

# Can economic research make a difference?

## The example of alcohol treatment

Jürgen Rehm

Centre for Addiction and Mental Health, University of Toronto, TU Dresden

### Potential conflict of interest (past 2 years)

- International organizations: WHO HQ, WHO EU, EMCDDA
- National funders: CIHR, NIAAA
- Governments: Canada (federal, provincial), Germany, Switzerland
- Pharmaceutical industry: Lundbeck

# Costs of substance use disorders

## Cost of disorders of the brain in Europe 2010

Anders Gustavsson <sup>a</sup>, Mikael Svensson <sup>b</sup>, Frank Jacobi <sup>c</sup>,  
 Christer Allgulander <sup>d</sup>, Jordi Alonso <sup>e</sup>, Ettore Beghi <sup>f</sup>, Richard Dodel <sup>g</sup>,  
 Mattias Ekman <sup>a</sup>, Carlo Faravelli <sup>h</sup>, Laura Fratiglioni <sup>i</sup>, Brenda Gannon <sup>j</sup>,  
 David Hilton Jones <sup>k</sup>, Poul Jennum <sup>l</sup>, Alben Jordanova <sup>m, n, o</sup>,  
 Linus Jönsson <sup>a</sup>, Korinna Karampampa <sup>a</sup>, Martin Knapp <sup>p, q</sup>, Gisela Kobelt <sup>r, s</sup>,  
 Tobias Kurth <sup>t</sup>, Roselind Lieb <sup>u</sup>, Mattias Linde <sup>v, w</sup>, Christina Ljungcrantz <sup>a</sup>,  
 Andreas Maercker <sup>x</sup>, Beatrice Melin <sup>y</sup>, Massimo Moscarelli <sup>z, aa</sup>,  
 Amir Musayev <sup>a</sup>, Fiona Norwood <sup>ab</sup>, Martin Preisig <sup>ac</sup>, Maura Pugliatti <sup>ad</sup>,  
 Juergen Rehm <sup>ae, af</sup>, Luis Salvador-Carulla <sup>ag, ah</sup>, Brigitte Schlehofer <sup>ai</sup>,  
 Roland Simon <sup>aj</sup>, Hans-Christoph Steinhausen <sup>ak, al, am</sup>, Lars Jacob Stovner <sup>an</sup>,  
 Jean-Michel Vallat <sup>ao</sup>, Peter Van den Bergh <sup>ap</sup>, Jim van Os <sup>aq, ar</sup>, Pieter Vos <sup>as</sup>,  
 Weili Xu <sup>i</sup>, Hans-Ulrich Wittchen <sup>c</sup>, Bengt Jönsson <sup>at</sup>, Jes Olesen <sup>au,\*</sup>  
 on behalf of the CDBE2010 study group <sup>1</sup>

Table 4 Comparison of 2010 and 2004 estimates, excluding diagnoses and indirect costs that were not included in the EBC2005 study.

	Estimates in 2010			Estimates in 2004		
	Number of subjects <sup>5</sup> (million)	Costs per subject <sup>3</sup> (€PPP, 2010)	Total costs (million €PPP, 2010)	Number of subjects <sup>5</sup> (million)	Costs per subject <sup>3</sup> (€PPP, 2010)	Total costs (million €PPP, 2004)
Addiction	15.5	4227	65,684	9.2	6229	57,275
Anxiety disorders <sup>7</sup>	61.3	1076	65,995	41.4	999	41,372
Brain tumor	0.24	21,590	5174	0.14	33,907	4586
Dementia	6.3	16,584	105,163	4.9	11,292	55,176
Epilepsy	2.6	5221	13,800	2.7	5778	15,546
Migraine	49.9	370	18,463	40.8	662	27,002
Mood disorders <sup>1</sup>	33.3	3406	113,405	20.9	5066	105,666
Multiple sclerosis	0.54	26,974	14,559	0.38	23,101	8769
Parkinson's disease	1.2	11,153	13,933	1.2	9251	10,722
Psychotic disorders <sup>6</sup>	5.0	5805	29,007	3.7	9554	35,229
Stroke <sup>2</sup>	1.3	21,000	26,641	1.1	19,394	21,895
Traumatic brain injury <sup>2,6</sup>	1.2	4209	5085	0.71	4143	2937
Total	178.5	2672	476,911	127.0	3040	386,175

<sup>1</sup>Referred to as "affective disorders" in 2005, <sup>2</sup>includes only incident cases in 2010, <sup>3</sup>weighted mean from all countries and diagnoses  
<sup>5</sup>including also persons with zero costs, <sup>6</sup>excluding indirect costs, <sup>7</sup>excluding PTSD.

# Estimates of costs for alcohol dependence for Europe

- Mohapatra et al. (2010) estimated the social costs of alcohol dependence via heavy drinking, and concluded that 0.96% of GDP or 60.7% of all social costs attributable to alcohol were due to AD. This corresponds to 94.6 billion € on the basis of the above-presented social cost estimates. If one applied the estimate of 0.96% of GDP to the European GDP of 2010, the result would be 115.1 billion €.
- The most recent European cost study by the EBC (Gustavsson et al., 2012) estimated the costs for selected addictions to amount to 65.7 billion €, which is much lower than the above estimates and not really comparable as the costs for opioid dependence were included. However, these estimates are excluding many costs outside of treatment and productivity losses.
- From these data, a cautious estimate would be costs **between 50 billion € and 120 billion €** for alcohol dependence in Europe.

## A word of caution, but....

- Cost studies have a wide range of varieties and definitions which highly varying outcomes
- Looking at billions of Euros, the underlying assumptions are often lost

**But no matter which assumptions are taken, the costs for alcohol use disorders are very substantial in terms of GDP.**

# Exemplary results of studies on the effect of treatment

✓ Cost-offset

✓ Comparison to other treatments

## The classic: Holder, H. The Cost Offsets of Alcoholism treatment 1998

“The results of research provide consistent support for the cost effectiveness of alcohol treatment. That is, we find support if we define cost-effectiveness in terms of treatment’s ability to offset its own cost by reducing future health expenses.” p. 370

Basis: There are rapidly increasing health care cost often about 6 months before initiation of treatment. Once treatment begins, total health care utilization and cost begin to drop, reaching a level that is lower than pretreatment initiation after a **2-4 year period** (p. 369)

# Systematic review

Int. J. Environ. Res. Public Health 2011, 8, 3351-3364;  
doi:10.3390/ijerph8083351

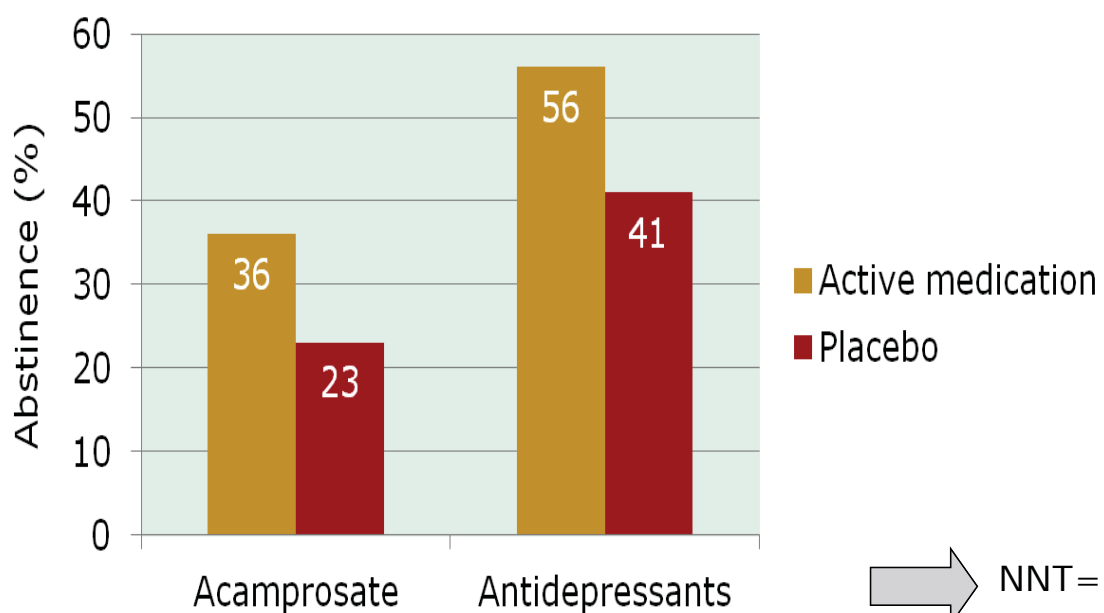
Review

## A Literature Review of Cost-Benefit Analyses for the Treatment of Alcohol Dependence

Svetlana Popova <sup>1,2,3,\*</sup>, Satya Mohapatra <sup>1</sup>, Jayadeep Patra <sup>1,2</sup>, Amy Duhig <sup>4</sup> and Jürgen Rehm <sup>1,2,5</sup>

Overall results: treatment is cost-beneficial

## Treatment effects of current pharmaceutical treatment (outcome = abstinence)



35% abstinence and response difference  
15% ( $\pm$  antidepressants in depression)

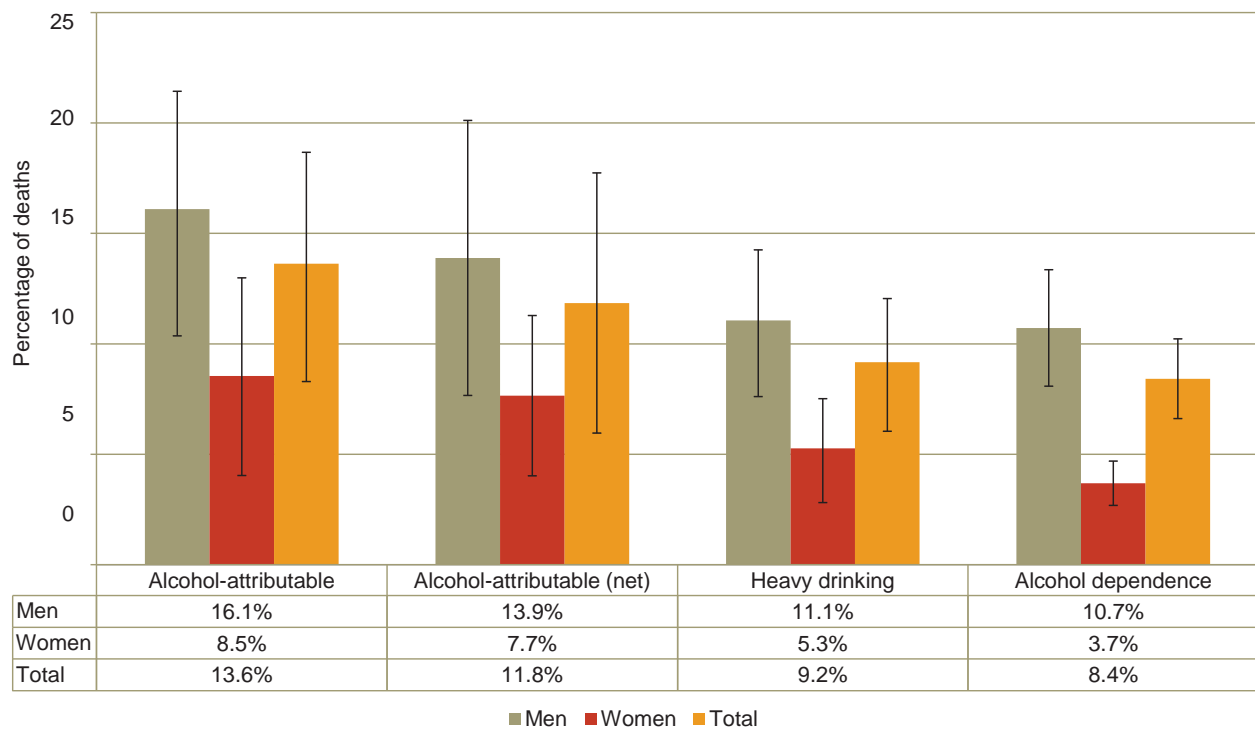
## Summary

- Overall, alcohol treatment seems to be cost-beneficial on the short and medium run. The economic effects seem to persist and treatment seems to be cost-beneficial after three years (i.e., the reduced costs of other treatments especially hospitalization are larger than the costs of treatment)!
- Alcohol treatment has about the same effectiveness as depression

## And if we widen the case to any intervention for heavy drinking

- Good evidence for other interventions to reduce alcohol-attributable harm and heavy drinking (cost-effective and cost-beneficial)
- Alcohol interventions (such as taxation, availability restrictions) are among the best buys of WHO

# How many deaths are attributable to alcohol dependence?



Rehm et al Eur Neuropsychopharm 2013

## What does this mean?

- Most of the burden of alcohol stems from heavy drinkers (about 77% of the net burden, 67% of the overall mortality burden), i.e., women drinking >40 g/day and men drinking >60 g/day
- Alcohol dependence accounts for 71% of the net burden and 62% of the total alcohol-attributable mortality burden
- The proportion on disease burden is higher

Rehm et al Eur Neuropsychopharm 2013

## Conclusion

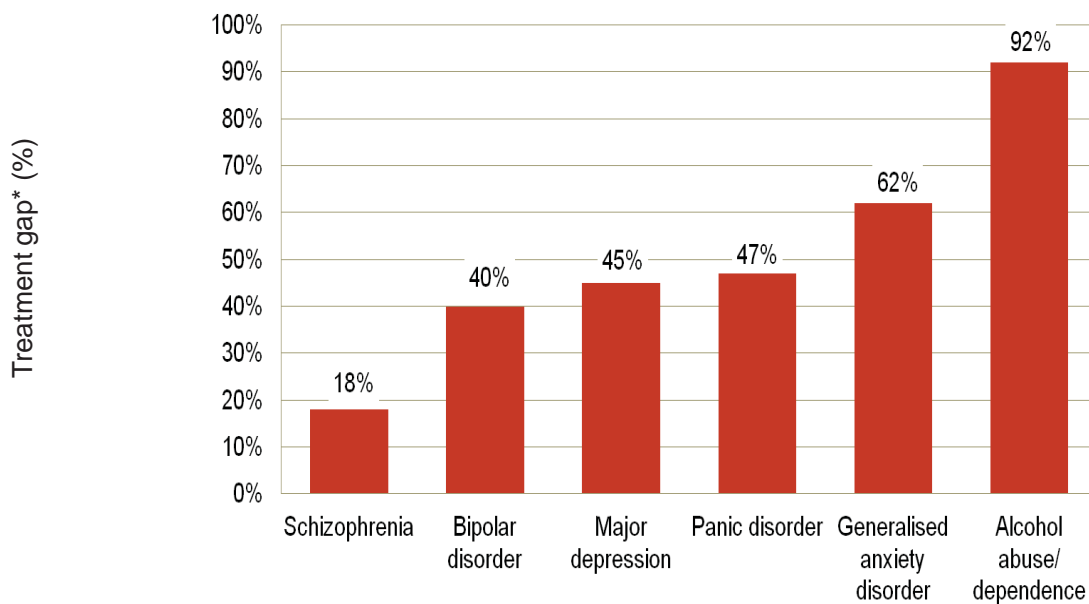
- Alcohol and alcohol-use disorders constitute a huge economic problem
- There are ways to reduce these problems, both from the systemic side (alcohol policy/prevention) or from the individual side (treatment)
- These ways have been proven to be cost-beneficial and cost-effective compared to other interventions
- **So societies take the appropriate steps to reduce alcohol-attributable burden!**

## The social response: treatment

- The treatment rates for alcohol dependence or alcohol use disorders are low, lower than for any somatic disease (e.g., hypertension, diabetes), but also lower than for any mental disorder (e.g., depression, anxiety disorders)
- For the EU these rates are around 10% (Alonso et al., 2004; Rehm et al., 2012), much lower than for depression. Globally, the same gap can be observed (Kohn et al., 2004)



# Treatment gap in alcohol dependence



Alcohol abuse and dependence have the widest treatment gap among all mental disorders – less than 10% of patients with alcohol abuse and dependence are treated

\* Treatment gap=difference between number needing MH Tx and number receiving MH Tx

Kohn et al. Bull World Health Organ 2004;82:858–866

## Why?

- Clear dichotomy between people with alcohol use disorders (alcoholics) and the other alcohol consumers
- High stigmatization (in some recent systematic reviews the highest stigmatized disorder in terms of social distance: Schomerus et al., 2010)
- Stigmatization has been linked to categorical concepts, and maybe a different continuous concept may help for future (e.g., change in depression from categorical to continuous -> linked to less stigmatizing attitudes; Schomerus et al., 2013)

## What could be done?

- Re-definition of SUD as heavy use over time (Rehm et al., 2013 -> see Kraus presentation)
- Treating alcohol like blood pressure (Nutt & Rehm, in submission)

## What are the consequences about economics?

- Economics do not determine resource allocation in a rational way
- In societal discourse, economic arguments are used, if they "fit", and dismissed otherwise
- Economics offer a chance to better allocate resources, if used more and in a consequent non-biased way