Swedish National Institute of Public Health

Health at Stake

A longitudinal study on gambling and health in Sweden 2008-2015

- revised version of study plan May 2012

This is an updated version of Swelogs study plan, co-authored by Thomas Jacobsson, Johanna Lundberg, Ulla Romild and Marie Risbeck. The plan was approved by Swelogs steering committee in May 2012. A previous version of Health at stake was used in the application to the ethical board in Umeå which was approved in May 2008 (Statens folkhälsoinstitut 2008).

Swedish longitudinal gambling study – Swelogs

Swedish National Institute of Public Health – *Drugprevention and gambling*

Postal address
Forskarens väg 3
SE-831 40 ÖSTERSUND

Telephone
+46 63 19 96 00

Telefax
+46 63 19 96 02

E-mail
Swelogs@fhi.se
info@fhi.se

Swedish National Institute of Public Health

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Swedish National Institute of Public Health

Summary

Swelogs, the Swedish longitudinal gambling study, is a longitudinal population-based study conducted and financed by the Swedish National Institute of Public Health (A Swedish Government Authority). The over-arching purpose of the project is to develop knowledge that in turn will be used to develop methods and strategies for the prevention of gambling problems. An epidemiological study (EP-track) and an in-depth study (ID-track) with repeated points of measurement are currently underway in the Swelogs project. The Swelogs project ranges from 2008 to 2015.

One of the main objectives for the study is to measure the prevalence and incidence of gambling problems in Sweden, and to examine how these co-vary with gambling patterns with regard to social, health and economic contexts. Other important objectives are to establish risk and protective factors and study the consequences of problem gambling. Comparisons of these results with previous national and international studies will also be undertaken. The Swelogs study emanates from a multi-disciplinary, public health perspective and conceptualizes gambling behaviour in a continuum of varying problems, rather than as a clear-cut clinical dichotomy with a diagnosis (pathological gambling) at one end and "healthy" gambling at the other.

1. Background

In 2007 the Swedish government identified the need for conducting a longitudinal study on gambling and problem gambling[1] and commissioned it to the Swedish National Institute of Public Health (Regeringens proposition 2007/08:110). The institute had already begun the preparations for such a study by forming an international research group (Advisory Board) and through the hosting of the conference "Best Practice in Prevalence Studies" in February 2007.

The design and content of Swelogs (Swedish longitudinal gambling study) was shaped in close dialogue with the Advisory Board and through considering the objectives of the Swedish public health policy. There were mainly four reasons for initiating a new population study on gambling in Sweden:

- Existing data was either limited (regarding geography or measurement) or too old to adequately represent the current state of gambling and problem gambling in Sweden.

- The gambling market had been subject to dramatic changes the past decade, which meant that the lack of accurate descriptive knowledge was extensive.

- International changes in gambling regulation and an increasing awareness of the problems associated with gambling had prompted policymakers in Sweden to demand accurate knowledge to form the basis for decision-making.

- The Swedish National Institute of Public Health had identified a need for developing methods for primary and secondary prevention of problem gambling which implied the acquirement of new knowledge of risk factors and protective factors for the development of gambling problems.

The reasons for conducting the Swelogs study are still valid. The gambling market is changing rapidly and the need of accurate knowledge as the basis for policy-making is just as relevant due to the expansion of the online gambling market. So far, three data collections have been finished, two epidemiological on a representative population sample and one in-depth follow-up on a sub sample of the population sample. The data collection has provided us

[1] The term 'problem gambling' is used as a generic term for what is academically conceptualized as at-risk gambling, problem gambling and pathological gambling. The aim is also to include a larger spectrum of 'mild problem gambling' than has conventionally been used.

with up-to-date knowledge of the prevalence and incidence of problem gambling in Sweden, and has helped us initiate the process on identifying risk and protective factors. In the future, the data will enable the study to establish causal relationships between gambling, risk factors, and protective factors, which in turn will feed into the development of prevention measures and strategies.

Ethical Approval

A previous version of Health at stake was used in the application to the ethical board in Umeå before the first data collection in 2008 (dnr 08-078 Ö). Three additional applications have been delivered - two regarding the EP-track due to changes in the question forms and one additional application regarding study design and question form for the first data collection of the ID-track. All of the submitted applications have been approved.

A Public Health Issue

The overall aim of the Swedish public health policy is to promote social conditions in order to ensure health on equal terms for the entire population (Regeringens proposition 2002/03:35 ; Regeringens proposition 2007/08:110). Two of the main tasks of the Swedish National institute of Public Health are to monitor and coordinate the implementation of the national public health policy and to act as a national agency of expertise for the development and dissemination of evidence based methods and strategies in the field of public health.

In accordance with the government's commission, the Swedish National Institute of Public Health has directed its attention to the development of methods aiming at primary and secondary prevention of problem gambling. Due to the underdeveloped nature of the research field, a first step must be to produce new and relevant knowledge. This implies research based on epidemiological data, and – in order to be able to identify etiological risk and protective factors – a longitudinal design.

Public health research on problem gambling emanates from a contextual perspective. This entails that individuals, as well as factors of health and ill health, are conceptualised in relation to their social and cultural environments, rather than as isolated clinical cases. The Swelogs research team's point of view is that problem gambling is a public health issue. There are four main underpinnings for this argument:

i. In order for a phenomenon to be categorized as a public health issue at least one per cent of the population needs to be affected. The first prevalence study of problem gambling in Sweden identified two per cent of the population as having gambling problems. The first and second rounds of data collection of Swelogs have confirmed

these rates (Statens folkhälsoinstitut 2010).

ii. Problem gambling affects the population in an uneven manner. Socially and economically vulnerable groups are more often affected and typically suffer more severe consequences (Statens folkhälsoinstitut 2010).

iii. Problem gambling has shown to co-vary with adverse health effects. According to the National Public Health Surveys, persons identified as having risky gambling behaviour report much poorer health than other gamblers. Given the uneven distribution of problem gambling in the population, this could contribute to sustained health inequalities (Statens folkhälsoinstitut 2009; Statens folkhälsoinstitut 2010; Statens folkhälsoinstitut 2010).

iv. Problem gambling is possible to prevent.

2. Theoretical Framework

The Swedish National Institute of Public Health promotes a public health perspective, which entails shifting focus from treatment to secondary and primary prevention, and from a clinical perspective towards a multi-disciplinary public health perspective. This approach necessitates the acquirement of updated knowledge of what risk and protective factors affects gambling behaviour/habits in the population.

The concept of 'problem gambling' is used as a generic term for what is academically conceptualized as at-risk gambling, problem gambling and pathological gambling. A long-term aim of Swelogs is to increasingly differentiate these concepts into a larger spectrum. For example, an aim is to include a larger spectrum of 'mild problem gambling' than has conventionally been used.

A public health perspective on problem gambling implies a scientific basis built upon observations of the population, a focus on decisive factors and the use of contextual analysis. The understanding of the concept of problem gambling in this study includes:

1) Problem gambling is regarded as a continuum without clear-cut boarders between problem free gambling and problem gambling.
2) Thus, the scale of severity of gambling problems should be understood dynamically and not as a pre-disposed sequence of stages in a progressive and chronic disease.
3) The analytical loci is primarily on the contexts and the health related, social and economic consequences of gambling behaviour and secondarily on diagnosed states of illness.

The Bio-Psycho-Social Model of Problem Gambling

The theoretical basis of Swelogs is the bio-psycho-social model of problem gambling developed by Rönnberg et al (Attachment 1). The model was developed within a framework of applied behaviour analysis and social learning theories. It aims to explain why some individuals might develop gambling problems. For Swelogs, the main function of the model is to point out the multi-level perspective, pointing at relevant variables, confounders and potential risk factors. The model also guides the development of questionnaires for the EP and particularly for the ID tracks (see the operationalization of the model in attachment 2). In short, there are six types of factors included in the model:

i) *Potentiating factors* are biological, psychological and social predispositions such as socioeconomic factors, family factors, personality traits and genetics. These factors can be termed indirect risk factors and are general vulnerability factors. Swelogs includes social and psychological factors.

ii) *Antecedents* are stimuli, situations and circumstances that precede the problem gambling behaviour and increase the probability of the behaviour to occur, for instance the availability and design of gambling products, and the influence of alcohol and mood states. In contrast to potentiating variables, antecedents are risk factors that in a more direct way precede and set the occasion for the behaviour.

iii) *Cognitive factors* are, for example, illusions of control and beliefs about luck.

iv) *Self-efficacy* refers to psychological factors such as beliefs of capacity of coping effectively in a specific situation.

v) *Alternative behaviours* are, for example, different coping strategies and the choice of non-gambling activities.

vi. *Consequences*, consisting of negative and positive reinforcement. For instance, wins, excitement, reduced anxiety, restlessness, bankruptcy.

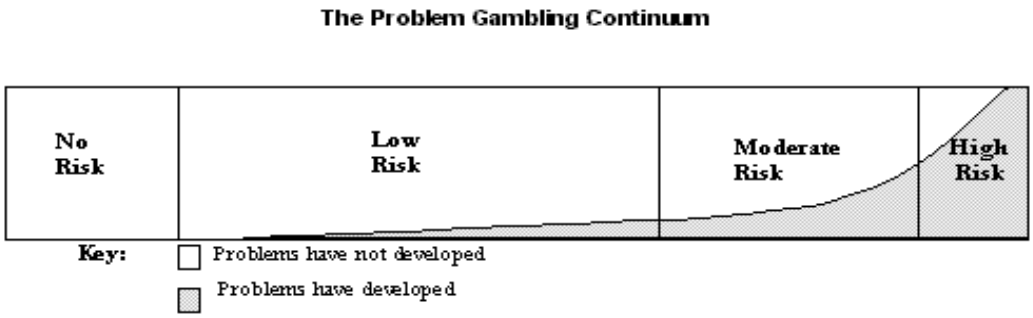
These factors are presumed to explain individual occurrence of problematic or pathological gambling behaviour, as defined in the diagnostic instruments based on the ten DSM-IV criteria for pathological gambling (American Psychiatric Association 1994). For the purposes of Swelogs however, this model needs to be complemented with a better understanding of the role of various gambling contexts. Furthermore, it needs to be broadened in order to explain the development of other types of risky gambling behaviour. The model also needs a more dynamic approach in order to capture transitions between different categories of

gambling behaviour and problem gambling.

The OPGRC model of problem gambling

The Ontario Problem Gambling Research Center (OPGRC) model of problem gambling has several advantages. It covers the whole population (not only problem gamblers) and visualizes the section surface between people with and without problems within each risk category. The framework relies on a flexible model where people can move in and out of problem gambling and between different risk categories.

Figure 1: The Problem Gambling Continuum



Source: The Ontario Problem Gambling Research Centre

The main function of this model is to illustrate problem gambling in relation to the whole population and to capture the fluidity between different risk categories. As such, it is in conjunction with the Swelogs public health perspective on problem gambling.

This model in combination with the public health perspective has guided the development of the EP-questionnaire in terms of pinpointing the necessity of including different gambling environments and gambling types on a very detailed level and in different population segments. The public health perspective has also highlighted the need for exploring the impact of availability on gambling behaviour and problems.

3. Over-arching purpose and objectives

The over-arching purpose of the project is to develop evidence-based methods and strategies aiming at the prevention of gambling problems. In order to achieve this purpose the study has identified the following five objectives:

1. to measure the prevalence and incidence of problem gambling, its change over time and how it compares with research results from other jurisdictions.

2. to describe problem gambling in relation to changes in gambling behavior and gambling related environmental factors.
3. to identify relevant target groups for preventive measures.
4. to examine the health-related, social and economic consequences of problem gambling.
5. to establish risk factors and protective factors of problem gambling.

4. Research questions

The main research questions of Swelogs are presented below sorted by the objectives outlined above. The research questions are from the original "Health at Stake", except when stated otherwise. The material used to answer the research questions are presented in each section.

Objective 1: to measure the prevalence and incidence of problem gambling, its change over time, and how it compares with research results from other jurisdictions.

i. What are the prevalence and incidence rates of problem gambling in Sweden, in the general population, in different demographic groups and in relation to gambling forms? How do these rates change over time?

ii. How do the rates compare to studies from other countries and to the previous Swedish prevalence study from 1997/98?

Primary data from the EP-track (see below) and secondary data from international population studies on gambling behaviour and problem gambling are used to answer these questions.

Objective 2: to describe problem gambling in relation to changes in gambling behavior and gambling related environmental factors.

iii) What are the gambling patterns in the general population in different demographic groups and with regard to gambling forms, expenditure and time spent gambling? (this specific research question was added in relation to the analysis of data in 2009)

iv) How can transitions between gambling behaviours be described?
(This research question was added in 2011)

v) Is there a correlation between geographical distance to gambling venues and prevalence of problem gambling? (This research question was initially included in the section on data sources and methods)

vi) What are the social, economic and health related correlations of problem gambling in Sweden and how do these change over time?

vii) Is there a correlation between frequent TV- and computer gaming and problem gambling and is this correlation related to economic, social or health effects?

Primary data from the EP-track, geographical data on the location of gambling venues (GIS) and international and Swedish literature reviews and reports on gambling and problem gambling, are used to answer these questions. Swedish studies of particular value for this objective include studies on gambling machines, international casinos, online gambling and reviews with a multi-disciplinary perspective on problem gambling (Lalander and Westfelt 2004; Binde 2005; Westfelt 2006; Westfelt 2006; Binde 2007; Brené 2007; Tryggvesson 2007; Ajdahi and Wolgast 2008; Binde 2009).

Objective 3: to identify relevant target groups for preventive measures

viii) Which are the vulnerable and the resilient groups when it comes to problem gambling in Sweden?

ix) How many persons know anyone with a gambling problem in Sweden, and how does this rate vary between different population segments?

x) How many children are affected by having a person with gambling problems in their family?

xi) What rate of the population knows about the Swedish help- and support facilities in relation to gambling problems?

Primary data from the EP-track (see below) is used to answer these questions. Swedish data can also be used from the national helpline, out-patient care facilities, private institutions, NGO's etc. An omnibus will be contracted to answer question xi. Swedish studies of particular value for this objective include an on-going study on the sociodemographic factors of a treatment seeking population in comparison with results from EP I and a literature review on methods for problem gambling prevention (Statens folkhälsoinstitut 2010).

Objective 4: to examine the health-related, social and economic consequences of problem gambling

xii) What are the social, economic and health related consequences of problem gambling in Sweden?

Primary data from the EP-track and ID-track and register data on individuals' social and economic situation are used to answer these questions. Swedish data can also be used from the national helpline, out-patient care facilities, private institutions, NGO's etc. Since 2010 there is an on-going study on the sociodemographic factors of a treatment seeking population in comparison with results from EP I. Swedish studies of particular value for this objective include a literature review on correlations between problem gambling and social, economic and health related factors (Statens folkhälsoinstitut 2011). A study with a perspective of health economics will be conducted in 2012 aiming at explaining the costs of problem gambling in Sweden.

Objective 5: to establish risk factors and protective factors of problem gambling

xiii) What factors affect changes of problem gambling, focusing on natural recovery?

xiv) What social factors affect problem gambling, among other factors focusing on supportive environments?

xv) What contextual factors affect problem gambling?

xvi) Do changes in gambling behaviour affect the development of problem gambling?
(This research question was added in 2011)

Primary data from the ID, EP and follow-up tracks and register data on individual's economic, social and health related situation are used to answer these questions.

Research questions not sorted under objectives

One of the research questions from the original study plan in 2008 has not been categorized under any of the above mentioned objectives. The purpose of including this research question is to measure the legitimacy of gambling policy:

xvii) What are the attitudes towards gambling in society among the population?

This research question will be answered through an independent omnibus.

A further research question (termed a “scientific question”) included in the original research plan is the following:

> xviii) How can gambling participation as well as prevalence and incidence of problem gambling be effectively and precisely measured in population surveys?

A member of the Swelogs advisory board, Rachel Volberg, has been contracted to answer this research question. The Swelogs steering committee will evaluate the measurement of “risky gambling behaviour” in the national public health surveys.

5. Collection of primary data

Study design

The study design of Swelogs contains three tracks of data collection: 1) The EP-track, a descriptive epidemiological study of problem gambling and its correlates. 2) The ID-track, an explanatory study focusing on risk and protective factors and consequences. 3) The follow up track, a smaller case/control study with measurement points from 1997/1998 and 1999/2000 focusing on risk and protective factors. The three tracks connect with and resume the previous Swedish population study on gambling and problem gambling from 1997-98 (Rönnberg, Volberg et al. 2000). The choice of variables and questions for the interview guide in Swelogs was partly guided by the intention to being able to compare the results with the previous study. These findings were reported in the EP I report (Statens folkhälsoinstitut 2010)

The longitudinal design enables measurement of prevalence rates as well as incidence rates (EP-track) and analyses on causal relations, which is necessary in order to establish risk- and protective factors and consequences of problem gambling (ID-track). The Swelogs study aims at describing group-related variations in the population as well as the whole spectrum of problem gambling, including persons with mild forms of problems, and the possibility to follow individual transitions between non-problem and problem gambling.

The data collections in the EP-track will provide results that can be used for describing problem gambling in relation to gambling patterns and in relation to social, economic and health related correlations. Initially, the aim was also to measure prevalence estimates of problem gambling for each measurement point until 2015. From 2012 and onwards this aim

has been changed and the coming data collections in the EP-track will focus on transitions between gambling behaviours.

Sampling

The Epidemiological track (EP)
Sample: ~15.000 persons in a randomized representative population-based sample stratified by age, sex and estimated risk for problem gambling. This sample was drawn by Statistics Sweden, aiming at reaching a sufficient number of problem gamblers in order to make the in-depth follow-ups and the longitudinal study design statistically significant. The first wave of data collection for the EP-track took place in 2008/2009 and was followed by a second study in 2009/2010 encompassing only the 8167 participants from the first data collection. Initially, two further data collections were planned on the whole sample of 15000 persons with additional sampling compensating for age changes. After discussions in August 2011 on methodological problems with generalizability and expected high attrition rates, the coming data collections will focus on the cohort of 8167 persons.

The In-depth track (ID)
Sample: ~2400 persons consisting of a cohort with identified problem gamblers and a matched control group based on gender and age (a case-control design). This sample is drawn from the main EP population sample. The first data collection was conducted in 2011. Two further data collections on this sample are planned in 2013 and 2015. Initially, the ID-track was divided into one data collection track for young persons (aged 16-24 in 2008) and one data collection track for persons in the sample aged 25 years and older. In 2010 this design was changed so that the two ID-tracks merged into one.

The Follow-up track
Sample: 578 persons consisting of a cohort with 289 identified problem gamblers and an equal sized group of matched controls. These persons participated in the previous Swedish population study from 1997/1998, a follow up conducted in 2001, and in a measurement point conducted parallel with the EP I study of 2008/2009.

Data collection

Swelogs utilises telephone-based interviews as it's the primary method. Postal questionnaires act as a complementary and thus secondary method. Statistics Sweden has been contracted to undertake the interviews for the EP- track .

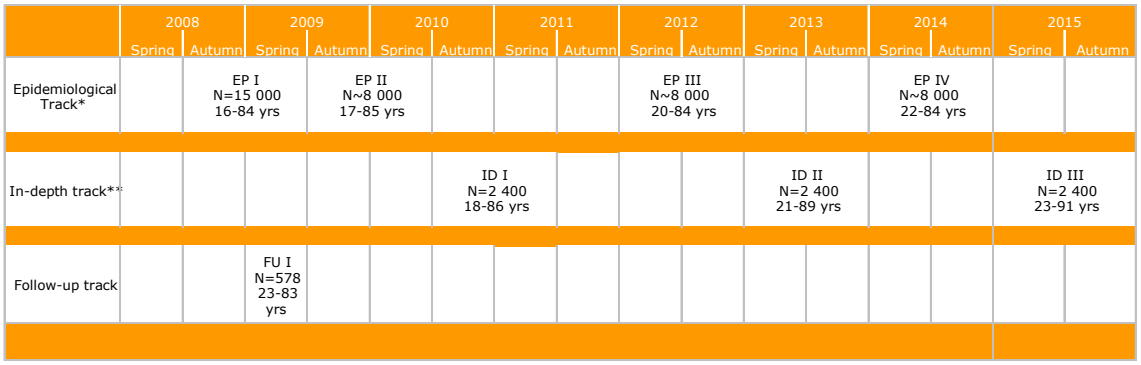
The data collection for the in-depth study has been contracted to Forum at Karolinska Institutet in Stockholm. Both Statistics Sweden and Forum are preliminarily contracted for

the remainder of the study. For the documentation regarding these contracts, please refer to dnr. HFÅ 2009/22, HFÅ 2010/3 and HFÅ 2011/5.

Timeframe

The research program is planned to range from 2008 to 2015. The details of the two main tracks of data collection are as follows (see Table 1 below):

Table 1. Time schedule for Swelogs data collection 2008-2015



6. Measurements

The EP and ID track questionnaires are subject to changes between each round of data collection, depending on item relevance, internal attrition, and on the on-going work to develop measurements and variables. Swelogs primarily uses internationally recognized and validated instruments. The instruments are translated into Swedish and retranslated into English in order to secure validity before use. The operationalization of variables relating to the different parts of the bio-psycho-social model are found in Attachment 2.

Social, economic and demographic measurements

These variables are used in the EP-track and ID-track and are extracted from register data.

Variables: Education, income, welfare payments, debts, economic problems, payment default, occupational status, social capital, division of labour in the household, supportive environments, school achievement, major life transitions, demographics, criminal activity.

Health and mental illness measurements

The more sensitive questions are included in the ID track interviews as these will be conducted by persons with clinical interviews experience. This is especially important since the panel includes a large share of problem gamblers with an over-representation of persons

with drinking problems, depression, sleeping problems, relational problems, financial problems and persons who have been exposed to violence and experienced suicide attempts or suicidal ideation.

Measurements: MINI (International neuropsychiatric interview: Depression, suicide, panic syndrome, social phobia, post-traumatic stress syndrome, alcohol, drug use, generalized anxiety disorder), Kessler-6 (depression and anxiety), general health, long-term illness, help-seeking, AUDIT (alcohol consumption), smoking, medication.

Problem gambling measurements

To ensure comparability with the previous Swedish problem gambling prevalence study, as well as with international populations studies, Swelogs uses the instruments Sogs-R and PGSI. These are validated instruments considered especially suitable for epidemiological research. Sogs-R is a clinical instrument that enables comparisons with previous studies such as Swegs.

PGSI measures a broader and more differentiated range of gambling problems within a continuum, which is in line with the public health perspective of the Swelogs study. PGSI captures the continuum of gambling behaviours including also non-problem gamblers, at-risk gamblers and moderate gamblers and enables international comparisons. The PGSI is validated and has now been used in more than ten jurisdictions so far with overall good results (McCready and Adlaf 2006).

All of the measures are, however, still in need of improvement, especially with regard to their capacity to assess correct prevalence rates within and between different segments of the population and their capacity to identify persons in the low-risk status category. The concerns about the capacity of the instruments to assess problem gambling are especially acute with regard to studying young persons (e.g. Derevensky, Gupta et al. 2003). Until recently, epidemiological and clinical studies have used the same instruments for all age groups. Therefore, as stated in the Objectives chapter, one of the aims is to further develop instruments in order to facilitate accurate measurement of the extent of mild and moderate levels of problem gambling in the population.

Outcome measure

Problem gamblers are defined as persons scoring 3 or more on the PGSI scale (3-7 equals moderate gambling problems according to PGSI; 8 or more equals problem gambling).

7. Analysis

Hypotheses will be continuously generated in accordance with the research questions and the progression of the study (see chapter 4).

Analysis of primary data

EP-track

Analysis of quantitative data gathered from the longitudinal epidemiological study of a representative sample of the Swedish population 16-84 years. All data gathered through interviews and questionnaires together with register data is stored and used at SCB's Microdata Online Server (MONA). Only summarized results are exported from the server. The analysis is carried out by the Swedish National Institute of Public Health.

Objective 1: to measure the prevalence and incidence of problem gambling, its change over time, and how it compares with research results from other jurisdictions:

Prevalence rates are estimated for the Swedish population aged 16-84 years based on EPI, and for the Swedish population aged 17-84 years based on EPII. Individual calibration weights based on register data are used to compensate for attrition and varying selection probabilities. Further calculation of prevalence rates for the population represented in the cohort will be considered if further update of the calibration weights are possible as advised by Statistics Sweden.

Incidence rates, relapse rates and other transitions between different levels or problem gambling are estimated after EPII, EP III, and EP IV.

The overall pattern of increases and decreases will be followed and analysed after EP IV.

Objective 2: to describe problem gambling in relation to changes in gambling behaviour and gambling related environmental factors:

Data from EPI are used to analyse gambling behaviour at baseline. Problem gambling is analysed in relation to gambling participation in different gambling forms, but also to gambling as a whole through a combined measure of the number of gambling forms a person was engaged in, and the frequency of participation in each form. Cluster analysis is used to categorize different types of gamblers according to their gambling frequencies in nine different gambling forms.

During the analysis of EPII-data, the concept of Risk Potential for different types of games was applied and each gambler was categorized according to monthly participation in gambling at three different risk potential levels. This concept will be developed further using data from EP III and EP IV.

Problem gambling and changes in problem gambling has so far been analysed in multivariate regression models including socio-demographic factors, TV-and computer gambling and economic, social and health factors from interview data or register data.

Further analysis after EPIII, and in particular after EPIV, will include SEM modelling where both gambling behaviour and problem gambling will be treated as simultaneous dependent variables. The analysis will be conducted in correspondence with a network formed together with other large, longitudinal gambling studies in Canada, Australia and New Zeeland. The pattern of transitions between different levels of gambling and problem gambling will be followed and described accordingly.

Objective 3: to identify relevant target groups for preventive measures:

The prevalence of problem gambling was analysed in different subgroups according to age, gender and socio-economic factors after EPI, and groups with significantly high prevalence were identified. Groups with significantly high incidence of problem gambling were similarly identified after EPII. Groups with high and consistent rates of problem gambling and groups where problem gambling typically emerge over time will be identified after analysis of EP III- and EP IV-data.

Population estimates of the number of related persons, and children in particular, were obtained using EP I - data.

Objective 4: to examine the health-related, social and economic consequences of problem gambling:

The epidemiological data set will be used to analyse which type of changes concerning health, economy and social life that follows from increased and continued gambling problems. Given the large data set SEM models can be used with several depending variables and simultaneous estimation of the effects.

Objective 5: to establish risk factors and protective factors of problem gambling:

Transitions between different levels of problem gambling defined through risk potential will be analysed in relation to variables measuring social capital. The correspondence between gambling behaviour and gambling problems will also be further analysed after waves III and IV.

ID-track

Analysis of quantitative data collected from the in-depth study on a panel of identified problem gamblers and a matched control group. The ID track analysis will include data from the EP track and register variables through the MONA system. This analysis will be carried out by Forum and will mainly focus on risk factors and protective factors (Objective 5). The plan for analysis for the ID-track is attached.

Analysis including other data sources:

The project also includes PhD dissertations by Jessika Svensson (Swedish Mid-University) focusing on how gender-related life conditions relate to problem gambling, and Frida Fröberg (Karolinska Institute), focusing on developing knowledge of youth gambling.

Other analysis will be carried out of GIS data, a health economic analysis of data on the cost of gambling for Swedish society, as well as secondary analysis of international gambling research.

8. The organization of Swelogs

The management of the Swedish National Institute of Public Health holds the legal and formal liabilities of the project and ultimately take all of the final decisions. The director of the Swedish National Institute of Public Health is responsible for publications and changes within the project.

A steering committee responsible for the management and project administration of the study is situated at the unit for gambling prevention. In support of the continuous work of the project, an international research group called the Swelogs Advisory Board was established in February 2007. The Advisory Board advises the Swedish National Institute of Public Health on issues surrounding the research process and on solving various kinds of scholarly settlements such as research design, methodological issues and the theoretical framing.

The Advisory Board of 2011 consists of the Steering committee, Per Binde, Max Abbott, Rachel Volberg , Anders Stymne (former coordinator for Problem Gambling Prevention at the Swedish National Institute of Public Health), Jakob Jonsson from Spelinstitutet and Anders Tengström (Forum/KI).

Swelogs also exchanges information and ideas with the Sector Council (OSS) which is a council consisting of representatives from the Swedish National Institute of Public Health, the Gaming Board, the National Association of Problem Gamblers, the Association of Hotel and Restaurant Owners and the commercial and non-commercial gaming providers.

Dissemination of Results

Research results will be published in the following ways:

i) through reports, comprehensive publications and information brochures targeting various groups on the local, regional and national levels.

ii) the main research results will be submitted for publication in international scientific journals and presented at academic conferences by members of the Advisory Board and staff from the Swedish National Institute of Public Health.

iii) the results from the PhD students work will be published in international scientific journals and as academic dissertations.

iv) a fourth type of planned publication is articles and presentations on the developmental work on variables and measurement issues.

After the main results of each study have been published, it will be free for all members of the Advisory Board to publish any relevant results within the frame of the purposes of the research program, with reference to the financier of the study (the Swedish National Institute of Public Health). In order to meet future demands on the long-term storage of the data, the Swedish National Institute of Public Health has initiated a dialogue with the Swedish National Data Archive (SND) in Gothenburg. SND archives several databases from different projects within the social sciences and health sciences in Sweden. The purpose is to make data available to the research community, policy makers and the public whilst safeguarding anonymity and confidentiality.

Ethical Considerations

Since the research program will use a longitudinal epidemiological study design, personal data is stored by the engaged data collector for future use. Contact information of individuals will only be delivered to the Swedish National Institute of Public Health regarding the persons included in the panel of identified problem gamblers and a matched control group, and be based on an informed consent asked during the preceding data collection. All individual data is kept separate from any contact information or personal data. It is kept safely in locked cupboards or in a secure electronic environment with limited access only to those who are subordinated to a secrecy agreement. The Swedish National Institute of Public Health has the possibility to classify personal or economic data from studies concerning public health and its decisive factors, according to 3 §, section 17 in the Secrecy decree (2004:55).

The whole research process is guided by the four ethical principles of information, voluntariness, confidentiality and usufruct. Previous to any contact with study participants, information letters will be sent out describing the purpose of the study, the sampling method, the principle of voluntariness, the juridical basis for confidentiality, how data will be handled (including register data) and how results will be used. Within this research program investigators will get in contact with persons who have different kinds of problems related to their health or to their social or economic situation. Contact information on where to turn for those who need help and support will therefore be given both in the information letter and in direct connection to data collection. Some of the questions may also be regarded as sensitive by the participators, why clear information on how to contact persons responsible for the research program will be included both in the information letters and in direct connection to data collection.

Data will be used for research purposes only.

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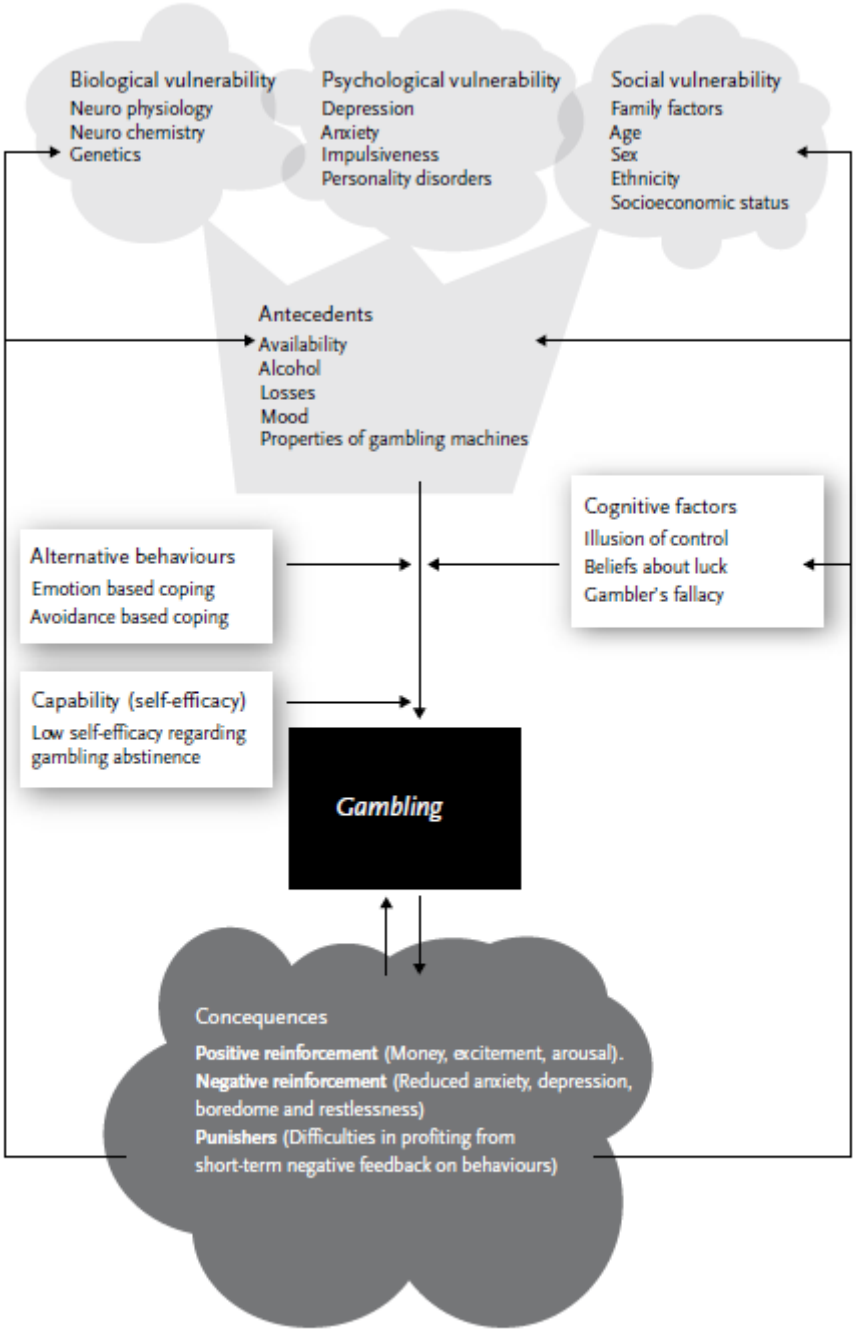
Attachment 1

The bio-psycho-social model of problem gambling.



Figur 1. A biopsychosocial model for pathological gambling.

Swedish National Institute of Public Health

Attachment 2

Variable list för all items included in EP and ID tracks
and operationalization of the bio-psycho-social model.

Reg = Register variable
EP = Epidemiological track of Swelogs
ID = In-depth and follow-ups
HLV = Swedish National Institute of Public Health's National public health survey
QUAL = Qualitative follow-up in a small sub sample on gender and gambling*
XX = Instrument/questions/register variable has not yet been decided/established
OTHER abbreviations are conventional terms for established instruments
"Question number/Reg" refers to the register variables listed in appendix 2c.

Aspect of the model	**Variable**	**Instrument**	**Data collection**	**Question number/Reg**
Potentiating factors/ Social aspects	Education	SUN 2000/old SUN	Reg	LISA (education)
		Reg at a university		
		Year of examination		
	Economic situation	Disposable income ind/family	Reg	LISA
		Gross monthly income	EP1 (Post)	74
		Net monthly income	EP1 (Telephone)	H127
		Capital/Debts	Reg	Economic assets
		Source of income	Reg	LISA (income)
			EP1	H123
		Economic problems	EP1	H128
		Overindebtedness	EP1	H131-H133
		Spendable money	ID	XX
		Socioec stratum	Reg	Sampling stratum
		Socioec status		LISA (demographic)
		Consumption weight of family		LISA (demographic)
	Occupational	Occ. status	Reg	LISA (occupation)

	status	Occupation SSYK		
		Industry SNI 69/ SNI 92/ SNI 2002		
	Division of labour in the household	XX (incl responsibility of hh-money)	ID	XX
	Supportive env. a) work	Emotional safety, violence	EP1	G123-G125
	b) school	XX	ID	XX
	c) leisure	XX	ID	XX
	School achievement	Mark per subject, participation, school, leaving certificate for 9th grade and upper sec.	Reg	The School Board's reg of pupils
	Criminal activity	XX	ID	XX
	Major life transitions	Marriages	Reg, EP II, ID I	Register of change
		Divorces		
		Domestic moves		
		Migration		
		Widows/widowers		
		Work place municip	Reg	LISA (occ)
		Parental leave	Reg	LISA (income)
		Unemployment		
		Military services		
		Sick allowance/ industrial injury		
		Study allowances		
		Early retirement/ sickness pension		
		Income from capital		
		Age related pension		
		Social allowance		
	Demographics	Age, sex, no of children	Reg	LISA
		Household	EP1	H129-H130
Potentiating factors/ Psychological	Personality factors	XX	ID	XX
	Gambling	Imp of gambling	EP1	C73

aspects	related background	among friends ->15		
		Imp of gambling in family ->15 years	EP1/EP2	C72
		PG among close persons -> 15 years	EP1/EP2	C74
		Prevalence of gambling among family/friends -> 15	EP1*	XX
		TV- and computer gaming	EP1 EP2	D94-D98 D94-D95
	Family background	Substance abuse in family, more?	ID	XX
	Supportive environment/ social network	Emotional support	EP1	G117
		Practical support	EP1	G116
		Sense of safety in neighbourhood	EP1	G118
		Exp of violence	EP1	G119-G122
		Living by onself/not	EP1	H130
		Self-perceived discrimination	ID	XX
	Comorbidity:			
	Alcohol consumption	AUDIT	EP1/EP2	F112-F115
	Tobacco use	one question	EP1/EP2	E110
	Health	General health	EP1/EP2	E99
		Longterm illness	EP1	E100
		Physical health past 30 days		E102
		Psycholog. health past 30 days		E103
		Kessler 6	EP1/EP2	E104-E109
		Psychosomatic problems GHQ12 XX	ID	XX
		General care consumption	ID	XX
		Help seeking PG	ID	XX
	Drug use	DUDIT?	ID	XX
	Non prescribed medicine use	XX	ID	XX
	Self-perceived	one question	EP1	

	gambling problem	??		
	Anxiety	BDA?	ID	XX
	Depression	BDI?	ID	XX
	Impulsivity	ADHD?	ID	XX
	Suicidal thoughts and attempts	XX	ID	XX
Antecedents	Gambling venue availability	No of gambling venues in 5 km and 800 m radius from ind. residence	Reg	Gaming Board
	Percieved gambling availability	XX (school, work place, living area)	ID	XX
	Sport interest	XX	ID	XX
	Gambling related social networks	Gambling importance and prevalence among family/friends py	ID	XX
		PG among friends/ others (at present)	EP1	I133
		Prefer gambling alone	EP1	C90
	Help-seeking PG-problems	Own PG-problems	EP1	I137
		Others' PG-problems	EP1	I134
	Attitudes towards gambling	Percieved effect on one's household	EP1	I136
Alternative behaviours	Leisure activities	XX	ID	XX
	Participation in society		ID	XX
Identity	Id as a gambler	Part of JAS	EP1	C80
	Gambling related gender identity	XX	Qual?	XX
(**Capabilities**	Self-efficacy??	XX	XX	XX

Cognitive factors	Risk and protective cognitions	JAS longer version?	ID	XX
		JAS (short) erroneous thoughts	EP1	C83, C87, C88
		JAS (short) positive exp of gambling	EP1	C78
		JAS (short) motives	EP1	C78-C80, C86
Gambling behaviour	Gambling involvement	Gambling form	EP1	B1-B39
		Frequency	EP1	-"-
		Time spent	EP1	-"-
		Money spent	EP1	-"-
		Debut age	EP1	B41-B42
	Risk and protective practices	Gambling + alcohol	EP1	C92-C93
		Financing gambling with borrowed/ stolen money	EP1	C52-C58, C61
			ID	XX
		No use of RGC's	EP1*	
		Experience of big wins and losses	ID	XX
		Binge gambling	EP1	C71
		JAS (short) (more than planned, argu-ing, keep records, earn money)	EP1	C81, C82, C84, C85, C87
Consequences	Positive and negative reinforcement	- Chance to win - Social component - Dreams of life change - Intellect challenge - Change of state of mind	ID	
Gambling problem	"Dependency"		EP1	
		SOGS (SWEGS)		C43-c62
		PGSI		C43B, C62C, C64-C70
		FORS		C111A-C

	Negative consequences			
		PGSI		
		FORS		C111A-C

Further operationalization of these variables will be found in the interview guide.