Statens folkhälsoinstitut

Lessons learned from the Swedish Longitudinal Gambling Study, Swelogs

Using Big Data to Study Development and Social Change

Concordia University, Montreal

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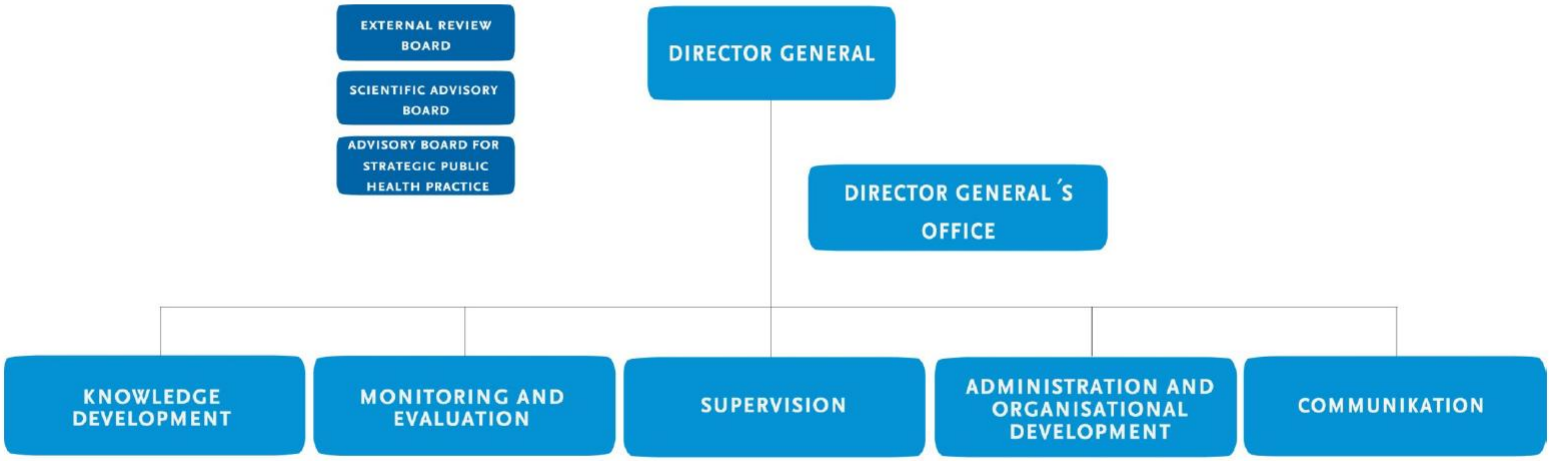
Introduction: The Swedish National Institute of Public Health, the aims for gambling prevention in Sweden and the expected contribution from Swelogs.

The Swedish National Institute of Public Health



Public Health Objectives

1. The overarching aim of Sweden's national public health policy is to create social conditions that will ensure good health, on equal terms for the entire population.

2. The aim for society's measures against pathological gambling is to reduce harm from exaggerated gambling.

Government proposal prop 2007/08:110

Swelogs' overarching goal

Develop knowledge to be used to develop methods and strategies for prevention of gambling problems.

The Swedish Longitudinal Gambling Study (Swelogs):

an overview of the different data collection tracks and their aims

Swelogs' five main objectives

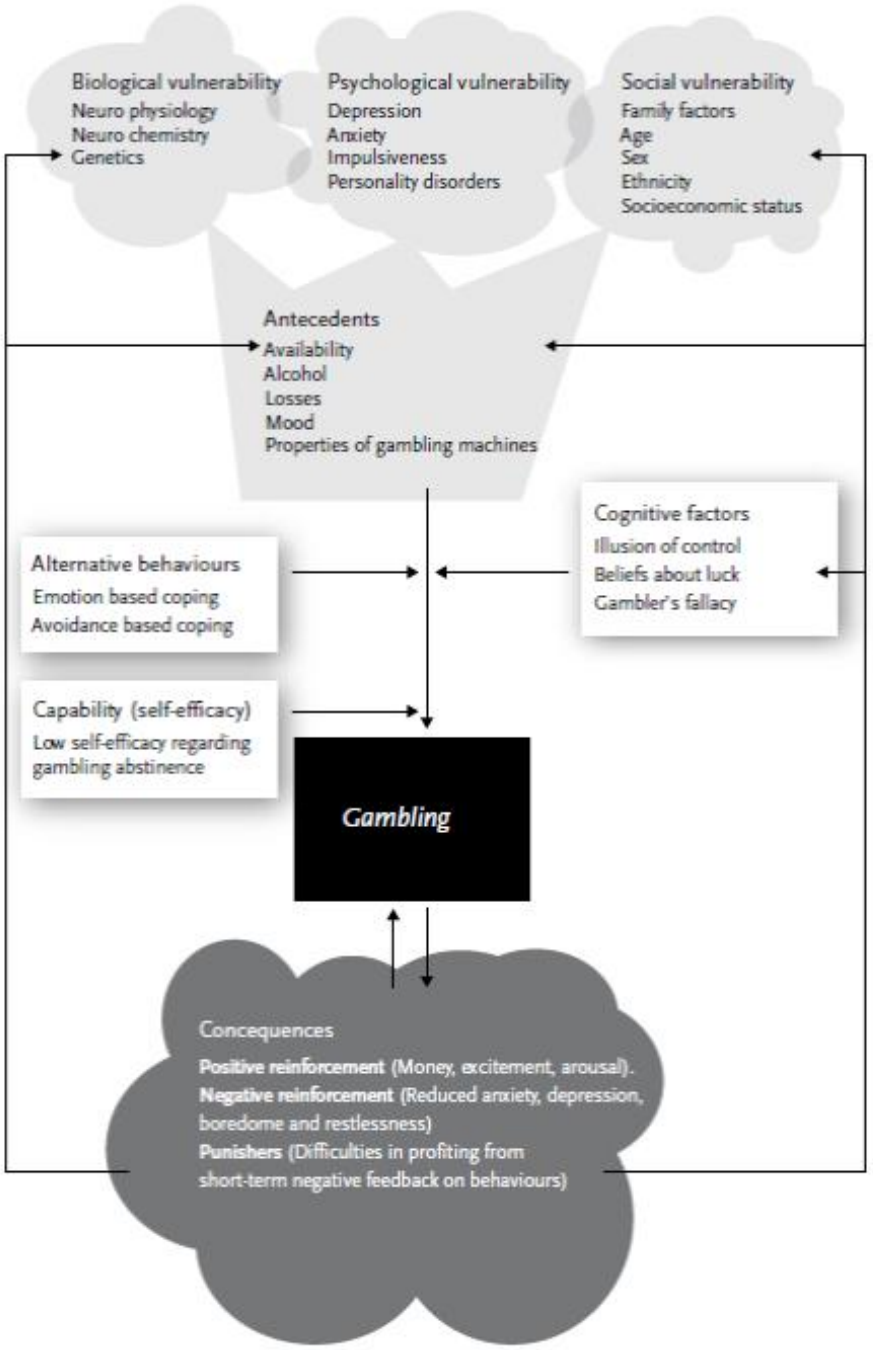
- Study changes in incidence and prevalence of PG.
- Describe problem gambling in relation to changes in gambling behavior and gambling related environmental factors.
- Identify relevant target groups for prevention.
- Examine the health-related, social and economic consequences of problem gambling.
- Establish risk factors and protective factors of gambling behaviours/habits.

Swelogs' survey plan

	2008/2009	2009/2010	2011	2012	2013	2014	2015
Epidemiological Track	EP I N=15 000 16-84 yrs	EP II N=8 200 17-85 yrs		EP III N=7 100 19-87 yrs		EP IV N~7 000 21-89 yrs	
In-depth track			ID I N=2 400 18-86 yrs		ID II N~2 000 20-89 yrs		ID III N~2 000 22-91 yrs
Follow-up track	FU I N=578 23-83 yrs						

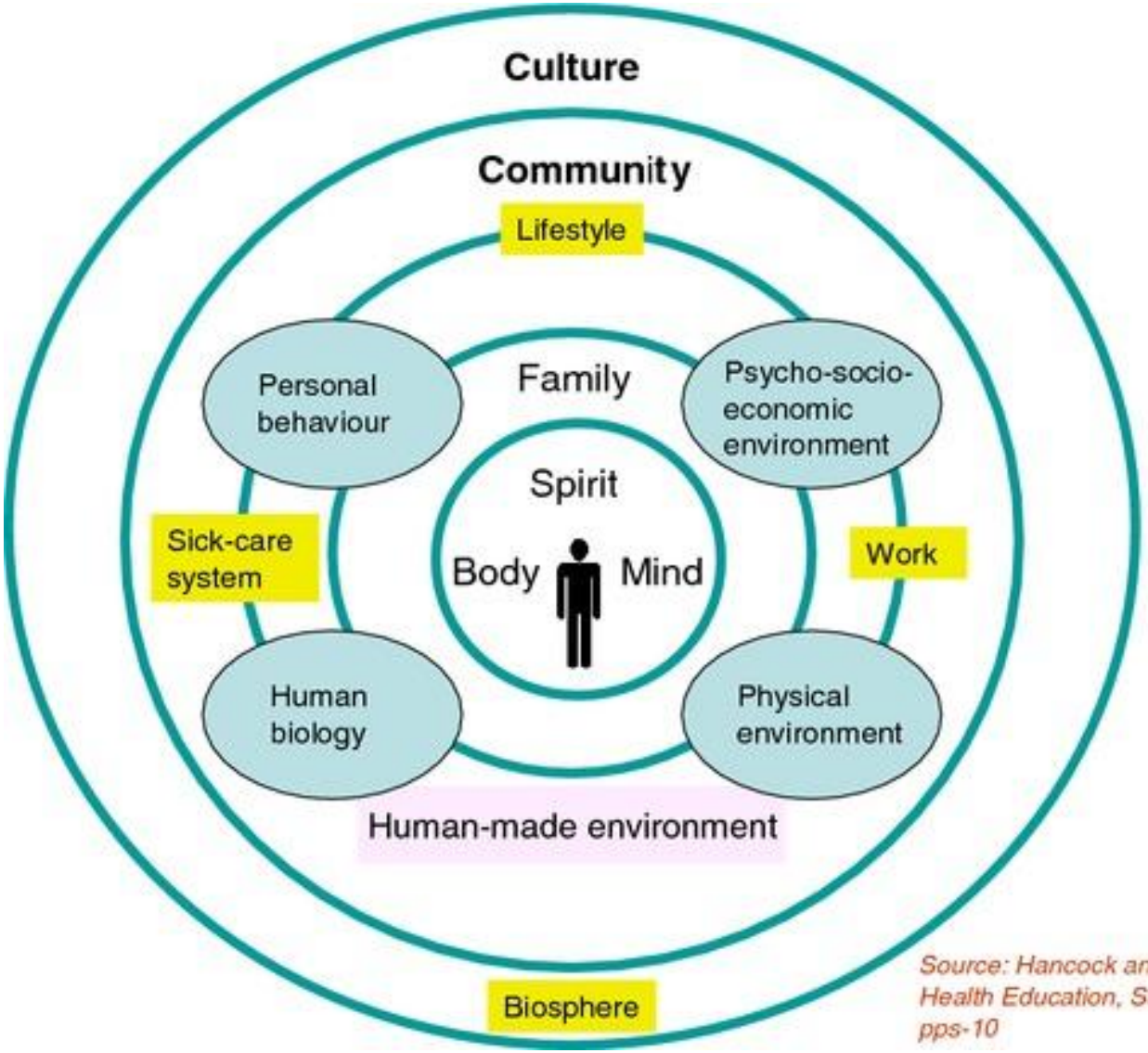
Theoretical underpinning

- The bio-psycho-social model
- A public health perspective



Figur 1. A biopsychosocial model for pathological gambling.

A Public Health Perspective



Source: Hancock and Perkins Health Education, Summer 1985, pps-10

Lessons learned in regards to theoretical underpinning and research plan

- It is preferable to have a fully developed theory to guide the selection of items for the questionnaires
- There is always a trade-off between including enough questions to assess all dimensions of a model and minimizing respondent burden

The pilot study:

- What parts of the process should be included in the pilot study.
- Consequences of major changes?

Swelogs pilot study, spring 2008

- Test the stratified sampling design based on age group and postcode area clusters
- Evaluate the questionnaire
- Evaluate the functionality of the chosen structure for data collection
- Try out Statistic Swedens new internal data provision system (MONA)

Pilot sample

- Frame population: all persons aged 16-84 years in the Register of the Total Population
- n=2,000

Lessons learned from the pilot study stage

- What parts of the process should be included in the pilot study. – ALL!
- Consequences of major changes? – Allow time for a second (and maybe even a third) pilot study

Sampling:
oversampling of
special target groups

Sampling

- The sample consisted of 15 000 individuals, aged 16-84, from the Register of the Total Population
- Sample stratification based on predicted probabilities for having gambling problems, age and gender

Sampling Strategy

p_k – values	Gender	Age-groups 2008				Total
		16-24	25-34	35-64	65-84	
$p_k \leq 0.03$	male	**307** 2,757	**203** 89,754	**742** 985,291	**749** 432,879	**2,001** 1,510,681
	female	**347** 375,622	**444** 516,388	**512** 1,789,951	**697** 756,867	**2,000** 3,438,828
$0.03 < p_k \leq 0.1$	male	**582** 342,966	**632** 400,130	**422** 801,697	**364** 214,761	**2,000** 1,759,554
	female	**1477** 141,629	**243** 38,339	**242** 35,092	**38** 3625	**2,000** 218,685
$0.1 < p_k$	male	**2184** 200,786	**938** 92,634	**285** 84,338	**93** 8,606	**3,500** 386,364
	female	**1,029** 1,323	**1,230** 2638	**1,231** 2283	**9** 11	**3,499** 6,255
Total		**5,926** 1,065,083	**3,690** 1,139,883	**3,434** 3,698,652	**1,950** 1,416,749	**15,000** 7,320,367

Lessons learned concerning sampling

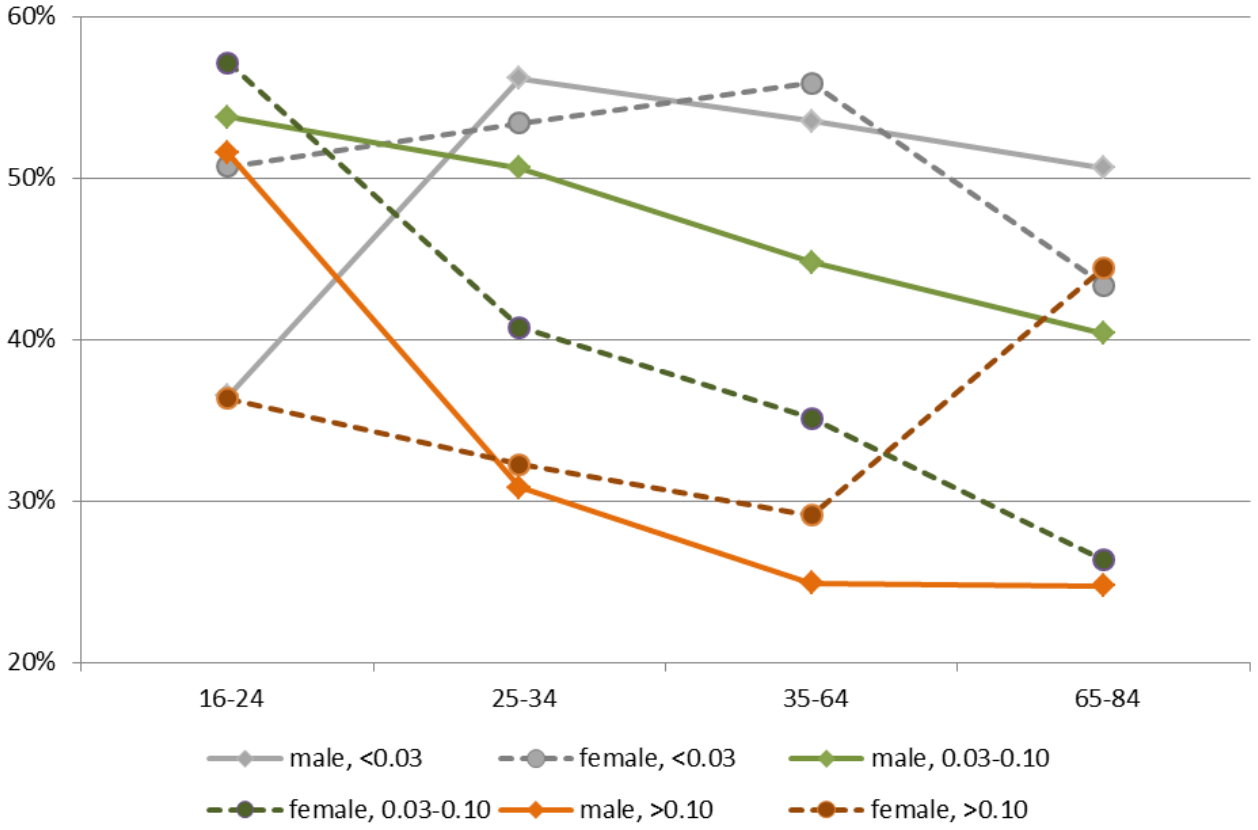
- The over-sampling of special targeted groups was essential
- Middle-aged and elderly women were not enough represented in the sample

Attrition: effects of and possible ways to reduce. Who is most likely to drop out?

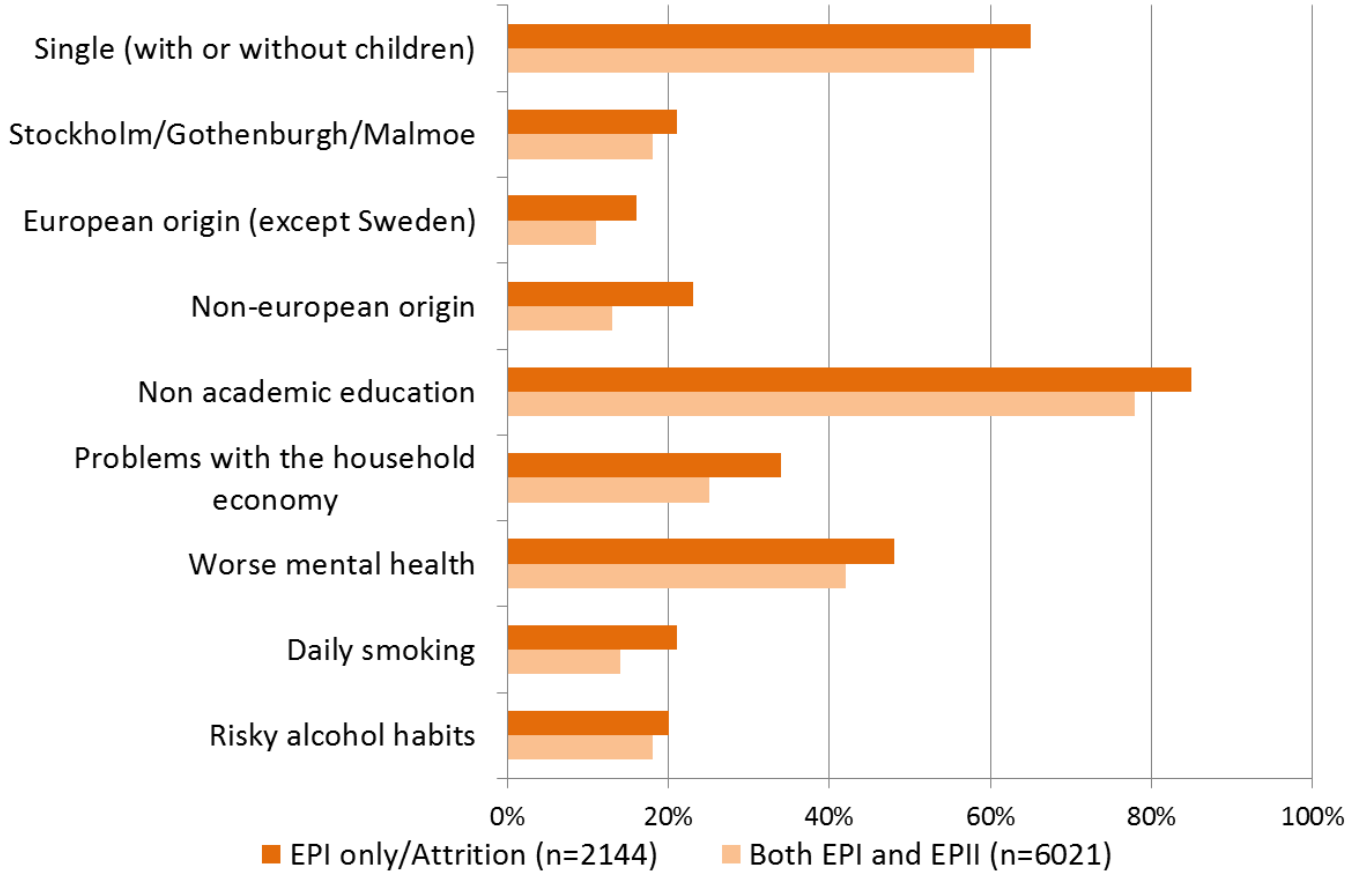
Response rate in EP1 and EP2 (in relation to the initial sample)

p_k – values	Gender	Age-groups 2008				Total
		16-24	25-34	35-64	65-84	
$p_k \leq 0.03$	male	36,5%	56,2%	53,5%	50,6%	50,1%
	female	50,7%	53,4%	55,9%	43,3%	50,1%
$0.03 < p_k \leq 0.1$	male	53,8%	50,6%	44,8%	40,4%	48,5%
	female	57,1%	40,7%	35,1%	26,3%	51,9%
$0.1 < p_k$	male	51,6%	30,8%	24,9%	24,7%	43,1%
	female	36,3%	32,3%	29,1%	44,4%	32,4%
Total		49,7%	39,4%	40,4%	44,4%	44,3%

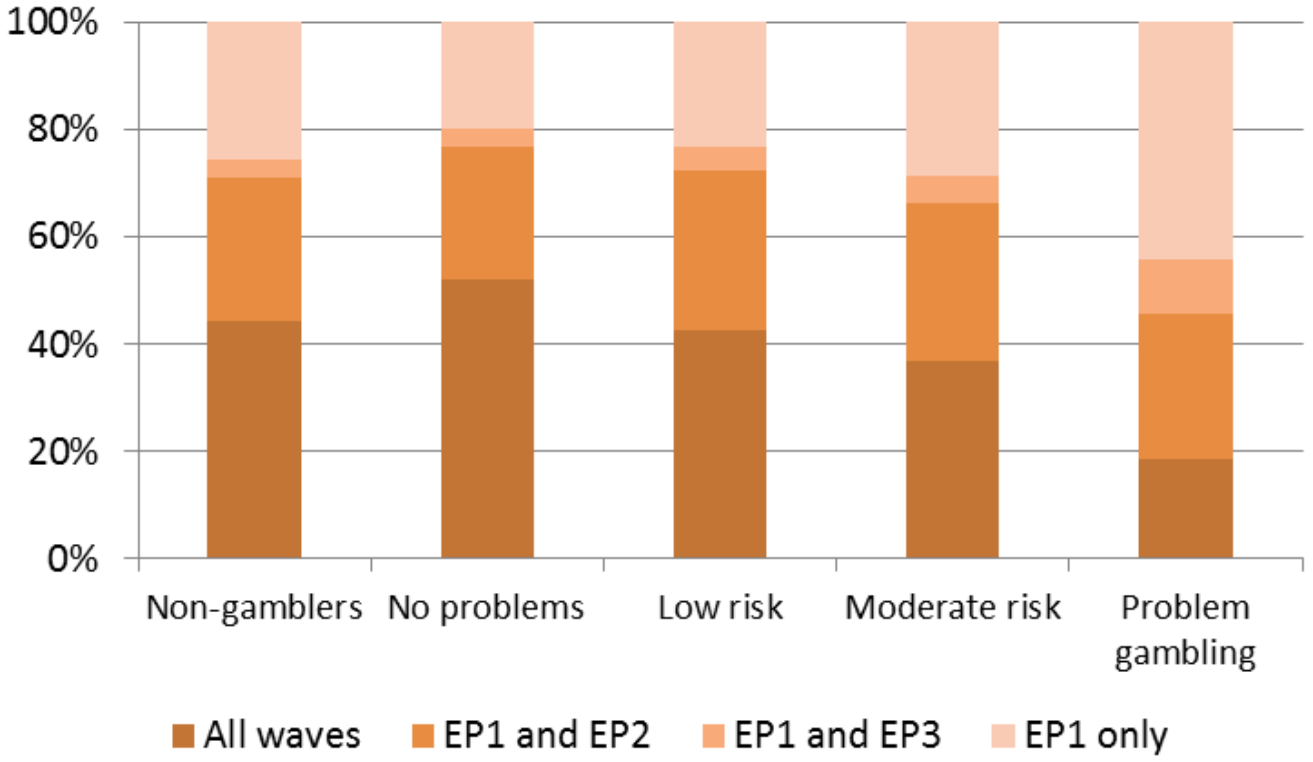
Response rates in EP1 and EP2



Socio-demographic factors in relation to attrition from wave 1 to 2



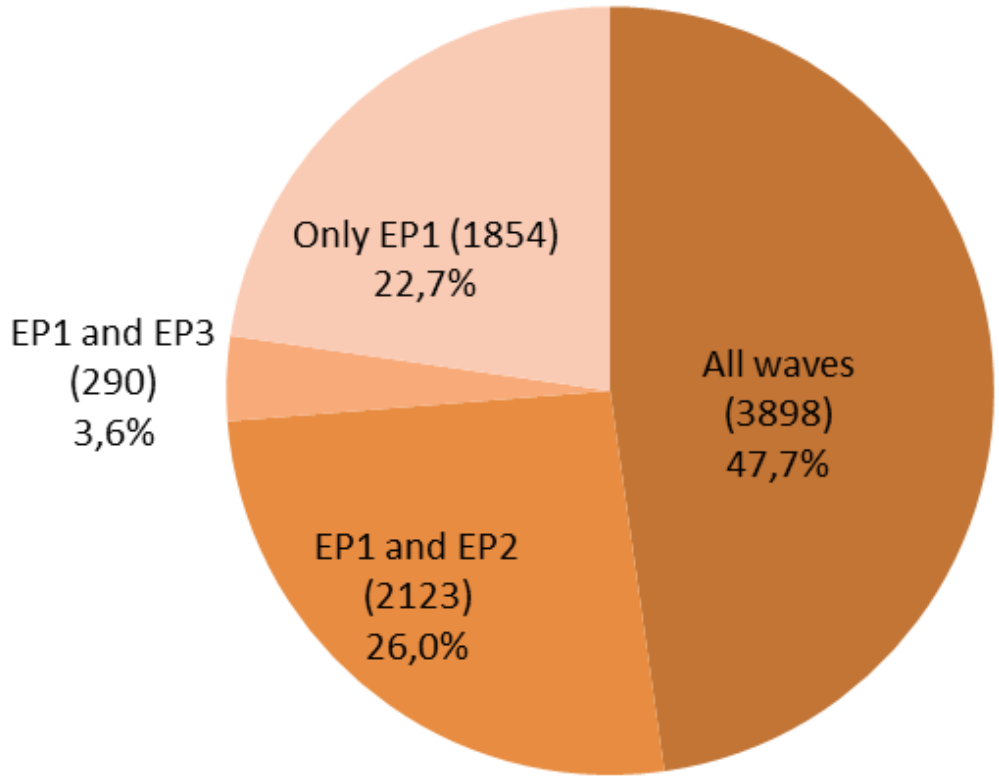
Participation in different PGSI-categories from EP1



EP3 respondents, % of the initial sample per strata

		16-24	25-34	35-64	65-84	Total
pk<=0.03	male	19%	40%	44%	41%	38%
	female	33%	38%	50%	33%	38%
0.03<pk<0.01	male	31%	36%	34%	33%	34%
	female	34%	24%	20%	11%	31%
0.01<pk	male	28%	15%	13%	17%	23%
	female	17%	17%	14%	11%	16%
	Total	28%	24%	29%	35%	**28%**

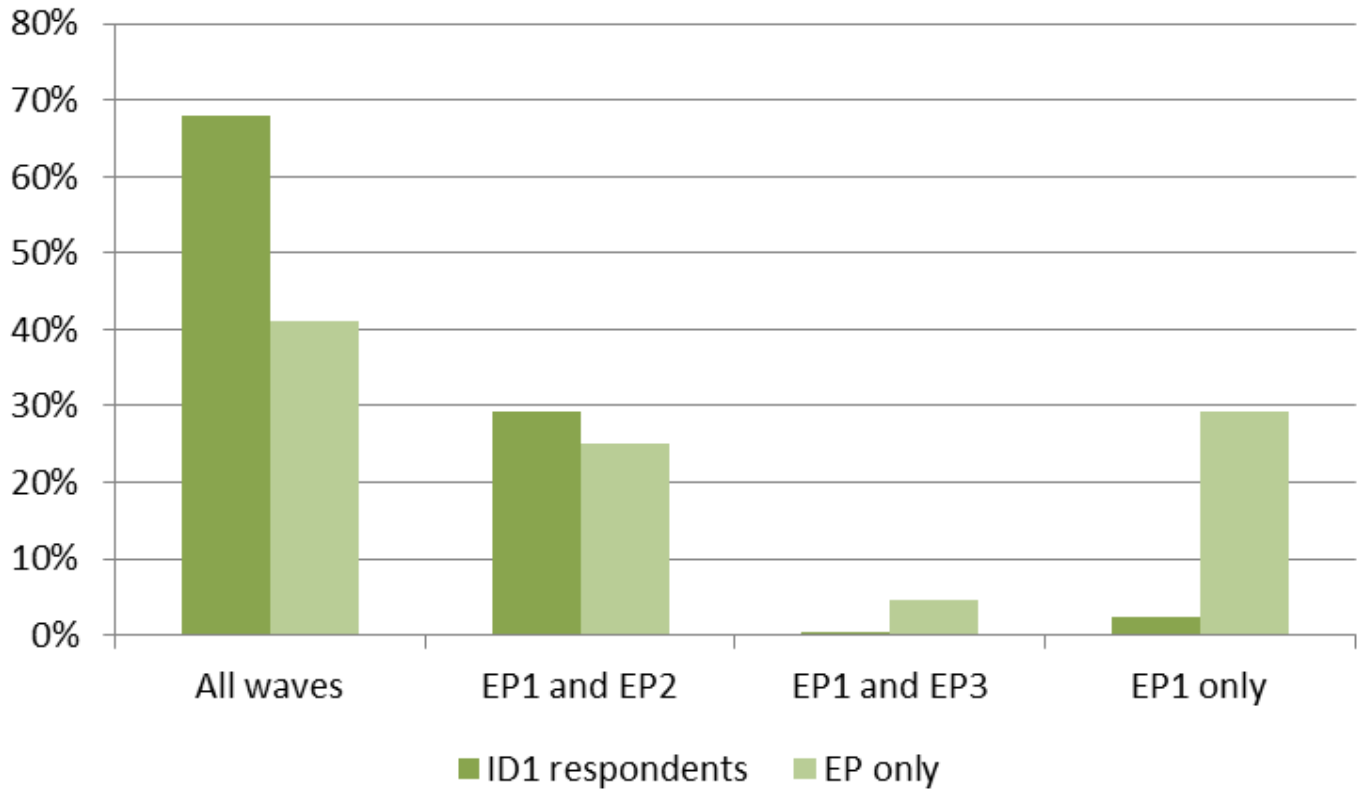
Participation EP I – EP III



EP3 respondents, % of EP1 respondents

		16-24	25-34	35-64	65-84	Total
pk<=0.03	male	41%	60%	67%	64%	62%
	female	52%	58%	71%	60%	61%
0.03<pk<0.01	male	47%	58%	59%	64%	56%
	female	49%	50%	48%	33%	49%
0.01<pk	male	45%	40%	45%	57%	44%
	female	39%	42%	39%	20%	40%
	Total	46%	50%	57%	62%	**51%**

ID1-respondents and EP-only-respondents



Lessons learned concerning attrition

- Oversample groups where higher attrition is expected
- Consider ways to attract respondents who are more likely to drop out

Data weighting/calibration

to balance varying sampling probabilities and attrition

Calibration weights based on register information on

- Gender & age
- Born in a Nordic country
- Income
- Civil Status
- Living in a larger city
- Employment status
- Family type
- Education, Profession & Branch
- Social well fare & leave on sick pay
- Unemployment

Data collection modes:

consider the effects of multiple collection modes

Methods for data collection

- Telephone interviews primary method
- Postal questionnaires to follow-up

Questionnaires

- Gambling (lifetime and past 12 months)
- Gambling problems (SOGS, PGSI, FORS) and gambling related questions
- Computer gaming
- Health, demografics, socio-economy

Gambling participation

Telephone interviews:

Did you gamble on horses the past 12 months? – Yes/No

- How often did you go to the racetracks to gamble? – Weekly/Monthly…

- How often did you gamble on horses online? – Weekly/Monthly…

Postal questionnaires:

How often did you gamble on horses the past 12 months? Weekly/Monthly…

- Did you go to the racetracks to gamble? – Yes/No

- Did you gamble on horses online? – Yes/No

Lessons learned regarding multiple data collection modes

- Make sure that the questions from different modes are possible to merge
- Beware of possible methods effects
- Consider the trade of between higher response rates and possible bias

Register data: reduces the information burden of the respondents

Population registers

- National register over the total population
- Registers over income, taxes, education, occupation, immigration, emmigration, household etc

Monitor the data collection process!

Monitor the data collection process!

Repeated waves and time span

How important is it to reassess at exactly the same time point?

Staff and organization

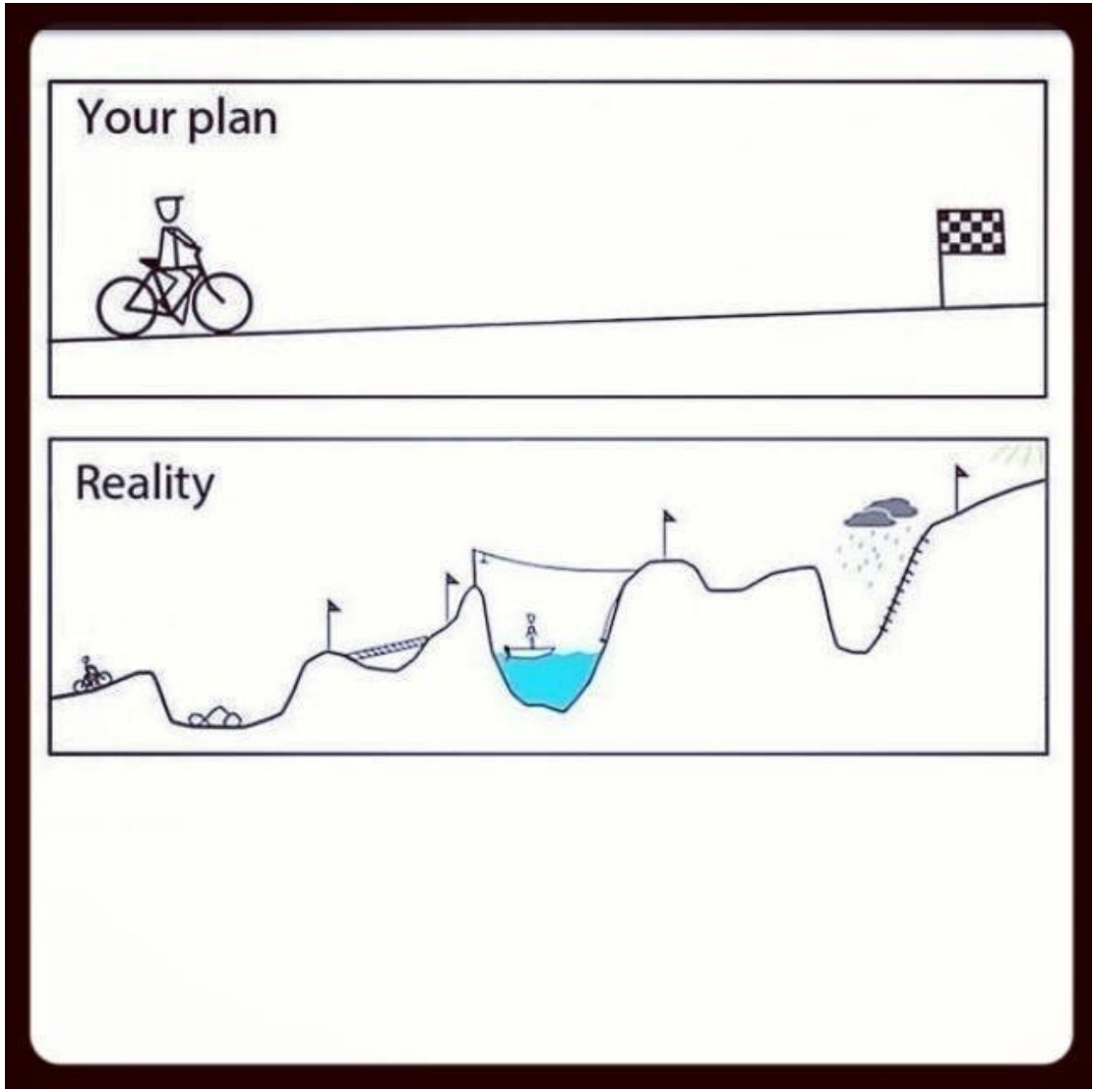
Networking

Data access and confidentiality

Statistical analysis of repeated measurements

Summary

- Planning is essential
- Every change between the different waves affect the possibilties to compare


Your plan
Reality