the general population and a help-seeking population. The results show that a large proportion of the general population changes their hazardous and harmful use to low-risk alcohol consumption. The results also showed that help-seekers frequently change their problematic alcohol use after telephone counselling, and that this change occurred independent of which counselling model was used.

7.1.1 Changing the problematic use of alcohol

7.1.1.1 Spontaneous change in the general population

Study 1 adds to the existing literature by showing that problematic alcohol users with hazardous drinking change to low-risk alcohol consumption over time. This finding agrees with previous population studies observing the trajectories of heavy drinking (19, 33) as well as with remission rates in clinically diagnosed population samples (23, 30-32). Change of problematic alcohol use has consistently been found to occur without formal help in various population samples (6, 17, 24, 29). From a global perspective, despite variation in the definitions used, the similar rates support the general conclusion that the majority curtails their problematic alcohol use over time and that many do so without formal help (5, 6, 34).

Sustained low-risk use was measured over time, which uncovered that one fifth of participants relapse into problematic alcohol use. Nevertheless, the stability of low-risk drinking was reported by the majority of participants, in accordance with previous findings, revealing that once the transition from problematic alcohol use takes place, it is likely to persist (73).

A tentative implication from the additional findings in study 1 is that healthy lifestyle, and the promotion of such, could have an effect on changes in hazardous alcohol use, and that targeted interventions might be needed for populations with clusters of health behaviours. Strategies and the potential for multiple health behaviour change is understudied and results from intervention studies are inconclusive (74, 75). Yet there are some promising results—a meta-analysis found that smoking cessation interventions during alcohol treatment were associated with continued alcohol abstention but not with sustained smoking cessation (76). Simultaneous, integrated approaches may be more beneficial given the restricted opportunities for interventions and the clustering of health behaviours (77).

7.1.1.2   Change after counselling at the alcohol helpline

The decrease in alcohol use in study 2 is consistent with other studies of help-seeking populations (62, 78, 79). Additionally, like study 2, numerous studies found no difference in effect between different counselling methods (80-83).

Study 2 compared usual care MI to a brief structured intervention including self-help material coupled with one structured motivational counselling session that focused on the use of the material. Conversely, the previous alcohol helpline RCT by Signor *et al.*, compared interventions of similar intensities, one including MI counselling to another including self-help material, coupled with strict information/advice sessions (62). The current study did not find any difference in the effect between the two interventions, while the Signor *et al.* study found superiority of MI over self-help material and information (alcohol abstention 70% vs 41%). This suggests that the inclusion of behavioural components in our study were of greater importance than the intervention intensity.

Another reason for the similar change rates between the two interventions in study 2 might be that both reached a threshold of counselling effectiveness. Although the effect of augmented intensity is inconsistent depending on the categorisation used (39, 42), multi-contact interventions appear more effective than single sessions in both primary care and self-referred internet populations (42, 52, 84). At the same time, face-to-face extended interventions, i.e. >5 sessions, does not seem superior to brief interventions (39). Thus, as the brief structured intervention included two counselling sessions, greater effects might not be achieved by extending the intervention beyond this point.

7.1.1.3   Help-seeking at the alcohol helpline

AUDIT levels in study 2 reveal that a high proportion of clients seeking help at the helpline can be expected to have mild to severe AUD. To date, the evidence is sparse regarding the effect of brief interventions for heavy use or dependence (44). Nevertheless, the proportion with probable dependence had decreased substantially at follow-up. Though, in line with other studies (78), a high AUDIT score at baseline increased the risk of loss to follow-up, which might indicate that more support is needed. However, few participants sought help for alcohol-related problems the year before calling the SAH, indicating that the service may lower the threshold for help-seeking compared to other options. Once contact has been initiated, the helpline can facilitate and increase motivation for further contacts with specialized care providers (61).

7.1.1.4   Is there an added value of counselling at the alcohol helpline?

The studies suggest an increased rate of change in the help-seeking population at alcohol helplines compared to that occurring spontaneously in the population, in which most people are not expected to access formal help. The populations were similar with respect to age, which is acknowledged as an important predictor of change. However, one needs to recognise the inherent limitations in comparing the different studies and populations.

First, the severity of alcohol problems is likely to differ between help-seekers and the general population, for which the prevalence of dependence is rare (36). Second, consumption measures are not directly comparable to AUDIT which addresses alcohol-related problems. Therefore, in comparison to measures of consumption, AUDIT may misclassify low-risk consumers as more problematic users. Third, in study 1, long-term changes in problematic alcohol use were estimated, whereas they remain unknown in study 2. Longer follow-up is usually related to higher rates of change (30). Fourth, the attrition was higher in the population sample, study 1, and attrition is likely to explain higher rates of change (30).

Despite these limitations, the suggestion above is supported by former population studies in which the odds of successful change in problematic use was higher among persons seeking treatment than among those who did not (85, 86). Even so, it is important not to discount the potential for natural change, which is common.

7.2 METHODOLOGICAL CONSIDERATIONS

7.2.1 Study design

A strength of study 1 was the random sample from the general population used to study the change from hazardous to low-risk drinking. The prospective design of the SPHC allowed investigation into the medium- to long-term change from hazardous to low-risk drinking. Long-term follow-up has been urged in the field (87). Further, the design avoids the problems of recall.

The pragmatic nature of the trial in study 2 is a strength, as the difference between the research scenario and everyday routine practice was minimised. Thus participants were similar to clients that would receive the brief structured intervention if this would become common practice. Further, the RCT design is the gold standard in intervention research, due to the random distribution of confounding and prognostic factors. Another strength is that the trial's procedures were regulated by a study protocol (64). To avoid bias during randomisation, the serial numbered allocation sequence was computer-generated before the trial, and was later provided in sealed envelopes to the interviewers. To minimise assessment bias, baseline data collection was completed before assigning the trial condition, and assessors were blinded to group allocation at follow-up. A limitation shared with most intervention studies was that the nature of the trial prohibited blinding of participants and counsellors. Another limitation was the absence of a no intervention control group, leaving the 'real therapeutic effect' unknown.

7.2.2 Participant selection

Study 1 contained a large sample from the general population in Stockholm County. Though, the participation rate was relatively low and the characteristics of responders at baseline diverged from the Stockholm County census data (65). Systematic non-response was amplified by similar characteristics in the retained sample, i.e. more likely to be older, female, have higher education, and be Swedish-born. Further, retention was related to non-smoking and lower alcohol consumption at baseline. The selection process raises concerns to the generalizability

of the findings, as demographic characteristics have been associated with change in problematic alcohol use (6, 18-20).

In fact, the characteristics of non-respondents, i.e. being male, lower education, smoking, and greater problem severity have been linked to a lower rate of change of problematic alcohol use (6, 19). However, another characteristic of non-respondents, i.e. younger age has been linked to a higher rate of change in problematic alcohol use (24, 88). In the present study, no weights were applied to account for differences between responders and non-responders. Due to the different direction of effects expected from the sample characteristics, the estimated change of problematic drinking may be overestimated or underestimated to the true change in the general population. The results of study 1 should therefore be interpreted in the light of these limitations.

A strength of study 2 was the inclusion of the primary target group of the alcohol helpline, by using the same exclusion criteria employed at SAH. Accordingly, the study excluded clients that needed referral to specialised treatment, judging for example by existing health conditions and comorbidity. Compared to the overall population of clients at the helpline, the recruited sample was similar concerning age and mean AUDIT score. Yet, accepting inclusion in the study was probably more frequent among highly motivated individuals and might be related to belief in the self-help material.

7.2.3 Attrition

The attrition in study 2 was comparable to other intervention studies. However, given that the attrition was close to 30%, questions about the internal and external validity might arise, as we do not know the outcome of participants that were lost to follow-up. The main concern of attrition bias is the potential unequal attrition with regard to counselling group and/or AUDIT level.

In study 2, the reasons for attrition were similar in the two counselling groups. Further, the baseline characteristics of participants lost to follow-up were not systematically different by counselling group, and the dropout rate was similar. Therefore, it was unlikely that attrition was dependent on the exposure. The main analysis according to ITT (analysed as randomized) included only participants with information on the outcome, which could limit the external validity of the estimates if the absence of the observations was non-random, i.e. dependent on the outcome. In fact, attrition was associated with baseline AUDIT risk level, indicating individuals with the worse prognosis were more likely to be lost to follow-up. Under this assumption, data imputation is not recommended. Instead, a sensitivity analysis was performed in which participants lost to follow-up were included as if their missing outcome was the same score as their previous outcome (i.e. as if there was no change in alcohol use). The results were substantially confirmed, showing no significant difference between the interventions.

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7.2.4 Sample size and power

The lack of evidence of differences between the two groups in study 2 may be due to the low power that hampered the precision of the data. A superiority trial with the current effect size (RR=1.19, 80% statistical power, α=0.05) would require 230 participants per group. Although underpowered for the between-group difference, the large within-group change indicates that both counselling models are effective for changing problematic alcohol use.

7.2.5 Exposure information

Although study 1 may have misclassified some individuals according to their help-seeking status, this may have little influence from a population level perspective due to the limited number who seek help for problematic alcohol use, especially at lower severity (6). Regarding the information about health behaviours in study 1, besides the obvious risk of information bias due to self-report, the questionnaires were modified during follow-up (physical activity, diet) and thus behaviour change may have been misclassified, which would likely lead to bias towards null.

The number of calls received in each counselling group in study 2 shows that most participants remained in their allocated counselling group and did not cross over from the brief structured intervention to usual care. However, we cannot rule out misclassification due to anonymous calls—that participants called the alcohol helpline under another alias and received usual counselling. In order to prevent anonymous calls by the participants, further helpline counselling sessions were not prohibited in the brief structured intervention and clients were carefully informed about the importance to state participation. Additionally, efforts were taken at each point in the enrolment process to ensure participants understood their role in the trial. The purpose of the study was provided at the first SAH call, both verbally and via written information as well as during the interview session before collecting consent.

7.2.6 Outcome information

The studies in this thesis used reliable and valid instruments for measuring problematic alcohol use (89, 90). Nevertheless self-report inherently comes with a risk of information bias. This is expressed in terms of underreporting of problem severity (91, 92), especially among heavy drinkers (93). Examples of factors that may threaten the validity of self-reported information are perceived social desirability or inaccurate recall of alcohol consumption. Self-report is frequently used to collect information about alcohol consumption in observational and intervention studies, and these limitations are common to the field. In study 2, it is doubtful that underreporting and social desirability would be related to group allocation.

In study 1, we did not use the conventional sex-specific cut-offs for heavy drinking occasions used in Sweden. With respect to these cut-offs, hazardous drinking among women was underestimated and the change to low-risk drinking was overestimated. Instead, a threshold suggested as sensitive and specific for alcohol-related harm (66) used in the burden of disease studies (67) was applied. Drinking above this limit is linked to foetal alcohol syndrome,

infectious, sexually transmitted, cardiovascular, and liver diseases as well as to injuries and the development of AUD (11).

AUDIT was the primary choice to measure problematic alcohol in study 2 since all clients were screened with AUDIT in their first call to the alcohol helpline and thus it added no extra burden on the personnel or the participants. Further, it measures adverse consequences connected to alcohol consumption which is relevant for problematic use (89).

We used the modified sex-specific cut-off levels to improve sensitivity for hazardous use in women (72, 89). Sex-specific cut-offs originate from risk assessment of drinking levels, in which women are at greater risk of harm at lower drinking levels than men (94). However, the use of sex-specific cut-offs has been a matter of debate (95). Help-seeking individuals were unlikely to fall below this cut-off at baseline, thus it did not prevent women from entering the study. As the purpose of the study was to compare counselling groups and since gender was equally distributed between them, this did not influence the outcome of the study.

In study 2, AUDIT-C was included ad-hoc as a measure of alcohol consumption (96), as change in consumption is an important aspect of problematic alcohol use. However, the AUDIT-C measured consumption by using categories of frequency, volume, and heavy drinking occasions, and thus the precision was lower than needed for consumption data instruments. Due to this we used the scores from AUDIT-C and did not transform the consumption items to drinking volume.

7.3 IMPLICATION OF FINDINGS

7.3.1 Public health

The two studies in this thesis showed frequent change to lower risk levels of problematic alcohol use. This most likely leads to beneficial changes at the individual level, both with regards to imminent risk of consequences and disease conditions that often display a dose-response relationship. Since more than 4% of the global burden of disease is attributed to alcohol use (2), at a population level any reduction ought to impact overall health. Additionally, promoting an overall healthy lifestyle may facilitate change of problematic alcohol use and increase the public health impact since unfavourable lifestyle behaviours tend to cluster (97-99).

At present, alcohol helplines are one of the available alternatives for guided self-help, with the potential to reduce barriers connected to stigma and shame by emphasising privacy, as well as decreasing physical barriers, such as time and distance (37). Additionally, interventions that target multiple health behaviours could reduce stigma and lead to increased opportunities for intervention. Early recognition and accessible interventions could play a major role in reducing the harm caused by continued problematic alcohol use and ultimately reduce the disease burden, as well as economic and societal consequences.

7.3.2 Alcohol helplines

The current study shows that a less labour intensive brief structured counselling model provided similar outcomes in problematic alcohol use as a tailored and flexible model. If implemented, brief structured counselling could expand the reach and extent of the service, in addition to potentially being more cost-effective. However, the lack of evidence for superiority does not mean that the models are equal. As for now, since superiority of neither model could be established, clients' preference should guide the counselling.

7.3.3 Future studies

The findings raise questions of how optimal counselling should be designed in population-based alcohol helplines. What components should be included? Who should be targeted? How do we increase the intervention's reach into the target population?

The specific components of counselling for behavioural change were not studied, a limitation common to this field (39). One question that deserves more attention is: What are the active components in the counselling intervention?

An interesting and important area concerns who are likely to change naturally and what relevant drivers could be reinforced in the general population. Another question concerns whom interventions should target. Brief interventions are expected to be less effective with increased problem severity (43). Indeed, in-person counselling may be more effective among people with higher problem severity, while low problem severity may be served by less intense alternatives without in-person contact (100). Despite the methodological limitations in the study by Signor *et al.*, its findings suggest that MI helpline counselling is effective for help-seeking clients with a high degree of alcohol dependence (62). To develop alcohol helplines, future studies should evaluate the effectiveness of counselling for different severity levels.

Generally, help-seeking occurs when the problems related to drinking become severe. To tackle this problem, future interventions may want to target other, less stigmatised health behaviours as a way to introduce contact and extend the reach of interventions for alcohol problems.

7.4 CONCLUSIONS

This thesis evaluated counselling at a population-based alcohol helpline and compared the changes in problematic alcohol use to changes occurring in the general population. Spontaneous decrease to low-risk levels was frequent in the population. However, the majority remain hazardous drinkers after prolonged follow-up, revealing a need for alcohol interventions. Using a population-based telephone helpline seems effective as a means to increase the rate of change in help-seeking populations in comparison to patterns of change in the general population. The effectiveness of a brief structured intervention via telephone counselling was, in the short-term, comparable to the usual care. In conclusion, both models seem to provide similarly effective support to help-seeking clients that wish to change their problematic alcohol use. Thus, clients should be able to choose the model optimal to their own needs.

8 ACKNOWLEDGEMENTS

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