Pr Mickael Naassila

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2015

« Il est temps de créer une journée sans alcool en France »

SANTÉ Le Pr Naassila, directeur d'un groupe de recherche sur l'addiction à l'alcool, met en garde contre les effets dévastateurs de la consommation massive et précoce d'alcool sur le cerveau

INTERVIEW
CHRISTEL DE TADDEO @cdetaddeo

Deux cuites à l'adolescence suffiraient à perturber durablement les processus à la base de la mémoire ! Le professeur Naassila et son équipe de l'Inserm (Institut national de la santé et de la recherche médicale) de l'université d'Amiens, ont fait plusieurs découvertes majeures sur les ravages du *binge drinking*, expression anglaise qui désigne les « cuites » ultrarapides des ados. En étudiant les mécanismes à la base des atteintes de la mémoire causées par le *binge drinking* sur des rats adolescents, les chercheurs tirent le signal d'alarme. Entretien.

Professeur, vous venez de publier un article dans une revue spécialisée sur les mécanismes et les atteintes de la mémoire à cause du *binge drinking* à l'adolescence. Qu'avez-vous découvert ?

Nous avions déjà remarqué, avec le projet européen AlcoBinge, que

À Amiens, jeudi, le Pr Mickaël Naassila dans la plate-forme animalière du centre de recherche universitaire de santé-CHU Picardie. Les souris sont soumises à une consommation d'alcool que l'on trouve chez le « binge-drinker » adolescent. ERIC BAUDET/DIVERGENCE POUR LE JDD

TÉLEX

Insolite
Une seconde vie pour Cornette

La vache Cornette qui s'était échappée d'un abattoir près d'Ambert (Rhône) le 30 juin, et avait suscité un élan de solidarité sur la Toile, a été rachetée 1.500 € à son propriétaire par une association de défense des animaux. Cornette, qui attend un veau, s'installera aujourd'hui dans une ferme pédagogique à Montmagny (Val-d'Oise).

Haute-Corse
La 7e victime du GR20 retrouvée

Le corps d'une 7e victime d'un accident de montagne, survenu le 10 juin en Haute-Corse, sur le GR20, a été trouvé hier au niveau du cirque de la Solitude, sur la commune d'Asco, a-t-on appris auprès de la gendarmerie. Il s'agit probablement du dernier disparu dans l'accident de

OFDT
AAP Addictions

Au total…

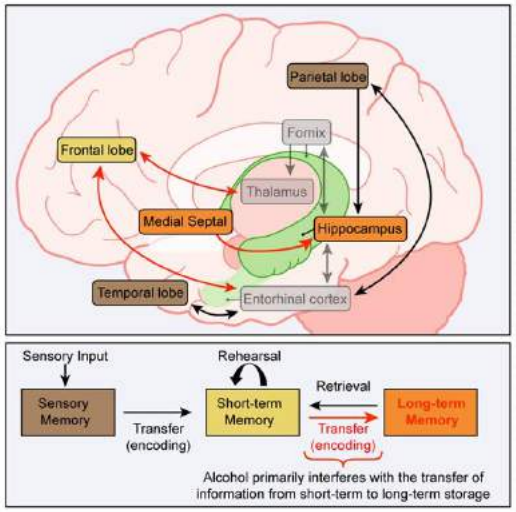
- **Bonne vision des facteurs environnementaux** (cible marketing = levier prévention ?) et des **motivations**…
- **Très/trop accessible** : -18ans (éduquer/informer/sensibiliser, former, RAPPEL DE LA LOI ? ; ***testing*** ?) Caisses automatiques, > ½ pas de contrôle d'identité
- **L'alcool est partout et tout est fait pour que les jeunes ne puissent pas y échapper**: rayons supermarchés/supérettes, duty free aéroport, arrêts de bus, publicités digitales/écran commandés à distance, soirées étudiantes dans les bars, réunion/ prévention/médiation scientifique dans les bars !!!! (Pint of Science RDV au bar)
- réponse à une **« pression » sociale :**

« je ne vais pas au WE d'intégration

Je ne bois pas ! »

- **Facteurs de protection**…
- Pourquoi tant de différence entre tabac

et alcool ? (alors que dangers immédiats avec l'alcool…, drogue, lien cancer ?)



Blackout

Relation sexuelle non consentie

viol

Echec scolaire

Addiction

Accident

DC

Coma éthylique

Effets à long terme du binge drinking

- Initiation adolescence augmente le **risque de dépendance** (OR 1.7) et accident de la route (OR 5) **B. F. Grant and D. A. Dawson, Journal of Substance Abuse 10 (1998):163-173.**
- BD à 16a augmente le **risque d'alcoolodépendance** à 30a(OR 1.6), de **conso excessive** (OR 1.7), **usage drogue illicite** (OR 1.4), **comorbidité psy** (OR 1.4), **échec scolaire** (OR 3.9). Cohorte anglaise **Viner RM & Taylot B J Epidemiol Community Health. 2007**
- Binge drinking fréquent (>1x/sem) chez les femmes (16-21a) augmente le risque (OR 1.7) de **dépression** 1-6a et 10-15a plus tard. **Powers J et al Drug & Alcohol Dep, 2016**

Alcohol Consumption in Movies and Adolescent Binge Drinking in 6 European Countries

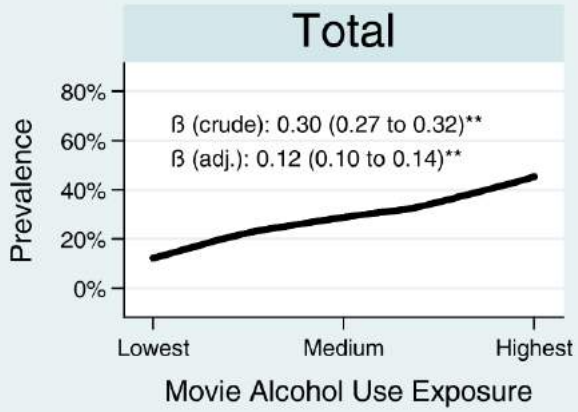
AUTHORS: Reiner Hanewinkel, PhD,[a,b] James D. Sargent, MD,[c] Evelien A. P. Poelen, PhD,[d] Ron Scholte, PhD,[d] Ewa Florek, MD,[e] Helen Sweeting, PhD,[f] Kate Hunt, PhD,[f] Solveig Karlsdottir, MSc,[g] Stefan Hrafn Jonsson, PhD,[g,h] Federica Mathis, BSc,[i] Fabrizio Faggiano, MD,[i,j] and Matthis Morgenstern, PhD[a,b]

[a]Institute for Therapy and Health Research, Kiel, Germany; [b]Institute for Medical Psychology and Medical Sociology, University Hospital Schleswig-Holstein, Kiel, Germany; [c]Dartmouth Medical School, Lebanon, New Hampshire; [d]Behavioural Science Institute, Radboud University, Nijmegen, Netherlands; [e]Laboratory of Environmental Research, Department of Toxicology, University of Medical Sciences, Poznan, Poland; [f]Medical Research Council (MRC) Social & Public Health Sciences Unit, Glasgow, United Kingdom; [g]Directo
Iceland, Reykjavik,
Epidemiology, A.S.L
University, Novara,

KEY WORDS
alcohol, Europe, e

WHAT'S KNOWN ON THIS SUBJECT: Some studies reveal an association between exposure to alcohol consumption in movies and youth drinking, but the evidence is sparse.

WHAT THIS STUDY ADDS: Exposure to alcohol consumption in movies is associated with youth binge drinking, is little influenced by cultural differences between countries (Germany, Iceland, Italy, Netherlands, Poland, and Scotland), and is specific to movie alcohol, not movie smoking, depictions.



Lifetime binge drinking

ß = Regression Coefficient
Figures in brackets = 95% Confidence Interval
adj. = adjusted
n.s. = not significant; * = p<0.01; ** = p<0.001

BMJ open
accessible medical research

PRESS RELEASE

Comparing media and family predictors of alcohol use: a cohort study of US adolescents

Mike Stoolmiller,[1] Thomas A Wills,[2] Auden C McClure,[3,4] Susanne E Tanski,[3,4] Keilah A Worth,[5] Meg Gerrard,[4,6] James D Sargent[3,4]

To cite: Stoolmiller M, Wills TA, McClure AC, *et al*. Comparing media and family predictors of alcohol use: a cohort study of US adolescents. *BMJ Open* 2012;**2**:e000543. doi:10.1136/bmjopen-2011-000543

► Prepublication history and additional appendix for this paper are available online. To view these files please visit the journal online (http://dx.doi.org/10.1136/bmjopen-2011-000543).

Received 18 November 2011
Accepted 15 December 2011

ABSTRACT

Objective: To compare media/marketing exposures and family factors in predicting adolescent alcohol use.

Design: Cohort study.

Setting: Confidential telephone survey of adolescents in their homes.

Participants: Representative sample of 6522 US adolescents, aged 10—14 years at baseline and surveyed four times over 2 years.

Primary outcome measure: Time to alcohol onset and progression to binge drinking were assessed with two survival models. Predictors were movie alcohol exposure (MAE), ownership of alcohol-branded merchandise and characteristics of the family (parental alcohol use, home availability of alcohol and parenting). Covariates included sociodemographics, peer drinking and personality factors.

ARTICLE SUMMARY

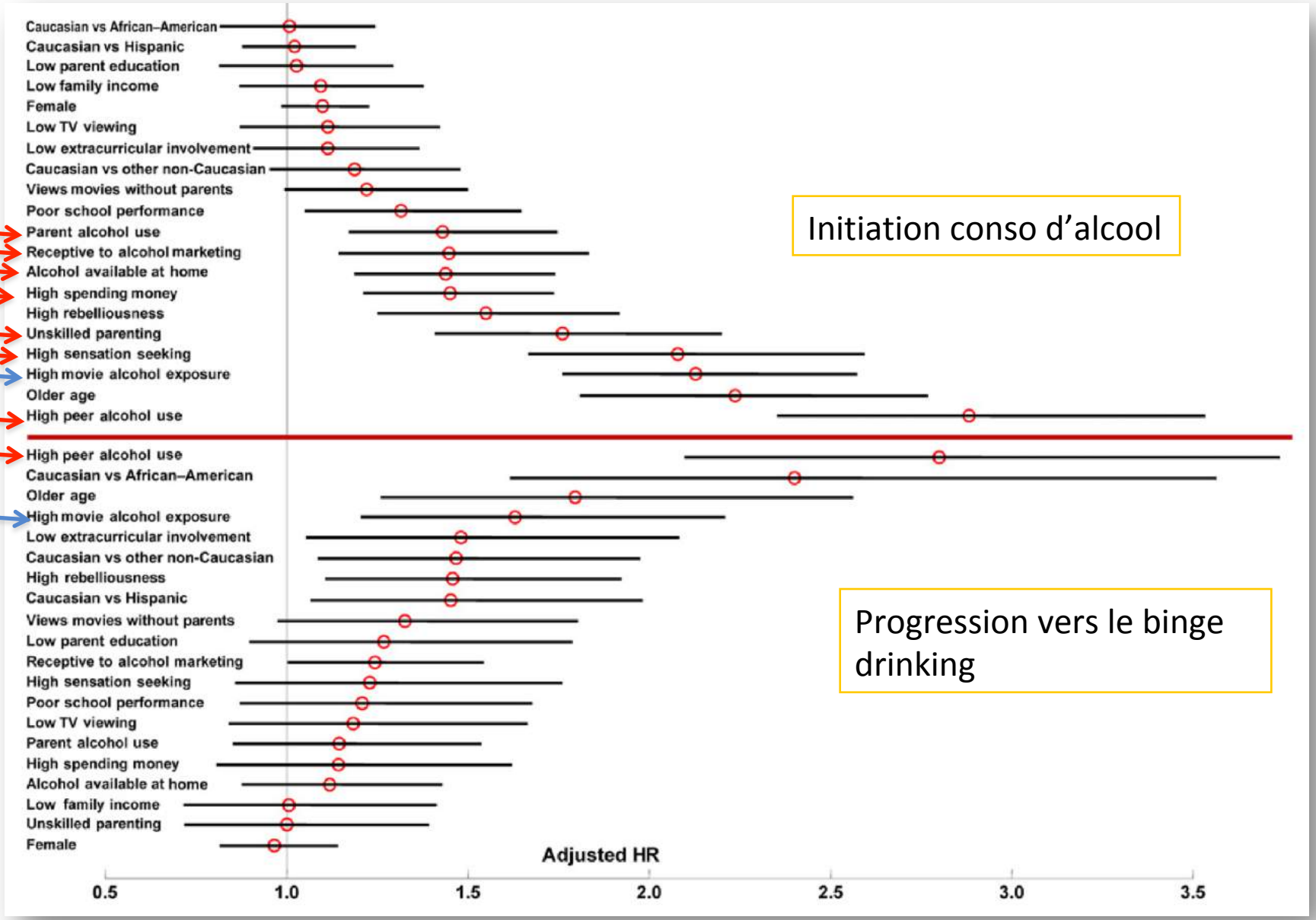
Article focus

- Predictors of drinking during adolescence.
- Particular focus on predicting onset versus binge drinking and media/marketing exposures versus family risk factors.

Key messages

- Somewhat different risk factors exist for alcohol onset versus binge drinking.
- Movie alcohol, alcohol marketing, friend drinking and sensation seeking predicted both outcomes.
- Parent drinking, availability of alcohol at home and parenting predicted alcohol onset, not binge drinking.

Strengths and limitations


Caucasian vs African–American
Caucasian vs Hispanic
Low parent education
Low family income
Female
Low TV viewing
Low extracurricular involvement
Caucasian vs other non-Caucasian
Views movies without parents
Poor school performance
Parent alcohol use
Receptive to alcohol marketing
Alcohol available at home
High spending money
High rebelliousness
Unskilled parenting
High sensation seeking
High movie alcohol exposure
Older age
High peer alcohol use
High peer alcohol use
Caucasian vs African–American
Older age
High movie alcohol exposure
Low extracurricular involvement
Caucasian vs other non-Caucasian
High rebelliousness
Caucasian vs Hispanic
Views movies without parents
Low parent education
Receptive to alcohol marketing
High sensation seeking
Poor school performance
Low TV viewing
Parent alcohol use
High spending money
Alcohol available at home
Low family income
Unskilled parenting
Female
Adjusted HR
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Initiation conso d'alcool
Progression vers le binge drinking

Au total…

- **Représentations** (gravité, normalité ? Adolescence = expérimentations / tester ses limites, « vraie » soirée = alcool, tous les amis boivent et beaucoup, absence de valorisation du comportement des non-buveurs, binge = 😊 et addiction = ☹)
- Manque de données sur les comportements pendant les années « post-bac »; recherche ?
- Aucune formation des futurs professionnels de santé par les experts en addictologie !
  - Thème des addictions dans le Service sanitaire
  - Comment prévenir / informer / sensibiliser ?

Contexte actuel, perspectives

- **Pas de programme(s) de prévention** (école primaire à l'université) encore largement disséminé(s) *(GBG, unplugged, CPS)*
- Des **campagnes** qui se mettent en place mais rien pour limiter la présence ubiquiste de l'alcool
- Armer les **parents** et désarmer les « **alcooliers** » qui investissent tout l'espace et velléité de « faire » la prévention ?
- **Repérage précoce** ? MAIS

Stigmatisation ?

- **Approche globale**

Qualité de vie, bien être…


International Journal of Environmental Research and Public Health

MDPI

Article

Alcohol Industry CSR Organisations: What Can Their Twitter Activity Tell Us about Their Independence and Their Priorities? A Comparative Analysis

Nason Maani Hessari [1], May CI van Schalkwyk [2], Sian Thomas [3] and Mark Petticrew [3,*]


thebmj

BMJ 2019;365:l1666 doi: 10.1136/bmj.l1666 (Published 9 April 2019)

Page 1 of 1

NEWS

Check for updates

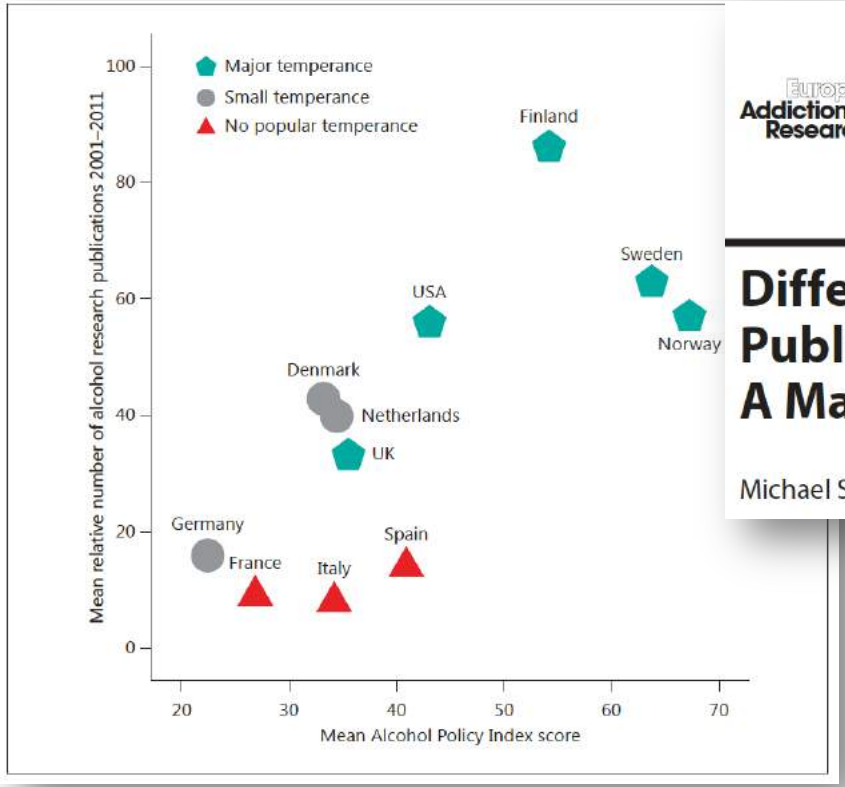
Exclusive: Partnering with alcohol industry on public health is not okay, WHO says

Ingrid Torjesen

London, UK

Contexte actuel, perspectives

- **Tolérance / laxisme / complicité** / Messages brouillés tous les jours dans les médias
- **Répercussions même sur la priorité accordée à la recherche** alcool en France !



Short Communication

European Addiction Research

Eur Addict Res 2014;20:319–323
DOI: 10.1159/000363230

Received: November 4, 2013
Accepted: April 27, 2014
Published online: October 10, 2014

Differences in Alcohol-Related Research Publication Output between Countries: A Manifestation of Societal Concern?

Michael Savic[a, b] Robin Room[c–e]

Contexte actuel, perspectives

- **Pas de volonté/moyens** des établissements de lutter activement contre les méfaits de l'alcoolisation précoce (même après des décès…); ***pas d'exemplarité !***
- Besoin d'une **stratégie NATIONALE :**

Exemple aux USA programme « COLLEGE AIM » basé sur les preuves d'efficacité:

Stratégie individuelle **ET**

Stratégie environnementale

www.CollegeDrinkingPrevention.gov/CollegeAIM

INDIVIDUAL-LEVEL STRATEGIES:
Estimated Relative Effectiveness, Costs, and Barriers; Public Health Reach; Research Amount; and Primary Modality[1]

COLLEGE AIM

EFFECTIVENESS: Success in achieving targeted outcomes

COSTS: Combined program and staff costs for adoption/implementation and maintenance

	Lower costs $	Mid-range costs $$	Higher costs $$$
Higher effectiveness ★★★	**IND-3** Normative re-education: Electronic/mailed personalized normative feedback (PNF)—Generic/other[2] [##, B, ●●●, online/offsite] **IND-10** Skills training, alcohol focus: Self-monitoring/self-assessment *alone*[3] [#, F, ●●, online/offsite] **IND-21** Personalized feedback intervention (PFI): eCHECK UP TO GO (formerly, e-CHUG)[2] [#, B, ●●●, online]	**IND-9** Skills training, alcohol focus: Goal/intention-setting *alone*[3] [##, F, ●●, IPI] **IND-12** Skills training, alcohol plus general life skills: Alcohol Skills Training Program (ASTP)[2] [#, F, ●●●, IPG] **IND-16** Brief motivational intervention (BMI): In-person—Individual (e.g., BASICS) [##, F, ●●●●, IPI] **IND-22** Personalized feedback intervention (PFI): Generic/other[2] [##, B, ●●●●, online]	**IND-17** Multi-component education-focused program (MCEFP): AlcoholEdu® for College[2] [#, B, ●●, online]
Moderate effectiveness ★★		**IND-8** Skills training, alcohol focus: Expectancy challenge interventions (ECI)—Experiential [##, F, ●●●, IPG] **IND-13** Skills training, alcohol plus general life skills—Parent-based alcohol communication training [#, F, ●●, offsite] **IND-14** Skills training, alcohol plus general life skills or general life skills only: Generic/other[2] [#, F, ●●●●, IPG] **IND-15** Brief motivational intervention (BMI): In-person—Group [##, F, ●●, IPG]	
Lower effectiveness ★	**IND-2** Normative re-education: Electronic/mailed personalized normative feedback (PNF) Event-specific prevention (21st birthday cards) [#, B, ●●, online/offsite]	**IND-4** Normative re-education: In-person norms clarification *alone*[3] [#, F, ●●, IPG]	
Not effective X	**IND-7** Skills training, alcohol focus: Expectancy challenge intervention (ECI)—By proxy/didactic/discussion *alone*[3] [#, F, ●●, IPG]	**IND-1** Information/knowledge/education *alone*[3] [#, B, ●●●●, IPG] **IND-5** Values clarification *alone*[3] [#, F, ●●, IPG]	
Too few studies to rate effectiveness ?	**IND-11** Skills training, alcohol plus general life skills: Alcohol 101 Plus™[2] [#, B, ●, online] **IND-19** Personalized feedback intervention (PFI): CheckYourDrinking (beta 1.0 version)[2] [#, B, ●, online] **IND-20** Personalized feedback intervention (PFI): College Drinker's Check-up[2] [#, B, ●, online]	**IND-6** Skills training, alcohol focus: Blood alcohol concentration feedback *alone*[3] [#, F, ●, IPI] **IND-18** Multi-component education-focused programs (MCEFP): Miscellaneous[2] [#, B, ●, online]	

Interventions Delivered by Health Care Professionals

Strategies in which health care professionals identify and help students whose drinking patterns put them at risk for harm, or who are already experiencing alcohol-related problems:

IND-23 Screening and behavioral treatments

IND-24 Medications for alcohol use disorder

These approaches can reduce harmful drinking, according to studies conducted mainly in general adult populations (ages 18–65).

The differences in research populations, along with wide variations in costs and barriers across campuses, precluded ratings relative to other strategies. *See page 18 for more information.*

Legend

Effectiveness rating, based on percentage of studies reporting any positive effect:

★★★ = 75% or more
★★ = 50% to 74%
★ = 25% to 49%
X = Less than 25%

Barriers:
= Higher
= Moderate
= Lower

Public health reach:
B = Broad
F = Focused

Research amount:
●●●● = 11+ studies
●●● = 7 to 10 studies
●● = 4 to 6 studies
● = 3 or fewer studies

Primary modality:
IPI = In-person individual
IPG = In-person group
Online
Offsite

ENVIRONMENTAL-LEVEL STRATEGIES:
Estimated Relative Effectiveness, Costs, and Barriers; Public Health Reach; and Research Amount/Quality[1]

COLLEGE AIM

EFFECTIVENESS: Success in achieving targeted outcomes

COSTS: Combined program and staff costs for adoption/implementation and maintenance

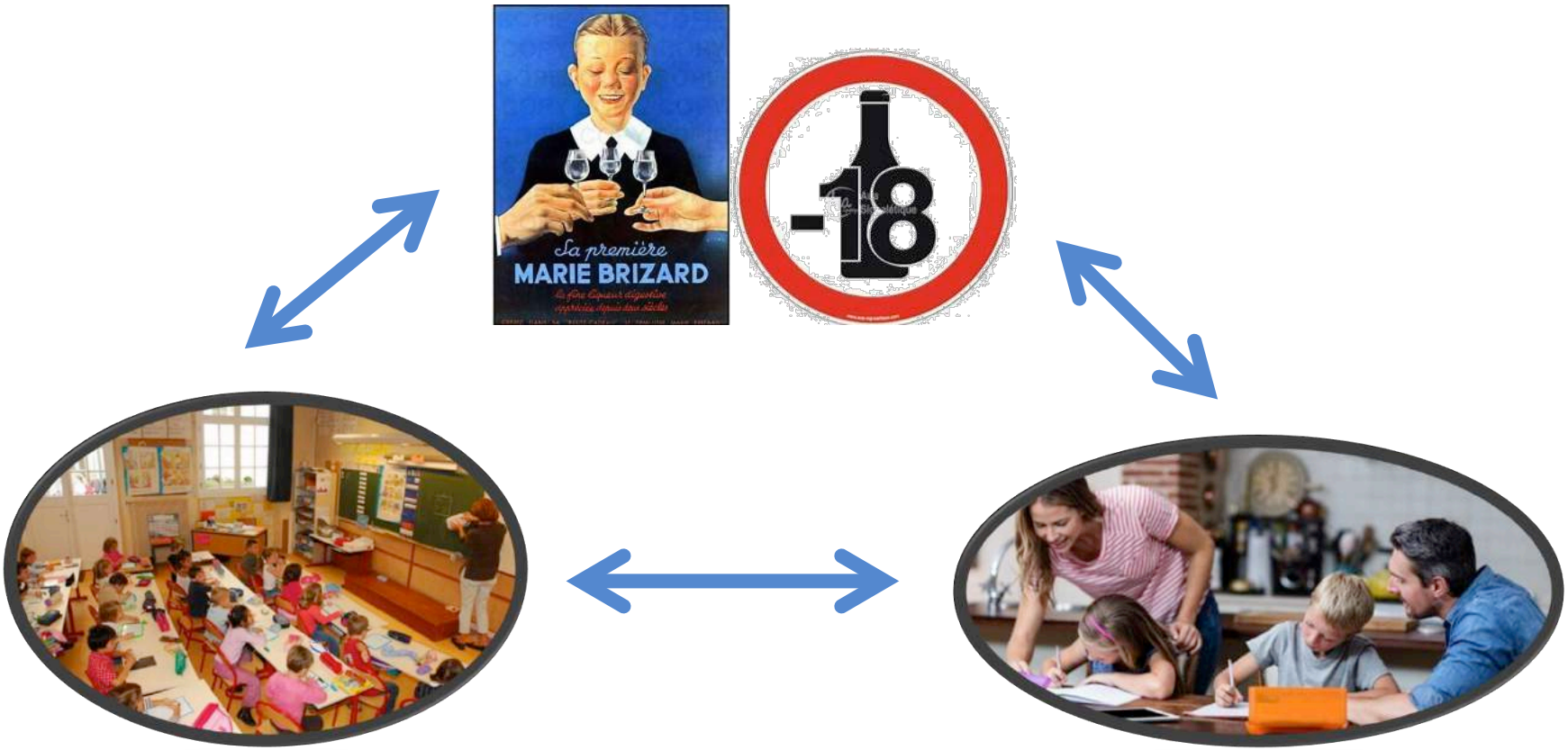
	Lower costs $	Mid-range costs $$	Higher costs $$$
Higher effectiveness ★★★	**ENV-16** Restrict happy hours/price promotions [###, B, ●●●] **ENV-21** Retain ban on Sunday sales (where applicable) [##, B, ●●●●] **ENV-22** Retain age-21 drinking age [##, B, ●●●●]	**ENV-11** Enforce age-21 drinking age (e.g., compliance checks) [##, B, ●●●●] **ENV-23** Increase alcohol tax [###, B, ●●●●]	
Moderate effectiveness ★★	**ENV-17** Retain or enact restrictions on hours of alcohol sales [##, B, ●●●●] **ENV-34** Enact social host provision laws [##, B, ●●●]	**ENV-3** Prohibit alcohol use/sales at campus sporting events [##, F, ●●●●] **ENV-25** Enact dram shop liability laws: Sales to intoxicated [##, B, ●●●●] **ENV-26** Enact dram shop liability laws: Sales to underage [##, B, ●●●] **ENV-30** Limit number/density of alcohol establishments [###, B, ●●●●] **ENV-35** Retain state-run alcohol retail stores (where applicable) [###, B, ●●●●]	**ENV-31** Enact responsible beverage service training laws [##, B, ●●●]
Lower effectiveness ★		**ENV-1** Establish an alcohol-free campus [###, B, ●●●] **ENV-7** Conduct campus-wide social norms campaign[2] [#, B, ●●●●]	**ENV-12** Restrict alcohol sponsorship and advertising [##, B, ●●●] **ENV-14** Implement beverage service training programs: Sales to intoxicated [C = #, S/L = ##, B, ●●●] **ENV-15** Implement beverage service training programs: Sales to underage [C = #, S/L = ##, B, ●●●●] **ENV-28** Enact keg registration laws [##, B, ●●●]
Too few robust studies to rate effectiveness —or mixed results ?	**ENV-4** Prohibit alcohol use/service at campus social events [##, B, 0] **ENV-5** Establish amnesty policies[2] [#, F, ●●●] **ENV-8** Require Friday morning classes[2] [#, B, ●●] **ENV-9** Establish standards for alcohol service at campus social events [#, B, ●●●] **ENV-10** Establish substance-free residence halls[2] [#, F, ●●] **ENV-13** Prohibit beer kegs [C = #, S/L = ###, B, ●●●] **ENV-18** Establish minimum age requirements to serve/sell alcohol [##, B, ●●●●] **ENV-19** Implement party patrols [##, B, ●●●] **ENV-24** Increase cost of alcohol license [##, B, 0] **ENV-27** Prohibit home delivery of alcohol [##, B, ●●] **ENV-29** Enact noisy assembly laws [##, B, 0]	**ENV-6** Implement bystander interventions[2] [#, F, 0]	**ENV-2** Require alcohol-free programming[2] [#, F, ●●] **ENV-20** Implement safe-rides program[2] [##, F, ●●] **ENV-32** Conduct shoulder tap campaigns [##, B, ●●] **ENV-33** Enact social host property laws [##, B, 0] **ENV-36** Require unique design for state ID cards for age < 21 [##, B, 0]

Legend

Barriers:
= Higher
= Moderate
# = Lower
C = Barriers at

Research amount/quality:
●●●● = 5 or more longitudinal studies
●●● = 5 or more cross-sectional studies or 1 to 4 longitudinal studies

Intervention précoce et holistique !




Alcoolisation foetale
Réseaux sociaux Films médias
Soirées , fêtes
pots
Éducation, posture
Pots, addiction
Repères ? Binge ? médicaments
Apéros , fêtes
apéros

++++

- - - -

Acceptabilité / banalisation

Respect Loi (-18ans)

Parents (en)cadrants

Prévention précoce / recherche

Représentations

Pression pairs / stress

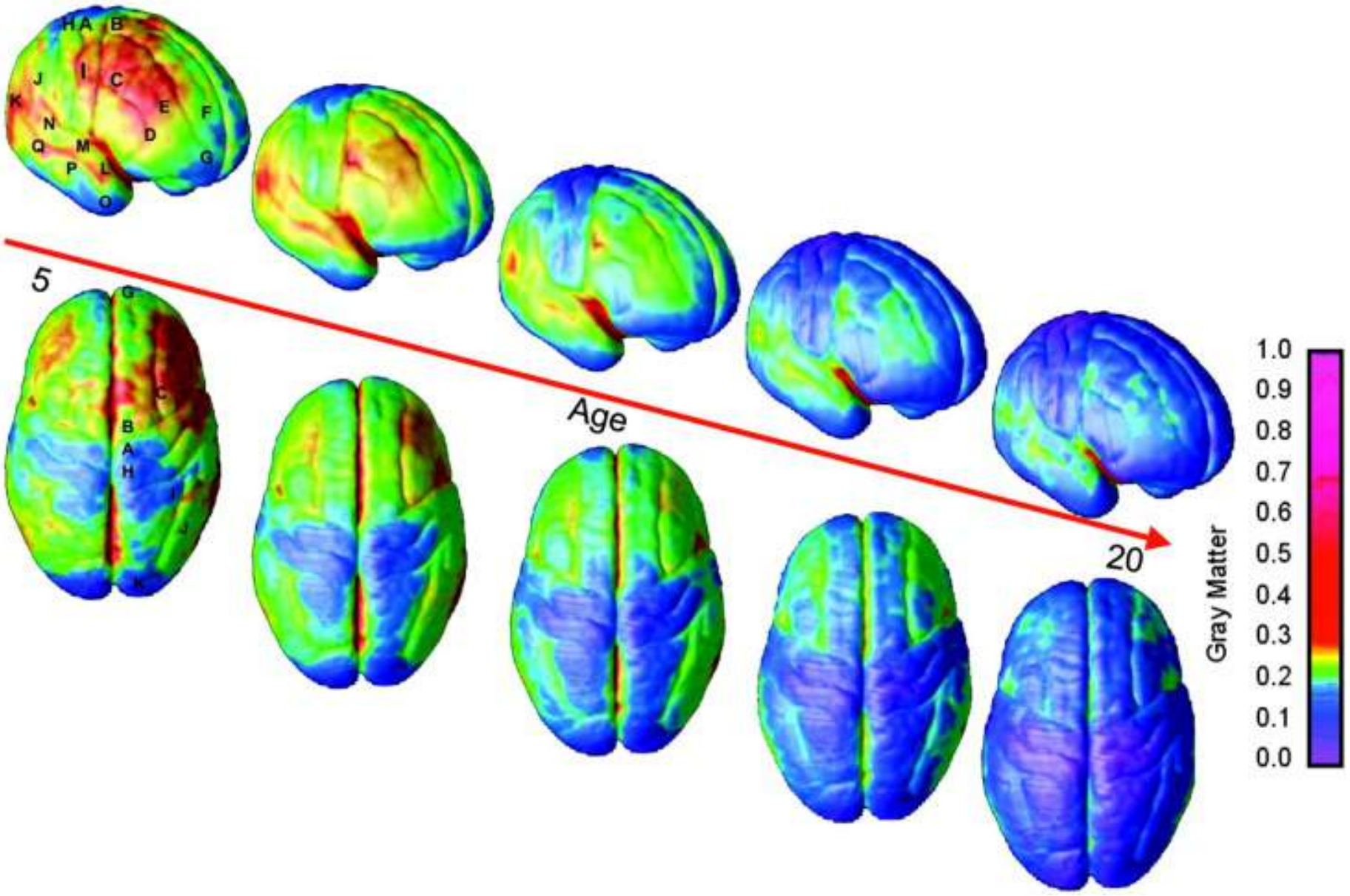
culture

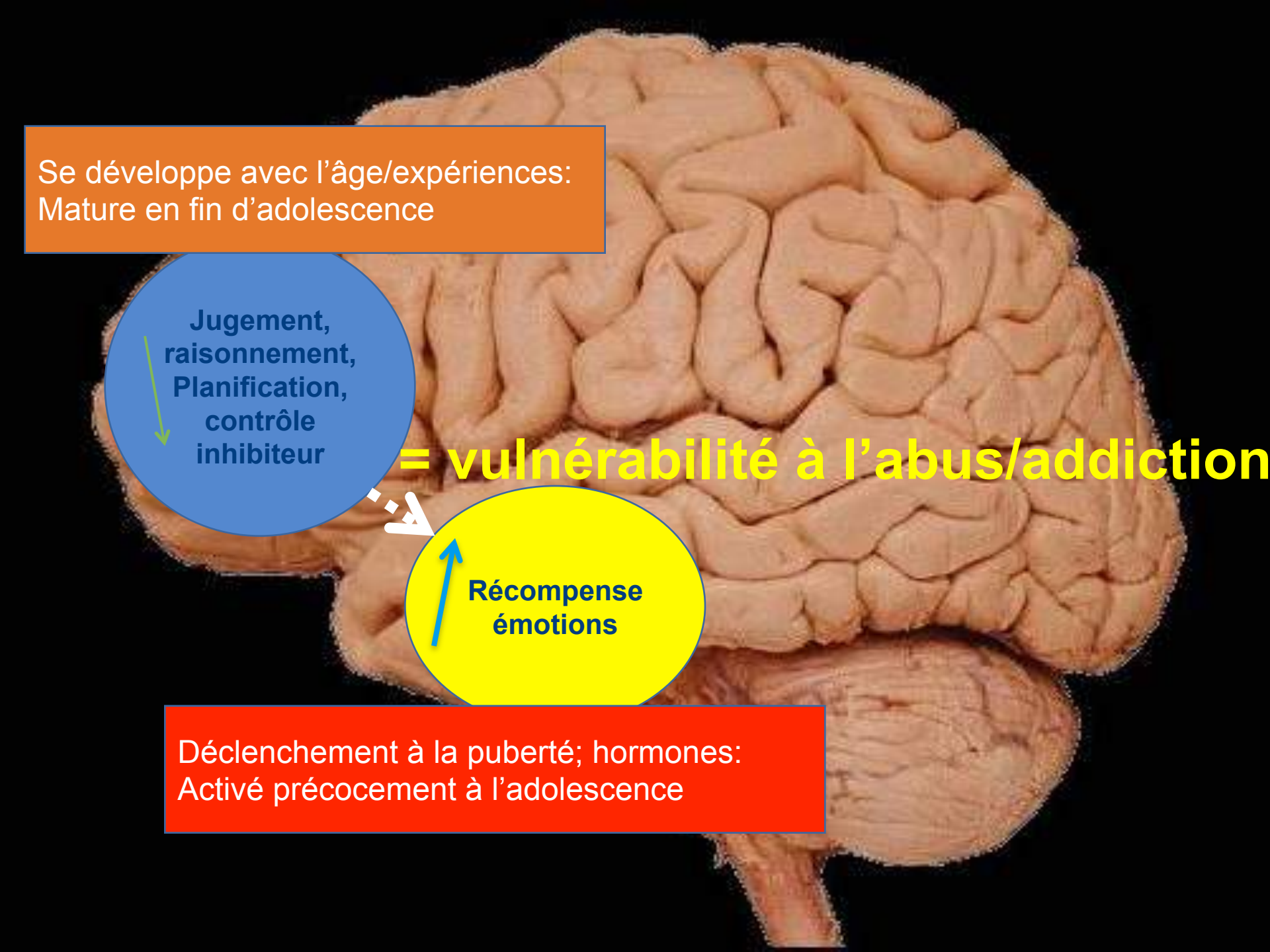
Environnement addictogène /marketing

Quels sont les leviers ?

Diapo qui a plus de 10 ans !

Biais attentionnels…

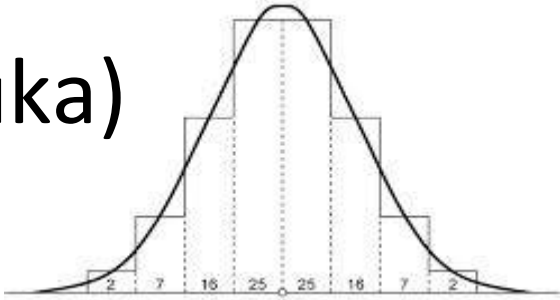

5
Age
20
Gray Matter
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0


Se développe avec l'âge/expériences:
Mature en fin d'adolescence
Jugement, raisonnement, Planification, contrôle inhibiteur
= vulnérabilité à l'abus/addiction
Récompense émotions
Déclenchement à la puberté; hormones:
Activé précocement à l'adolescence


MISTER FRE

Typologie des modes de consommation

Le score de binge drinking (T. Duka)



Questionnaire AUQ + questions supplémentaires

1 - Lorsque vous buvez, à quelle vitesse le faîtes-vous

Boissons par heure +7 6 5 4 3 2 1

2 - Combien de fois avez-vous été saoul(e) ces 6 derniers mois ? Etre saoul(e) implique une perte de coordination, des nausées et/ou incapacité à parler clairement

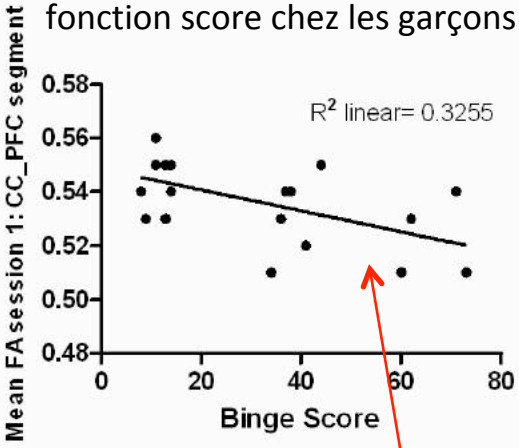
3 - Quel est le pourcentage de fois où vous êtes saoul(e) lorsque vous buvez ?

Score de Binge = [4 x (item 1) + item 2 + 0,2 x (item 3)]

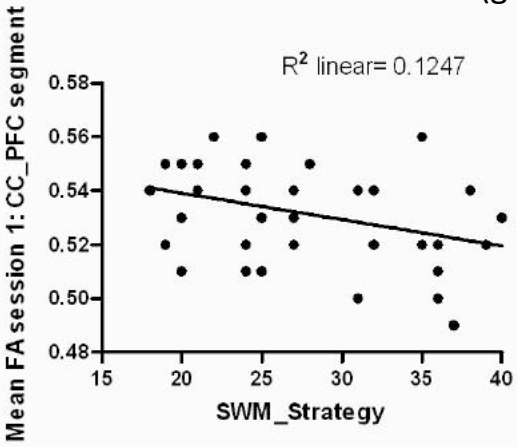
(Townshend & Duka, 2002. *Alcohol and Alcoholism*)

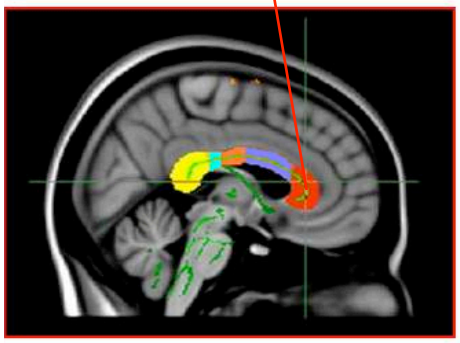
Atteintes de la substance blanche et des de la mémoire de travail spatiale chez les binge drinkers

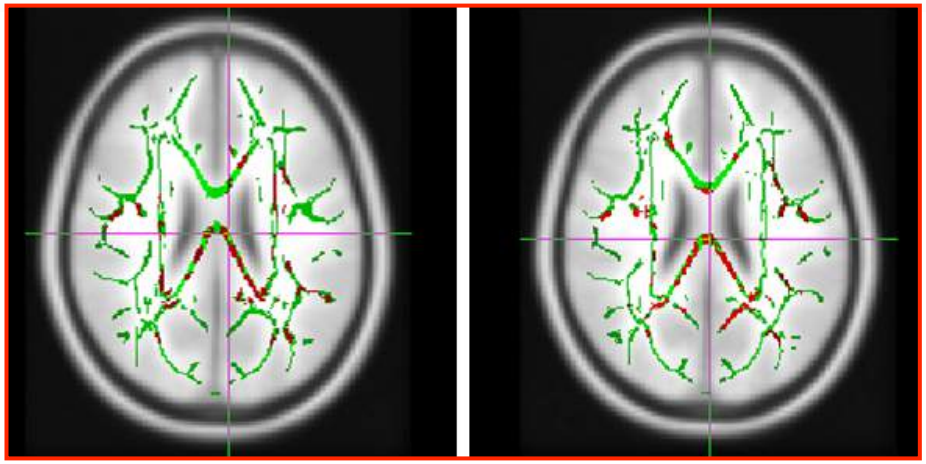
Atteintes de la substance blanche en fonction score chez les garçons



Performance tâche de mémoire de travail spatiale en fonction du score (garçons + filles)



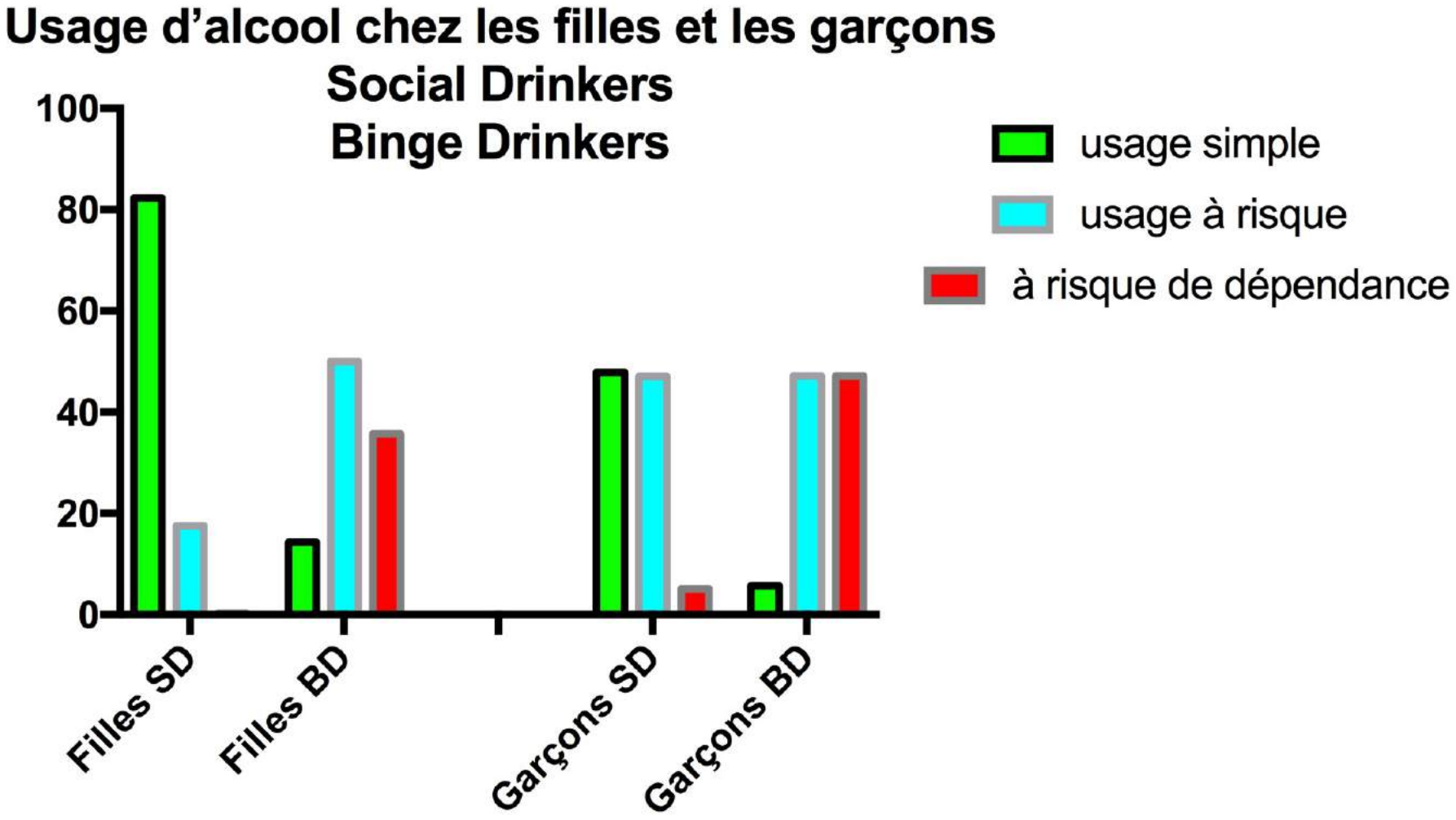




Altered white matter integrity in whole brain and segments of corpus callosum, in young social drinkers with binge drinking pattern

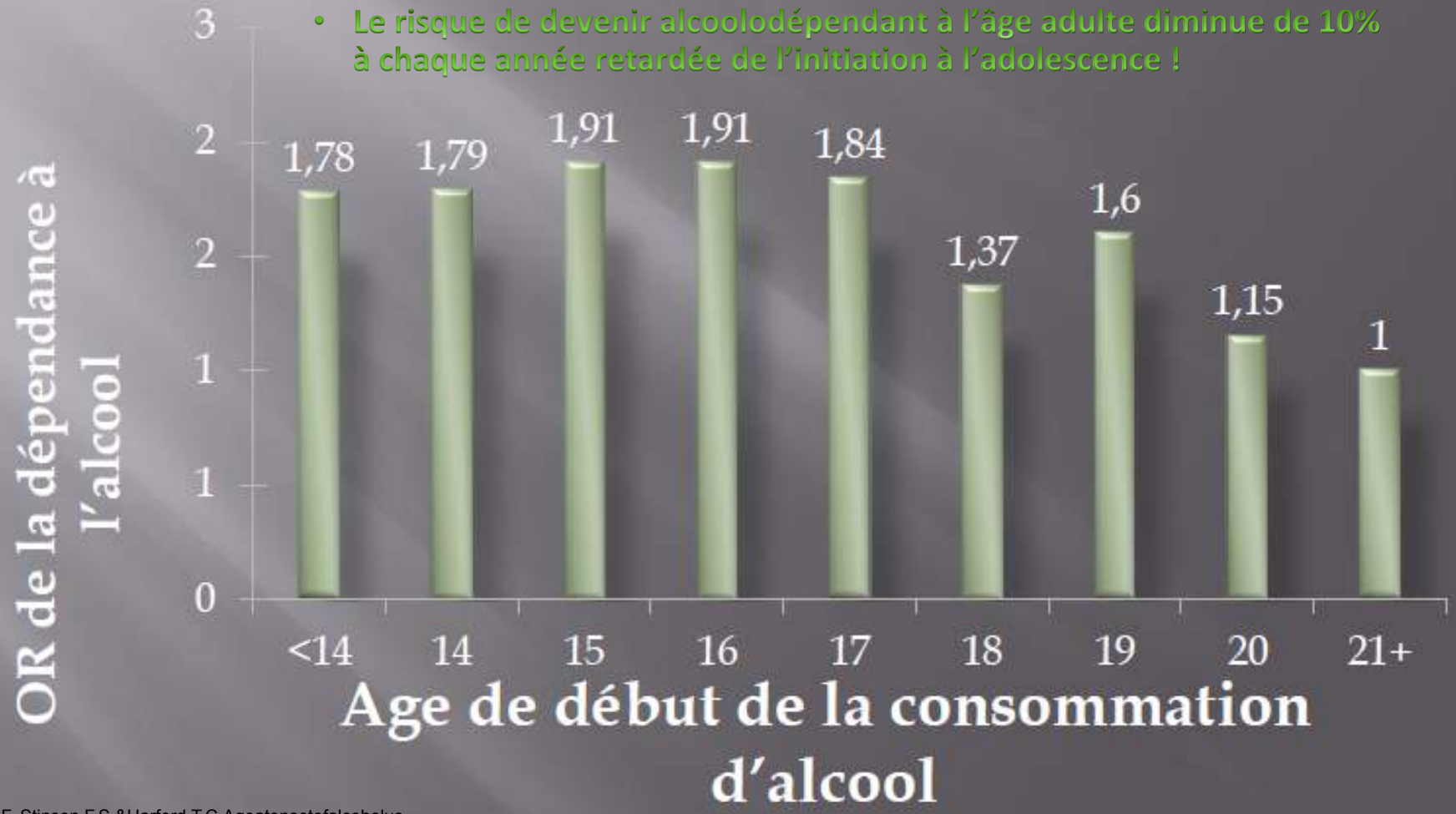
KW. Smith, F Gierski, J André, M Cercignani, M Naassila, T duka, Addiction Biology 2015

AUDIT conso à risque ? N=1000



Précocité de la consommation d'alcool et risque de dépendance

- Le risque de devenir alcoolodépendant à l'âge adulte diminue de 10% à chaque année retardée de l'initiation à l'adolescence !



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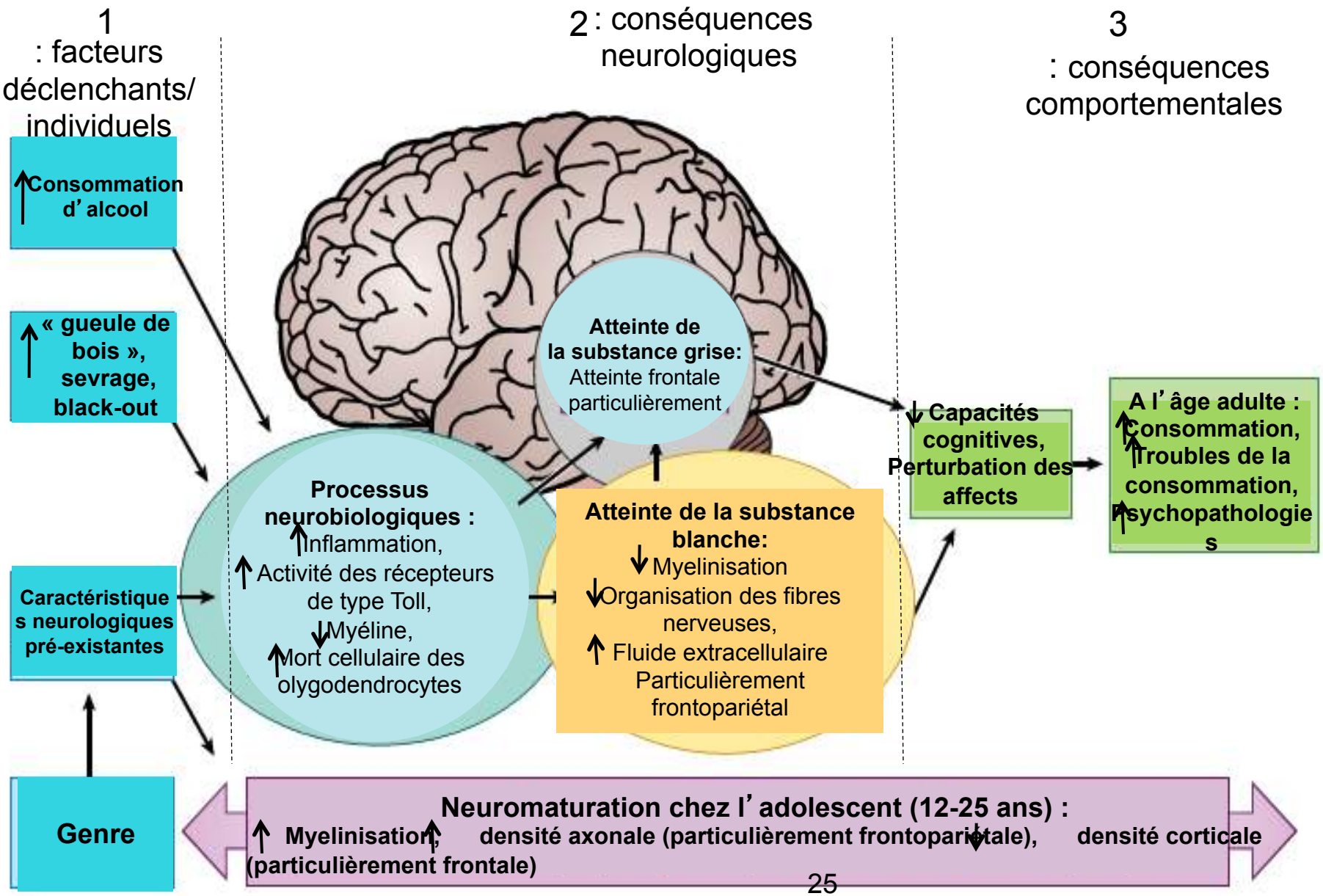
1 : facteurs déclenchants/ individuels
2 : conséquences neurologiques
3 : conséquences comportementales
Consommation d'alcool
« gueule de bois », sevrage, black-out
Caractéristiques neurologiques pré-existantes
Genre
Atteinte de la substance grise: Atteinte frontale particulièrement
Processus neurobiologiques : Inflammation, Activité des récepteurs de type Toll, Myéline, Mort cellulaire des oligodendrocytes
Atteinte de la substance blanche: Myelinisation Organisation des fibres nerveuses, Fluide extracellulaire Particulièrement frontopariétal
Capacités cognitives, Perturbation des affects
A l'âge adulte : Consommation, Troubles de la consommation, Psychopathologies
Neuromaturation chez l'adolescent (12-25 ans) :
Myelinisation, densité axonale (particulièrement frontopariétale), densité corticale (particulièrement frontale)

Facteurs sociaux

Normes et appartenance au groupe

Fabien Gierski, PhD
C2S Reims

ALCOHOLISM: CLINICAL AND EXPERIMENTAL RESEARCH

Vol. 41, No. 11
November 2017

Cloninger's Temperament and Character Dimensions of Personality and Binge Drinking Among College Students

Fabien Gierski, Farid Benzerouk, Elodie De Wever, Theodora Duka, Arthur Kaladjian, Véronique Quaglino, and Mickaël Naassila

Background: Temperament and character dimensions of personality remain largely unexplored in young adults exhibiting binge drinking (BD) patterns. Moreover, the available studies do not consider gender differences and dismiss possible personality heterogeneity among binge drinkers. In this study, we aimed to compare temperament and character dimensions between young binge drinkers and age- and sex-matched social drinkers. We further applied cluster analysis to investigate the potential heterogeneity of personality patterns among BD college students.

Methods: This study included 200 university students of 18 to 24 years of age, who were recruited via an invitation to take an alcohol use survey. These participants included 100 individuals (50 females and 50 males) with a BD pattern, and 100 participants (50 females and 50 males) with a social drinking (SD) pattern. These subjects were evaluated with regard to their use of alcohol and other substances, impulsiveness, sensation seeking, mood, and Cloninger's Temperament and Character Inventory.

Results: Between-group comparisons revealed that both male and female binge drinkers were characterized by high levels of novelty seeking, and low levels of persistence and self-directedness. However, cluster analyses within the binge drinker group revealed 2 distinct groups that differed between males and females. These groups shared similarities with Cloninger's type I (high harm-avoidance) and II (high novelty-seeking) alcoholism typology.

Conclusions: The present findings support the subdivision of binge drinkers according to gende and personality dimensions. Male and female binge drinkers should not be considered a unitary group but rather a population of individuals that encompasses at least 2 distinct personality patterns. These findings have major implications for prevention and treatment approaches.

Key Words: Personality, Temperament and Character Inventory, Alcohol Consumption, Binge Drinking, Cluster Analysis.

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Recherche de nouveauté « de l'ivresse »

Évitement du danger « coping »

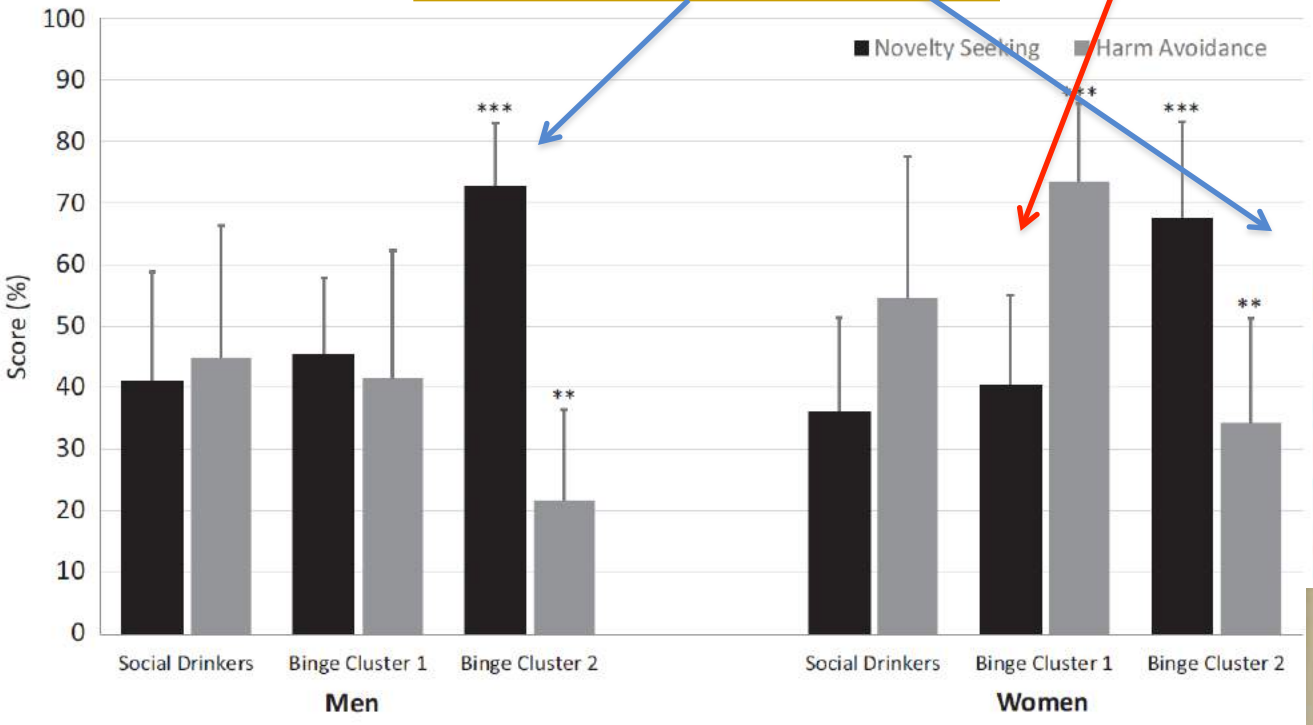

Fig. 1. Comparisons of novelty-seeking and harm-avoidance levels (mean and standard deviation) among the cluster subgro and social drinkers according to gender. ** $p < 0.01$, *** $p < 0.001$.

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