Cohort Study on Substance Use Risk Factors in Switzerland: opportunities and challenges for longitudinal substance use research

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Swiss National Science Foundation

Zürich, 17. Oktober 2016

Aims

- **Patterns and trajectories** of substance use and misuse from high normative use in adolescence into adulthood (-> late 20's/ early 30's
  - of alcohol, tobacco, illicit drugs, medications (including smart drugs, cognitive enhancer), gambling, gaming, internet use
- A lot of **developmental tasks, barriers and challenges** in this age period
- Accompanying **behaviours** (social and economic exposures and outcomes) and **consequences** (dependence, deviant behaviours, crime)
- **Risk** and **protective factors** (mental health, peers, social capital, family background); how to **prevent** or **treat** substance misuse, dependence, and consequences at different stages between late adolescence and emerging adulthood?

Background

- Alcohol use alone is **No. 1 risk factor for morbidity and mortality** in adolescence and young adulthood
- Substance use (particularly alcohol and tobacco) is No 1 factor in **terms of DALYs in high income countries** like Switzerland (about as much as blood pressure, cholesterol, overweight and physical inactivity taken together)
- **60 – 70% of burden** of disease goes through **heavy use / dependence.**
- Heavy use / dependence **starts in late adolescence** and **aggravates through early adulthood**

The long(itudinal) way to ….. becoming adult

Early twens

- 19-21 years of age
- Finishing school, starting studies, apprenticeship
- Leaving the family
- High normative substance use level

Mid twens

- 25 years of age
- Toward end of education, job and employment start
- Stabilizing personal relationship
- Substance use gap starts (maturing out vs consolidation of heavy use)

Late twens

- 28-29 years of age
- Settling down
- Planning family
- Return to moderate use patterns vs chronicity of problems/treatment?

Initial funding, first 4 years

Baseline and 1st follow-up after 15 months

Accepted Call 2013

2nd follow-up after 6 years

Continued future funding

3rd follow-up after 9-10 years

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We are different

Characteristics	Most previous studies	CSURF
Design	Cross-sectional	Longitudinal
Scale	Small	Large
Location	North America	CH / EUROPE
Age	Teenagers	Emerging Adulthood
Representativity	College students	National sample

Sample: 21 of 26 cantons

Sampling in 3 army recruitment centers

98% of Swiss men go through -> no selectivit

2010 -2011

- 6'000 informed consents and **baseline** measures
- 94% **filled in screener**; co
  consent vs. non-cons

2012 - 2013

- **91.5% f**

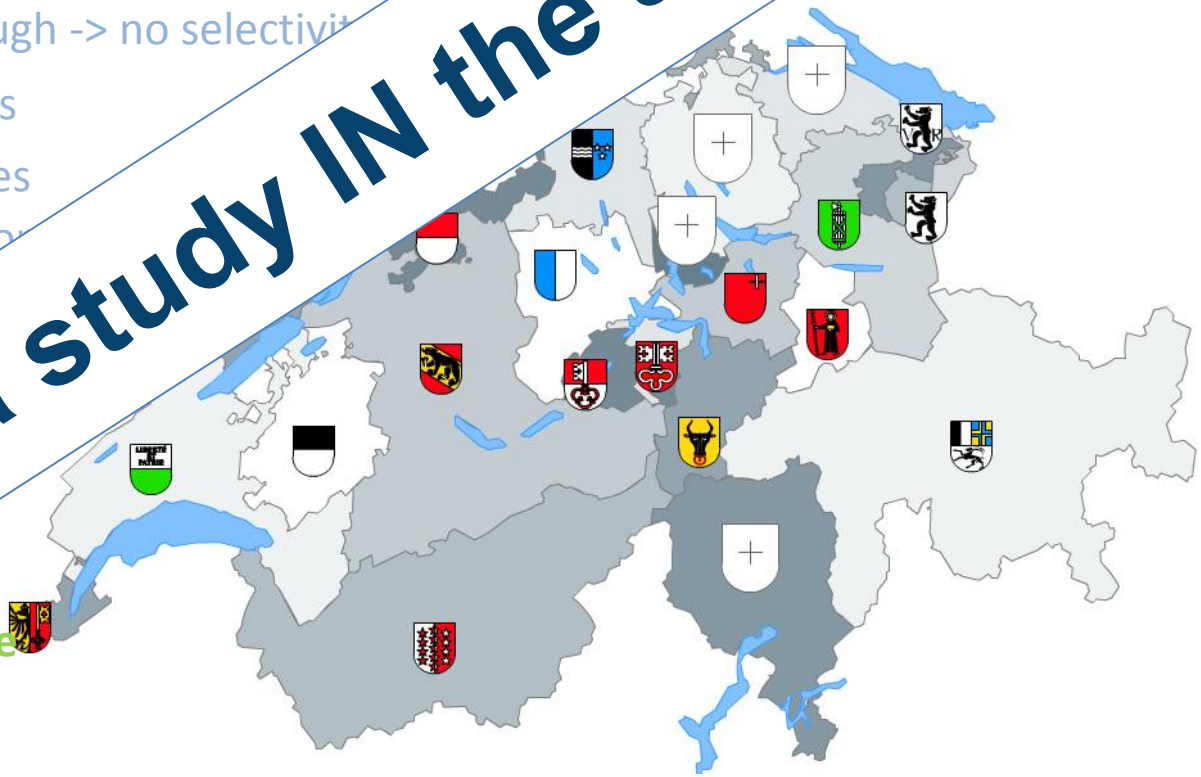
T ion 3rd wave

Age 25

- **funding for further follow-ups**

Age 30

It is NOT a study IN the army



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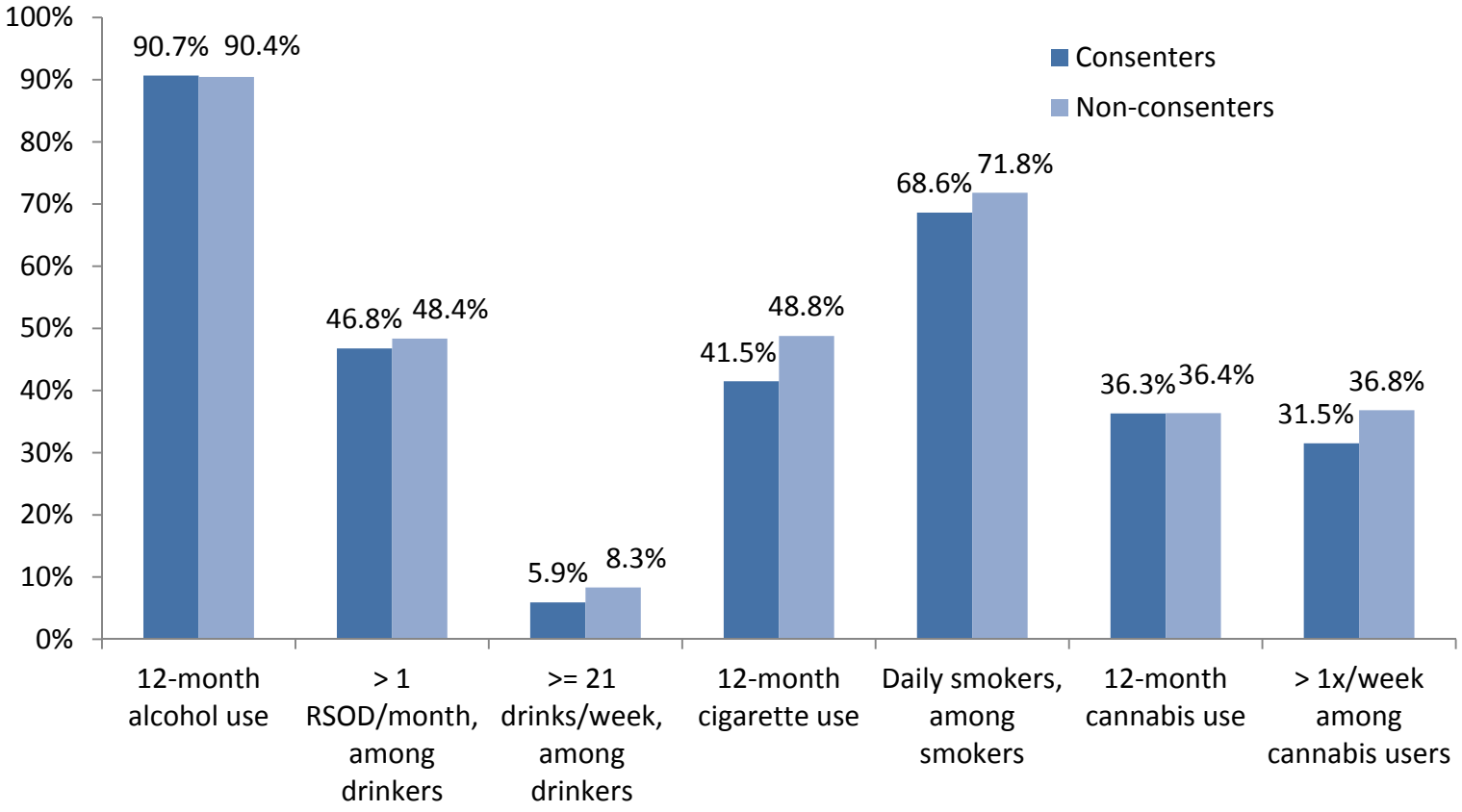
Need for Informed Consent in Substance Use Studies—Harm of Bias?

JOSEPH STUDER, PH.D.,[a,*] MEICHUN MOHLER-KUO, PH.D.,[b] PETRA DERMOTA, M.S.,[b] JACQUES GAUME, PH.D.,[a,c] NICOLAS BERTHOLET, M.D.,[a] CHARLOTTE EIDENBENZ, M.A.,[a] JEAN-BERNARD DAEPPEN, M.D.,[a] AND GERHARD GMEL, PH.D.[a,d,e,f]



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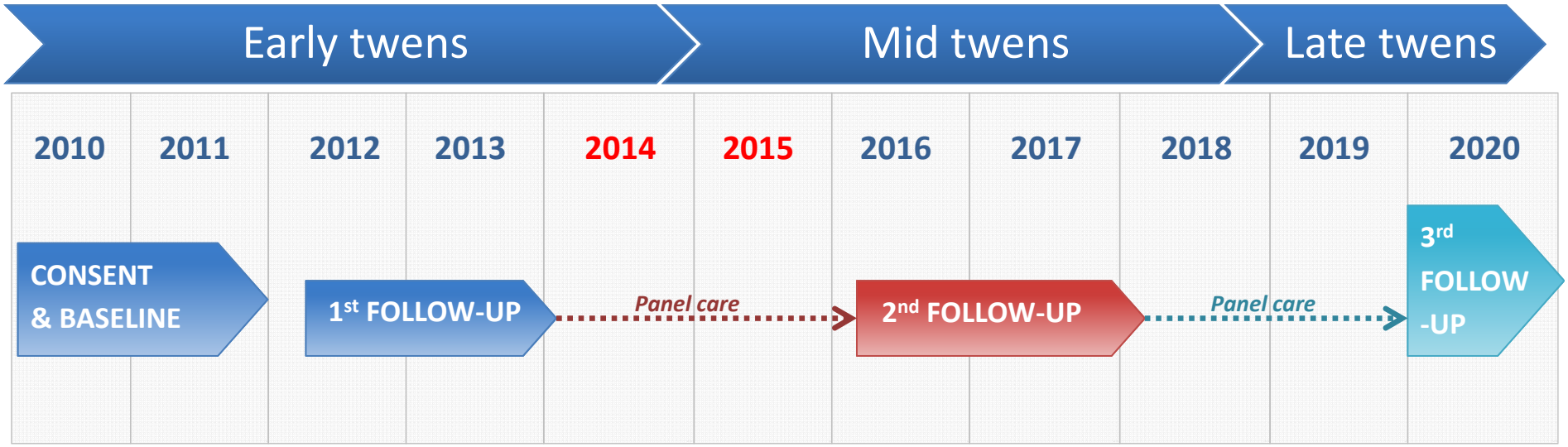
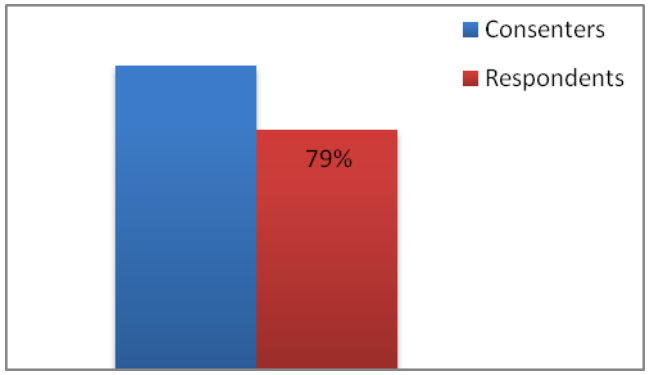
PROJECT PLAN: BASELINE





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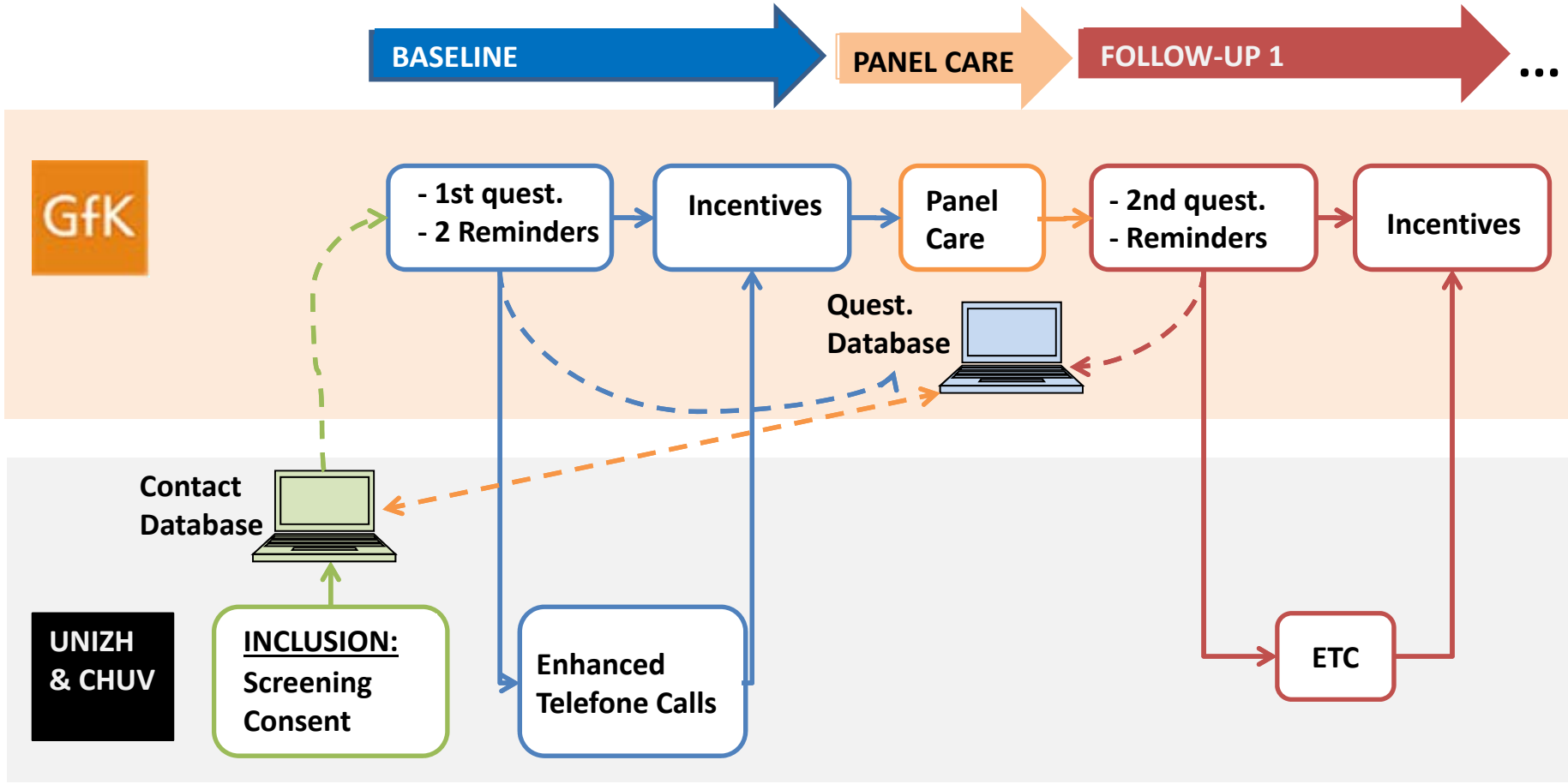
Process



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~~Motivational Telefone Interviews~~
= Enhanced Telefone Calls

up to 6 months!

MTI 1 → ETC 2 → ETC 3

12 C-SURF Interviewers:

- ✓ **1-day training with Motivational Intervention Expert Cristiana Fortini**
- ✓ **Weekly supervision : role playing on the basis of experienced situations**

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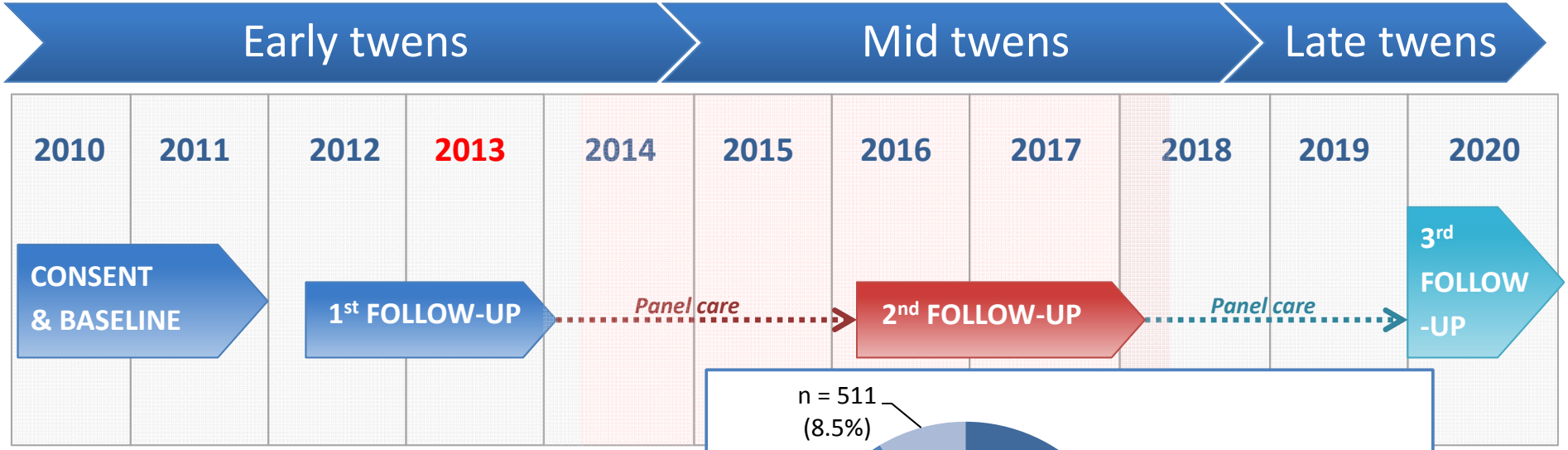
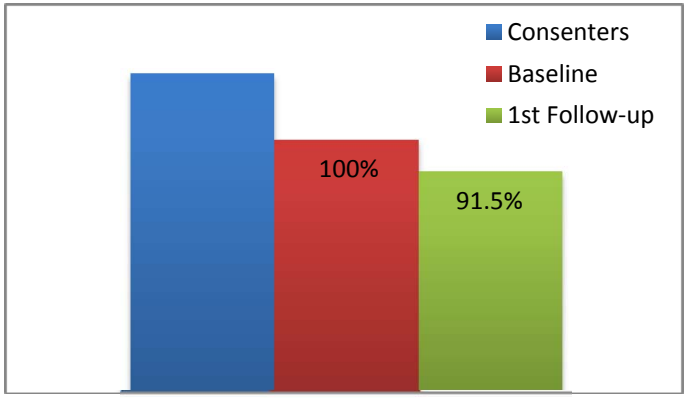
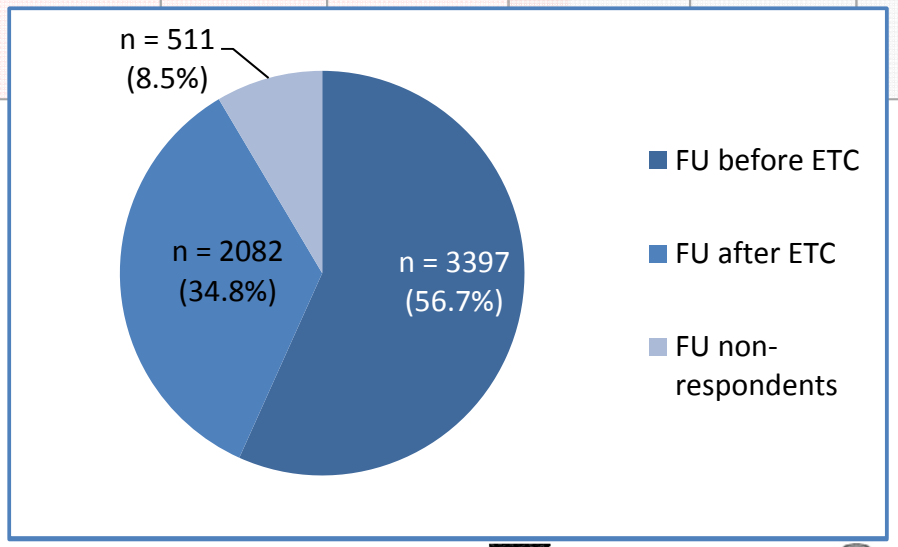
Enhanced Telefone Calls

Questions	Objective
What do you remember about C>SURF at the recruitment center?	Remind the context, start from the participant's own perception of C>SURF, correct if needed
What motivated you to get involved?	Encourage participants to carry on on the basis of their own decision to sign up
How come you didn't reply to the questionnaire ?	Remind the logics : after their consent comes their participation
How much time do you need to reply?	Invite participants to further commit themselves
Thank you, your participation helps us	The participants feel useful and therefore committed
If we don't hear about till then, we'll get back in touch to see what happened & how we can help	Show how important their participation is for us

PROJECT PLAN: FOLLOW-UP







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Drug and Alcohol Dependence 132 (2013) 316–323

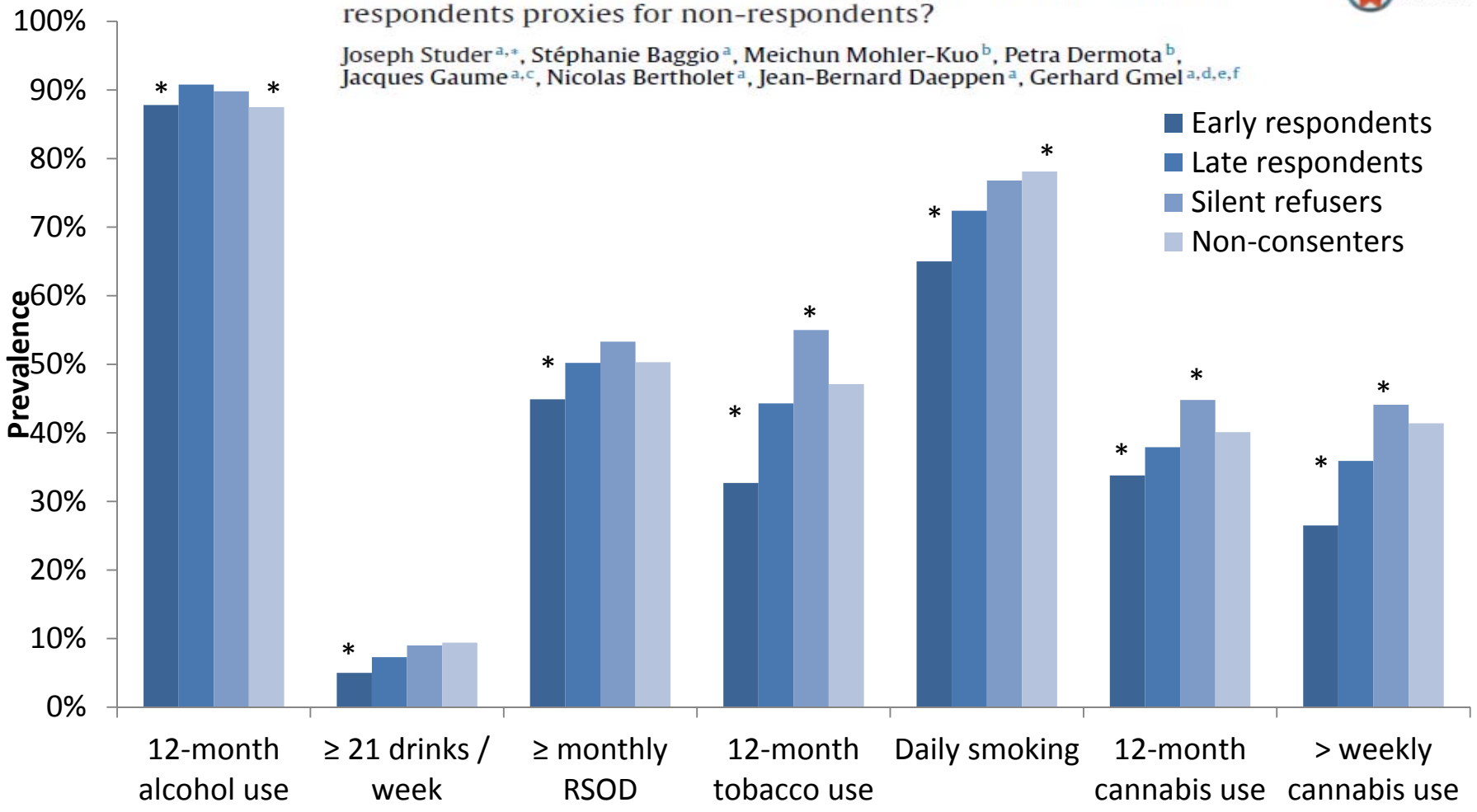
Contents lists available at ScienceDirect

Drug and Alcohol Dependence

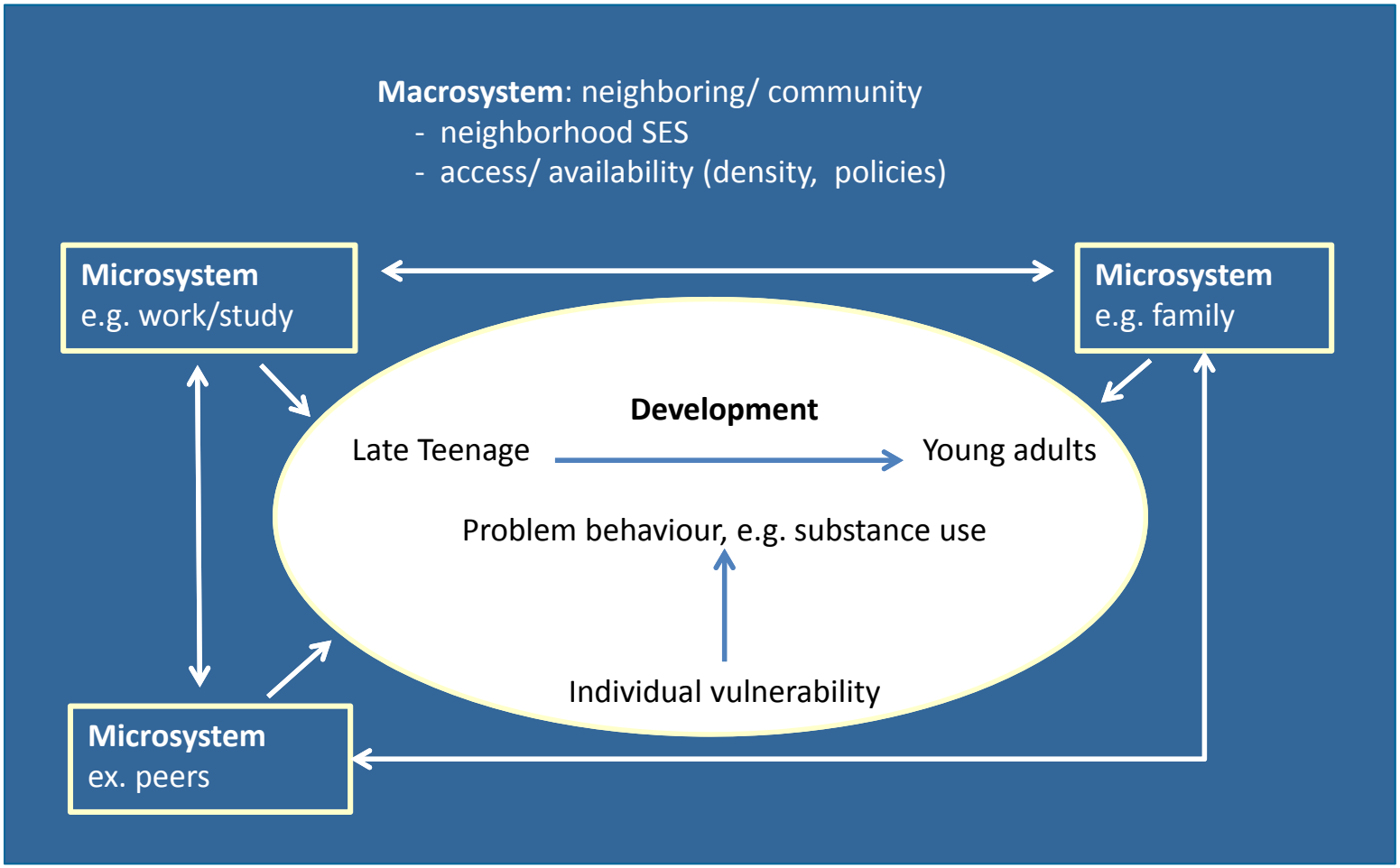
journal homepage: www.elsevier.com/locate/drugalcdep

Examining non-response bias in substance use research—Are late respondents proxies for non-respondents?

Joseph Studer[a,*], Stéphanie Baggio[a], Meichun Mohler-Kuo[b], Petra Dermota[b], Jacques Gaume[a,c], Nicolas Bertholet[a], Jean-Bernard Daeppen[a], Gerhard Gmel[a,d,e,f]



Developmental social context model



Example macrosystem: neibourhood/ community

Federal or cantonal registry data based on communities:

SES
Bar and pub density
hospitisations
etc.

Questionnaire data
Neighborhood social cohesion scales (Stafford et al., 2003).

e.g.: In my neighborhood, people **do not react when they see** children **vandalize**

Examples of publications:

- Foster, S., Held, L., Estévez, N., **Gmel, G.**, Mohler-Kuo, M. (2015). Liberal alcohol legislation: Does it amplify the effects among Swiss men of person-related risk factors on heavy alcohol use? *Addiction,* 110(11), 1746-1756. doi:10.1111/add.13032.
- Astudillo, M., Kuendig, H., Centeno-Gil, A.; Wicki, M., Gmel, G. (accepted). - Regional abundance of on-premise outlets and drinking patterns among Swiss young men: districts level analyses and geographic adjustments. *Drug and Alcohol Review*, 33(5), 526-533. doi: 10.1111/dar.12149

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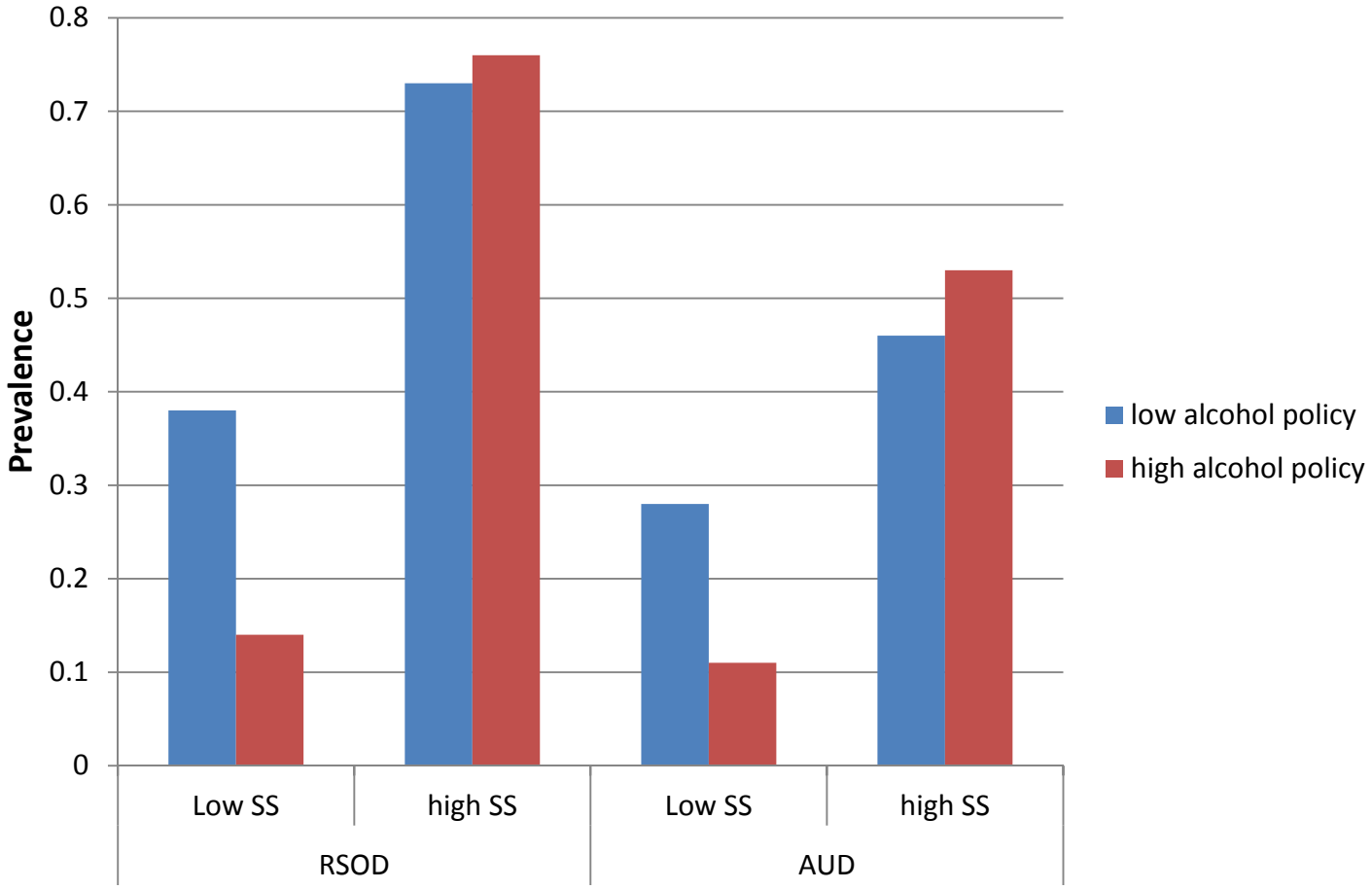
Alcohol policy and sensation seeking (and ASPD)



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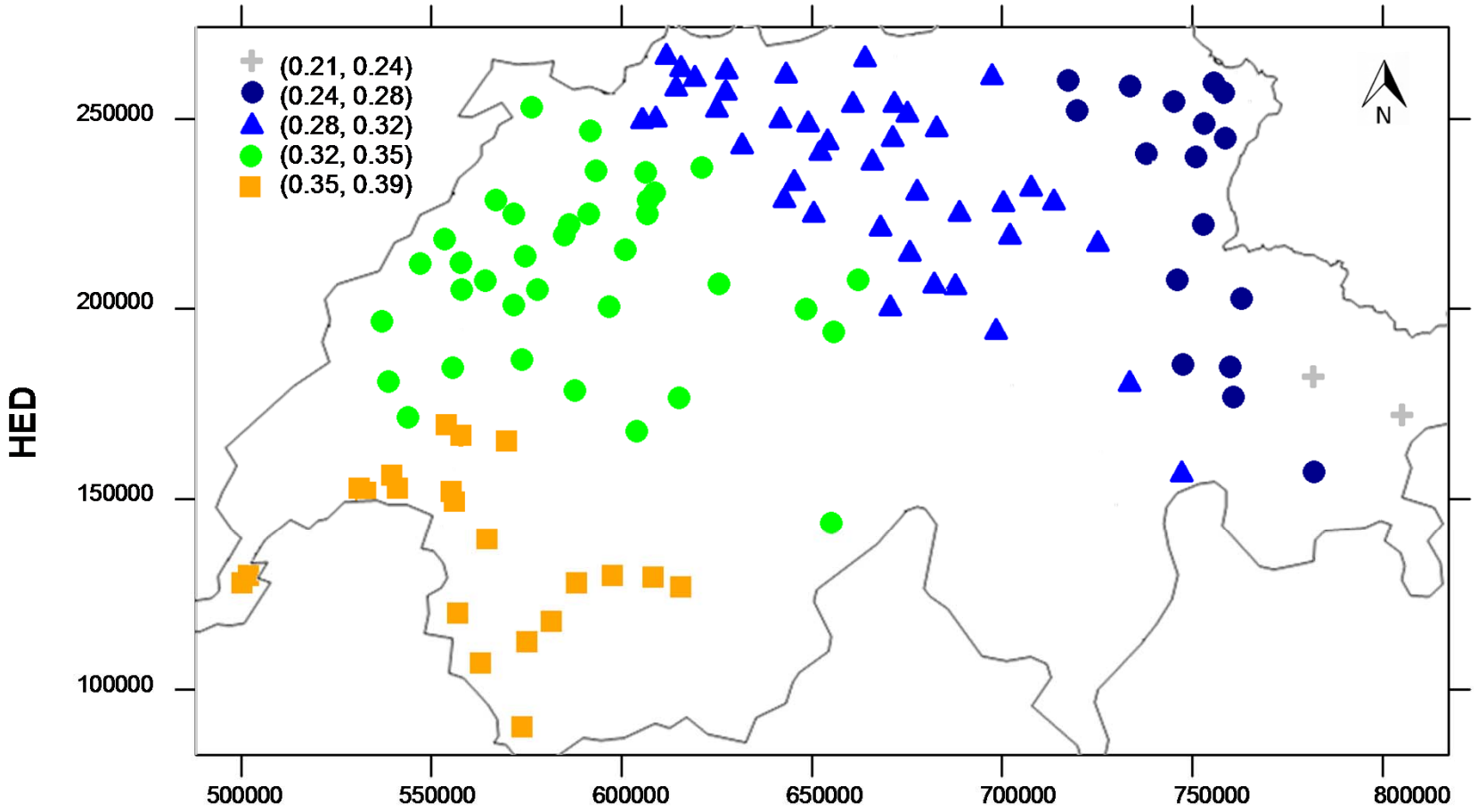
Geographically weighted regression: effect sizes of the on-premise-HED link



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Article

JHP

Journal of Health Psychology
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DOI: 10.1177/1359105314524010
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SAGE

Validation of French and German versions of a Perceived Neighborhood Social Cohesion Questionnaire among young Swiss males, and its relationship with substance use

Marc Dupuis[1,2], Joseph Studer[2], Yves Henchoz[2], Stéphane Deline[2], Stéphanie Baggio[1,2], Alexandra N'Goran[2], Meichun Mohler-Kuo[3] and Gerhard Gmel[2,4,5,6]

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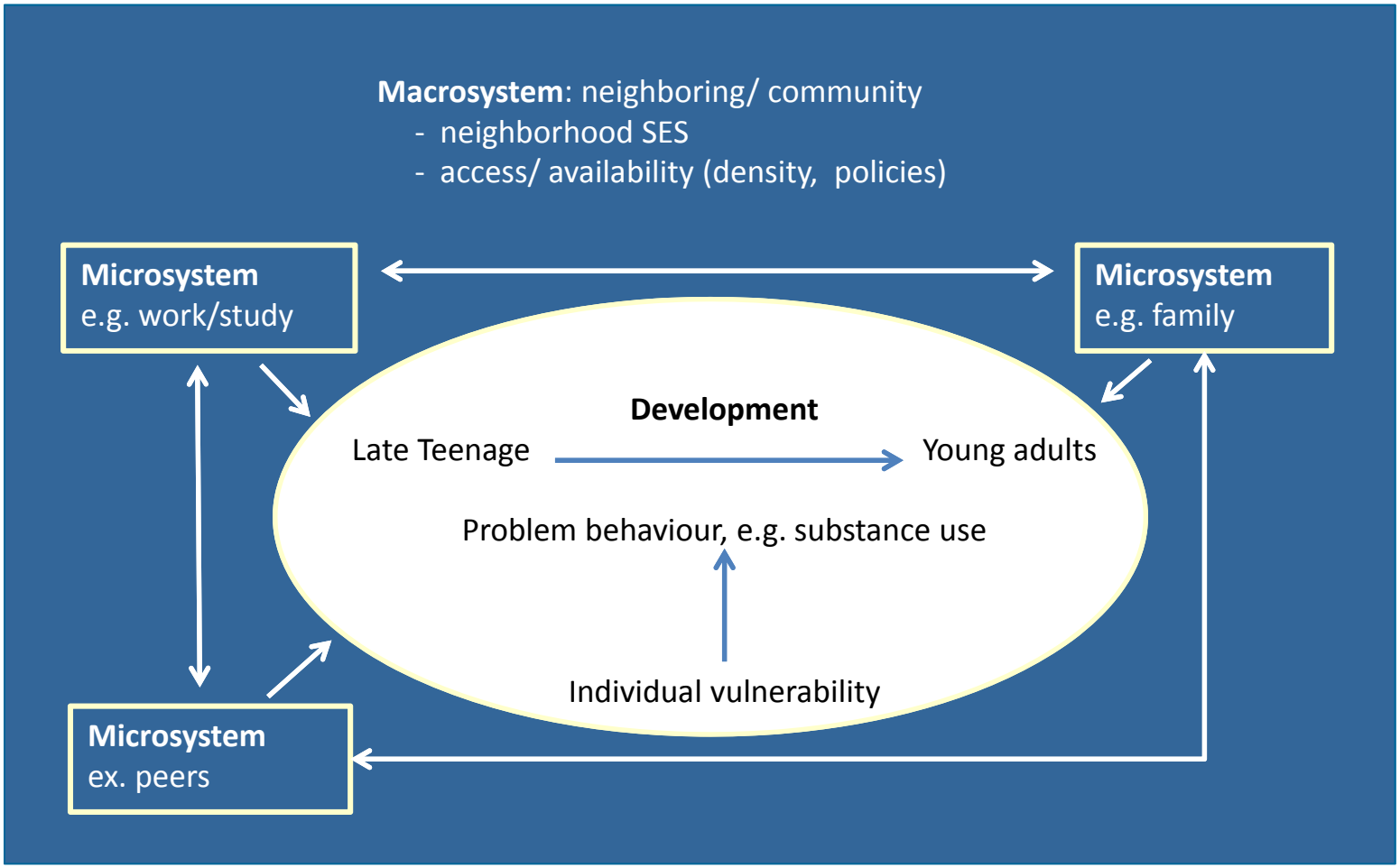
Developmental social context model



Example microsystem: family and work

- Past
  - Family history (WHO-Assist)
  - Parental situation (biological parents, etc.; AUDADIS IV), financial and educational situation
  - Relation with parents now and in the past (ESPAD)
  - Active parenting

- Future
  - Settling down
  - Getting married/divorced
  - Becoming a father
  - Developing a professional career
  - Job and life satisfaction (GJS, Macdonald and MacIntyre, 1997; Swiss Labour Force & Health Survey)

Examples of publications:

- Steiner, S, Schori, D., Gmel, G. (2014). Excessive alcohol consumption in young men: is there an association with their earlier family situation? A baseline-analysis of the C-SURF-study (Cohort Study on Substance Use Risk Factors)
  Swiss Medical Weekly, 144: w14007. doi:10.4414/smw.2014.14007.

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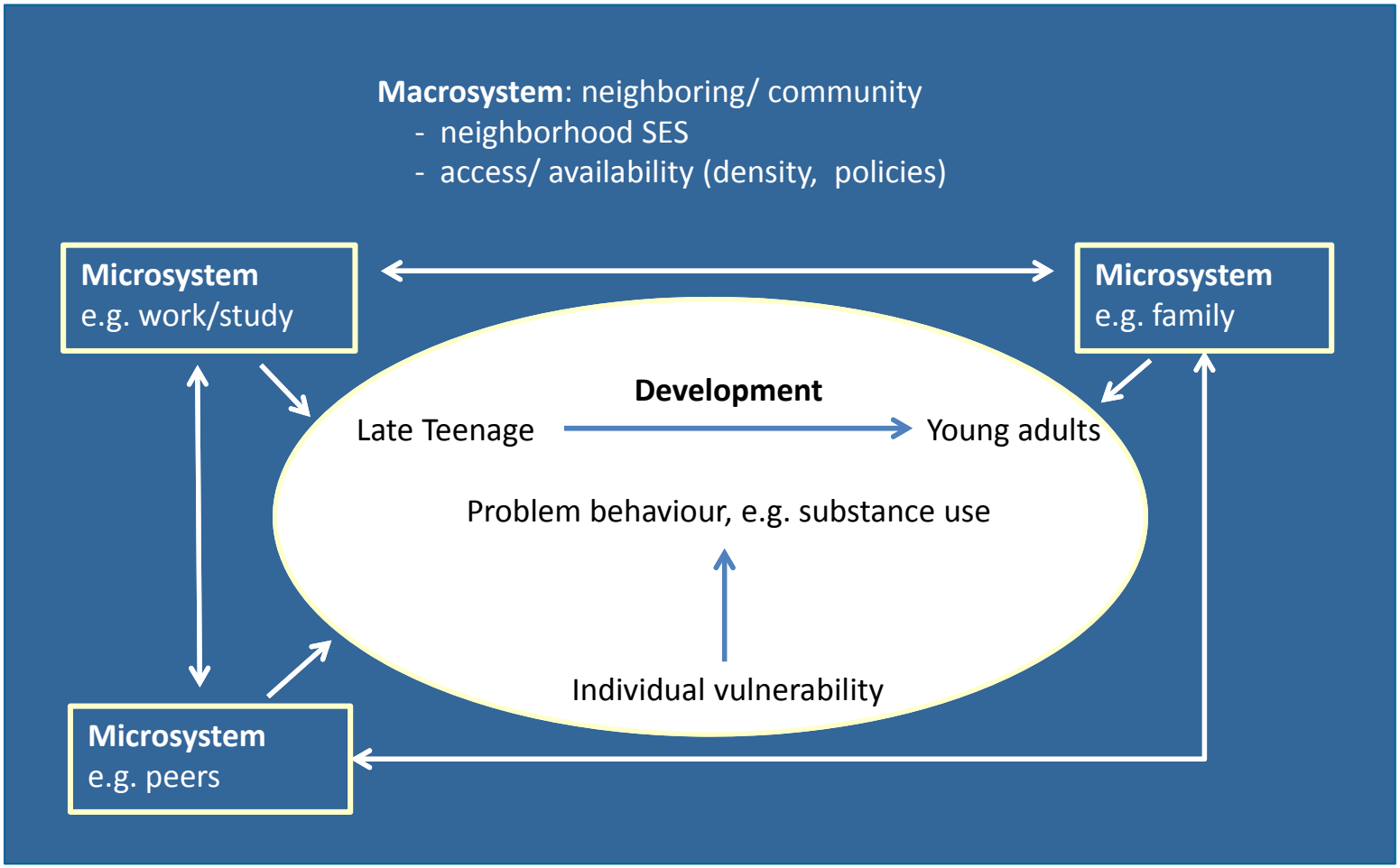
Family factors and alcohol use

Table 2: Unadjusted and adjusted models for RSOD.				
		adjusted		
Exposures		OR	95% CI	p-Value
Single parent family	yes vs no	0.94	(0.82–1.07)	0.344
Parental drug or alcohol problem	yes vs no	1.24	(0.99–1.56)	0.059
Parenting	per increase scale 0 – 16	0.94	(0.93–0.96)	<0.001

Table 3: Unadjusted and adjusted models for volume drinking.				
		adjusted		
Exposures		OR	95% CI	p-Value
Single parent family	yes vs no	1.09	(0.84–1.40)	0.527
Parental drug or alcohol problem	yes vs no	1.86	(1.30–2.66)	<0.001
Parenting	per increase scale 0 – 16	0.92	(0.89–0.95)	<0.001

Developmental social context model



Examples: Individual vulnerability

- Anti-Social Personality (ASPD; WHO-Assist)
- Attention deficit hyperactivity (ADHD; Adult Self-Report Scale ASRS-v1.1)
- Personality (neuroticism, sociability; Zuckerman Kuhlman ZKPQ-50)
- Sensation seeking (BSSS)
- Depression (WHO-MDI)

- Physical activity (IPAQ)
- Posttraumatic Diagnostic Scale (Foa et al., 1997)
- Behavioral inhibition/activation Scale (BIS-BAS)
- Sexual dysfunctioning (IIEF-5)
- Physical and mental health (SF-12)
- etc.

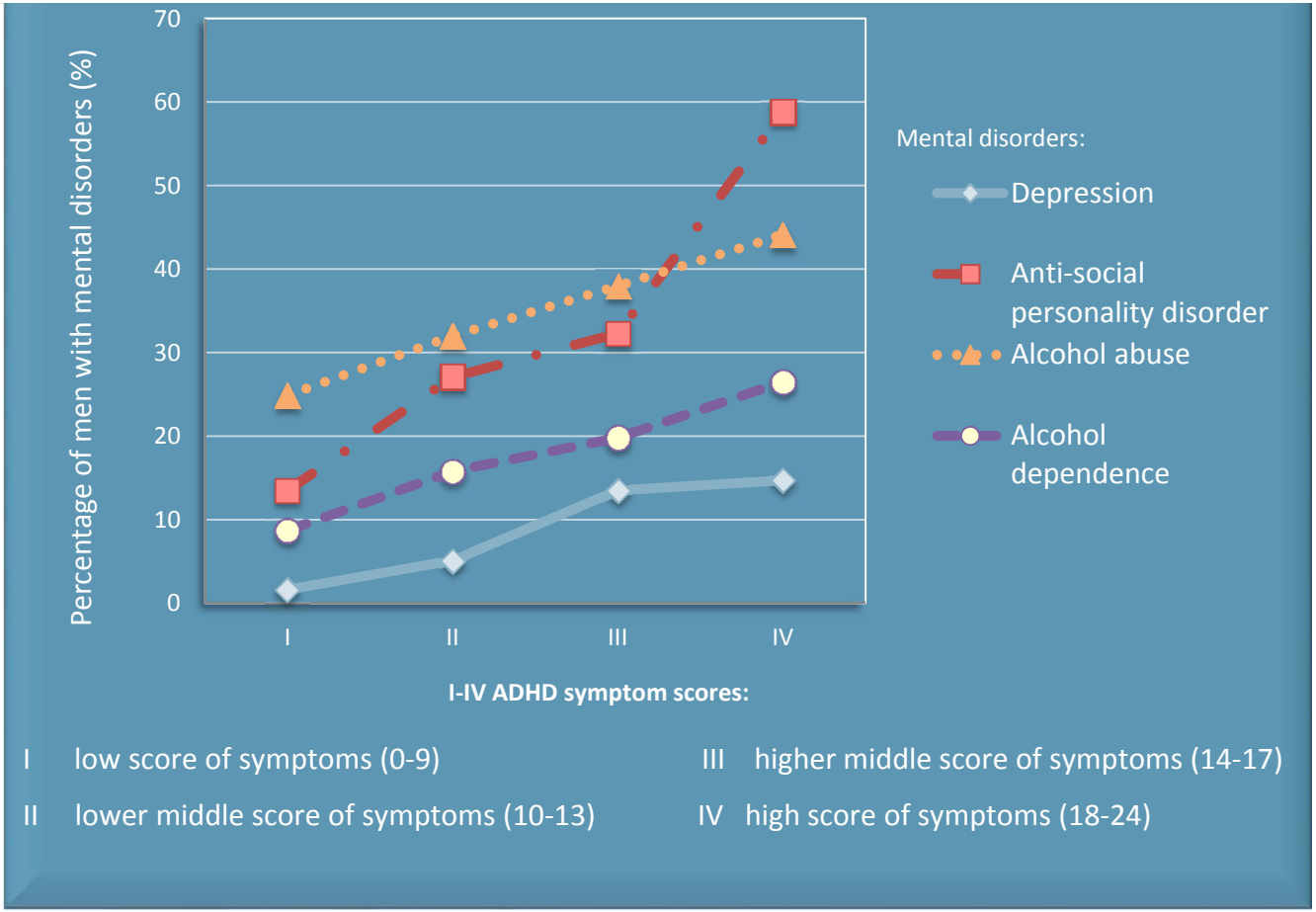
Examples of current publications: around 40

OPEN ACCESS Freely available online

PLOS ONE

Prevalence of and Associated Factors for Adult Attention Deficit Hyperactivity Disorder in Young Swiss Men

Natalia Estévez[1,2*], Dominique Eich-Höchli[3], Michelle Dey[1], Gerhard Gmel[4], Joseph Studer[4], Meichun Mohler-Kuo[1]



I low score of symptoms (0-9)

II lower middle score of symptoms (10-13)

III higher middle score of symptoms (14-17)

IV high score of symptoms (18-24)

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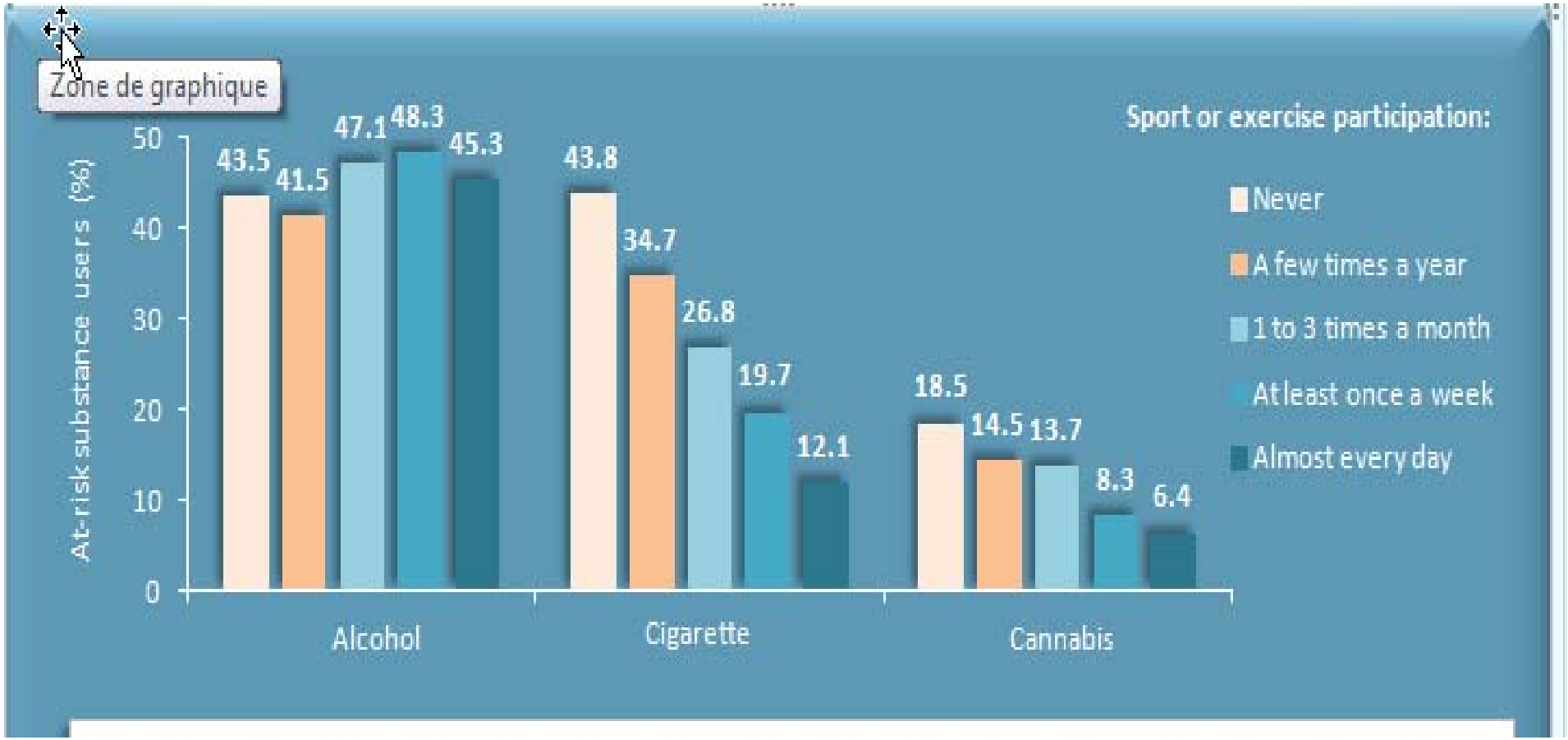
Sport exercise and substance use



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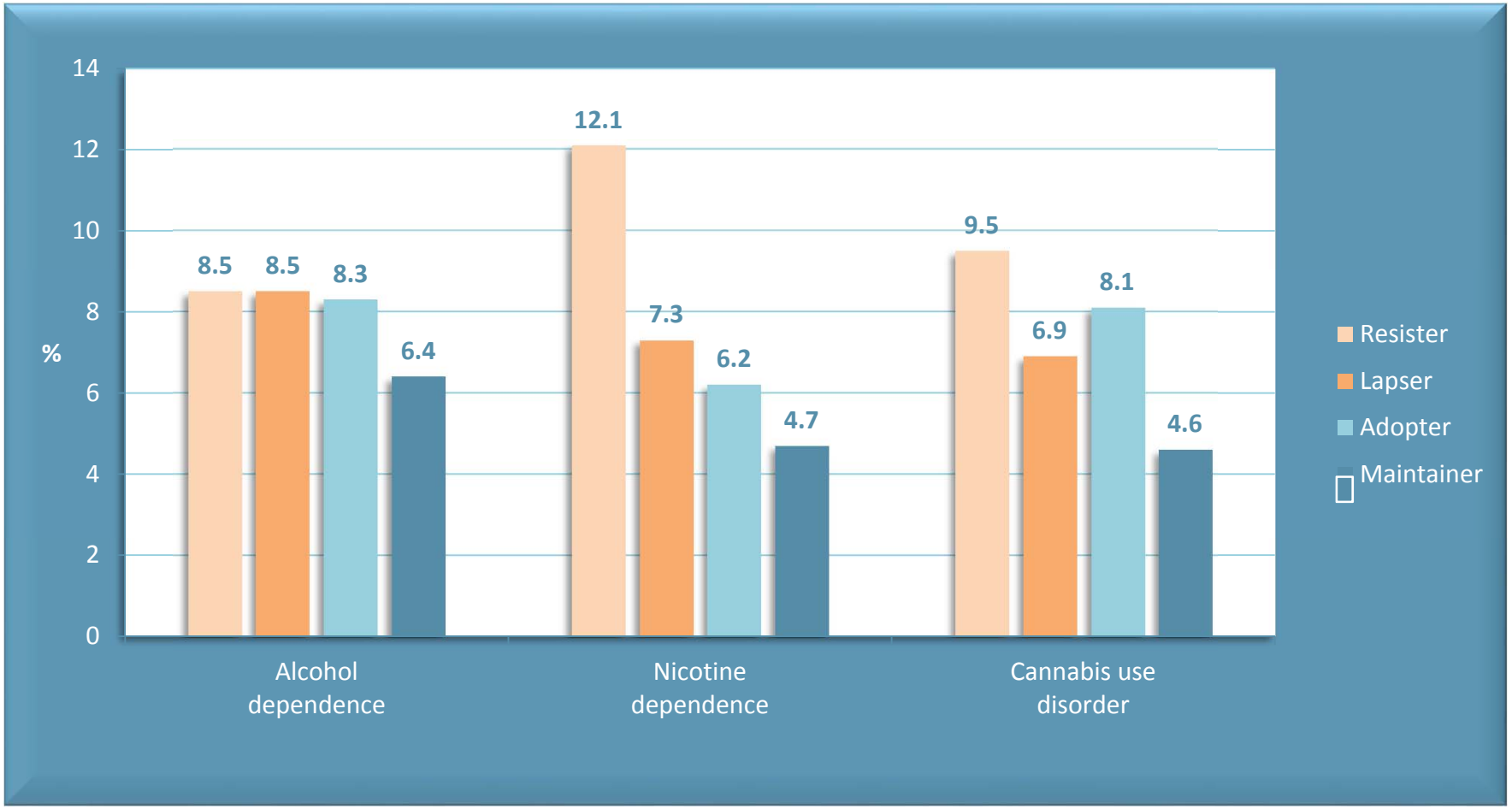
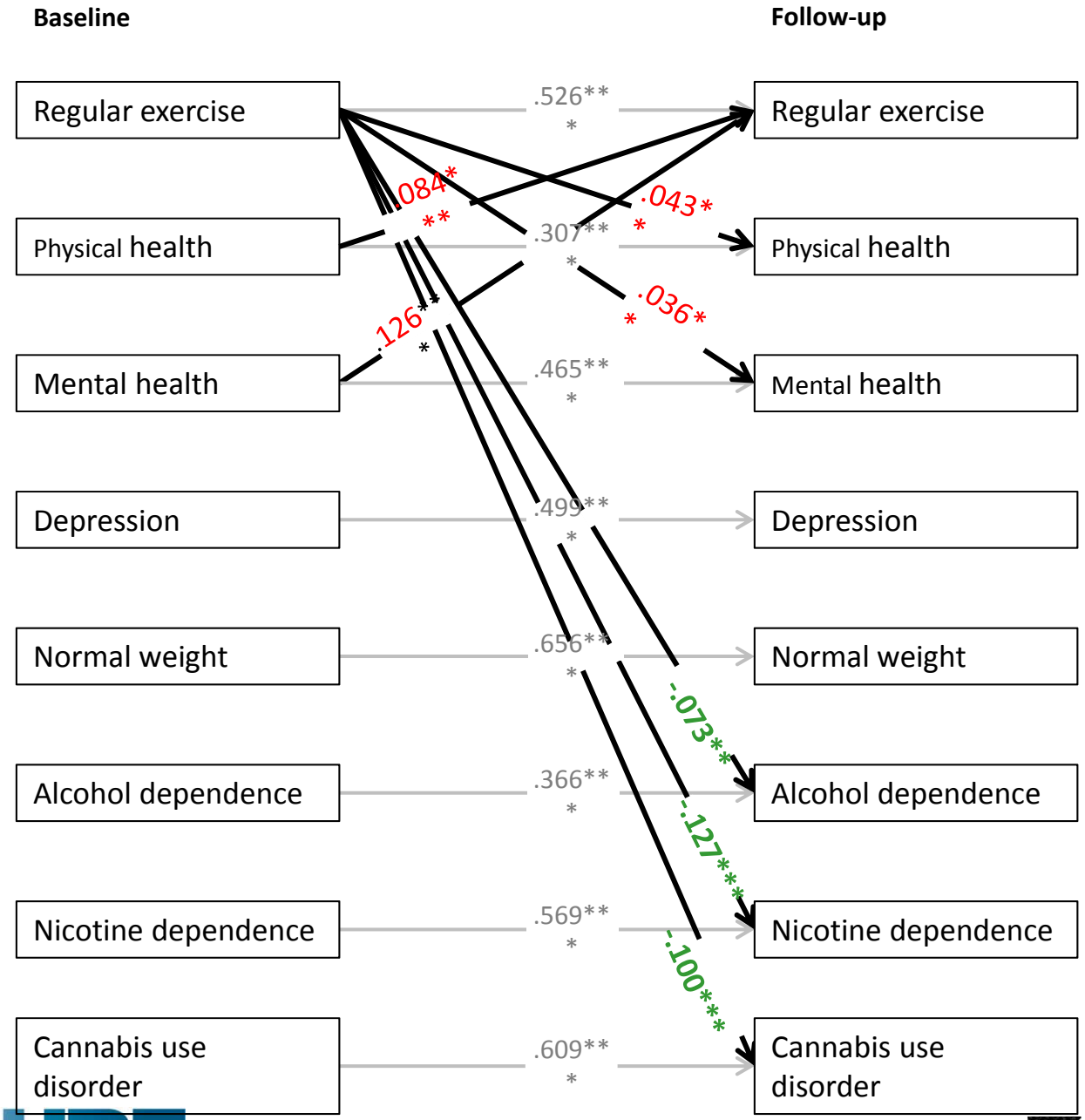
And sport longitudinally





Wiener-Granger-Causality

In cross-lagged panel models?

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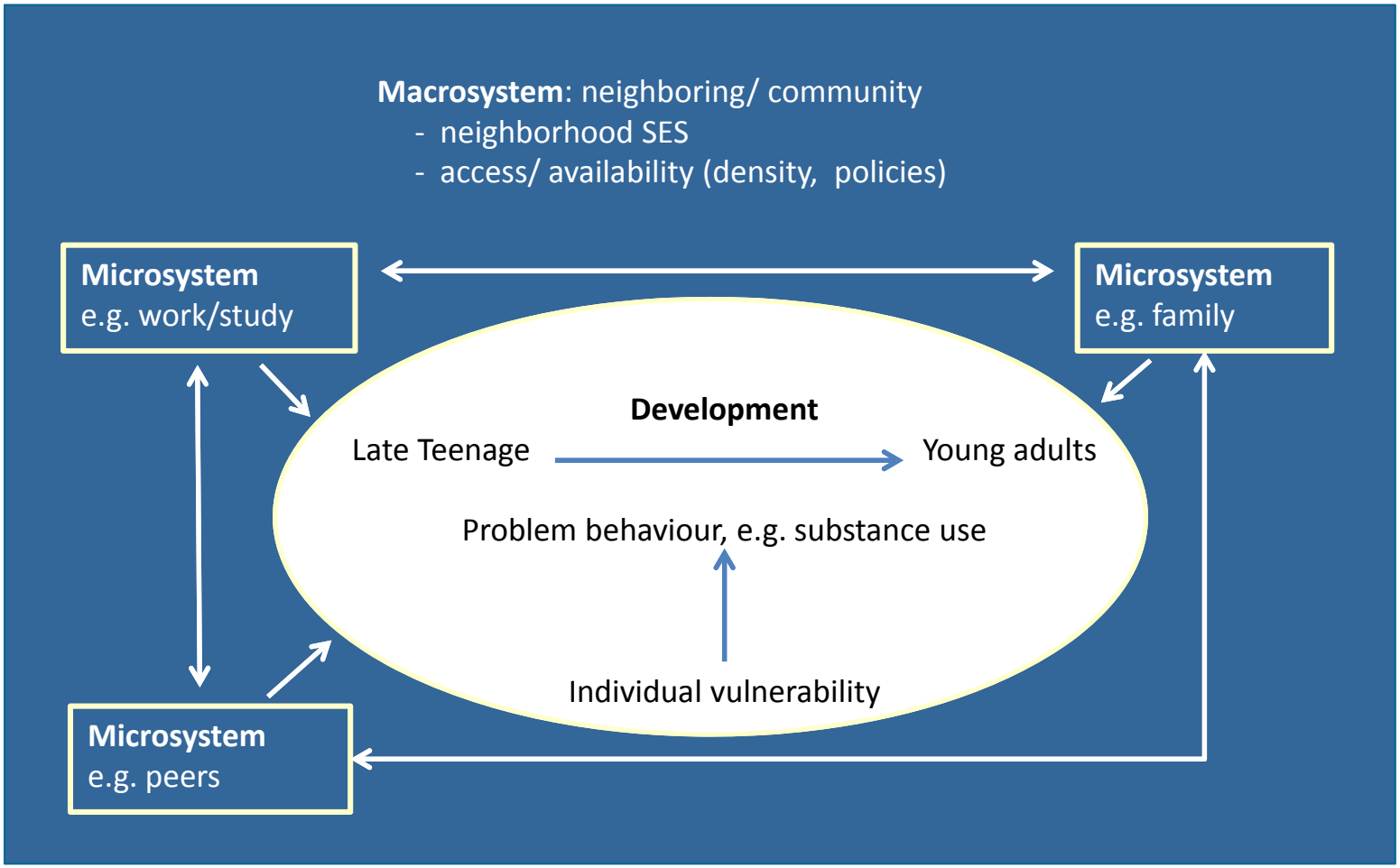
Developmental social context model



Example microsystem: peers

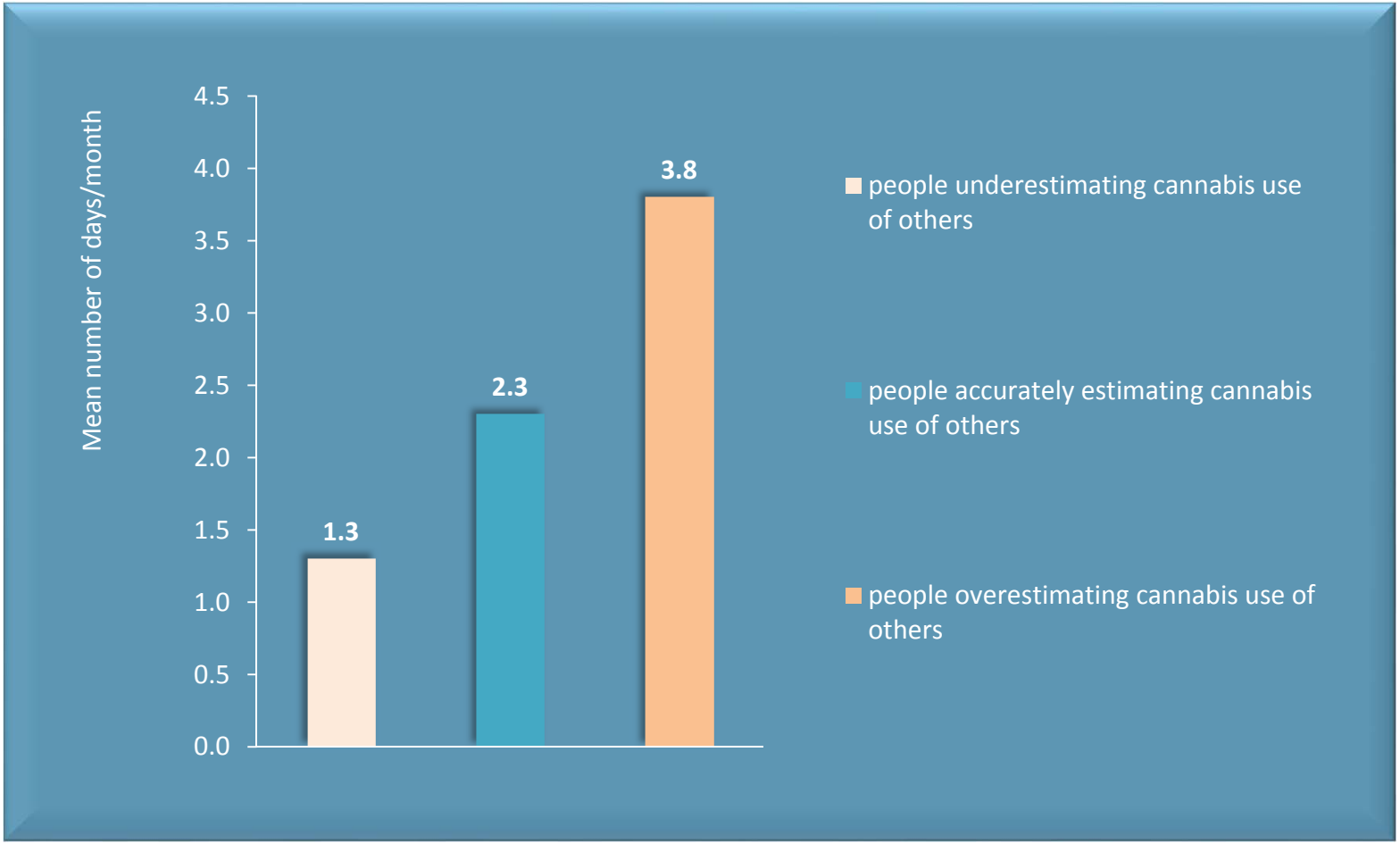
- Peer pressure (Peer Pressure Inventory, PPI)
- Perceived social support (friends and significant other; Canty-Mitchell & Zimet, 2000)

- Descriptive norms and normative use by peers (Miller and Prentice, 1996)

Examples of current publication projects:

- Baggio, S., Studer, J., Daeppen, J.-B., Gmel, G. (2013). Adaptation d'une échelle de pression des pairs pour jeunes adultes en français et en allemand: le Peer Pressure Inventory. *Revue d'Epidémiologie et de Santé Publique*, 61 (3), 241–252.
- Bertholet, N., Faouzi, M., Studer, J., Daeppen, J.-B., Gmel, G. (2013). Perception of tobacco, cannabis and alcohol use of others is associated with one's own use. *Addiction Science and Clinical Practice*, 8:15; doi:10.1186/1940-0640-8-1

Perception of others use and own use (here Cannabis, similar for binge and smoking)



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Accepted Manuscript

Title: Peer pressure and alcohol use in young men: A mediation analysis of drinking motives

Author: Joseph Studer Stéphanie Baggio Stéphane Deline Alexandra A. N'Goran Yves Henchoz Meichun Mohler-Kuo Jean-Bernard Daeppen Gerhard Gmel

PII: S0955-3959(14)00026-7
DOI: http://dx.doi.org/doi:10.1016/j.drugpo.2014.02.002
Reference: DRUPOL 1331

To appear in: *International Journal of Drug Policy*

Received date: 13-11-2013
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This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

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Peer pressure (PP)

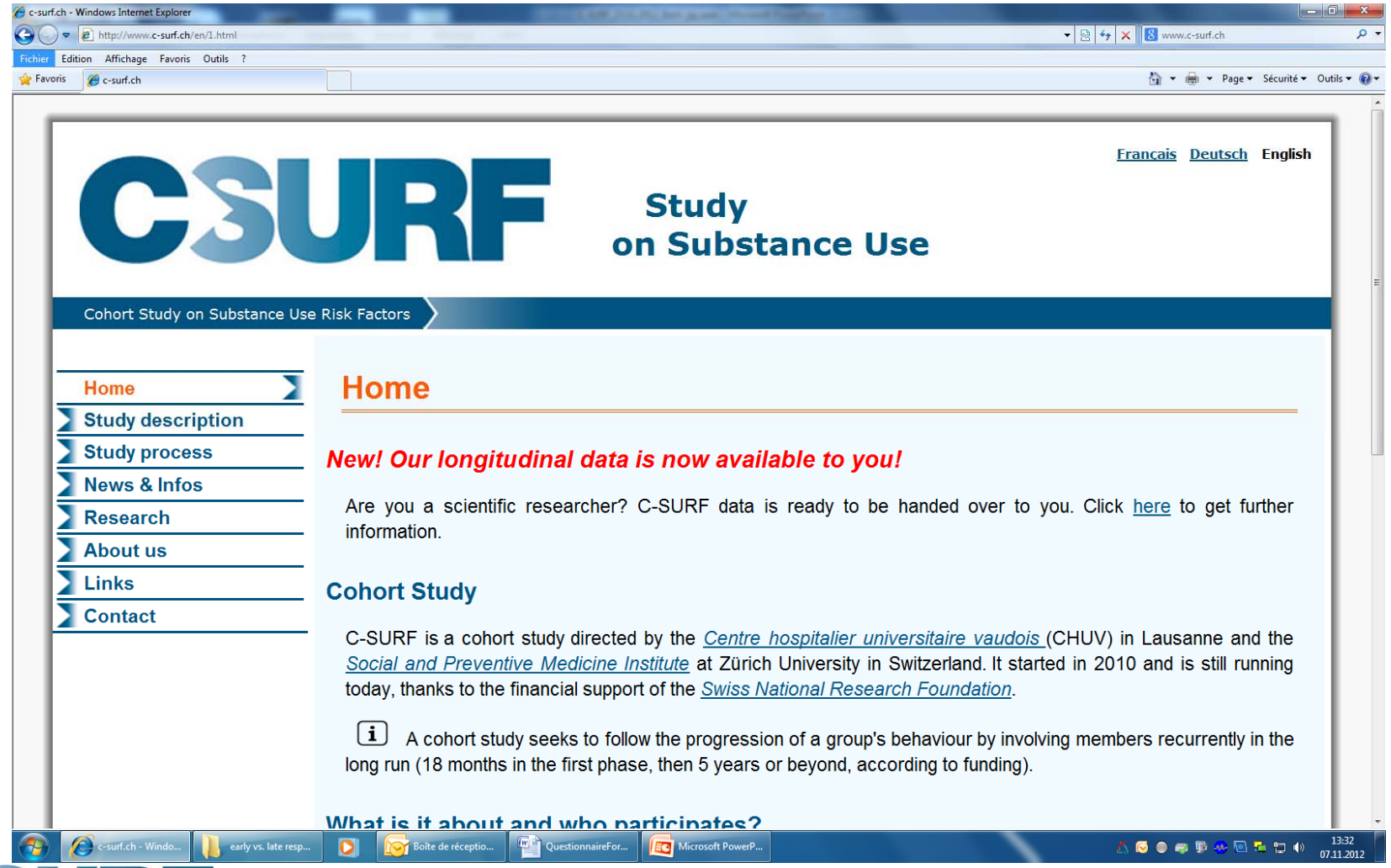
- "Pressure to think or to behave along certain peer-prescribed guidelines" (Clasen and Brown, 1985)
- Shapes the sense of identity and the perceived norms of what behaviours are acceptable or not
- PP: A multidimensional construct
  - Misconduct (e.g., use of substance)
  - Peer involvement (e.g., spending free time with friends)
  - Peer conformity (e.g., conformity to peer norms)
  - School involvement
  - Family involvement
- Most studies focused on Misconduct and ignore the other PP domains
  - What about the associations of Peer involvement and Peer conformity associated with alcohol use?

Results (1)

	Total effect			Direct effect			Total indirect effect		
	β	SE	p	β	SE	p	β	SE	p
Drinking volume									
PP Misconduct	0.577	0.034	<.001	0.214	0.036	<.001	0.364	0.023	<.001
PP Peer conformity	-0.188	0.035	<.001	-0.122	0.033	<.001	-0.066	0.025	.008
PP Peer involvement	-0.158	0.037	<.001	-0.032	0.036	.366	-0.125	0.025	<.001
RSOD									
PP Misconduct	0.635	0.041	<.001	0.287	0.045	<.001	0.348	0.024	<.001
PP Peer conformity	-0.167	0.045	<.001	-0.076	0.045	.090	-0.091	0.025	<.001
PP Peer involvement	-0.183	0.046	<.001	-0.093	0.047	.046	-0.090	0.025	<.001

Note. β, standardized slopes. SE, Standard error of β. p, p-value. RSOD, Risky single occasion drinking. DM, Drinking motive. PP, Peer pressure.

More on www.c-surf.ch



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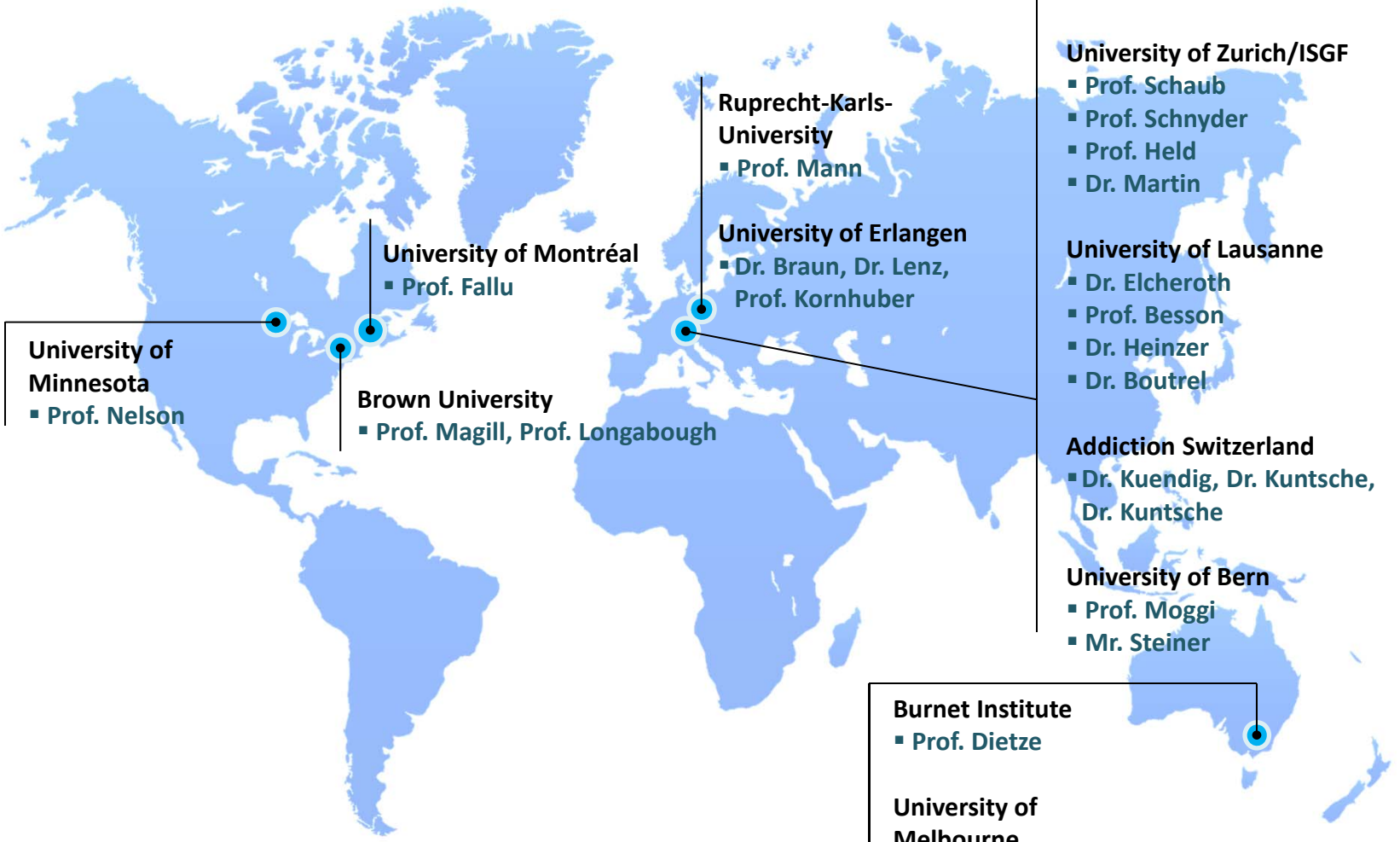
Collaborations



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NEW INSTRUMENTS WAVE 3

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Bergen Work addiction scale ANDREASSEN et al. 2012

A8. Denken Sie an Ihre Arbeit, an Ihr Studium oder an Ihre Ausbildung. Wie häufig haben Sie in den letzten 12 Monaten .....

Kreuzen Sie ein Kästchen pro Zeile an.

	Nie	Selten	Manchmal	Oft	Immer
... darüber nachgedacht, wie Sie mehr Zeit zum Arbeiten finden können?	☐	☐	☐	☐	☐
...viel mehr gearbeitet, als ursprünglich beabsichtigt?	☐	☐	☐	☐	☐
...gearbeitet, um Gefühle wie Schuld, Hilflosigkeit, Depressionen oder Angst zu reduzieren?	☐	☐	☐	☐	☐
... von anderen gesagt bekommen, dass Sie weniger arbeiten sollten, haben aber nicht auf sie gehört?	☐	☐	☐	☐	☐
... sich gestresst gefühlt, wenn Sie nicht arbeiten konnten?	☐	☐	☐	☐	☐
... Hobbies, Freizeitaktivitäten und sportliche Betätigungen wegen Ihrer Arbeit vernachlässigt?	☐	☐	☐	☐	☐
... so viel gearbeitet, dass Ihre Gesundheit darunter gelitten hat?	☐	☐	☐	☐	☐

Exercise Addiction Inventory, Terry et al. 2004

B18. Wie einverstanden sind Sie mit den folgenden Aussagen?

Kreuzen Sie in jeder Zeile ein Kästchen an.	Überhaupt nicht einver-standen	Eher nicht einver-standen	Weder einver-standen noch nicht einver-standen	Eher einver-standen	Absolut einver-standen
Training ist das, was am meisten für mich zählt.	☐	☐	☐	☐	☐
Es haben sich bereits Probleme zwischen mir und meiner Familie und/oder meiner Partnerin/Partner wegen meines grossen Trainingsumfangs ergeben.	☐	☐	☐	☐	☐
Ich benutze das Training als Mittel um meine Stimmung zu ändern (aufputschen, abreagieren).	☐	☐	☐	☐	☐
Mit der Zeit habe ich meinen täglichen Trainingsumfang gesteigert.	☐	☐	☐	☐	☐
Wenn ich ein Training auslassen muss, bin ich schlecht gelaunt und reizbar.	☐	☐	☐	☐	☐
Wenn ich meinen Trainingsumfang zu reduzieren versuche und dann wieder anfange, endet es stets damit, dass ich wieder beim Trainingsumfang von vorher lande.	☐	☐	☐	☐	☐

Compulsive Internet Use Scale (Meerkerk et al. 2008) – 14 Items

I18. Wie häufig …

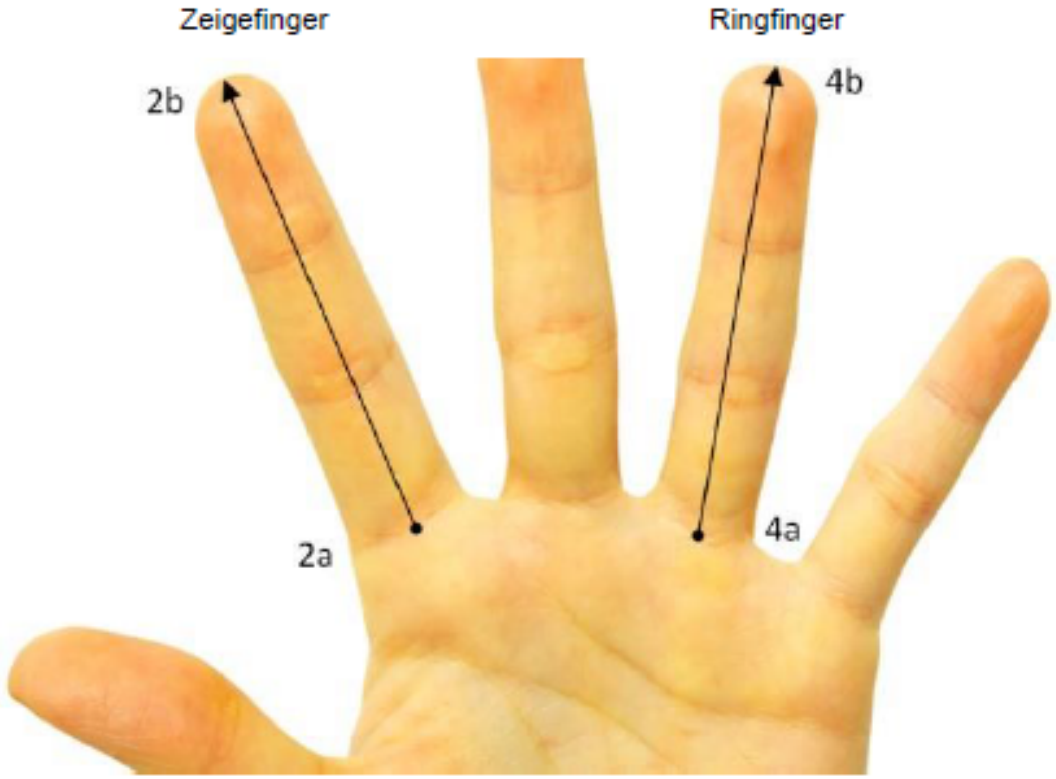
Kreuzen Sie in jeder Zeile ein Kästchen an.	Nie	Selten	Manch-mal	Oft	Sehr oft
… finden Sie es schwierig, mit dem Internetgebrauch aufzuhören, wenn Sie online sind?	☐	☐	☐	☐	☐
… setzen Sie Ihren Internetgebrauch fort, obwohl Sie eigentlich aufhören wollten?	☐	☐	☐	☐	☐
… sagen Ihnen andere Menschen (z.B. Partner, Kinder, Eltern, Freunde), dass Sie das Internet weniger nutzen sollten?	☐	☐	☐	☐	☐
… bevorzugen Sie das Internet, statt Zeit mit anderen zu verbringen (z.B. Partner, Kinder, Eltern, Freunde)?	☐	☐	☐	☐	☐
… schlafen Sie zu wenig wegen des Internets?	☐	☐	☐	☐	☐
… denken Sie an das Internet, auch wenn Sie gerade nicht online sind?	☐	☐	☐	☐	☐

The Smartphone Addiction Scale (Kwon et al. 2013, German translation IGSF) – 9 Items

I21. Geben Sie bitte an, wie stark die folgenden Aussagen auf Sie zutreffen.

Kreuzen Sie in jeder Zeile ein Kästchen an.	Gar nicht zutreffend	Nicht zutreffend	Eher nicht zutreffend	Ein wenig zutreffend	Zutreffend	Sehr zutreffend
Wegen des Gebrauchs meines Smartphones fällt es mir schwer, geplante Aufgaben zu erledigen.	☐	☐	☐	☐	☐	☐
Wegen des Gebrauchs meines Smartphones fällt es mir schwer, mich auf den Unterricht in der Schule oder auf meine Arbeit zu konzentrieren.	☐	☐	☐	☐	☐	☐
Ich spüre Schmerzen im Nacken oder im Handgelenk aufgrund des Gebrauchs meines Smartphones.	☐	☐	☐	☐	☐	☐
Ich könnte es nicht ertragen, kein Smartphone zu besitzen.	☐	☐	☐	☐	☐	☐
Wenn ich mein Smartphone nicht zur Hand habe, bin ich unruhig und gereizt.	☐	☐	☐	☐	☐	☐

Self-Measured Digit Ratio (2D:4D) (Manning et al. 2007)



*Gehen Sie dann genauso mit dem Ringfinger (4. Finger) Ihrer **linken** Hand vor. Messen Sie also genau die Strecke von der Mitte der untersten Hautfalte (4a) bis zur Fingerkuppenspitze (4b).*

*Vermessen Sie anschließend bitte auf die gleiche Weise den Zeige- und Ringfinger Ihrer **rechten** Hand.*

Further new instruments I

- Traumatic brain injury question adapted from Ilie et al., 2014
- Baecke Physical Activity Questionnaire adapted from Baecke et al. 1982 and Vol et al. 2011
- ADHD medication
- Personal Social Capital Scale (Chen et al. 2009)
- Alcohol: Protective behavioral strategies
- E-cigarette module (including cannabis use)

Further new instruments II

- Mood Disorder Questionnaire (Hirschfeld et al. 2000)
- McLean Screening Instrument for Borderline Personality Disorder (Zanarini et al. 2003; Melartin et al. 2009)
- Clinically Useful Social Anxiety Disorder Outcome Scale (Dalrymple et al. 2013)
- Perceived Stress Scale 10 (Cohen et al. 1983)
- Suizid-Block

SOME MORE FINDINGS

Out of more than 80 articles published, accepted or in press.

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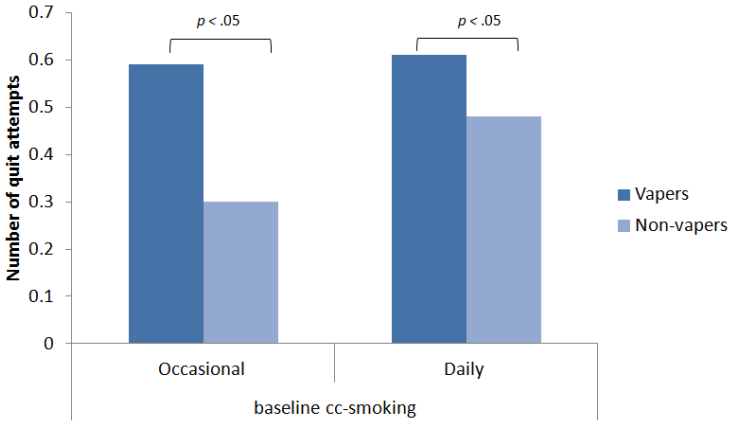
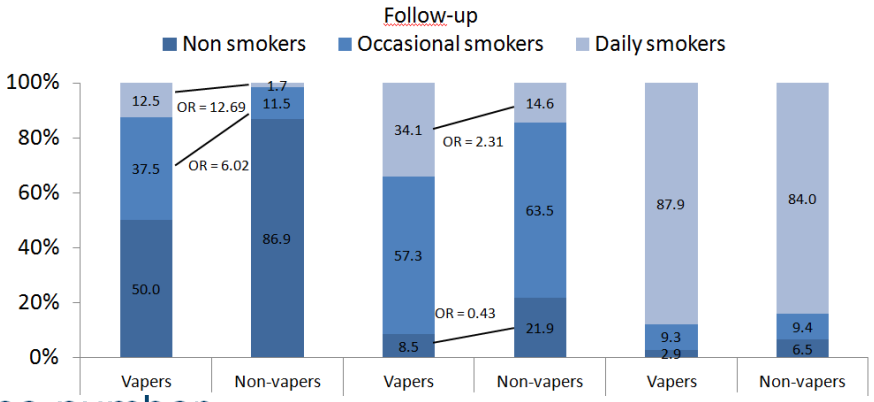
E-cigarettes and smoking

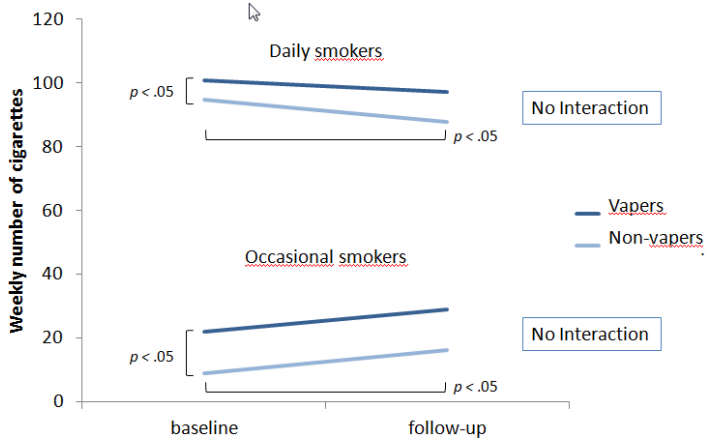
Do vapers among smokers have more quit attempts than non-vapers?



Increased smoking among non-smokers? Increased smoking cessation among smokers?



Does vaping decrease the number of cigarettes among smokers?



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UCSF Center for Tobacco Control Research and Education

Faculty | Fellows | Researc

De : Martin McKee [Martin.McKee@lshtm.ac.uk] Date : jeu. 11.08.2016 11:

À : Gmel Gerhard

Cc :

Objet : e-cigarettes - a note of support

Dear Dr Gmel,
Forgive this intrusion but I've just seen your excellent response to Poirson in the Swiss Medical Weekly. As you might know, I've also been subject to vicious and deeply unpleasant abuse from the e-cigarette lobby and I just wanted to send a note of support. These attacks can get you down - but please keep up the excellent work.
Martin McKee

Another big well-c
with more progres

Tuesday, January 19, 2016

Study that Purports
Smoking Initiation

L'AGEF

QU

E-cig advocate's critique & Gmel et al's response worth reading

The *Swiss Medical Weekly* published a detailed critique of Gmel et al's well-done longitudinal study of Swiss 20 year-old men that showed that (1) smokers who used e-cigarettes were less likely to quit cigarettes than smokers who didn't use e-cigarettes, and (2) nonsmokers who started with e-cigarettes were much more likely to be smoking a year later than those who did not use e-cigarettes.

It is worth reading both the critique (available here) and the response (available here).

Campagne politique sous couvert de la science

lundi, 01.02.2016

Olivier Théraulaz*

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Illicit drugs

Established in 1871
SMW Swiss Medical Weekly
Formerly: Schweizerische Medizinische Wochenschrift
The European Journal of Medical Sciences

Original article | Published 5 June 2013, doi:10.4414/smw.2013.13805
Cite this as: Swiss Med Wkly. 2013;143:w13805

Profiles of drug users in Switzerland and effects of early-onset intensive use of alcohol, tobacco and cannabis on other illicit drug use

Stéphanie Baggio[a], Joseph Studer[a], Meichun Mohler-Kuo[b], Jean-Bernard Daeppen[a], Gerhard Gmel[a,c,d,e]

DE GRUYTER DOI 10.1515/ijamh-2013-0305 — Int J Adolesc Med Health 2013; aop

Stéphanie Baggio*, Joseph Studer, Meichun Mohler-Kuo, Jean-Bernard Daeppen and Gerhard Gmel

Concurrent and simultaneous polydrug use among young Swiss males: use patterns and associations of number of substances used with health issues

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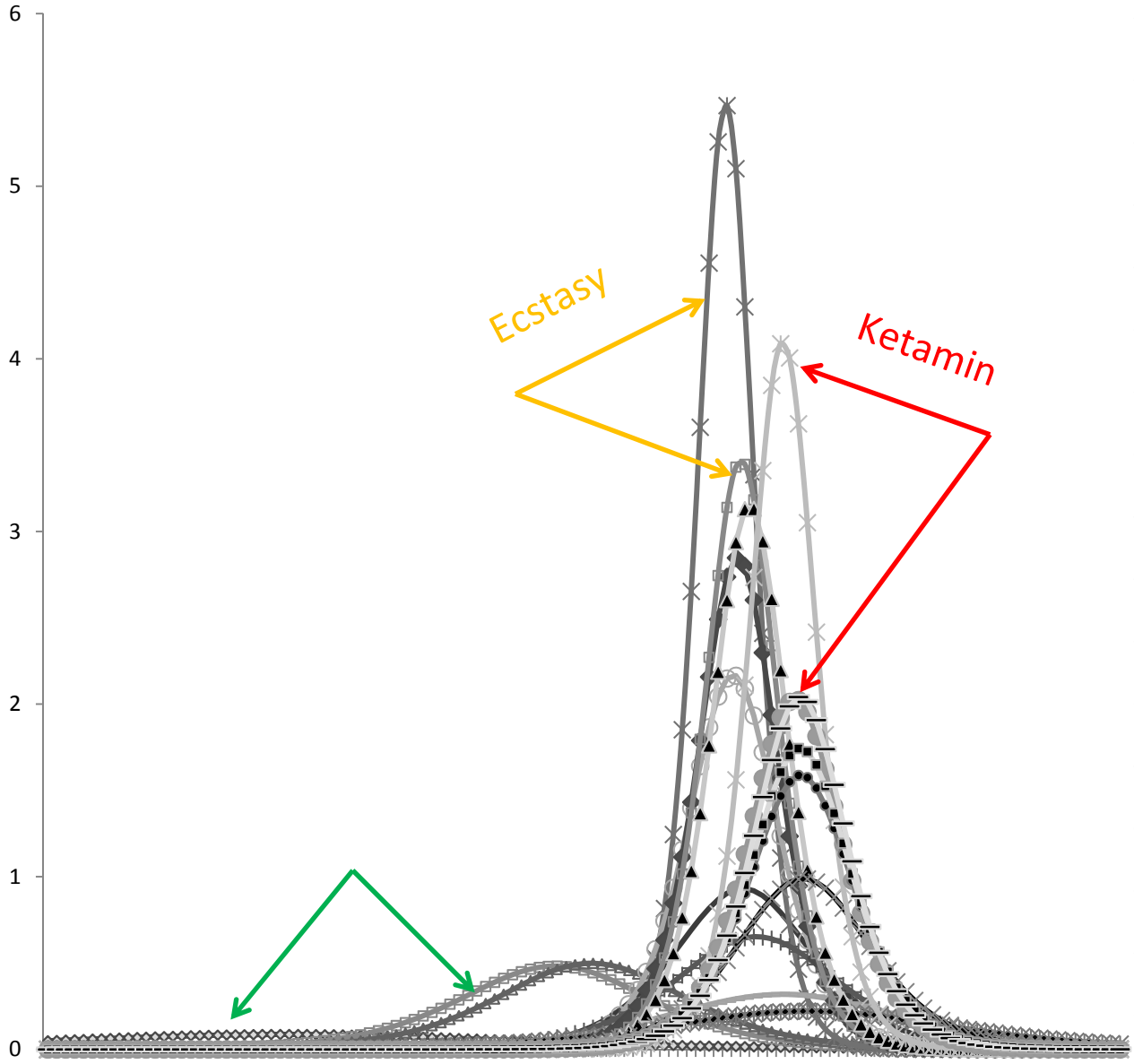
Drug use sequence (?)

Table 4 Column percentages of each drug use according to the number of maximum SPU drug use.

	Maximum SPU – number of drugs used					
	2 n=1734	3 n=1159	4 n=153	5 n=47	6 n=40	7 and more n=36
Alcohol	98.7	99.1	98.7	97.9	97.5	94.4
Tobacco	89.9	98.4	98.0	95.7	97.5	94.4
Cannabis	10.5	95.7	90.8	100	97.5	100
Ecstasy	0.1	1.3	22.2	53.2	75.0	94.4
Cocaine	0.2	1.4	19.6	53.2	60.0	77.8
Hallucinogens/magic mushrooms	0.1	0.5	14.4	10.6	17.5	44.4
Others hallucinogens	0.1	0.5	12.4	14.9	27.5	61.1
Salvia divinorum	0.0	0.3	13.1	12.8	10.0	25.0
Poppers	0.2	0.7	12.4	10.6	10.0	13.9
Speed	0.1	0.7	5.9	25.5	67.5	72.2
Solvent sniffing	0.1	1.1	5.2	4.3	7.5	13.9
Amphetamine/methamphetamines	0.1	0.1	2.6	14.9	22.5	69.4
GHB/GBL	0.0	0.0	0.7	0.0	5.0	22.2
Research chemicals	0.0	0.1	1.3	0.0	2.5	8.3
Ketamine	0.0	0.1	2.0	2.1	2.5	13.9
Spice	0.1	0.1	0.7	2.1	0.0	11.1
Crystal meth	0.1	0.0	0.0	0.0	0.0	5.6
Heroin	0.0	0.0	0.0	2.1	0.0	16.7

For example, among the participants who used 2 drugs simultaneously (n=1734), 98.7% drank alcohol, 89.9% smoked tobacco, 10.5% used cannabis, 0.2% used cocaine, 0.2% used poppers, and 0.1% used ecstasy, hallucinogens such as magic mushrooms, other hallucinogens, speed, solvent, amphetamines/methamphetamines, spice, and crystal meth.

Item Response Theory of 18 drugs



- Alcohol
- Tobacco
- Cannabis
- Hallucinogens/magic mushrooms
- Ecstasy
- Cocaine
- Salvia divinorum
- Poppers
- Solvant sniffing
- Speed
- Others hallucinogens
- Amphetamines/methamphetamines
- Spice
- Ketamin
- GHB/GBL
- Chrystal meth
- Research chemicals
- Heroin

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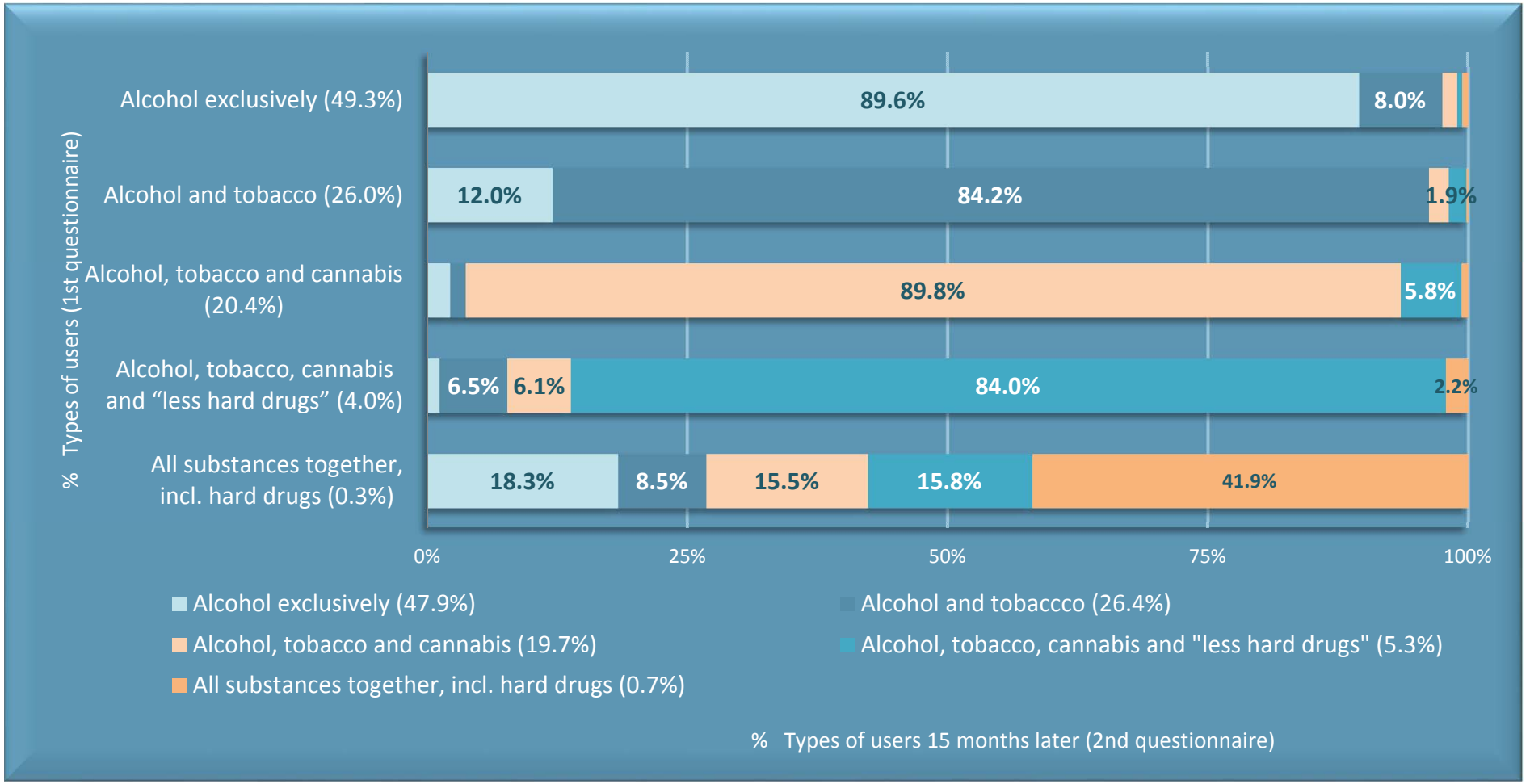
Stability over time



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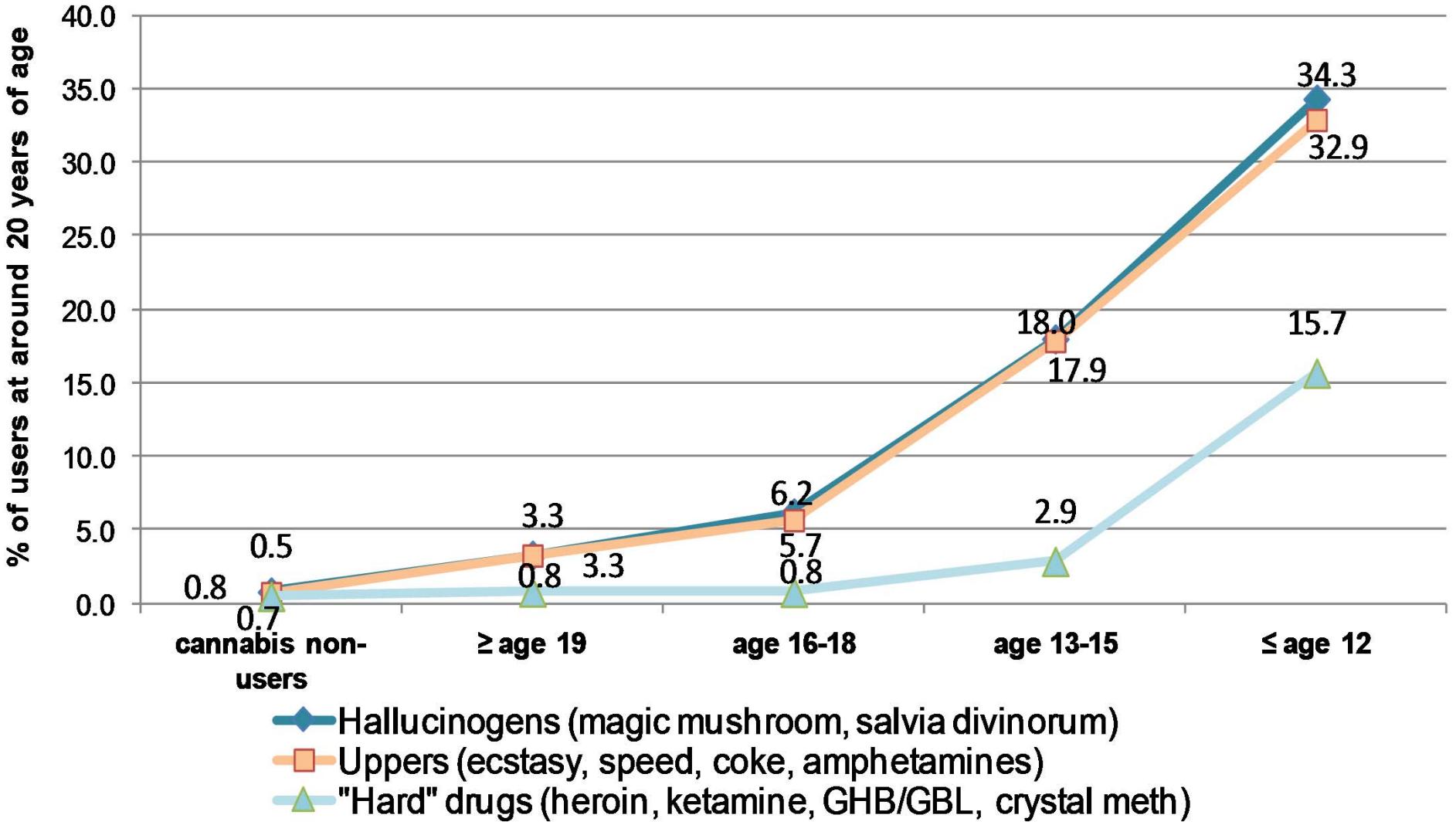
Age of first getting high with cannabis

Baseline results
Updated 12.08.2013



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Simultaneous and concurrent drug use

Table 5 Standardized slopes (β) of regression analyses for unadjusted models of health issues on SPU

Outcomes	SPU (unadjusted)	
	Usual β (SE)	Maximum β (SE)
Social consequences	0.290 (0.003)[c]	0.304 (0.002)[c]
Health consequences	0.088 (0.014)[c]	0.109 (0.14)[c]
Aggressiveness	0.182 (0.014)[c]	0.147 (0.014)[c]
Anxiety	0.064 (0.014)[c]	0.053 (0.014)[c]
Physical health	−0.052 (0.014)[c]	−0.034 (0.014)
Mental health	−0.098 (0.014)[c]	−0.113 (0.014)[c]
Depression	0.124 (0.014)[c]	0.136 (0.014)[c]

Remarks: Standardized standard errors (SE) are given in parentheses.

[a]$p<0.05$, [b]$p<0.01$, [c]$p<0.001$; p-values with a Holm-Bonferroni correction are given.

Simultaneous and concurrent drug use

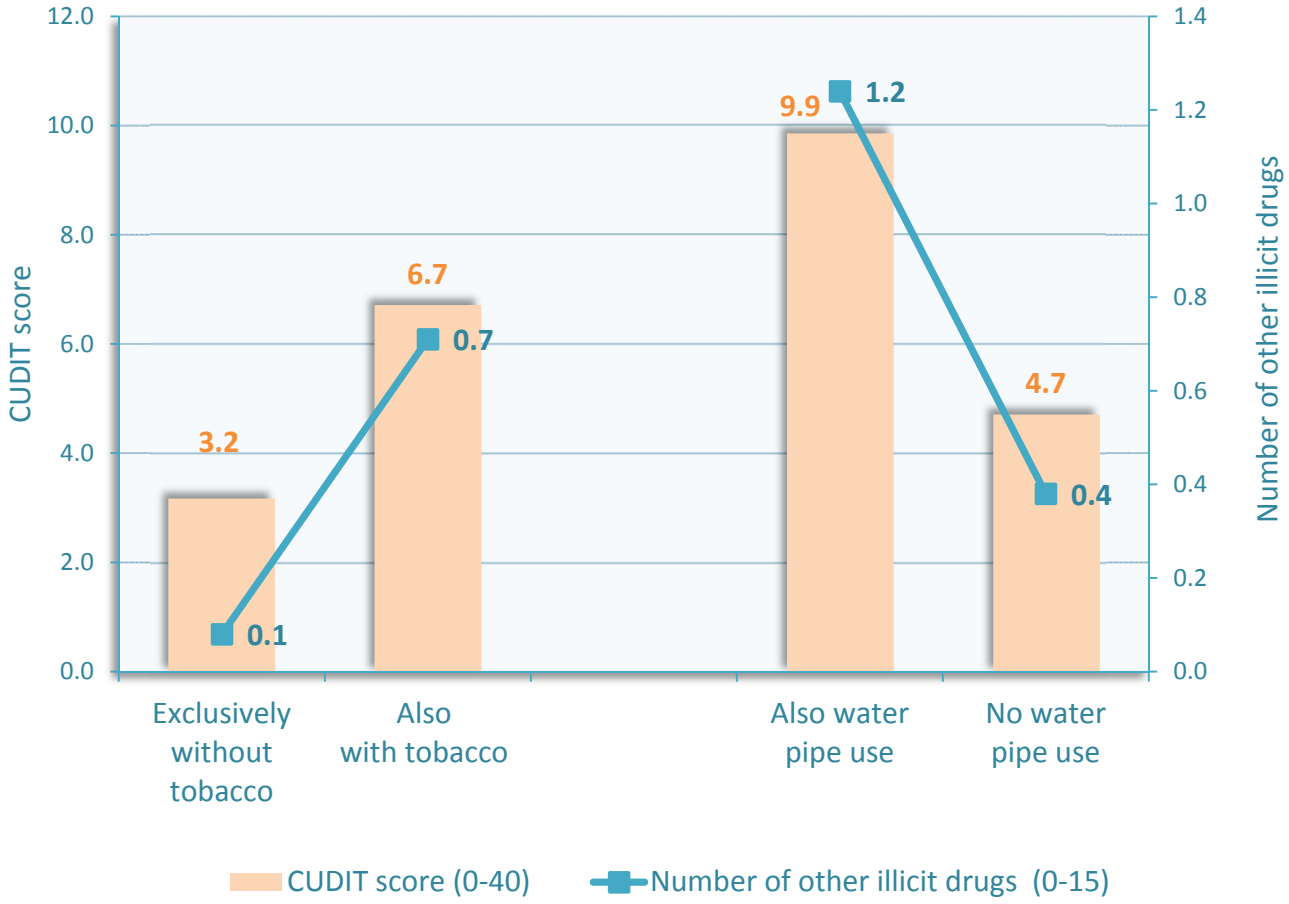
Table 5 Standardized slopes (β) of regression analyses for adjusted (CPU) models of health issues on SPU

Outcomes	Residuals from CPU models (adjusted)	
	Usual β (SE)	Maximum β (SE)
Social consequences	0.110 (0.004)[c]	0.098 (0.003)[c]
Health consequences	0.011 (0.013)	0.025 (0.014)
Aggressiveness	0.115 (0.014)[c]	0.058 (0.014)[c]
Anxiety	0.021 (0.014)	−0.004 (0.013)
Physical health	−0.020 (0.014)	0.012 (0.013)
Mental health	−0.011 (0.014)	−0.013 (0.014)
Depression	0.021 (0.014)	0.014 (0.013)

Remarks: Standardized standard errors (SE) are given in parentheses.

[a]$p<0.05$, [b]$p<0.01$, [c]$p<0.001$; p-values with a Holm-Bonferroni correction are given.

Routes of administration and risk of cannabis use disorder and use of other illicit drugs



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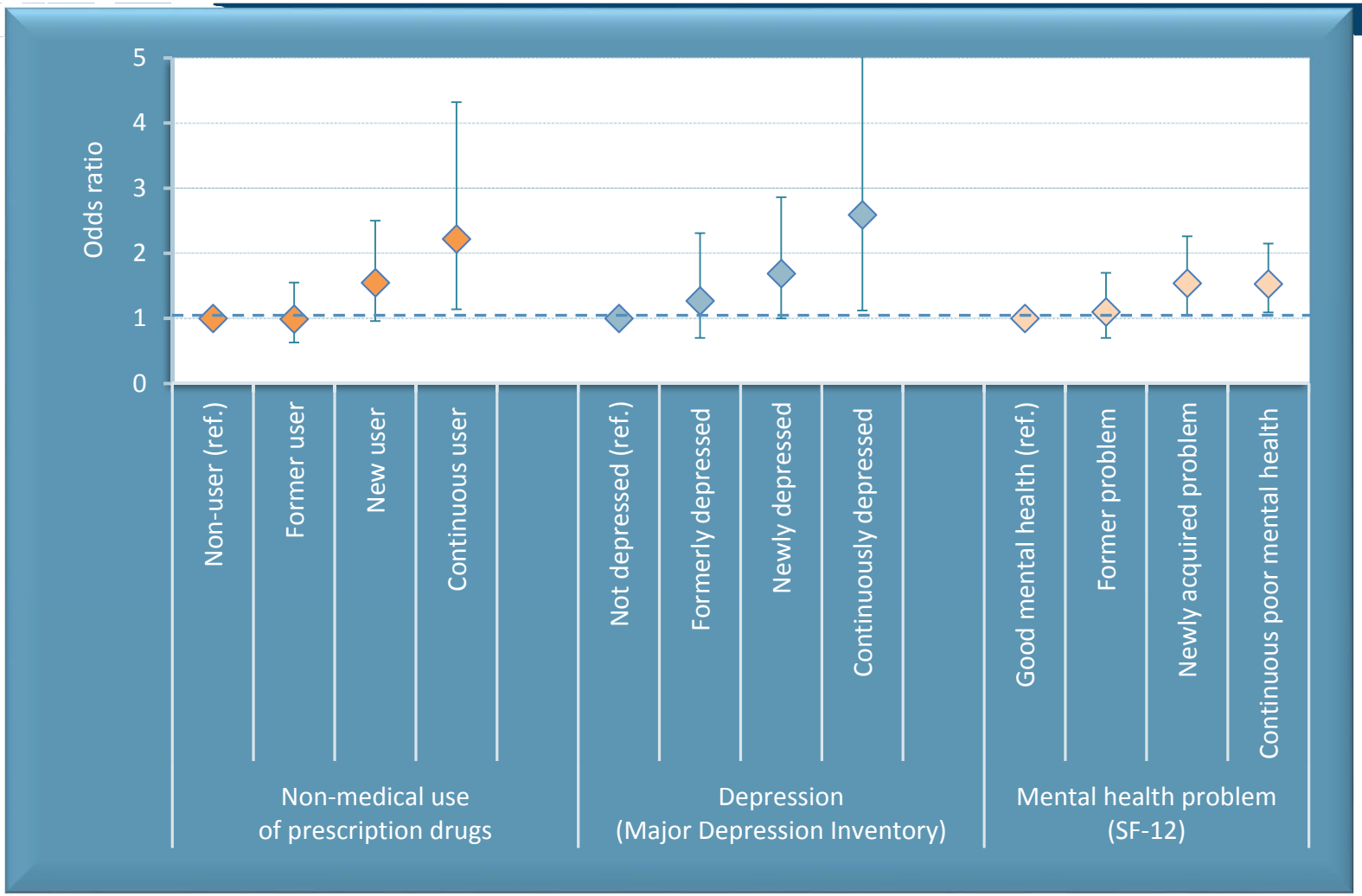
Substance use and erectile dysfunction (same for premature ejaculation)



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Substance Use & Misuse, 48:1085–1098, 2013
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ISSN: 1082-6084 print / 1532-2491 online
DOI: 10.3109/10826084.2013.799017

informa
healthcare

ORIGINAL ARTICLE

Religion Is Good, Belief Is Better: Religion, Religiosity, and Substance Use Among Young Swiss Men

Gerhard Gmel[1,2,3,4], Meichun Mohler-Kuo[5], Petra Dermota[5], Jacques Gaume[1], Nicolas Bertholet[1], Jean-Bernard Daeppen[1] and Joseph Studer[1]

- Religious Denomination (Catholic, Protestant, etc)
- Religious self-description (religious, spiritual, unsure, agnostic, atheist)

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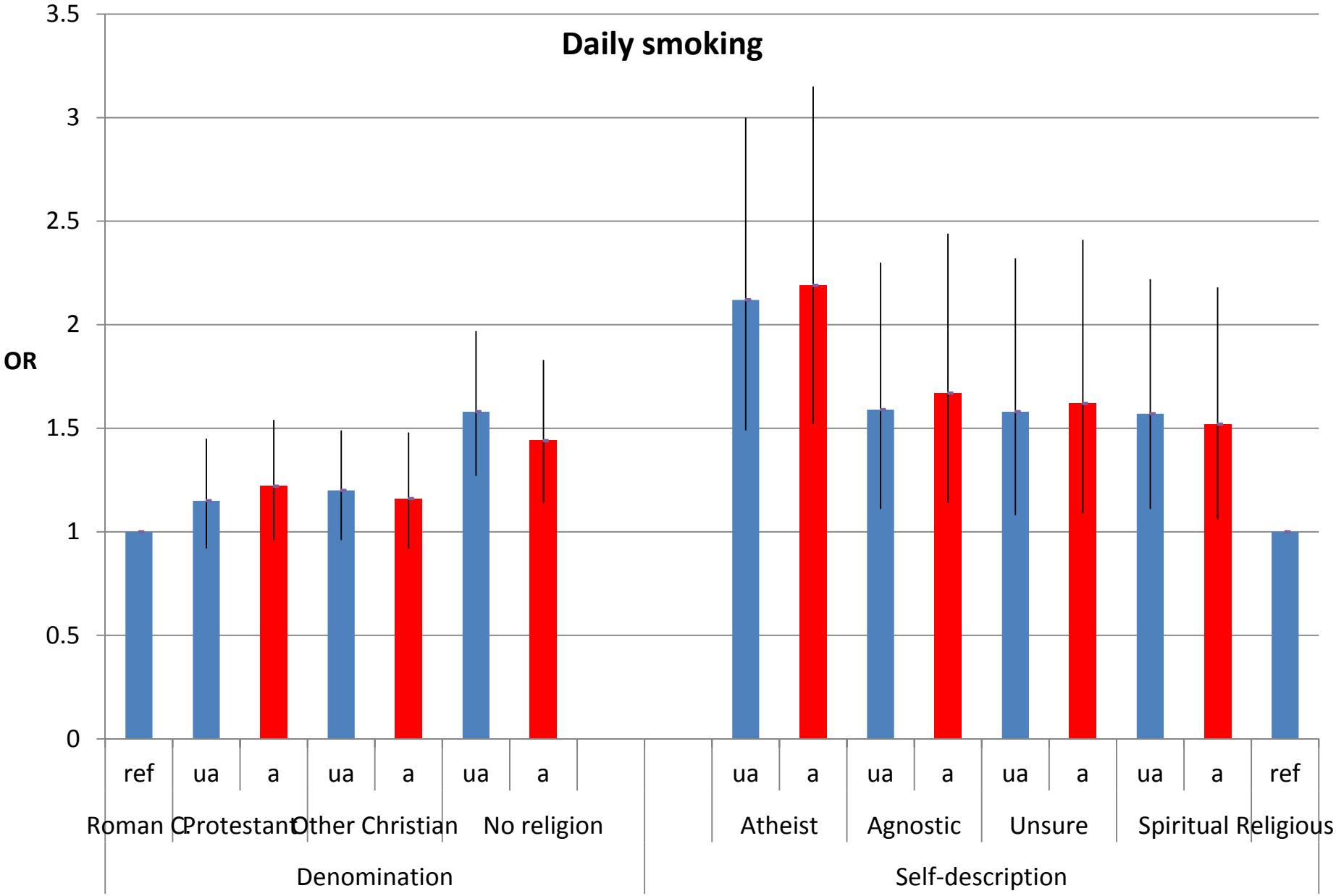
Parental Variables

- Satisfaction with relationship (how satisfied before the age of 18 with relation to mother and father)
- Parental Regulation (rule setting what allowed to do a) at home, b outside the home).
- Parental monotoring (my parents knew My
- parents knew (a) whom I was with, and (b) where I was in the evenings.)



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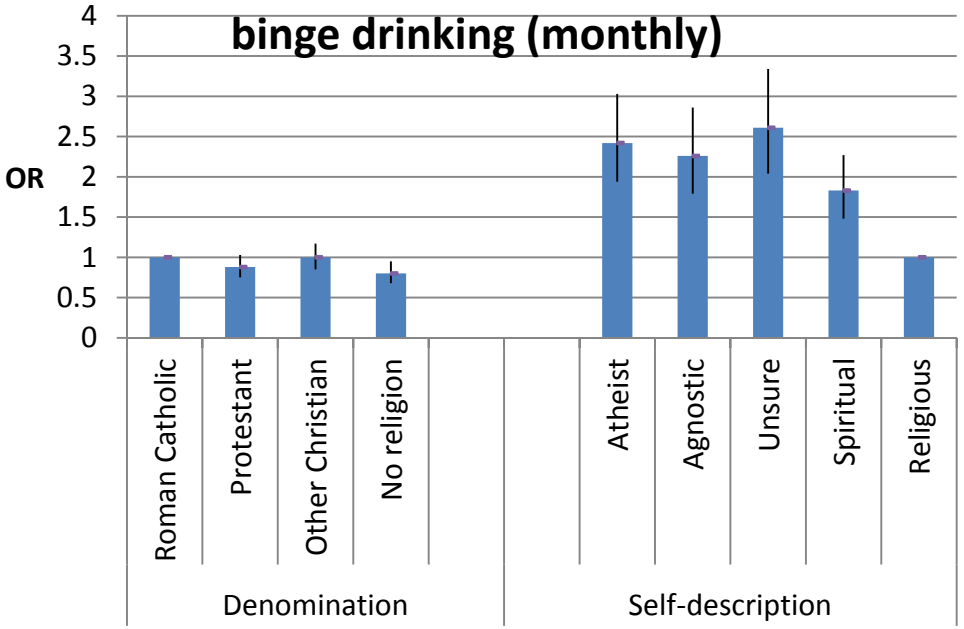

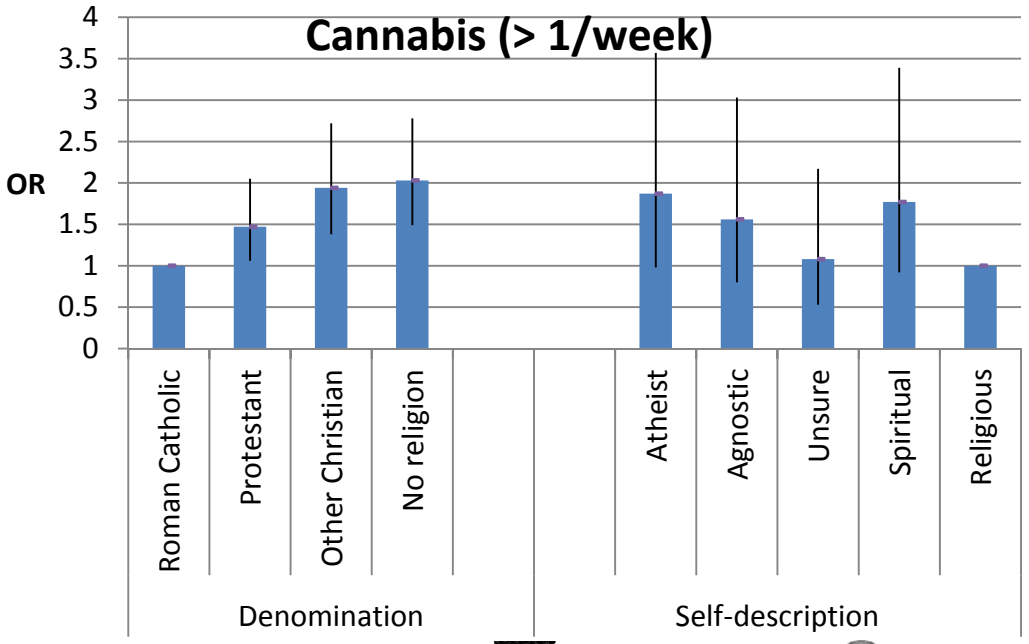

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Thank you

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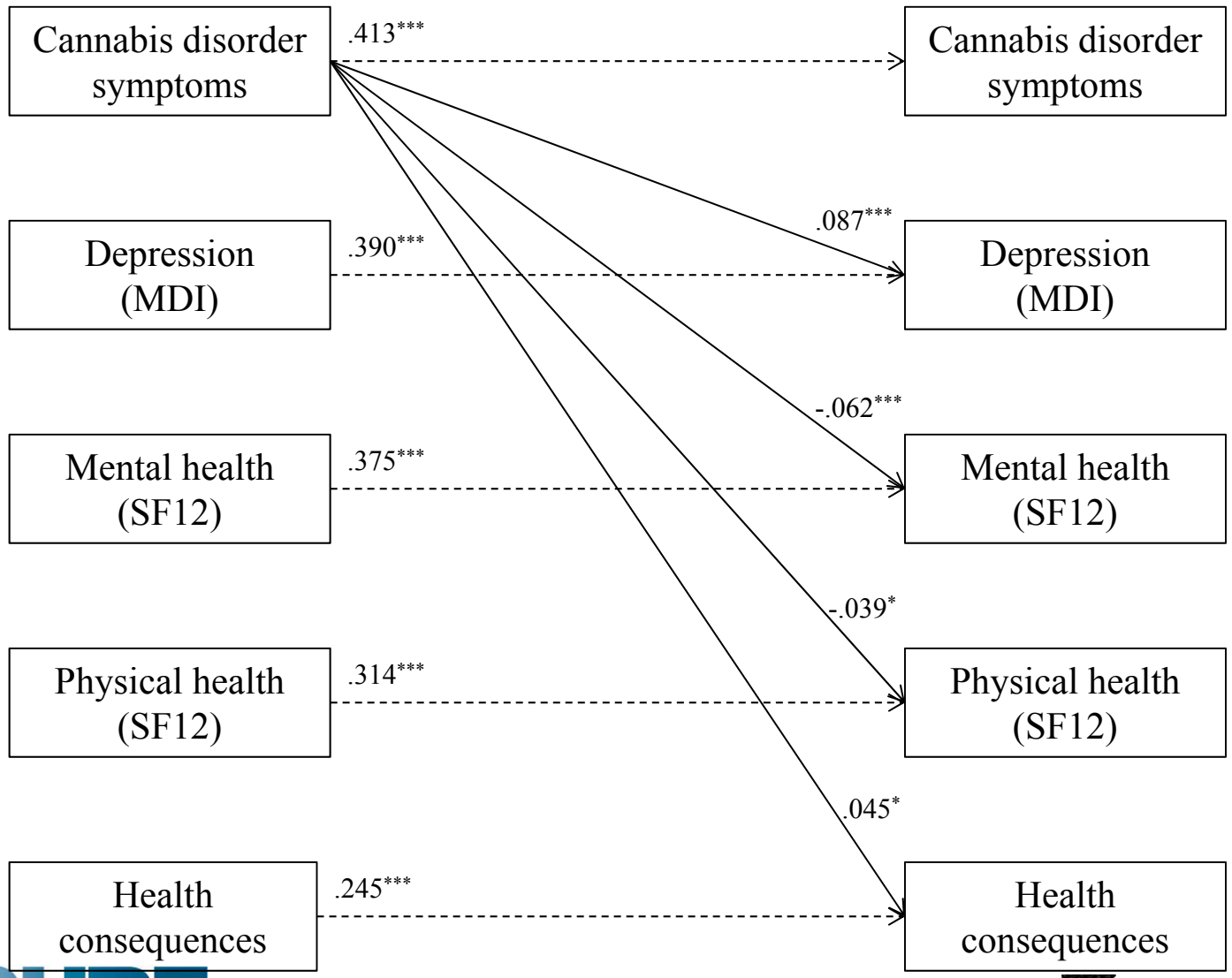
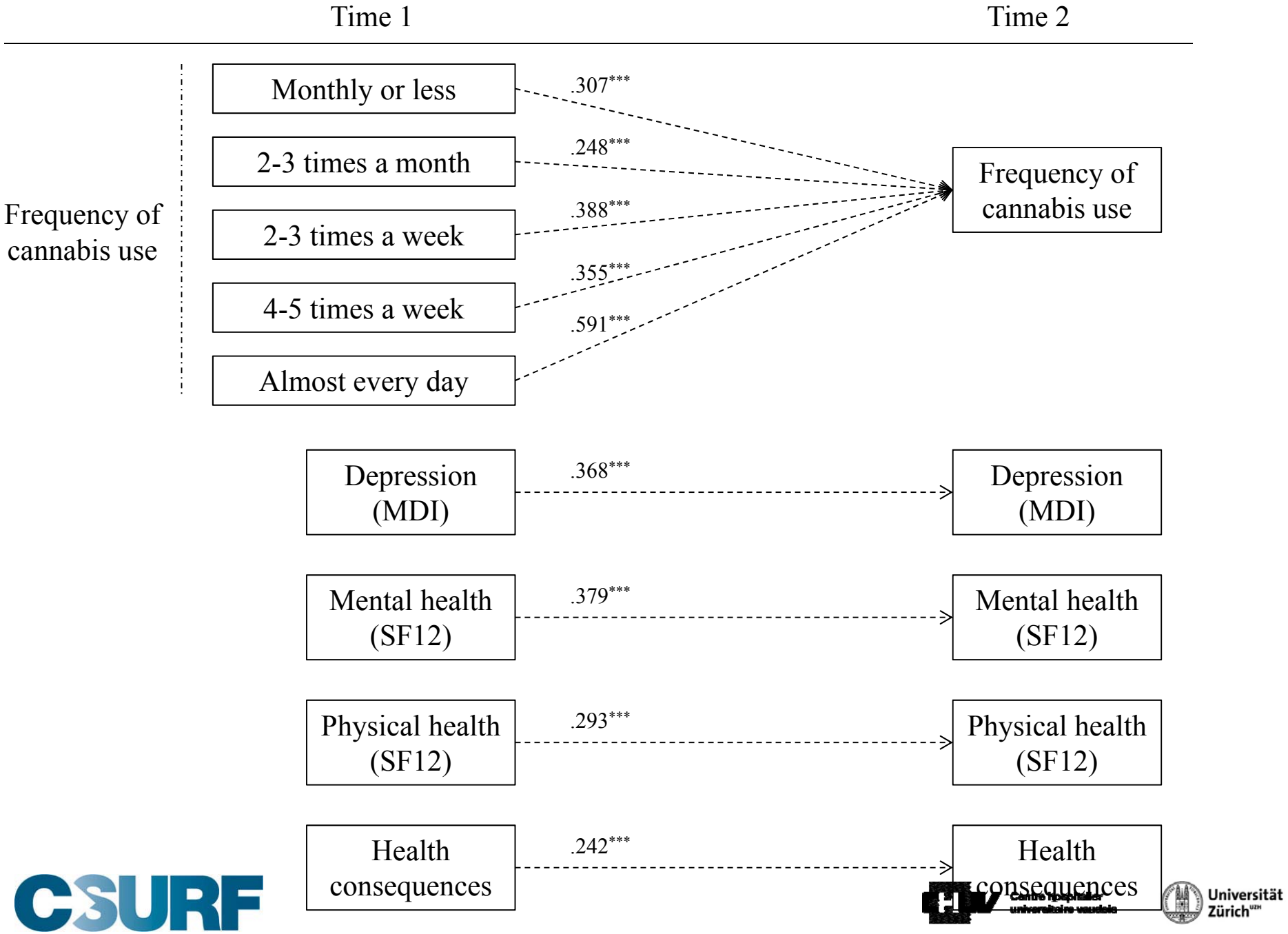

Time 1
Time 2
Cannabis disorder symptoms
Depression (MDI)
Mental health (SF12)
Physical health (SF12)
Health consequences
Cannabis disorder symptoms
Depression (MDI)
Mental health (SF12)
Physical health (SF12)
Health consequences
.413***
.390***
.375***
.314***
.245***
.087***
-.062***
-.039*
.045*

Results (2)

	PP Misconduct			PP Peer conformity			PP Peer involvement		
	β	SE	p	β	SE	p	β	SE	p
Drinking volume									
Total indirect	0.364	0.023	<.001	-0.066	0.025	.008	-0.125	0.025	<.001
Via enhancement	0.334	0.030	<.001	-0.058	0.020	.003	-0.099	0.020	<.001
Via coping	0.109	0.013	<.001	0.034	0.011	<.001	-0.090	0.014	<.001
Via social	-0.024	0.026	.342	0.003	0.004	.390	0.006	0.007	.346
Via conformity	-0.054	0.013	<.001	-0.045	0.011	<.001	0.057	0.014	<.001
RSOD									
Total indirect	0.348	0.024	<.001	-0.091	0.025	<.001	-0.090	0.025	<.001
Via enhancement	0.374	0.039	<.001	-0.065	0.022	.004	-0.111	0.024	<.001
Via coping	0.050	0.014	<.001	0.015	0.007	.020	-0.041	0.012	.001
Via social	-0.021	0.035	.534	0.003	0.005	.550	0.006	0.009	.538
Via conformity	-0.054	0.016	.001	-0.045	0.014	.001	0.057	0.018	.001

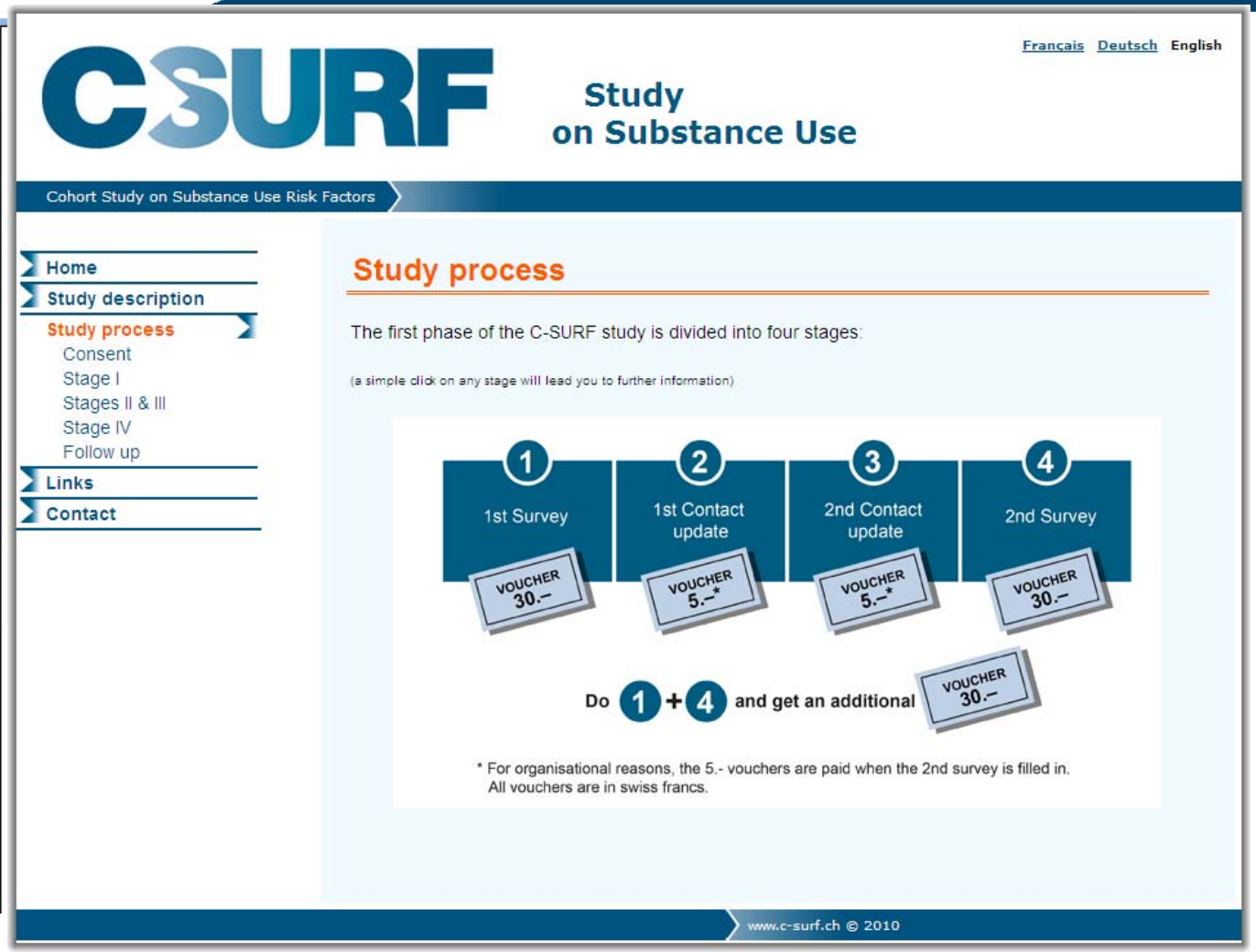
Note. β, standardized slopes. SE, Standard error of β. p, p-value. RSOD, Risky single occasion drinking. DM, Drinking motive. PP, Peer pressure.


Time 1
Time 2
Frequency of cannabis use
Monthly or less
2-3 times a month
2-3 times a week
4-5 times a week
Almost every day
.307***
.248***
.388***
.355***
.591***
Frequency of cannabis use
Depression (MDI)
.368***
Depression (MDI)
Mental health (SF12)
.379***
Mental health (SF12)
Physical health (SF12)
.293***
Physical health (SF12)
Health consequences
.242***
Health consequences

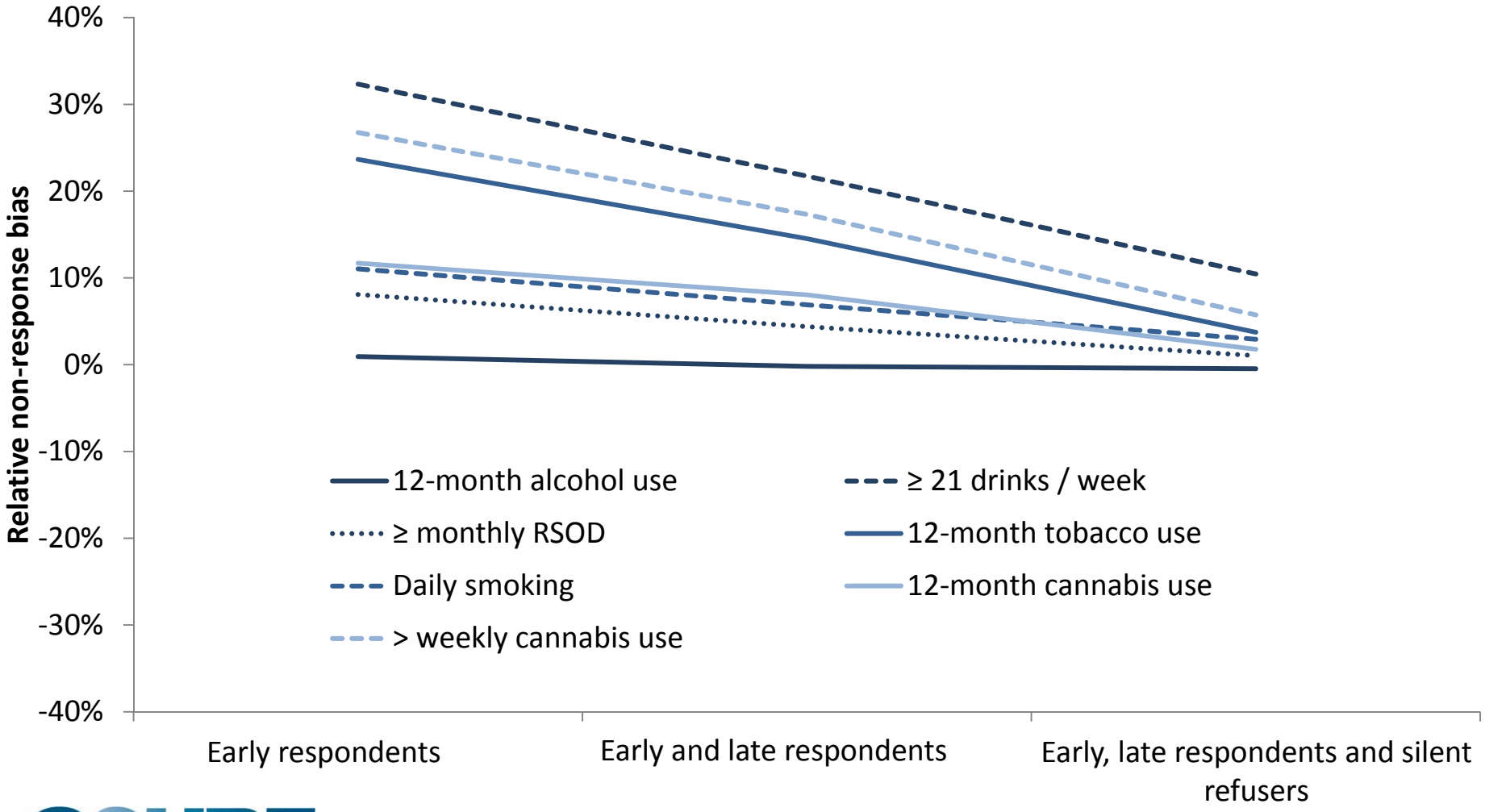
Enhanced Telefone Calls

	MTI 1	MTI 2	MTI 3
Make sure questionnaire was received & send it if needed	✓		
Invite participants to confirm their motivation	✓		
Arrange together how much time they need	✓	✓	✓
Inform them they will be contacted again if questionnaire not filled in	✓	✓	✓
Arrange together when they are available again	✓	✓	✓
Send questionnaire again by post instead of by email or vice versa		✓	✓
Show then how it works online		✓	✓
Say how much their participation helps us	✓	✓	✓
Offer to fill in a shortened questionnaire on the phone			✓

Corporate Identity



Relative non-response bias



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