

Assessing heavy alcohol use and risky single occasion drinking using an alcohol biomarker among young Swiss men

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Presented at the 16th annual INEBRIA conference - International Network on Brief Interventions for Alcohol & Other Drugs, Lübeck | Hamburg, September 26-27, 2019

Background

- Excessive alcohol drinking :
 - a major health issue worldwide
 - 3 million deaths / around 5% of all deaths
 - 75% are men
 - affect mainly young people (20 to 39 years old) with mortality increasing up to 25%
 - 3rd leading risk factor for poor health
 - strong economic impact
 - huge societal consequences (e.g., suicides, violence, road traffic crashes, crime, victimization)

Background

- Highest level of alcohol use in European countries
 - alcohol use 50% higher than in the world population
 - even if this consumption is decreasing since 2005
 - decrease also in young people
- However, alcohol use in young people remains an important health issue
 - In Europe and in Switzerland

Background

- Especially for one specific harmful drinking pattern:
 - risky single occasion drinking (RSOD): drinking more than 6 units of alcohol at a single occasion for men
 - RSOD is very popular among young people in the world and in Switzerland
 - with more than 40% of young Swiss men reporting regular RSOD event during the last 12 months (at least monthly)
 - harmful drinking pattern likely to be maintained over a long period

Background

- Need of good indicators
 - at the population level
 - to monitor alcohol consumption
 - whole population
 - specific at-risk groups
- Reliability and validity of EtG (Ethyl glucuronide in hair) as an indicator for excessive chronic drinking
 - = average ethanol daily intake of 60 g
- long-term alcohol use biomarkers thanks to its long detection window
 - retrospective evaluation of alcohol use with an average of 1.1 ± 0.2 cm hair growth per month

Background

- Use of biomarkers as EtG at the population level not feasible
- Ideally: self-reported measures of alcohol use
 - offer critical information about alcohol consumption in large samples
- However: self-reported measures of alcohol consumption
 - largely criticized in the literature
 - → there is a need of investigating the reliability of self-reported measures compared to ethanol biomarkers to reinforce the usefulness of self-reported measures

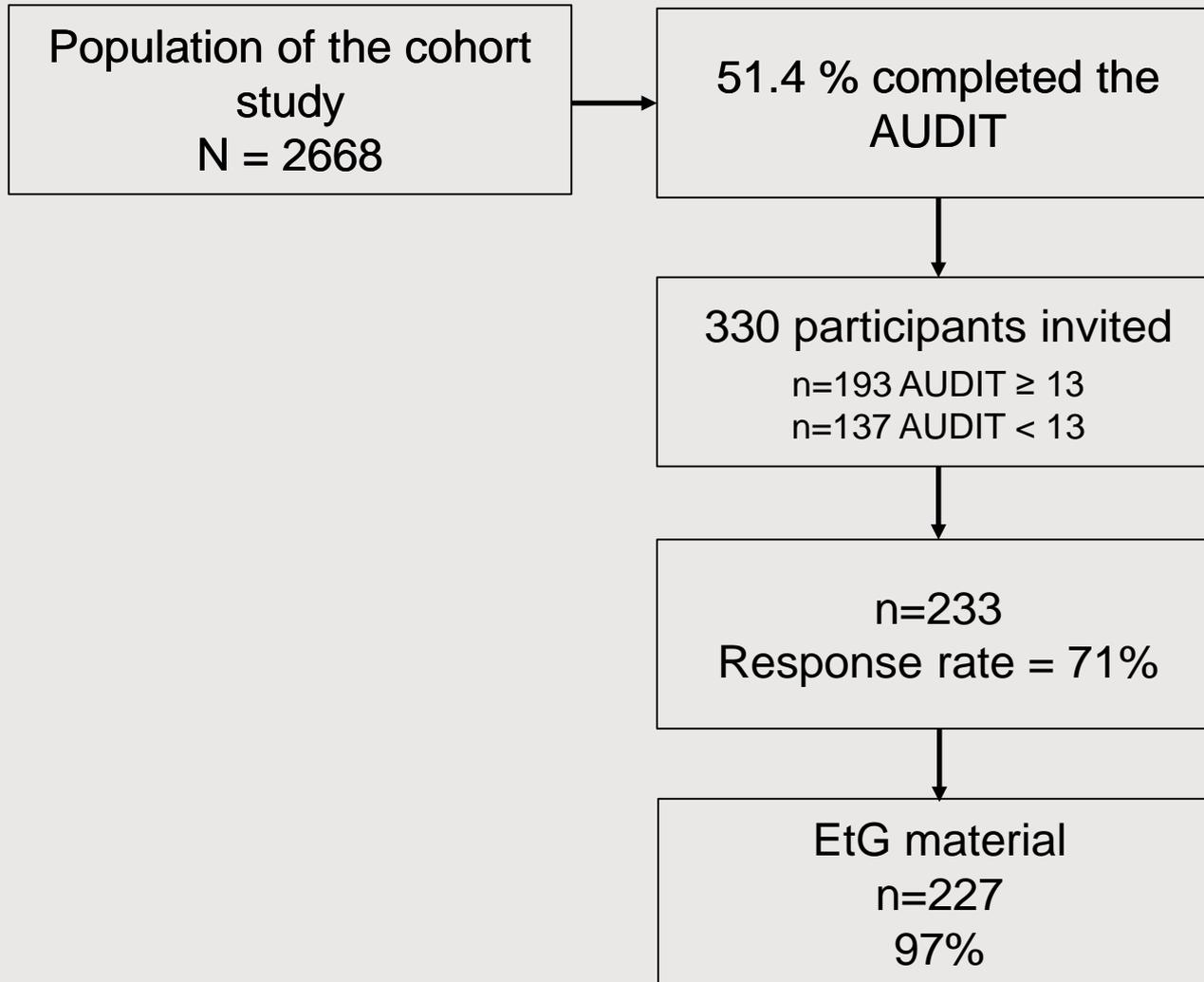
Aim

- To provide empirical evidence of self-reported alcohol use measures to assess excessive chronic drinking measured with an objective biomarker, EtG:
 1. evaluate the quality of:
 - two self-reported measures of alcohol use: previous twelve-month alcohol use and previous-week alcohol use
 - one measure of harmful drinking pattern: RSOD
 2. assess the usefulness of self-reported RSOD measure in predicting excessive chronic drinking
- This study was funded by the Swiss National Science Foundation (no. 10001C_173418/1).

SADYSM data

- **SADYSM: Screening for Alcohol Dependence among Young Swiss Men**
- **Design:** controlled cross-sectional study
- **Location:** Switzerland
- **Population:** French-speaking young Swiss men enrolled in a larger cohort study (Swiss Cohort Study on Substance Use and Risk Factors, C-SURF)
- **Sample:** random stratified sample

SADYSM data



AUDIT: Alcohol Use Disorder Identification Test

Measures

- **Gold standard:** biomarker of alcohol excessive chronic drinking: hair ethylglucuronide (EtG)
 - Excessive chronic drinking: 1: EtG \geq 30; 0: EtG < 30
- **Self-reported measures:**
 - **Twelve-month alcohol use.** The number of drinks per week is obtained multiplying average frequency of drinking and quantity of drinking.
 - **Previous-week alcohol use.** The number of drinks per week is obtained through a past-week diary of the number of drinks consumed for the previous seven days for each day of the week and different kinds of alcohol
 - **Risky single-occasion drinking.** "On the same occasion, how often do you drink six standard drinks or more?", 'never', 'less than monthly', 'monthly', 'weekly' and 'daily'.

Statistical analysis

- To assess the quality of self-reported alcohol use measures
 - Comparison of three self-reported measures against EtG with sensitivity and specificity
- To assess the usefulness of self-reported RSOD measure in predicting excessive chronic drinking
 - Univariate and multivariate logistic regressions

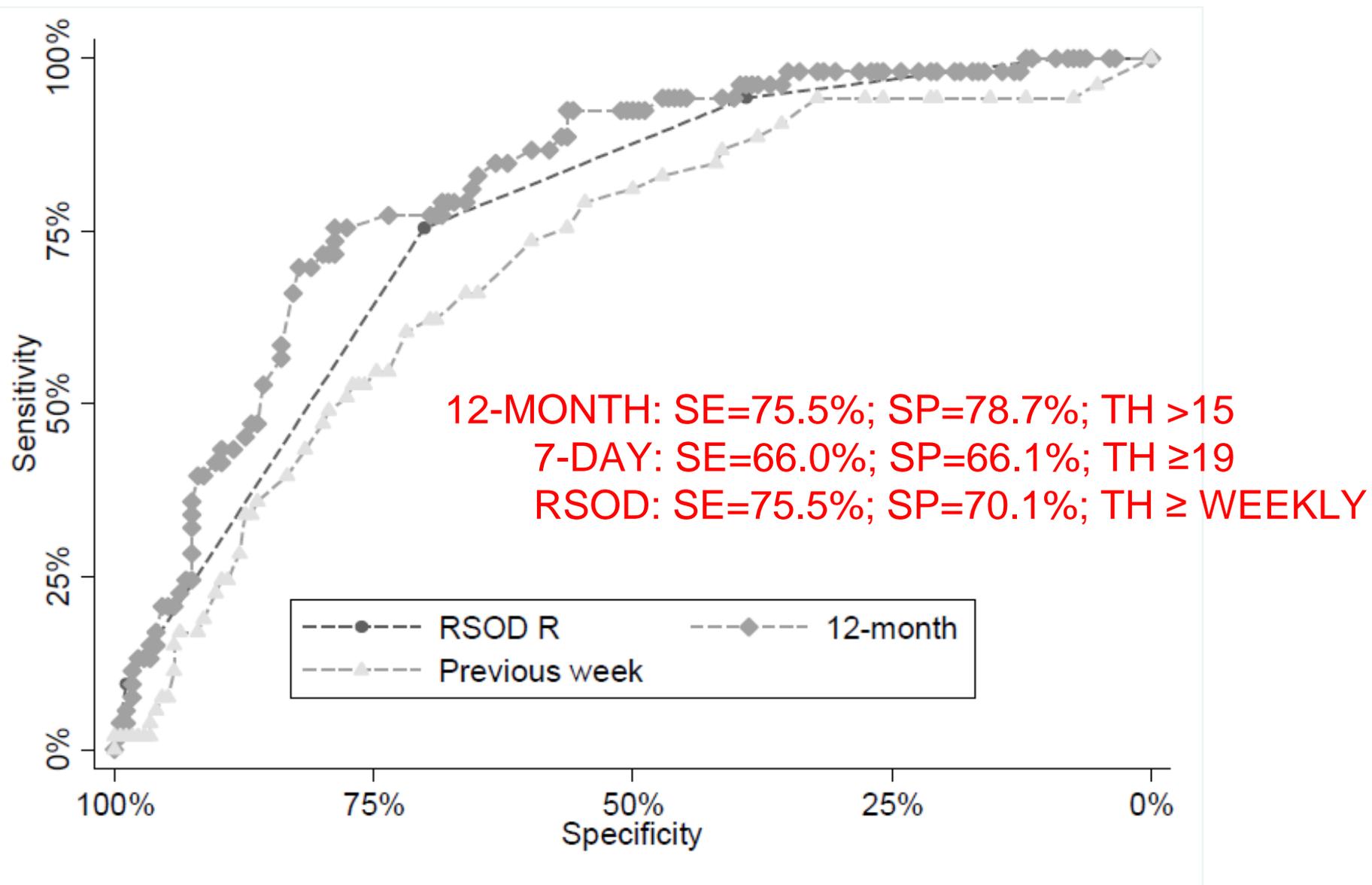
Results

Table 1: Self-reported measures of alcohol consumption and hEtG for the whole sample and by level of hEtG

	Whole (n=227, 100%)		hEtG<30 (n=174, 76.7%)		hEtG≥30 (n=53, 23.3%)		
	[min - max]	¹ mean +/- sd or % (n)	p50 [p25 ; p75]	mean +/- sd or % (n)	p50 [p25 ; p75]	mean +/- sd or % (n)	p50 [p25 ; p75]
RSOD							
Daily		3.1% (7)		1.1% (2)		9.4% (5)	
Weekly		34.4% (85)		28.7% (50)		66% (35)	
Monthly		28.2% (64)		31.0% (54)		18.9% (10)	
Less than monthly		24.2% (55)		29.9% (52)		5.7% (3)	
Never		7.1% (16)		9.2% (16)		0.0% (0)	
Twelve-month alcohol use	[0.4 - 91.0]	13.8 +/- 13.6	11.5 [4.7 ; 18.0]	10.9 +/- 11.1	9.1 [3.5 ; 14.5]	23.3 +/- 16.5	18.5 [15.0 ; 24.0]
Previous-week alcohol use	[0 - 153]	19.0 +/- 17.0	16.0 [7.0 ; 28.0]	16.5 +/- 14.3	13.5 [5 ; 23]	27.4 +/- 21.7	26.0 [16.0 ; 34.0]
AUDIT	[1 - 31]	12.9 +/- 6.2	14.0 [8.0 ; 16.0]	11.7 +/- 5.9	13.0 [6.0 ; 15.0]	17.0 +/- 5.7	16.0 [14.0 ; 19.0]
hEtG	[0 - 691]	24.0 +/- 53.8	10.0 [2.8 ; 28]	8.4 +/- 7.8	5.2 [2.8 ; 13.0]	75.3 +/- 94.1	53.0 [37.0 ; 70.0]

¹: mean +/- sd for quantitative variables and % (n) for categorical variables; sd: standard deviation; p50: median; p25: first quartile; p75: third quartile; RSOD: Risky single-occasion drinking; AUDIT: Alcohol Use Disorder Identification Test; hEtG: ethyl glucuronide in hair

Figure 1: A comparison of the diagnostic performance of the self-reported measures in detecting heavy alcohol consumption (>60 g/day) using ROC curve analysis. AUROC, area under the receiver operating characteristics curve



RSOD R: Risky single-occasion drinking Reversed; Previous week: Previous use alcohol use; 12-month: Twelve-month alcohol use.

Results

Outcome: Excessive chronic drinking: 1: EtG \geq 30; 0: EtG < 30

	Univariate				Multivariate			
	OR	95% IC	p-val	pseudo R2	OR	95% IC	p-val	pseudo R2
Twelve-month alcohol use	10.65	[5.18; 21.88]	<0.001	19.92%	5.79	[2.46; 13.61]	<0.001	22.38%
Previous-week alcohol use	3.79	[1.98; 7.25]	<0.001	6.96%	1.22	[0.55; 2.72]	0.630	
RSOD	7.22	[3.57; 14.61]	<0.001	14.27%	2.68	[1.13; 6.34]	0.025	

Conclusion: alcohol use

- Self-reported measures of previous twelve-month alcohol use and RSOD are acceptable measures of excessive chronic drinking for population-based screening
- Self-reported alcohol use (twelve months) seems reliable for population-based assessments

Conclusion: RSOD

- Self-reported RSOD seems to be an interesting screening measure in addition to previous twelve-month to predict excessive chronic drinking among young people
- Future studies using biomarkers should also focus on drinking pattern which seems a promising indicator of chronic excessive drinking beyond alcohol consumption



Thank you for your attention

Any questions?