

THE FINNISH FOUNDATION  
FOR ALCOHOL STUDIES

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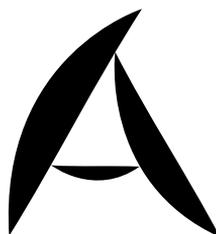
REPORT ON ACTIVITIES

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2011

# THE FINNISH FOUNDATION FOR ALCOHOL STUDIES

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REPORT ON ACTIVITIES

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**2011**

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## **THE FINNISH FOUNDATION FOR ALCOHOL STUDIES**

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## GENERAL OVERVIEW

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The projects funded by the Finnish Foundation for Alcohol Studies resulted in the publication of four academic doctoral dissertations and 25 original peer-reviewed articles in international scientific journals in 2011. Fifteen other scientific papers were published.

One ongoing research contract project received additional funding and five new contract projects were launched. One new project will explore the connections between parental substance abuse problems and teenage social deprivation using register data. Second project uses mouse models to study epigenetic developmental changes in brains when exposed to alcohol during pregnancy. The third new project studies youth and the changing crime control; risk behaviour, alcohol drinking and the use of public space. Another new project explores the status and treatment of patients in forensic psychiatry wards using patient documents. The final new project studies the significance of opioid receptors in the development of alcohol addiction using AA and ANA rat populations. Other contract projects will be described below under the title *Research activities*.

Based on a funding agreement with the Ministry of Health and Social Affairs, the Foundation allocated approximately 170.000 euros for grants to study gambling problems.

The Foundation kept its office at the National Institute for Health and Welfare (THL) in Helsinki.

## ADMINISTRATION

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The Board of the Foundation was composed of four members appointed by the Ministry of Social Affairs and Health, four by the Federation of Finnish Scientific Societies, and one by the Finnish Alcohol Retail Monopoly. The majority of the Board must consist of academically established scientists with special expertise in alcohol research. The Executive Committee was composed of four members of the Board and two external experts. The Gambling Research Committee was appointed by the Board and consisted of one Board member, the Research Director and six external experts.

The Foundation's Research Director *Tomi Lintonen* is the only full-time staff member. A contract between the Foundation and the National Institute for Health and Welfare (THL) provided administrative and technical support for the Foundation.

## RESEARCH ACTIVITIES

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The Foundation awards two types of grants: ordinary grants to support short-term projects proposed by the scientific community, and contract grants ensuring long-term funding of projects deemed to be of major significance. In 2011, 136.680 euro was used as ordinary grants, 146.450 euro as first year funding for new contract grants and 167.575 euro as grants for gambling harm studies.

This report reviews the contract grants included in the Foundation's research programme. It does not cover research funded by ordinary grants.

## RESEARCH CONTRACTS AND COLLABORATIVE PROJECTS

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The ongoing contract projects progressed as follows:

### 184 *Women and Alcohol in Finland 1917–1987.*

It is often maintained that the Prohibition Act (in force from 1 June 1919 to 5 April 1932) still influences both the Finnish alcohol policy and notions about alcohol. This study focuses on the development of women's opinions concerning Prohibition in Finland. What role did the formulation and expression of women's opinions and women's actions play in the final outcome of the Prohibition Act? Women's opinions are particularly interesting since they deviated radically from what has generally been assumed. It was expected that the referendum of 1931 would result in a resounding vote of 100% in favour of Prohibition, but the outcome was a majority vote against it. Over 65% of the women who cast their vote in the referendum wanted a full repeal of Prohibition. The study approaches the history of Prohibition by combining methods and theories of the history of mentalities and social history with gender history. Women are examined as a heterogeneous group with dissimilar objectives and differing ways of acting and thinking. The research material consists of press materials, archival materials from organisations, personal materials and statistics from the Prohibition period. Both discourses and practices are examined. When participating in the public debate on Prohibition, women based their right to express their opinions and take part in action on an ideological continuum spanning a hundred years, according to which home and family were central areas of women's interest. This idea was linked to questions of morality and social policy. On the other hand, women presented themselves as working taxpayers, voters and equal citizens. The most crucial issue in women's discussions was whether Prohibition improved or worsened

the temperance of fathers, husbands and sons. The dichotomies town dweller – countryside dweller, Swedish-speaking – Finnish-speaking, and middle class – working class were highly significant backgrounds both as factors dividing women and in public discussions regarding Prohibition. The 1931 referendum showed that the lines of demarcation drawn during the preceding debate did not materialise in political action in line with these dichotomies. Contrary to what was expressed in public, a great number of women among the labour and rural classes, among inland inhabitants and among Finnish-speakers were also against Prohibition. The media and organisations defended temperance and Prohibition almost until the end of the Prohibition era. This discourse was in conflict with the discourse of everyday conversations and practices in which alcohol was present. Working on the dissertation (monograph) began in 2002 in a project Alcohol and Women in Finland 1917–1987. Other researches in the project were Matti Peltonen and Hanna Kuusi. The dissertation has been published by SKS in 2011 as *Kansan raittiudeksi ja kotien onneksi: Naisten kieltolakimielipiteet ja toiminta kieltolain puolesta ja sitä vastaan 1919–1932* (For a sober nation and happy homes. Women's opinions and actions for and against prohibition in Finland between 1919 and 1932). English summary is included in the book. The dissertation was in public examination in 4th February 2012. Researcher: *Aija Kaartinen*, Finnish Foundation for Alcohol Studies. ([aija.kaartinen@helsinki.fi](mailto:aija.kaartinen@helsinki.fi))

196 *“Miksi lehmät pitää tappaa?” – Ethnographical study of the drug market in Helsinki in the early 2000s.*

The subject of this study is the drug market in Helsinki area. The research belongs to the tradition of ethnographic studies. It uses participating and non participating observation, conversations, and open interviews with the people who have various roles in the Helsinki drug markets. The research also exploits interviews with the law enforcement and customs officers and the pre-trial phase of the criminal process documents. Actual research was started at the beginning of the year 2004. The research was finished in 2011. It was published by National Institute for Health and Welfare (Research 56). The present study focuses on the drug market in Helsinki in the early 2000s, mainly on the dealing in and use of amphetamines, cannabis and the pharmaceutical Subutex. The drug market is usually analysed into upper, middle and lower level markets. These levels are very different in terms of their operating practices, although there may be some mingling. The present study is mainly concerned with drug dealers and users in the lower and middle level markets. Operations also differ depending on whether the deal-

ing involves just one drug or several. Dealing in and using Subutex is a very different business from dealing and using home grown cannabis, for instance: both the customers and the dealers are mostly quite different. The study material was mostly collected through ethnographical field work, including observations and interviews. Interviews with officials and minutes of pre-trial investigations concerning aggravated drug crimes are also included. The study discusses the roles of dealers on the various levels of the drug market in Helsinki and traces activities at various levels. Ethnographical methods are employed to observe day-to-day drug dealing and use and leisure pursuits in private homes and in public premises. The study takes note of the risks inherent in drug dealing and estimates what kind of drug dealers can last the longest on the market without the authorities intervening. At the same time, the study discusses how small groups on the middle and lower levels of the drug market avoid control measures undertaken by the authorities and how the authorities address these groups. Moreover, the study discusses what the drug market is like in prison from the perspective of a drug dealer sent to prison, what their everyday lives are like after release, and how much money dealers on various levels of the drug market make. The study demonstrates that drug dealing in Helsinki, whether we consider the very top or the very bottom of the pyramid, is a far from rational pursuit. The undertakings are not very systematic; they are more a reaction to intoxicant addiction(s) and other problems caused by other dealers, the dealers' own actions and the actions of the police. The everyday lives of drug dealers are often chaos only alleviated by drug use in the company of buyers or alone. If a drug dealer uses drugs himself/herself, things become even more complicated and a vicious circle develops. At the same time, everyday life is certainly exciting, and a drug dealer often has a highly eventful if brief life. Drug dealing is a very masculine pursuit, and there is a sort of macho code governing it, although this does not nearly always work as it should. This macho code, typically for illegal activities, involves the threat of violence as a control measure. Hence the untranslatable slang expression "Kill the cows": the Finnish word for 'calf' has the slang meaning 'snitch' or 'police informant'. No more cows, no more calves. But informing on others to the authorities is a fact of life in the drug-dealing world. Contributing factors to being reported to the authorities are the dealer's own mistakes and the actions of other dealers and the police. A determined drug dealer will not be deterred from drug dealing by a prison sentence. However, following time in prison only few dealers manage to gain an income from drug dealing commensurate with its risks. Researcher: *Jussi Perälä*, Finnish Foundation for Alcohol Studies. ([jussi.perala@thl.fi](mailto:jussi.perala@thl.fi))

### 206 *Identification of Hazardous Drinkers by Biological Markers.*

Increased alcohol consumption is difficult to detect by a common interview and none of the current biomarkers is specific for a reliable detection of increased alcohol consumption. This is why our main aim in the present study is to search for new protein biomarkers which could be used to detect and predict reliably hazardous drinking. The study material has been received from two rat strains with opposing preferences towards ethanol, AA (Alko Alcohol) and ANA (Alko Non-Alcohol), and from the patients who participated in the FinnRisk 2007 study. The animal experiments, consisting of studies of continuous and periodical drinking, were performed at National Institute for Health and Welfare in 2007. Plasma, urine and cerebrospinal fluid samples were collected. The samples were analyzed using the modern proteomic tools e.g. mass spectrometry (MALDI-TOF/TOF, matrix assisted laser desorption ionization time-of-flight and ESI-IT, electrospray ion-trap) and two-dimensional gel electrophoresis (2-DE). As a new technology we have applied two-dimensional ultra high pressure liquid chromatography with ultra high resolution ion mobility mass spectrometry (2D-nanoUPLC-IMS-MS). Such a technology can typically separate and identify several thousand compounds in one single analysis corresponding to several hundred proteins identified. The method set-up and optimization and most of the sample analyses have been completed for the 2D gel electrophoresis. These results are now compared with the several hundred protein identifications delivered from the ongoing 2D-nanoUPLC-IMS-MS analyses. We have completed the analysis of the urine samples by 1D and 2D LC and have continued with these samples with the new HR technology in 2011. With the new 2D-nanoUPLC-IMS-MS technology we have now analyzed the cohorts of rat samples (0 weeks; 25 weeks) and verified the expression continuity of the over-expressed proteins by comparing these to various time points (8 and 16 weeks). We also performed comparisons between individual rat samples and pooled rat samples and verified that the variation between individual rats was approx. 10% which is in good agreement with the normal variation of protein expression among control samples. We pooled rats from individual cages of 4 rats each (i.e. pooled samples included 4 rats). This minimized the variation between individual rats in each group of cages. During 2011 we also treated samples by a new protocol which allowed us to have higher identification coverage due to better solubilization. While measuring pooled samples and collecting data we also followed random samples from the same cohort to have an on-line internal checking system for any run-to-run variation. At this point we have only analyzed increased protein expressions. While also lowered expression levels cer-

tainly reflect a “true” change in the total protein expression map, we are more interested in measurable and clearly immune-detectable alterations at this stage of our study. We have collected hundreds of protein identifications from which we are currently producing expression maps by systems biology. We have accepted proteins with only high probability scores and used annotated and partially non-annotated rat data bases. Due to the still partial coverage of the existing rat data bases we have in some cases compared acquired sequences to mouse data bases for possible protein identification. Each hit has been verified by several different variables by PLGS analysis software (ProteinLynx Global Server Analysis). For each of the identified proteins we have performed a comprehensive and systematic classification as to their function and identity. According to our results so far we may note that indeed, semi-chronic and chronic rats from the AA group express totally different protein pattern when exposed to alcohol drinking. While semi-chronic drinking seems to induce a protein expression pattern dealing with cellular, developmental and systemic processes, chronic alcohol consumption forces protein expression on immune response, metabolic processes and responses to stimuli according to corresponding Gene Ontology analysis data-bases. Interestingly, also humans who drink heavily alcohol show a disturbed immunological response. Rats which were drinking only kinin showed again a completely different protein expression pattern than their littermates who were drinking only water or alcohol, clearly indicating that also kinin affects predefined metabolic pathways. We have so far identified approx. 20–40 proteins which are over expressed and highly specific for each group of rats. Several proteins show also lower expression levels when compared to the control rats drinking only water. On average we observed 100–200 proteins to be differentially expressed in each group of rats, of which some are clearly common between the compared groups. We are currently continuing our data analysis by systems biology while also continuing with the still remaining sample analyses. Researcher: *Marc Baumann*, Biomedicum, University of Helsinki. ([marc.baumann@helsinki.fi](mailto:marc.baumann@helsinki.fi))

*207 Living Between Two Families – a Qualitative Study of the Surviving Strategies and Functioning of Children in Foster Care.*

The liberal influences on governing practices in the field of child welfare, such as legal demands, e.g. in the Child Welfare Act (417/2007), to notice the agency of children, is in the forefront of this study. The more precise interest lies in the question what “governing through freedom” including negotiated practices, agreements and contracts actually means in the practices of so called Professional Foster Homes, when coercive prac-

tices inevitably also are at work when dealing with difficult problems, such as substance abuse. The areas of interest are: 1. what does the focus on children's own agency and right of participation mean in practice for children with an abusive background or with own substance abuse problems? 2. what kind of (problem)identities, ideological goals and life perspectives are created and re-created in the setting? 3. what kind of role does the professional foster home take in the field of child welfare? Theoretically the study falls firstly into a study of governmentality, where the logics of dominant discourses and social practices are studied. Secondly, the study falls into the category of institutional ethnographies, paying attention to the identity formation that takes place within the context of a specific institutional setting. At the moment four articles have been accepted for publication. During the years 2009–2010 the following articles have appeared: "Re- negotiating Personal Integrity in Finnish Child Welfare" in *International Journal of Children's Rights* and "Vulnerable, guilty or on their own? Institutional Identities of Substance Abusing Children and Families within Finnish Child Welfare" in *Nordic Studies on Alcohol and Drugs (NAT)*. The third article appeared in 2011 in the publication "Lapset, nuoret ja uudet hallinnan käytännöt (eds. Mirja Satka, Timo Harrikari, Elina Pekkarinen ja Leena Alanen)". The fourth article "Foster Care Partnerships in Finland 1990–2010: From social task to ensuring better market share?" will appear soon in the *Law and Childhood Studies* publication. Researcher: *Petra Kouvonen*, Finnish Foundation of Alcohol Studies. (petra.kouvonen@thl.fi)

208 *Changes in the Drinking Culture in the Light of Drinking Habits Surveys in Finland, 1968–2008.*

The purpose of the study is to present an overall description of the changes in Finnish drinking culture over the last four decades by investigating some central dimensions of the drinking culture. The study consists of four sub studies on (1) changes in attitudes and norms around drinking, (2) age, period, and cohort effects on light and binge drinking, (3) changes in drinking situations and (4) changes in the socioeconomic differences in drinking patterns. The main data is based on six national drinking habits surveys in 1968–2008. Various statistical methods are applied in the analyses. In 2011, the research paper of sub study two was published and a manuscript of the third sub study was submitted to an international journal. During a researcher visit to SoRAD, Stockholm University, one seminar was held about the research project and a draft version of the dissertation's introductory part was completed. Researcher: *Janne Härkönen*, the Finnish Foundation for Alcohol Studies. (janne.harkonen@thl.fi)

209 *Precarious Pregnancies. Alcohol, drugs and the regulation of risks.*

The sociological PhD study analyses face-to-face encounters between professionals and service users at a specialised maternity clinic for pregnant women with substance abuse problems, medical and political discourses on the compulsory treatment of pregnant women as a means of FAS prevention and official recommendations on alcohol intake during pregnancy. Moreover, the study addresses the women's perspective by asking how women who have used illicit drugs during pregnancy perceive and rank the dangers linked to drug use. The study consists of five empirical sub-studies and a summary article. Sub-study I was written in collaboration with Dorte Hecksher and Sub-study III with Riikka Perälä. Theoretically the study builds on the one hand, on the socio-cultural approach to the selection and perception of risks and on the other on governmentality studies which focus on the use of power in contemporary Western societies. Methodologically the study is based on multi-sited ethnography. The empirical sub-studies are based on three different types of qualitative data: ethnographic field notes from a maternity clinic from a period of 7 months, documentary material (medical journals, political documents, health education materials, government reports) and 3) interviews from maternity clinics with clients and members of staff. The study demonstrates that the logic of the regulation of prenatal alcohol use in Finland is characterised by "the rise of the foetus", a process in which the urgency of protecting the foetus has gradually gained a more prominent role in the discourses on alcohol-related foetal damage. Secondly, the study suggests that maternity care professionals have an ambivalent role in their mundane encounters with their pregnant clients: on the one hand professionals focus on the well-being of the foetus, but on the other, they need to take into account the women's needs and agency. Finally, the study draws attention to the women's understanding of the risks of illicit drug during pregnancy, and shows that the women's understanding of risk differs from the bio-medical view. The public defense of the PhD study took place in February 2012. Researcher: *Anna Leppo*, Finnish Foundation of Alcohol Studies.

210 *Drug induced Plasticity on Dopaminergic Pathway; mechanisms and meaning from synaptic level to behaviour.*

Addiction could be seen as a maladaptive learning phenomenon. Drugs of abuse are able to induce synaptic plasticity in some critical brain areas like the midbrain dopamine pathways enabling them to persist learning that guides in further use of the drug. Our project started with novel finding, that the benzodiazepine diazepam induces similar modifications in midbrain's dopaminergic neurons as other classical drugs of

abuse. We aimed to further clarify the neurobiology of drug-induced plasticity in addiction, and more specifically in benzodiazepine dependence. We use in vitro methods like c-Fos immunohistochemistry, Golgi-Cox labelling, brain slice electrophysiology, laser microdissection of neuronal populations for q-PCR and gene chip hybridizations, as well as in vivo models like locomotor activity measurements, anxiety tests, self-administration and conditioned place-preference. We have studied further the mechanisms of drug induced plasticity at the gene expression level by microdissecting the neurons of interest and running gene chips on them. The gene expression of the VTA dopaminergic neurons was changed at 24 hours after diazepam treatment. Now we are confirming the candidate genes with other methods like qRT-PCR. We studied the possible interaction between the diazepam-induced modulations in the dopamine pathway and the effects of morphine or amphetamine on the locomotor behaviours of mice, which are known to depend on the activity of these dopaminergic neurons. The results imply that the morphine induced hyperlocomotion was attenuated 24–72 hours after diazepam pre-treatment. On the other hand, the pre-treatment attenuated the sensitization induced by amphetamine. The possible effects of other GABA mimetic drugs on the plasticity of dopamine neurons have also been studied. Based on our unpublished results gaboxadol, that affects the extrasynaptic GABA<sub>A</sub> receptor population, induced plasticity at the glutamatergic synapses of VTA dopamine neurons which was due to insertion of new GluR2 subunit-lacking AMPA receptors at the synapses. However gaboxadol did not demonstrate rewarding and reinforcing properties in the behavioral tests. We also found that in vitro THIP actually reduces the GABA<sub>A</sub> receptor –mediated inhibitory events arriving to VTA DA neurons, through some neuronal network mechanism, possibly disinhibition. We also studied the possible role of the neuropeptide orexin in the anxiolytic and sedative actions of diazepam. We found, with c-Fos immunohistochemistry that diazepam at the anxiolytic dose prevents the stress-induced activation of orexinergic neurons and on the other hand, at a sedative dose diazepam silences this neuronal population that is important in waking and keeping up arousal. Researchers: *Anne Panhelainen* and *Elena Vaschinkina*. Institute of Biomedicine, University of Helsinki.

211 *The Cultural and Structural Dimensions of Habitual Criminality. Drug Users and Police Interpretations of Habitual Criminality.*

During the year 2011 I have finished a concluding article and fifth (last) article, which title is "The Meanings of Drug Enforcement in the Police Working Orientation – normative and pragmatic in-terpretation reper-

toires. The dissertation was sent into the pre-examination in May 2011 and I will doctorate in April 2012. My Ph.D study concentrates on drug users with heavy criminal past. Drug users are usually seen as passive actors, whose behavior is routine-based and compulsive as a contrary to a free will and rationality. In other words addiction is forcing them into the drug misuse and financing drug use by illegal acts. This study aims to consider the meanings and motives associated with criminal activity as a reflection of offenders' life style, values and criminal identity. I will utilize the concepts and perspectives of cultural criminology in order to analyze experimental and attractive patterns of the criminal action. Secondly, I will search reasons why some drug using offenders are targeted under the police control and interpretations which police are connecting into drug enforcement. The data consist of police investigation records, police questionnaire and police officer's and drug user's interviews. Different data showed that crimes committed by drug-users were extremely diversified. Material profit were not the only reasons to commit crimes, but also immaterial benefits, like sensation seeking, reputation and approval in peer group and testing his own limits. Satisfaction and attraction didn't easily wane during the criminal career. They didn't feel a conventional life style very attractive and on the other hand they had isolated from that after the formulation of criminal identity. Even if they became stigmatized as deviant persons, they wanted to identify with the criminal peer group and gain respect from that culture. Police records and interviews showed that police control is concentrated on the well-known drug using offenders, but this is mostly caused by drug-related criminality committed by drug misusers. According to police rhetoric, controlling drug users is significant in order to maintaining public safety and order. Police felt, that their expertise or official duty didn't extend into solving offenders hard living conditions or drug dependency, but that belongs in the response of social and health sector. The informal police culture effects partly to that fact, that punitiveness is still a dominant attitude towards drug users. Despite a legalistic definition police saw drug criminality as a harmful, immoralist and unwelcome action and the majority of population support police mandate in drug regulation. The fifth article was handling police discretionary decision making. As a main result I claimed that discretion crystallized – from the perspectives of police culture and occupational orientation – in police men individual consideration about effects that control would induce in offender's criminal behavior or drug use. Secondly, police prioritized their action based on societal harms caused by criminal activity. Researcher: *Tuula Kekki*, Finnish Foundation of Alcohol Studies.

*212 The Development of Alcohol Policy in Newly Independent Estonia.*

I have used the Eurocare Bridging the Gap (BtG) scale to measure the strictness of Estonian alcohol policy regulations between 1991 and 2008. Estonian indicators are also compared with those of other European countries. Seven alcohol policy measures are discussed in my research: control of production and wholesale, control of distribution, age limits, advertising, social and environmental control, public policy and alcohol taxation. The indicator values are based on my analysis of legislative changes and governmental programmes during these years. Alcohol policy issues have had low political priority in independent Estonia. In international comparison, the initial policy of the early 1990s was extremely liberal. When restoring the independent statehood, many different policy fields needed to be reorganized simultaneously, while lacking experts and material resources. The situation was further characterized by weak surveillance over the law fulfilment, weak civil society and an absence of pressure from the public. The capacity of the state administration to implement policies has been weak, and the fast staff turnover makes it difficult to develop consistent and systematic approaches. Since 1995, when the most intensive period of political and economical reforms started to subside, the adoption of new legislation in 1998–1999, and later on with the introduction of unified restrictions on sales hours in 2008, the liberalism has become more orderly and more moderate – although the contrast with neighbouring Nordic countries remains sharp. In comparison with other European countries Estonia belongs to the countries with a medium level of alcohol control. Not only because of fiscal policy concerns or the need to adapt to the EU agreements, but also for many other reasons, alcohol policies are developing more in line with public health interests. The more Estonia has improved its administrative capacity, the more it has been possible to implement structured alcohol policy that takes into consideration also social aspects. Since 2008, alcohol control policies have been strengthened in different areas, for instance by introducing a nation-wide restriction on the time of off-premise sales of alcoholic beverages, by strengthening advertising restrictions, and by improving tax collection. On the other hand, we can still say that Estonia lacks a comprehensive alcohol policy that could be used in order to coordinate action against harmful alcohol consumption. Researcher: *Kersti Kollom*, Tallinn University and Åbo Akademi, Department of Sociology. (kerstiko@hotmail.ee)

213 *The Role of Brain-derived Neurotrophic Factor in the Regulation of Alcohol Drinking.*

BDNF is a member of the nerve growth factor family of neurotrophins and has multiple tasks in central nervous system, such as neuronal survival and plasticity, learning, regulation of locomotor activity and appetite and also in addiction. BDNF signals through TrkB- receptor and alcohol and other drugs are known to acutely induce them both. The aim of this study is to clarify the role of BDNF in the rewarding effects of alcohol and in the regulation of alcohol drinking. The expression profile of BDNF has been determined in the Institute of Health and Welfare in AA (Alko, Alcohol) and ANA (Alko, Non-Alcohol) rats after acute alcohol exposure in a dose-response study (alcohol doses 1,5g/kg and 3g/kg) and in a time-course study (time points of 90min, 3, 6 and 24 hours). The levels of BDNF mRNA in the prefrontal cortex, nucleus accumbens, amygdala, hippocampus and ventral tegmental area of both naïve rats and rats exposed to acute alcohol administration were determined with quantitative PCR utilizing SYBR Green detection. The results were presented in the EBPS 2011 congress in Amsterdam, Netherlands and in the ESBRA 2011 congress in Vienna, Austria. In the Autonomous University of Barcelona a project was started to study the interaction of BDNF and dopamine systems and the effect of ethanol on that. Researcher: *Noora Raivio*, Department of Alcohol, Drugs and Addiction, National Institute for Health and Welfare, supervised by Kalervo Kiianmaa, and Institute of Neurosciences, Autonomous University of Barcelona, supervised by Jordi Ortiz and Josefa Sabrià. ([noora.raivio@helsinki.fi](mailto:noora.raivio@helsinki.fi)).

215 *Diversity of Drinking Culture – The Examination of Intoxication, Drinking Practises and Drinking Situations of Women and Men.*

This sociological research investigates drinking habits from the point of view of gender. Even though the differences in drinking between genders have been studied earlier, it is important to point out the differences inside gender as well. Therefore, the drinking practices, gender ideals and roles and the meanings related to drinking among women and men of different age are investigated in this research. By using the perspective of generation, the research also aims to clarify the changes in Finnish drinking culture. Especially by pointing out changes in drinking and drinking ideals among women of different generations, the research adds to the knowledge about the changes in drinking cultures in Finland in the last four decades. The main data of the research consists of 16 focus group interviews. Women and men of four different age groups and of two educational levels have been interviewed separately. The theoretical framework of the study applies theories which discuss gender as a part of self pres-

entation and self expression. Therefore, gender is not only seen as a biological factor but as a social and cultural construction. The study is based on an assumption that in drinking situations, as in social life in general, gender is constructed by adopting, repeating and varying gender ideals and gender models considered normal and suitable. During the third year of the study, the first article "In control and out of control. The discourse on intoxication among young Finnish women in the 1980s and 2000s" was published in the journal "Nordic Studies on Alcohol and Drugs" (number 2/2011). The second article "Hyväksytyä, hävettyä ja haluttua – Juomisen naiskuvat ja sukupuolijärjestykset eri-ikäisten naisten kuvaamina" was published in the "Yhteiskuntapolitiikka" journal (5/2011). The article deals with gender ideals and drinking related norms and values among women at different ages. This article will also be published in English in 2012. The third article "Humala ja sukupuoli – Eri-ikäisten naisten ja miesten puhe humalasta ja juomisen kontrollista" was approved for publishing in the "Janus" journal. This article compares the discourses on intoxication between women and men among different age groups and different educational levels. The fourth article which studies intoxication and drinking related gender ideals among men at different generations more precisely will be offered to a journal in January 2012. The planning of the fifth article has started. This article will compare the relation to alcohol and especially to intoxication between Finnish and Swedish women at different ages. The article will be offered to an international journal in summer 2012. Researcher: *Jenni Simonen*, the Finnish Foundation for Alcohol Studies. ([jenni.simonen@thl.fi](mailto:jenni.simonen@thl.fi))

216 *Teenagers' Images of Alcohol Use and Social Class Differences Related to Them in Finland and Italy.*

The study examines social class differences in drinking images among 14–16-year olds in Finland and Italy. The research provides novel insights for adolescent drinking cultures by utilizing comparative qualitative research methodology. Large cross-cultural surveys have boosted our knowledge on convergent trends in adolescents' drinking patterns. In Finland, there has been a discussion on polarization of alcohol consumption and on the role of socioeconomic background in the formation of drinking patterns. Still, survey studies do not reveal subtle symbolic aspects of drinking, adolescents' own views and what alcohol actually means in differing social and cultural settings. The international significance of this research is, beyond the substantive objectives, to develop the methodology for comparative qualitative research in the social sciences. This research applies a structured qualitative focus group methodology called The Reception Analytical Group Interview (RAGI). The data of the research consist of group interviews among ninth graders in Helsinki,

Finland (N=18) and Turin, Italy (N=10). In Helsinki the schools for the study were chosen according to the socioeconomic indicators of the area; In Italy the recruitment was also based on the area indicators as well as on the secondary school divisions. Franca Beccaria and her research team in Eclectica have been responsible for collecting the Italian part of the data. In both countries the participants were shown six film clips representing different kind of drinking behaviour and drinking settings. The RAGI technique standardizes the information about (drinking) images and improves validity, reliability and comparability of the interview material. The data collection started at the end of 2010 and was finished in March 2011. One master's theses on the data was completed in December 2011 (Anna-Sofia Lehto) and two article manuscripts have been written (on adolescent's risk perceptions with Anna-Sofia Lehto and on the binge drinking images among Finnish and Italian adolescents together with Sara Rolando), which will be submitted to journals during spring 2012. Researcher: *Anu Katainen*, University of Helsinki.

217 *The Division of Labour Between Social Care, Health Care, the Prison and the Police in the Handling of Intoxicant Related Harm in Finland and Norway Since 1908.*

This dissertation study examines how intoxicant related harm burdens different authorities. It focuses on the division of labour between the health sector the, social sector, the prison and the police in producing intoxicant related over night stays since the year 1980. The study starts out from the knowledge that the division of labour between these sectors changed in the late 1970s when involuntary treatment increasingly gave way to social service interventions. The article asks whether and what kind of evidence there is to back up the argument that rehabilitative treatment has been on the decline and involuntary control on the increase during the period under study. The study makes use of register material produces by different authorities. During the first half of the year 2010 work has focused on how intoxicant related harm transforms into over night stays with the health authorities, social authorities, the prison and the police in Finland. I have started working together with the prisoner health study project that is lead by professor Matti Joukamaa. Professor Joukamaa and his colleagues have agreed to let me use material from three prisoner health studies – from the years 1985, 1992 and 2006 – for two co-authored academic articles. Using these studies enables deeper and more precise knowledge of the use of intoxicants among prisoners. During spring 2010 I worked on two co-authored articles: The first article deals with the division of labour between the social sector the health sector the prison and the police in the handling of intoxicant related harm in Finland since 1980: (Obstbaum Yaira, Lintonen

Tomi, Aarnio Jorma, von Gruenewaldt Virpi, Hakamäki Sirpa, Mattila Aino, Vartiainen Heikki, Viitanen Päivi, Wuolijoki Terhi, Joukamaa Matti) in *Yhteiskuntapolitiikka* 1/11. The second article (Lintonen T, Obstbaum Y, Aarnio J, von Gruenewaldt V, Hakamäki S, Kääriäinen J, Mattila A, Vartiainen H, Viitanen P, Wuolijoki T, Joukamaa M.) assesses in what way the prisoner health studies from different years – 1985, 1992 and 2006 – produce comparable data on prisoners' use of intoxicants. The article will become a part of my dissertation. The researcher has spent the year 2011 on a maternity leave and will continue working on the project in 2012. Researcher: *Yaira Obstbaum*.

218 *Alcoholic Liver Cirrhosis: the Interaction Between Genetic Factors and Gut Microbiota.*

In Finland more than 90% of cirrhosis are inflicted by alcohol. Heavy alcohol abuse leads to fatty liver and possibly to alcoholic liver cirrhosis. The aim of this study is to find out how intestinal microbiota and genetic factors influence on the development of alcoholic liver cirrhosis. Our group have shown that CD14 polymorphism correlates with the risk of alcoholic liver cirrhosis. Endotoxin, a constituent of gram negative bacteria binds to the CD14 receptor in liver Kupffer cells and can lead to activation of long-term inflammatory response which can cause alcoholic liver cirrhosis. Genetic variation of CD14 receptor has been studied in an autopsy material containing 1446 cases. We did find out that all polymorphisms in the genes' s regulation area did associate with the risk of alcoholic liver cirrhosis. Currently the study of CD14 gene is being expanded with more additional 100 alcoholic liver cirrhotics and 200 controls. Addition to the hereditary susceptibility it has been shown that chronic alcohol abuse can disturb the balance of intestinal bacterial population shifting it towards to gram negative majority. These changes have been reported to interfere with the normal intestinal structure and function increasing the bacterial and endotoxin translocation into the blood circulation. The importance of intestinal microbiota in alcoholic liver cirrhosis is being studied using both autopsy and clinical patient samples. Bacterial translocation from intestines to liver is being studied with PCR and bacterial culturing. According to the preliminary results from PCR, the alcoholic liver cirrhotics have less *Bifidobacterium* sp. in fecal samples when compared to controls and alcoholics. Also the PCR results show that liver samples of alcoholic liver cirrhotics have more *Clostridium* sp. bacteria translocated from intestines, whereas the relative amount of *Bacteroides* sp., *Bifidobacterium* sp., and *Enterobacterium* sp. has decreased. According to culture results, the most common translocated bacterium in the liver samples of alcoholic liver cirrhotics is *Clostridium perfringens*. When alcoholic liver cirrhotics were compared with controls and alcoholics, it was found out they

had more commonly gram negative bacteria in liver samples than others. The reliability of post mortem samples have been evaluated in 3 different time points: 1–3, 4–5 and over 5 days old ones. These results showed that post mortem samples ought to be taken from liver and pericardial fluid within 5 days. Also the relative amounts of post mortem fecal samples have been studied in the same time points and according to the results the amounts do not change. Thus post mortem fecal samples can be exploited in the field of research. Of the results, 4 manuscripts will be published in high impact factor, international scientific journals. The first manuscript has already been submitted to Journal of Forensic Sciences and preparing of the next two has started. Researcher: *Sari Tuomisto*, Tampere University, Clinical School, Forensic Medicine. ([Sari.Tuomisto@uta.fi](mailto:Sari.Tuomisto@uta.fi))

219 *The Decisive Encounter – Process and Outcome Research of Initial Motivational Encounters at the A-clinic.*

In 2011, this qualitative study focused on the most common difficulties in applying Motivational Interviewing (MI) in the first client-counselor encounters in Finnish outpatient clinics for substance abusers. Research was carried out as a half-day work in 2011. The data consist of 38 audio taped initial encounters between counselor and. The audiotapes were analyzed with conversation analysis (CA) and with a coding method counting the type and frequency of MI techniques (MITI, Motivational Interviewing Integrity Code). CA describes the construction of conversation, focusing on the relation between consecutive turns. It describes the conversation as a mutual achievement of both participants. The CA results were mirrored with results of a MITI-analysis. In 2011, the main focus in this research was on parallel use of two different methodologies aiming to identify and explore the dynamics of interaction in those sequences where MI principles were failed. The results suggest that the main difficulties in applying MI in the initial sessions appeared firstly in the excessive use of closed questions in relation to open questions. Secondly, although counselors employed turns that were formatted as reflections, the contents and focus of the turns were not always MI consistent. CA was used especially to explore in detail the sequences of interaction where these problems are clearly revealed, in order to understand the reasons for MI-inconsistent interaction. These problematic counselors behaviors, or in CA terms “counselors’ projects” (focus of action across multiple consecutive sequences) demonstrate the counselors’ haste to gather the information that they regard as essential to assist clients in making helpful decisions. This intention, however, does not match with MI’s aim at evoking clients’ change talk, as the counselors, not the clients, are in charge of the selection and elaboration of the topics of talk. An additional problem is caused by the use of reflections that focus on irrelevant or even counterproductive aspects of client

talk. This difficulty seems to result from a lacking understanding of the functions of reflections in interaction. In MI terms, it is taken to describe the counselors' inability to identify and strengthen clients' change talk. The results suggest that more attention should be paid in MI education on ways to use open questions and reflections in the initial sessions. More attention should also be paid to learning how to distinguish accurate and change-talk eliciting reflections from mechanical and unproductive use of reflections in conversation. This would help counselors in recognizing clients' change talk and use it as a resource for their work. The results of the research conducted in 2011 are reported in the Finnish journal "Psykologia" (the first issue of 2012) and in the International Conference of Motivational Interviewing to be held in the summer 2012. Researcher: *Leena Ehrling*, VTT. (leena.ehrling@helsinki.fi)

220 *Mind, Body and Society in European Medical Thought on Alcohol c. 1790–1855.*

This study reconstructs a neglected tradition in the history of ideas on alcohol which emerged in European medical thought during the period from the late 18th to mid 19th century. At that time, alcohol-related diseases were established as an object of systematic clinical examination and classification. This study argues that an even further epistemological and ontological step was taken. By way of reasoning on the predisposing causes of alcohol-related diseases, many doctors extended their empirical interest from clinical considerations into inquiries of drinking as a socio-cultural phenomenon. Hence, the study argues, the doctors of the era brought forth a holistic understanding about the interconnections between alcohol, the individual and society. Their understanding about the physiological and pharmacological processes underlying the effects of alcohol on the mind and body interlocked with a view of drinking as a meaningful practice subject to historical and cultural variation. In addition, they rendered the very desire for alcohol as cultural, that is: not innate and natural. The emergence of the tradition is traced to the late 18th-century works of doctors who derived their intellectual outlooks from the hotbed of the Scottish Enlightenment medicine and moral philosophy, the University of Edinburgh. Especially the ideas of Thomas Trotter are highlighted. From there the study turns to the Continental tradition of clinico-pathological studies on alcohol-related diseases and the associated understanding about their societal antecedents in the first half of the 19th century. Here the focus is especially on the ideas of Magnus Huss. Based on the analysis and interpretation of an extensive corpus of primary sources the study contributes to discussion within the alcohol studies field as well as to the historiography of medicine and the social sciences more generally. The study was started in 2008 and the final report, a mono-

graph, is being written at the moment. A total of ten international presentations have been given at intellectual history and alcohol/addiction studies conferences, symposia, and researcher meetings in e.g. Princeton, Victoria, Copenhagen and St. Petersburg. Other international activities include a research visit at the University of Edinburgh and a lecture given at the University of Tallinn. Drawing on the historical analysis of the study an article was written in 2011 for a Finnish edited volume to be published in 2012. Two international referee articles will be written and submitted in 2012. The final report monograph will be completed in the spring of 2013. Researcher: *Arto Ruuska*.

221 *Drug-related Deaths – A Register-based Study from User Perspective.*

The topic of this PhD study is drug-related deaths covering both single-drug and poly-substance deaths. Recent studies and statistics show that the drug situation in Finland has been rather stable. Exceptions to this are drug-related deaths which have increased since 2003. Nevertheless, drug-related deaths and mortality are little studied in Finland. The objective of the research is to study the drug use career and socioeconomical background of the deceased and the circumstances in which the users have died, and to compare the changes between these in 2000 and 2008. In addition, the proportion of narcotics, alcohol and pharmaceuticals in deaths is investigated. The context for the research is the change in the Finnish drug situation and drug policy in 1990–2000's. The drug use increased sharply in the 1990's in Finland. A political reaction to the growing problem was the introduction of harm reduction measures alongside criminal sanctions. Meanwhile one of the main pharmaceuticals used in the opiate substitution treatment (OST), buprenorphine, has become the most abused opiate in Finland. The increased medicalisation has created a new drug use environment which enables licit use of opiates for those patients in OST but also has introduced pharmaceuticals for users outside treatment. In addition to OST pharmaceuticals, there are also signs of increased misuse of opiate painkillers and sedatives. The primary data consists of administrative register data collected from Hjelt Institute (University of Helsinki), Institute for Health and Welfare, Social Insurance Institution, Population Register Centre, Statistics Finland and the National Police Board. The data is gathered on the drug-related death cases in 2000 and 2008. The cause of death data is linked to information on morbidity, income support, unemployment, education, housing, family affairs, and criminal activity. During 2011, the research was carried out from January to March and was funded by an ordinary grant. The rest of the year the researcher was on parental leave, yet the register data collection was continued. Researcher: *Sanna Rönkä*, University of Helsinki.

### 223 *Interactions of Dopamine and Histamine in Alcohol Addiction.*

To study drinking behavior in mice a new technique “Drinking in the dark” was launched and applied to investigate the effects of histamine H3 receptor antagonists. Using the same method the drinking behavior of histamine H3 deficient (H3R KO) mice was studied. We found that both H3R KO mice and normal mice after administration of H3R antagonists had strongly abnormal alcohol drinking behavior. The H3R KO mice consumed less alcohol than control mice in both two-bottle choice test and DID test. In C57Bl/6J mice H3R antagonist ciproxifan decreased and an H3R agonist immapip increased alcohol consumption. Similarly, a non-imidazole H3R antagonist JNJ-10181457 and ciproxifan both decreased alcohol-induced place preference behavior in normal mice. We also found that histamine H3R antagonists induce a very strong release of histamine but not dopamine in the striatum of normal mice. The results obtained so far suggest that for some striatal functions the histamine H3 receptor is a necessary component of not only histaminergic but also dopaminergic signaling. Current studies are aimed at understanding the role of dopaminergic receptor antagonists and agonists in the presence and absence of H3R. Alcohol-preferring AA rats and alcohol-avoiding ANA rats showed clearly increased expression of the dopaminergic signaling protein DARPP-32, but there was no significant difference in the phosphorylation of this protein between the lines. The expression of Akt kinase was higher in the hippocampus of the ANA rats than AA rats, and alcohol activated Akt in ANA rats but not in AA rats. The study was conducted by the team leader professor Pertti Panula, postdoctoral scientist Saara Nuutinen, MSc Jenni Vanhanen and Med.Cand. Tiia Ojala. The latter two participants are working towards a PhD thesis on the topic. Several publications were published, one in *Neuropharmacology*, one in *Neuropsychopharmacology*, one in *Journal of Pharmacology and Experimental Therapeutics-lehdessä* and one in *Neuroscience Letters-lehdessä*. The project was presented in one oral talk and one poster at the Annual Meeting of the Society of Neuroscience in Washington DC. In addition, Pertti Panula gave a presentation at CINVESTAV in Mexico City and a plenary presentation at the Annual Physiological Meeting in Leon. He also gave a talk at Yale University on the topic in November. The results may have significance in the treatment of alcohol disorders in humans, and one drug company has announced clinical tests on human subjects based on the results. Researcher: *Pertti Panula*, Helsingin yliopisto. (pertti.panula@helsinki.fi)

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