

Research Article

A Zero Score in the TLFB-28 Interview - What is Hidden Behind?

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Abstract

Aims: The Alcohol Timeline Followback (TLFB) interview is considered to be a reliable method to assess a person's alcohol consumption. This is why it is often used in scientific studies to define different drinker groups. The present study aimed to characterize people with a zero score in the TLFB-28 with main emphasis on their drinking habits.

Methods: Inside the alcohol sub-sample of the national FINRISK Study, the alcohol consumption of 479 subjects (167 men and 312 women) with a zero score in the TLFB-28 interview were studied by using answers to the AUDIT questionnaire, one month quantity-frequency (QF) measure and a question of ever-drinking from the basic FINRISK questionnaire. Possible binge or heavy drinkers were identified by using AUDIT scores.

Results: QF measure revealed very few drinkers and the result was thus consistent with the TLFB-28 interview. According to the AUDIT, however, 59.9% scored above zero. Also, based on the ever-drinking question 51.8% drank alcohol at least occasionally while 48.1% were lifetime or non-lifetime abstainers. Even if most of the ever alcohol drinking subjects were moderate drinkers, 6.9% of all those who scored zero in the TLFB-28 were identified as possible binge or heavy drinkers.

Conclusions: The subjects with a zero result in the TLFB-28 are a heterogeneous group when it comes to their alcohol consumption. A zero score in the TLFB-28 cannot be considered a reliable measure to predict alcohol abstinence especially over a longer period of time.

INTRODUCTION

A teetotaler is a person who abstains from drinking alcohol. The definition of alcohol abstinence varies between different countries and scientific studies. Most commonly an alcohol abstainer is defined as a person who has not consumed any alcohol during the past 12 months [1]. Also subjects giving negative response to the question "Do you ever drink alcohol?" have in some studies been classified as teetotalers [2]. However, sometimes also people with very low alcohol consumption (less than 0.5-1 drinks per month) are considered to be alcohol abstainers [3,4]. The population of current non-drinkers when assessed especially during a short period of time is a very

heterogeneous group that comprises lifetime abstainers, non-lifetime abstainers and occasional drinkers alike [4,5].

In Finland, 6.6-12% of men and 9.5-15% of women are alcohol abstainers (defined as 12-month alcohol abstinence) according to the latest studies [6-8]. Finnish alcohol abstainers have been found to be more elderly and less educated than people drinking alcohol [6]. However, more research on the factors related to alcohol abstinence is required [9].

Due to underestimation the assessment and evaluation of drinking – and alcohol abstinence – is difficult. To overcome this problem several questionnaires and interview techniques have been developed. One of the most widely used of these drinking measures, the Alcohol Timeline Followback (TLFB) is a drinking

estimation method that gives detailed information on person's drinking habits over various time periods [10], most often 28 days (TLFB-28). In the TLFB, a person gives retrospective estimates of their daily alcohol consumption i.e. how many drinks they have drunk per day during the chosen period of time. In the process, a calendar is used as a visual aid and special events and other memory cues are also used to help recall. A person with a zero score in the TLFB (zero drinks consumed during the study period) is defined as alcohol abstinent. Originally used among diagnosed alcohol abusers, the TLFB has since been found to be a reliable way to assess recent alcohol consumption across a broad range of drinkers [10-12] and it is widely used in different studies and clinical settings. Although most commonly administered in person by a trained interviewer, the TLFB can also be administered over the telephone and by computer [13,14] making the collection of the drinking data flexible.

Subjects reporting abstinence in the TLFB interview are commonly used as a reference group for other drinkers in alcohol-related studies. However, to our knowledge there are no previous studies focusing specifically on how reliable the TLFB method is in detecting alcohol abstinence. This is why the objective of this study was to find out whether the TLFB-28 interview is a good tool to identify teetotalers.

MATERIALS AND METHODS

FINRISK study

This study was based on the National FINRISK Study in the year 2007. Carried out every five years, FINRISK is a nationally representative study that aims to chart and follow the prevalence of risk factors for chronic, non-communicative diseases in Finland. The study included both a self-administered mailed questionnaire and a health examination performed by trained study nurses. The FINRISK study population (n= 11 953) was a random sample of 25-74 year-old Finns from the Finnish Population Information System, stratified by sex, 10-year age groups and six geographical areas. Within the FINRISK Study there were sub- studies concentrating on e.g. nutrition, tobacco use and alcohol consumption. This study concentrated on the alcohol sub-sample. The FINRISK study was conducted according to the guidelines laid down in the Declaration of Helsinki. All procedures involving participants were approved by the Ethics Committee of Helsinki and Uusimaa Hospital District. Written informed consent was obtained from all participants.

Alcohol subsample

The subjects in the alcohol sub-sample were from three of the six geographical areas: Northern Savonia (Eastern Finland), Turku-Loimaa district (Western Finland) and Helsinki-Vantaa district (Southern Finland). Altogether 4020 subjects were invited, 1340 from each area.

First, the self-administered FINRISK questionnaire was mailed to the subjects. It included questions on age, sex, socio-demographic factors and health-related behaviour and medical history [15] which were used for the characterizing of the subjects. Along with the questionnaire there was an invitation to attend a health check, which included the TLFB-28 interview.

Of those invited, 2471/4020 (61.5%) took part in the study.

Altogether 2403 (97.2%) subjects had a complete data from the TLFB-28 interview. Of them 479 (19.9%) subjects, 167 (34.9%) men and 312 (65.1%) women had a zero score in the TLFB-28. This group was the subject of the present study.

Study group (subjects with a zero-score in the TLFB-28 interview)

During the health check, in addition to the TLFB-28 interview, the subjects' alcohol consumption was inquired using QF (quantity-frequency) and AUDIT (Alcohol Use Disorders Identification Test) measures. The QF measure [16] concerns alcohol consumption during the past month and it includes the following questions: 1) Quantity (Q): "During the previous month, how many drinks would you usually have on a day when you drank?", 2) Frequency (F): "During the previous month, how many times a week would you usually drink any alcoholic beverage?". One drink was defined as a Finnish standard drink (i.e. 33cl of beer or 12 cl of wine or 4 cl of spirits) equivalent to 12 g of absolute alcohol.

The subjects also filled in the AUDIT questionnaire [17]. The Finnish translation of the original 10-question AUDIT was used (the range of total score between 0-40). The questions were scored in the standard manner with one exception. Because the second question of the AUDIT ("How many standard drinks do you have on a typical day when you are drinking?") does not offer an alternative for alcohol abstainers (0 drinks), zero points were automatically given for a blank question if the subject reported never drinking alcohol in the previous (first) AUDIT question.

One alcohol-related question of the basic FINRISK questionnaire was also used in the present study. This question, "Do you ever even occasionally consume any alcohol beverage (e.g. beer, wine, spirits) these days?" had four options that were used to divide the study population (having a zero score in the TLFB-28) into four groups: 1) at least monthly drinkers, 2) less than monthly drinkers, 3) non-lifetime abstainers or 4) lifetime abstainers.

Possible binge or heavy drinking was studied inside the previously mentioned four groups by using AUDIT scores. Answers were available from 463/479 (96.4%) subjects. The possible binge or heavy drinkers were identified among current drinkers and lifelong abstainers by using AUDIT scores ≥ 8 for men and ≥ 6 for women [18,19].

For the non-lifetime abstainers the cut point of binge or heavy drinking was set to >12 for both men and women. This is because in this group a subject can gain altogether 4 points in the two last AUDIT questions based on drinking over one year ago. The Finnish translation also measures past drinking in questions 2 and 3 giving the possibility to gain altogether 8 points based on earlier drinking even if one has later stopped drinking. Given the one-year time limit in questions 4 to 8, those who had quit drinking less than a year ago were excluded (n=4).

Statistical analysis

The absolute numbers and percentages of men and women with a zero result in the TLFB-28 were calculated separately inside 10-year age groups and geographical study areas inside the whole alcohol sub-sample. Other characteristics (employment

status, marital status, smoking habits and prevalence of chronic illnesses) of male and female subjects as well as answers to the AUDIT questionnaire, the alcohol-related question of the FINRISK questionnaire and QF measure, were studied separately using frequency tables. All statistical analyses were performed by using IBM SPSS Statistics 20.0 software.

RESULTS

Characteristics

The median age of the subjects was 57.0 years (lower quartile 43.0, upper quartile 66.0), 58.0 for men (lower quartile 45.0, upper quartile 67.0) and 56.0 for women (lower quartile 40.3, upper quartile 66.0). The majority were in a relationship, 105 (63.3%) of men and 202 (64.7%) of women. Of the men 76 (47.2%) and of the women 124 (40.3%) were employed (part-time or full-time jobs or entrepreneur). A large number of subjects were retired, 63 (39.1%) of men and 123 (39.9%) of women. There were 56 (33.7%) never-smokers among men and 183 (58.8%) among women whereas 27 (16.2%) men and 39 (12.5%) women were current, at least occasional smokers. According to self-reports, 83 (51.9%) of men and 140 (45.6%) of women had not for the past 12 months been diagnosed or treated for chronic somatic illnesses. Depression had been treated or diagnosed among 9 men (5.5%) and 46 women (14.9%) during the past year.

Figure 1 shows the percentages and absolute numbers of men and women with a zero TLFB-28 score inside 10-year age groups in the whole alcohol sub-sample (n=2403). Both in men and women the proportion of those reporting no alcohol consumption in the past month was higher in old age compared with younger age groups.

The prevalence of subjects with a zero-score in the TLFB-28 was highest (196/841, 23.3%) in Northern Savonia, next came Turku-Loimaa district (148/843, 18.6%) and Helsinki-Vantaa capital district had the lowest prevalence (135/787, 17.5%). In all the areas the percentage of women with a zero result in the TLFB-28 was higher than that of men (Figure 2).

Drinking

Most subjects with a zero score in the TLFB-28 were abstainers also according to the QF measure. To the quantity question 470/479 (98.1%) of the subjects, 165/167 (98.8%) men and 305/312 (97.8%) women answered having consumed zero and 9/479 (1.9%) on average 2.9 (range 1.0-10.0) standard drinks at a time during the previous month. In the frequency measure 471/479 (98.3%) subjects, 165/167 (98.8%) men and 306/312 (98.1%) women, reported drinking on average zero times a week during the past month. The rest of the subjects, 8/479 (1.7%), had drunk alcohol but not more than once a week (range 0.25-1.0)

There was a complete AUDIT data from 466/479 (97.3%) subjects. 187 (40.1%) subjects scored zero points, 68/165 (41.2%) of men and 119/301 (39.5%) of women. The median AUDIT score was 1.00, for men 1.00 (range 0-23, lower quartile 0.0, upper quartile 4.0) and for women 1.0 (range 0-29, lower quartile 0.0, upper quartile 2.0).

Based on the question "Do you ever even occasionally

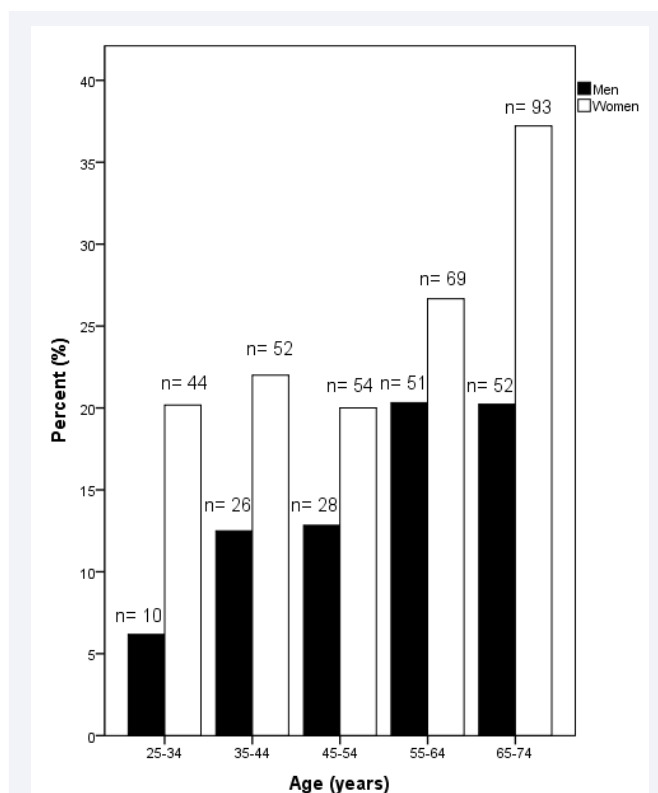


Figure 1 Prevalence of men and women with a zero score in the TLFB-28 inside 10-year age groups.

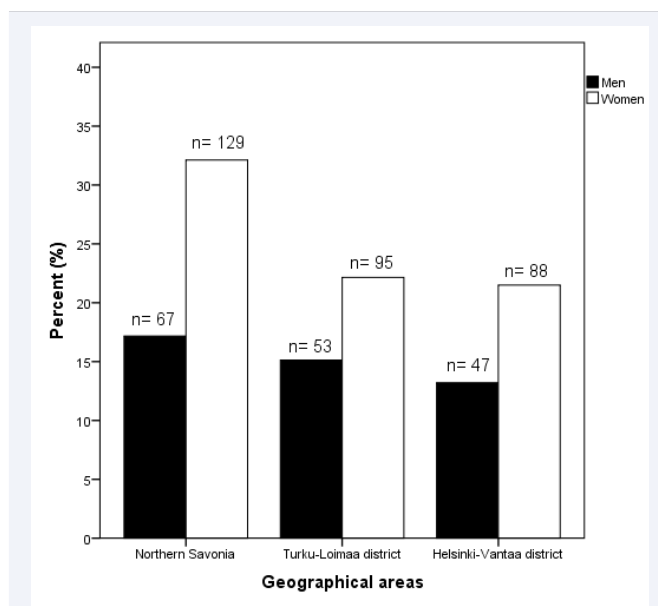


Figure 2 Prevalence of men and women with a zero score in the TLFB-28 inside different geographical areas.

consume any alcohol beverage (e.g. beer, wine, spirits) these days?" there were 44/476 (9.2%) more often than monthly drinkers, 203 (42.6%) less often than monthly drinkers and 101 (21.2%) non-lifetime abstainers. The median duration of alcohol abstinence among non-lifetime abstainers was 8.0 years (range

0.5-50). The rest of the subjects, 128 (26.9%), were lifetime abstainers. Thus, there were 247 (51.9%) subjects who at least occasionally consumed alcohol and 229 (48.1%) who were presently teetotallers. Figure 3 shows the results separately among men and women.

Drinking habits

Altogether 32/463 (6.9%) potential AUDIT-based heavy or binge drinkers, of them 15 (46.9%) men and 17 (53.1%) women, were identified inside the TLFB-28 zero group (Figure 4). None of these subjects reported drinking alcohol beverages in the QF measure. Of the potential heavy or binge drinkers, 13 (40.6%) were at least monthly drinkers, 15 (46.9%) were less than monthly drinkers and 4 (12.5%) were non-lifetime abstainers comprising 31.0%, 7.6% and 4.3% of the respective group. None of the lifelong abstainers were identified as possible heavy or binge drinkers. However, 13 (10.4%) subjects in this group had an AUDIT score of more than zero (range 1-4). In the AUDIT, 10 (76.9%) of these 13 subjects reported drinking alcohol beverages once a month or less frequently, which is inconsistent with the self-reported lifelong abstinence.

Figure 5 summarises the drinking habits of subjects in the TLFB-28 zero group with a complete AUDIT data and complete answers to the question "Do you ever even occasionally consume any alcohol beverage (e.g. beer, wine, spirits?" [n=463/479 (96.7%)], of them 164 men and 299 women. Moderate drinkers were subjects reporting alcohol use at least monthly or less than monthly with no criteria for heavy or binge drinking. Potential heavy or binge drinkers formed their own group. The rest of the subjects were defined as abstinent (non-lifetime abstainers and lifetime abstainers).

DISCUSSION

According to this study people who reported no alcohol

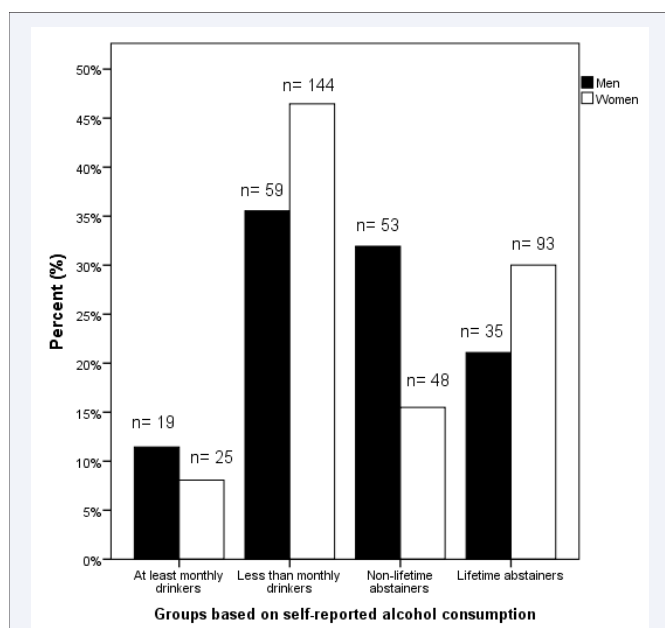


Figure 3 Self-reported alcohol consumption among men and women with a zero score in the TLFB-28.

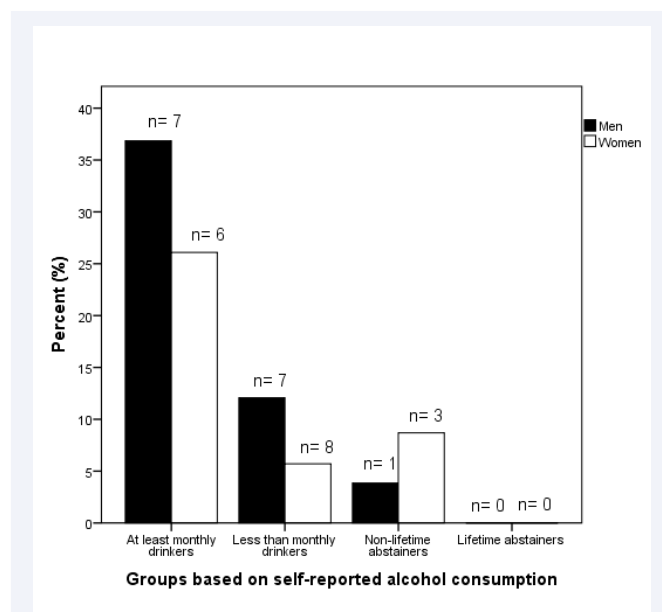


Figure 4 Prevalence of the potential male and female binge and heavy drinkers with a zero score in the TLFB-28 inside different groups based on self-reported alcohol consumption.

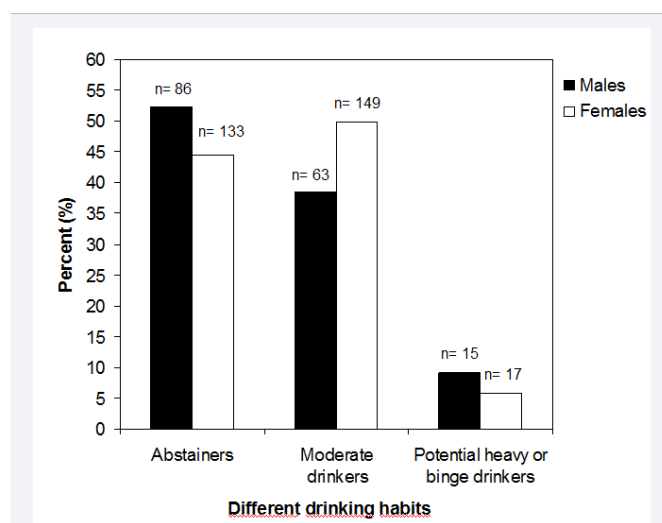


Figure 5 Drinking habits among men and women with a zero score in the TLFB-28.

drinking in the TLFB-28 interview were a heterogeneous group when assessing longer-term alcohol drinking habits. A large proportion of them were current abstainers with or without previous alcohol consumption in life. Nevertheless, approximately half of the subjects with a zero score in TLFB-28 reported drinking alcohol. Most of these subjects could be described as moderate drinkers. The vast majority of them drank alcohol less than monthly and a minority reported drinking alcohol at least once a month. However, also possible binge or heavy drinkers could be identified among drinkers and non-lifetime abstainers.

The strength of the present study is that FINRISK is a large national survey with a reasonably high response rate. It covers

well the Finnish adult population excluding only young adults (< 25 years) and elderly people over 74 years. Principals of anonymity and confidentiality were followed. These two factors are considered important to enhance the validity of alcohol self-report [20]. The possibility of selection bias (willingness to take part in the study) and respondent characteristics affecting the accuracy of self-reports are always a problem specifically when alcohol is concerned [21]. However, this problem is probably smaller when the target group is formed of abstainers as compared to heavy drinkers.

To have a zero score in the TLFB-28 seemed to be more common among women than men in all the 10-year age groups. The prevalence of a zero result in the TLFB-28 was bigger in older age-groups among both sexes. In the Finbalt survey, which was carried out in Estonia and Finland in 1994-2006, the highest proportion of current abstainers was also found in the older age groups and women were more likely to be alcohol abstainers than men [4,7](Pärna et al., 2010), Huth et al. (2007) also reported that subjects with no alcohol consumption (defined in this study as at most 1 drink per month) were mostly elderly people with the median age of 66 years.

In the current study, a zero score in the TLFB-28 was more common in Northern Savonia than in the more urban Helsinki-Vantaa and Turku-Loimaa districts. This regional difference could especially be seen among women. A regional difference in alcohol consumption between urban and rural areas has also been reported in previous studies concerning Finnish population [22-24]. The difference between these areas can result from structural factors such as age distribution, socioeconomic status and level of education as well as cultural differences including religiousness. In Finland, adolescent alcohol abstinence is more prevalent in rural regions of Ostrobothnia where people are more religious than in the urban, more secularized area of Uusimaa [21]. Heavy drinking and binge drinking, however, are more common among urban Finnish men and women than among their rural counterparts [24].

The TLFB is generally considered to give more accurate estimates of alcohol consumption than QF measures which tend to result in greater underestimation of drinking [11,12,20]. However, some previous studies on outpatient population of alcohol abusers have found out that the absolute differences between certain types of QF measure and TLFB method are in fact small. This was also true in our study, where in the group of abstainers the results of the quantity-frequency (QF) measure were consistent with the results of the TLFB-28 interview. Similar findings have not previously been made in nonclinical, general population samples.

To the best of our knowledge there are no previous studies focusing specifically on how well the TLFB interview identifies alcohol abstinence. In the present study, a zero score in the TLFB-28 could not be considered a reliable measure to predict alcohol abstinence. Previously it has been suggested that a 90-day TLFB (TLFB-90) provides a more representative picture of drinking habits. This suggestion seems plausible when considering the results of our study. Our study shows that complementary methods such as the AUDIT questionnaire and accessory questions on alcohol drinking are more sensitive in estimating

current alcohol drinking and abstaining. In fact, a single open question on ever drinking may be a feasible screen to identify teetotalers.

Our study suggests that researchers should be careful when selecting the baseline non-drinker group for group comparisons in scientific studies. A correct non-drinker group guarantees reliable results while studying for example alcohol use -related mortality of a population and while developing new markers to detect unhealthy alcohol use.

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