

THE FINNISH FOUNDATION FOR  
ALCOHOL STUDIES

REPORT ON ACTIVITIES

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2009

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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 seven academic doctoral dissertations and 16 new peer-reviewed articles in international scientific journals in 2009. Twelve other scientific papers were published. Eleven ongoing research contract projects received additional funding and four new research contract projects were launched. One of the latter will compare interaction processes in communication between the patient and the therapist among new patients who either will or will not attach themselves to further treatment. The second will study the images of alcohol use, health and welfare by social group among adolescents. The third explores the distribution of over-night stays in social, health, correctional and detention services in Finland and Norway from the year 1980 to the present. The fourth analyses the interaction between genetic factors and endotoxins from the intestinal bacteria in liver cirrhosis. Other contract projects will be described below under the title *Research activities*.

The Foundation took part in the international research consortium "Theories of addiction and images of addictive behaviours (IMAGES)", funded by the Academy of Finland, by doing research on the history, nature and etiology of addictions. Based on a funding agreement with the Ministry of Health and Social Affairs, the Foundation allocated approximately 300 000 euros for grants to study gambling problems.

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

## Administration

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The Board of the Foundation is composed of three members appointed by the Ministry of Social Affairs and Health, three appointed by the Ministry of Education, two appointed 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. An Executive Committee composed of the scientist members of the Board and advisory members prepares and reviews the issues falling within the Board's field of responsibility.

The Foundation's Research Director 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 the long-term funding of projects deemed to be of major significance. In 2009, Foundation expenditure totalled 1 120 189 euros. Of this, approximately 1 030 000 euros were spent on research.

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:

#### *170 Decline of the Temperance Movement and Temperance Ideology since the Second World War in 1945–1993.*

There are only a few studies on the Finnish temperance movement during the post-prohibition era. The research question is how temperance work lost its position in the governing of lifestyle from 1932–1996. The emphasis of the analysis is on the relationships between civic society and the state in the regulation of alcohol markets and harms. The study belongs to the field of historical sociology. The research data consists of the texts of experts on alcohol and temperance issues in the publications and magazines of temperance organisations and Alko, the archives of temperance organisations and the Temperance and Alcohol Department of the Social Ministry, plus interviews with experts. The research started as part of the Studies of Nordic Alcohol Political Systems- project (1998–2000). The study has been suspended many years because of salaried work elsewhere. The research contract ended in 2005. The Finnish temperance movement was centrally organised and promoted a good life for all citizens. It opposed the alcohol political system run by the state alcohol monopoly Alko. Temperance work was a politicized and state-promoted project. There were three interconnected processes that gave rise to the collapse of temperance aims. These were: the erosion of the moral basis of temperance work, the exhaustion of its nature as a social movement and the

decentralisation of state administration. Researcher: *Katariina Warpenius*, National Institute for Health and Welfare. (katariina.warpenius@thl.fi)

175 *A Randomized, Comparative Study of Evidence-Based Alcohol Dependence Treatments: Disulfiram, Naltrexone, and Acamprosate in the Treatment of Alcohol Dependence.*

The aim was to compare the effects in alcohol-dependent patients of three pharmacotherapies, disulfiram (DIS), naltrexone (NTX), and acamprosate (ACA), when used with a brief manual-based cognitive-behavioural intervention. The study was conducted in two phases; first, a 12-week continuously supervised medication, followed by targeted medication (TM) up to 52 weeks in addition to a 67-week follow-up period; altogether 2.5 years, in 243 voluntary treatment-seeking alcohol-dependent adult outpatients. Subjects were randomized 1:1:1 to receive supervised NTX, ACA or DIS. The patients were met in the second and sixth weeks, and then after 3, 6, and 12 months. The primary outcome measures were the time (days) to first heavy drinking day (HDD), and time during the first 3 months to the first drinking day after medication started. Secondary variables were abstinent days/week, average weekly alcohol intake, Alcohol Use Disorder Identification Test (AUDIT), Severity of Alcohol Dependence Data (SADD), and quality of life (QL) measures. All three study groups showed marked reduction in drinking, from baseline to the end of the study. During the continuous medication phase, treatment with DIS was more effective in reducing HDDs and average weekly alcohol consumption, and increasing time to the first drink, as well as the number of abstinent days. During the TM period, there were no significant differences between the groups in time to first HDD and days to first drinking, but the abstinence days were significantly more frequent in the DIS group than ACA and NTX. There were no differences between the NTX and ACA groups in either phase of the study of drinking outcomes. However, SADD scores improved more in the NTX group than the ACA group. Patients allocated to ACA, NTX and DIS combined with brief manual-based cognitive behavioural intervention significantly reduced their alcohol consumption and reported improved QL. Supervised DIS appeared superior, especially during the continuous medication period, to NTX and ACA. One part of the results was published in 2008. The rest will be completed in 2010. Researcher: *Esti Laaksonen* Turku City Health Office and University of Turku.

**183** *Brain Neurotransmitter Receptors in Models for Alcohol and Drug Dependence.*

Detailed knowledge on the neurobiology of drugs of abuse opens new possibilities to understand drug dependence and to develop pharmacological treatments. Among the excitatory glutamate receptors the AMPA-type receptors are involved in the mechanisms of dependence and psychomotor activation by various drugs of abuse. The same receptor is also involved in social and aggressive behaviors. Using a knockout mouse line, our results indicate that tolerance to opiates and benzodiazepines develops poorly, if the AMPA receptor system is not functioning properly. We are searching for other neurochemical alterations in the brain to establish correlations to altered behavior. We also use recombinant AMPA receptors to find the molecular mechanisms how alcohol reduces the receptor function. One report on glutamatergic mechanisms of benzodiazepine tolerance and withdrawal has been published in the journal *Pharmacology, Biochemistry and Behavior*, as well as findings concerning the glutamatergic adaptation of midbrain dopamine cells to dopamine in the journal *Neuropsychopharmacology*. The project has an important educational value, as it constitutes three PhD projects, of which Tommi Möykkynen's dissertation was finished. Esa Korpi acted as the president of the ESBRA 2009 congress in Helsinki. Researchers: *Teemu Aitta-aho, Esa R. Korpi, Tommi Möykkynen and Anne Heikkinen*. Institute of Biomedicine, University of Helsinki.

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

Prohibition has a strong effect on Finnish conceptions of alcohol and alcohol policy. The image of prohibition in earlier research has been mostly quite masculine. It has concentrated on the "upper level" actors in society: the parliament, the government and the leaders of the temperance movement. This research approaches the history of prohibition from a different angle by combining methods and theories of history of mentalities and social history with gender history. The development of women's opinions on prohibition is especially interesting. All women were supposed to support the prohibition. However, the referendum in 1931 revealed that a large majority of women voters supported repeal. The research material consists of press articles, archives of women's organisations and temperance and pro and against prohibition organisations and biographical sources of central characters. Both discourses and

practices are examined. Working on the dissertation (a monograph) began in 2002 in a project Alcohol and Women in Finland 1917–1987. This year the focus has been on including material from rural women, religious newspapers and from years 1907–1918 and writing the manuscript. In discussion of prohibition women based their right to participate in the political discussion and action on a hundred year old ideological continuum. According to this home and family were central areas of interest. These were linked to questions of morality and social policy. On the other hand, women presented themselves as working taxpayers, voters, equal citizens. In Finland the dichotomies town dweller – countryside dweller, Swedish-speaking – Finnish-speaking, middle class – working class, religious – secularized were highly significant backgrounds dividing both women and men in regard of prohibition in public. The research will also take a closer look at the mythical ”wet” prohibition – drinking women were rare in Finland at the prohibition era. One international and four Finnish presentations have been given of the topic of the research in 2009. *Aija Kaartinen*, Finnish Foundation for Alcohol Studies. (aija.kaartinen@helsinki.fi)

185 *Sense of Agency in Narrative Processes of Repeatedly Convicted Drunk Drivers.*

The post-conviction treatment programs for drunk drivers have mainly approached DD either from the viewpoint of traffic education or alcohol dependence. The recognition of DD offenders’ poor motivation to treatment and the diversity within the population of DD offenders have contributed to a pressure to offer treatment options and individually tailored treatment. This study draws attention to clients’ agency construction. The study material consists of five-hour counselling program included voluntarily as a part of the community service by 30 drunk drivers. Counselling sessions were video-taped and transcribed. Theoretical and methodological approach in the study is narrative. The project was funded by Finnish Foundation for Alcohol Studies during years 2002–2005. One peer-reviewed article has been published in *Counselling Psychology Quarterly* and two oral presentations were held in Finland. The study report of the total study material will be finished in 2010. The first study examined sense of agency as it appeared in the narratives of two repeatedly convicted drunk drivers during the five-hour counselling sessions. Analysis of narrative processes showed the narrators’ drunk driving (DD) as opposite solutions relating to conflicts concerning

their sense of agency; for the NON-AGENTIVE CLIENT (NAC) DD as a compulsive action solution represented an abandonment of her agentive position, while for the STRONGLY-AGENTIVE CLIENT (SAC) consciously chosen DD represented an attempt to assert his personal autonomy. The second study consisted of analysis of total 30 stories of drunk drivers. It focused on the protagonist-narrators' agency positions and accountability in the narration of DD and there were five story types of agency found. In the stories of provoked agency (11) protagonist-narrators constructed DD as non-reflected mundane everyday activity, and the meaning of DD was inconsequential in terms of responsible agency. In the stories of weak agency, (8) narrators departed responsibility for DD by evaluating the protagonist's agency as problematic and by positioning the narrator as separate agent from the protagonist. In the stories of egotistical agency (5) the protagonist-narrators reactively defended their agency in DD and responsibility for DD was explicitly denied. In the stories of akratic agency (3) narrators reflected DD as the protagonist's way of gaining sense of the autonomy through opposing and acting against narrator's will. Narrators processed acting against own will as problematic interpersonal orientation. Reflective narration constructed relational agency and possibilities for more responsible agency. In the stories of disowned agency (3) DD was told as an event that was instigated by forces outside of the protagonists' command. The omission of subject and agent positions in the portrayal of the protagonists as drunk drivers evaded all ownership, agency and responsibility from the narrators. Researcher: *Minna-Leena Pulkkinen*, Department of Psychology, University of Jyväskylä.

190 *Harm Reduction Approach and Low Threshold Services in Finnish Drug Care. An Ethnographic Account of Needle Exchange Services for Intravenous Drug Users.*

This ethnographic research investigates changes in Finnish drug and welfare policies from the perspective of needle exchange and health counselling work for intravenous drug users. Needle exchange work was started in Finland at 1997 and it brought about new ways to think of and handle drug problems. At the same time Finnish welfare policies were changing from state-centered and universalist ones to more fragmented and individualistic ones. Needle exchange and health-counselling work is used in the investigation as a window to these changes. The research gives an overall view of the needle

exchange work in Finland: how the work is carried out in the everyday life, what kind factors contribute or make it harder for the workers to achieve their goals and what kind of new possibilities the work has opened for drug users – to think about themselves, to control their lives as well as their health. The research describes and analyzes the current welfare policy reform, particularly the ways different kinds of social problems are managed under the rubrics such as "client-centredness", "low threshold", "harm reduction", "activation" and "peer work". The data consist of field notes based on the observation made in four needle exchange facilities located in the Helsinki Metropolitan area, interviews made to both workers and clients and different kind of document material that describes the work from different aspects. The data were gathered during the years 2003–2007. The outcome of the project will be Ph.D. dissertation of 4 referee articles and a concluding summary. The first article was published in 2007 and two others in 2009. The research will be completed in year 2010. Researcher: *Riikka Perälä*, Finnish Foundation for Alcohol Studies.

196 *Drugs and Societal Problems.*

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. In 2009 work on the monograph manuscript continued. Researcher: *Jussi Perälä*, Finnish Foundation for Alcohol Studies. ([jussi.perala@thl.fi](mailto:jussi.perala@thl.fi))

198 *Local Alcohol and Drug Treatment and Social Citizenship. Compulsory Treatment and Alternative Control and Treatment Measures in Finnish and Swedish Municipalities.*

Finland and Sweden had almost identical alcohol treatment legislations until the late 80s, when Finland ceased using compulsory treatment, while it still has a role in Sweden. By comparing historically and at a local level the Finnish and Swedish treatment systems' measures against heavily drinking or drug using citizens the aim was to find political, institutional and professional factors determining the choice of measures – compulsory treatment

versus other measures – and analyse the reasons behind national and local differences in these choices and the social rights of the heavy abusers. Information about 4 types of clients are collected through client records and board protocols from 1936, 1950, 1966, 1985 and 2000 in 3 Finnish and 3 Swedish municipalities. The year 2000 clients are interviewed and a vignette-study with local decision makers is added. Focus in the analysis of the client data is on the identification and definition of the problem, measures taken and the influence of the client in the process. By focusing at substance abuse treatment at the local level, the study gives a picture of a historical development that in many ways has been parallel and where both countries has moved from a patriarchal society, where poor drunkards were underserving poors, to the period of the welfare state, where alcohol and drug abusing citizens had more social rights, to the present more liberal climate, where the rights of the substance abusers again are more questioned. The study increases our understanding of why compulsory treatment with paternalistic motives is prevalent in Sweden, while the Finnish legislation and practice has long put more emphases on the responsibility and motivation of the individual substance user. A more resourceful and proactive central administration, partly due to the lack of war experiences, and an earlier and more comprehensive public or "common" sector in Sweden are some of the explanations for the Swedish paternalism and the legitimacy of the "good" society to restrict liberty for the best of its citizens. In 2009, the project ended and a book in Swedish was published. Researcher: *Kerstin Stenius*, National Institute for Health and Welfare and University of Stockholm. (kerstin.stenius@thl.fi)

199 *The Impact of Changes in Pricing and Availability of Alcohol in 2004 on Alcohol-Related Harm: a Unique Natural Experiment.*

A large reduction in the price of alcohol is a unique event even in the global context, which has been predicted to have a notable impact on alcohol-related problems. The aim of the study is to assess to what extent these changes affect alcohol-related mortality, hospitalisation and crimes in Finland. In this study, the methods include before – after design, time-series analysis, and area-level analysis. The data have been obtained from Statistics Finland, The National Institute for Health and Welfare (THL; former Stakes) and the police. One study has been completed and published and another has been submitted to an international scientific journal in 2009 (see

below). The summary part of the dissertation thesis will be shortly completed. I was at University College London for an academic visit for six months this year. A time-series analysis on alcohol-related and all-cause will shortly be submitted to a journal. Additionally, time-series analysis on hospitalisation related to alcohol has been prepared. One scientific paper was published during this year. In addition, a time series study on alcohol-related hospitalisation has been submitted. Mr. Herttua presented preliminary results of the time series study on changes in alcohol-related hospitalisation in two international conferences and in a couple of national meetings. Researchers: *Kimmo Herttua*, University of Helsinki, Department of Sociology, *Pia Mäkelä*, Stakes, and *Pekka Martikainen*, University of Helsinki, Department of Sociology. (kimmo.herttua@helsinki.fi)

**201** *Sociability, Gender and Drinking. An Ethnographic Study of Young Adults' Night Club Behaviour.*

Drinking in Finland becomes more common year by year, but in the public discussions it is held surprisingly apart from the actual activity of drinking. Drinking is reviewed as consumption statistics or harm costs, or it is reduced to invisible biochemical processes, but the lived and experienced motives, activities, and consequences of drinking receive very little attention. This is even more surprising as the idea of a choosing, active and competent individual is so well celebrated elsewhere in cultural and political discussions. The study analyses partying, a culturally central drinking occasion, that includes intoxication-oriented drinking and free celebration in public nightclubs. In addition to drinking behaviour, partying thus expresses the changing expectations of behaviour in public places, such as gender roles. The study analyses partying and party drinking as a ritual, production and pursuit of social emotions, in which the partygoers make concrete their most important values and ideals. The main data is ethnographic observation in nightclubs in Helsinki, and it is supplemented with partygoers' qualitative interviews and personal diaries. In the study I have observed that the central mechanism of partying is an intensive repetition of a few basic activities within small groups of partying friends or acquaintances. The basic partying activities are dancing, talking, watching other people and other stimuli of the nightclub, and drinking; and the partygoers transmit and receive social emotions in their small groups in and through these activities. In the study I analyse the social and emotional logics of these activities more closely. In the study I have

also recognized three different genres of partying in which these activities are conducted in different styles and manners; different genres concretise different social values and ideals. The Fool Genre generates a strong atmosphere egalitarianism and collectivism amidst the partygoers; in the Cool Genre the partygoers highlight individual autonomy and authenticity; and the Premium Genre celebrates individual status and achievements. Also the regulation of drinking and gender differences appear differently in different genres. Unlike one might think, genres are not differentiated according to the partygoers' cultural or social status. Genres are not differentiated according to the nightclub either. In most nightclubs there are different sub-areas of different genres; and the same groups often adopt different genres during one and the same night. On the other hand, partying individuals adopt different genres also with different groups of friends during on different party occasions. In the study, this social versatility is analysed as a central ideal of young adult Finns' way of life, and nightclubs are analysed as a specific public space reserved for extensive expressivity of this kind. The study was started in 2003, the final report (monograph) is written at the moment. In 2008, two referee articles were published in the project; two more articles will be published in 2010. Four international and two Finnish presentations were given. Researcher: *Antti Maunu*, Finnish Foundation for Alcohol Studies. ([antti.maunu@helsinki.fi](mailto:antti.maunu@helsinki.fi))

#### 205 *Biologic and Molecular Mechanisms in Fetal Alcohol Disorders.*

Most common clinical features of fetal alcohol syndrome (FAS) are prenatal and/or postnatal growth retardation, mental retardation, facial dysmorphogenesis and cardiac septal defects. The support and treatment of these children causes considerable costs to the society. Alcohol abuse during pregnancy causes several disorders especially in the central nerve system of the embryo. The deleterious effects of ethanol to the developing brain may be, at least in part, due to effects on cholesterol and steroid homeostasis. The aim of this project is to study the mechanisms behind FAS disorders by global analysis of consequences of acute alcohol dose in gene expression and protein synthesis of placenta and embryo proper. Pregnant mice with two intraperitoneal injections of ethanol during the early pregnancy were used as a model. During the year 2009 we have studied defects in lipid synthesis and transfer of molecules from mother to embryo through placenta. Based on our animal studies and DNA microarray analysis we have studied further the metabolic routes affected by

alcohol during embryonic development, especially focusing on cholesterol synthesis. On the basis of these results we have prepared two manuscripts, 1) Alcohol consumption during pregnancy disturbs cholesterol synthesis and lipid metabolism in placenta. 2) Malfunction of angiogenesis gene family is associated with malformation of FAS placenta and permeability changes. Researchers: *Markku Savolainen, Saeid Haghighi Poodeh and Tuire Salonurmi*, Department of Internal Medicine, University of Oulu. (markku.savolainen@oulu.fi)

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

The aim is to search for new protein biomarkers which could be used for 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. 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 will apply twodimensional ultra high pressure liquid chromatography with ultra high resolution ion mobility mass spectrometry (2D-nanoUPLC-IMS-MS). The method set-up and optimization are now completed for the 2D gel electrophoresis. We have completed the analysis of the urine samples by ID LC. In the periodical drinking study the plasma samples from the ending and finishing points in all strains and all groups have been analyzed and protein identification is currently in process. The analysis will continue in 2010. CSF samples are only to be analyzed with the new 2D-nanoUPLC-IMSMS. We continued to analyze the plasma samples in 2009. We changed the first step depletion of high-abundant plasma proteins by immunoaffinity chromatography "Plasma Multiple Affinity Removal Spin Cartridges for the Depletion of High-Abundant Proteins from Mouse Proteomic Samples" from Agilent Technologies to a product of SIGMA Aldrich due to the new and better affinity material provided by the new supplier. We have presented our results at the International meeting of the European Society for Biomedical Research for Alcoholism (ESBRA) in Helsinki in 2009. Researcher: *Marc Baumann*, Biomedicum, University of Helsinki. (marc.baumann@helsinki.fi)

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

One of the most common reasons for placing children outside their home is severe substance use in the family or own problematic substance use. The present study is an institutional ethnography, predominantly looking into the practices of three so called professional foster homes, where the majority of children have experience of substance abuse. The foster homes are liberal, with only little state interference. The focus of this study is what "governing through freedom" including negotiated practices, agreements and contracts actually means in this case of child protection, where coercive practices inevitably also are at work. 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, (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? This is a study of governmentality, focusing on the logics of dominant discourses and social practices. Secondly, this is an institutional ethnography, paying attention to the identity formation that takes place within the context of the institutional setting. Two articles have been accepted for publication during the year 2009 and a third article has been submitted for publication. Currently data is collected for the fourth article. This PhD work was presented at several occasions. Researcher: *Petra Kouvonen*, Finnish Foundation of Alcohol Studies. ([petra.kouvonen@thl.fi](mailto:petra.kouvonen@thl.fi))

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

The study examines changes in the drinking culture in Finland from five different aspects: (1) attitudes and norms around drinking and drunkenness, (2) age-period-cohort -effects for binge and light drinking, (3) motives for drinking, (4) changes in the contexts of drinking, and (5) homogeneity of the drinking culture. The main data are based on six national drinking habits surveys in 1968–2008. Various statistical methods are applied in the analyses. During the second year of the study, a revision of the manuscript covering the first part of the study was accepted for publication in an international science journal. In addition, a manuscript of the second part of the study was prepared and will be submitted in the beginning of the next year. Analyses for a manuscript of the third part of the study

were made. The manuscript for the age-period-cohort modelling for binge drinking was presented in an international conference, and the dissertation project was presented in a seminar during a visit to Stockholm University. Researcher: *Janne Härkönen*, the Finnish Foundation for Alcohol Studies. (janne.harkonen@thl.fi)

209 *Governing the Risks of Prenatal Alcohol and Drug Use. An Ethnographic Case-study of a Finnish Maternity Clinic for Substance Abusers.*

In Finland, Fetal alcohol syndrome (FAS) came to public awareness in the 1980's and subsequently various new forms of professional interventions came into existence. This study looks primarily at the everyday life at one maternity clinic which offers prenatal care and counselling to pregnant women with substance abuse problems. What kind of logic structures the encounters between the professionals and their clients? The concepts of power and agency are central in the analysis. The approach is ethnographic and the primary data consists of participant observation notes collected at one clinic during a period of seven months and interviews with professionals and their clients. The study begun in 2005 and will be completed in 2010. The PhD study will consist of 4 articles and a conclusion. The first article provides a nuanced account of how the professionals try to intervene in their clients' lifestyle without jeopardising their autonomy. The second article analyses how the prevailing consumerist rhetoric underlining user choice and involvement is translated into everyday encounters between service providers and users in two distinct institutions. Institutional background and gender are identified as important factors in shaping the realisation of user involvement. The third article looks at the wider social and cultural context: how and by whom prenatal substance abuse was constructed as a serious problem in the Finnish society since the late 1970s? The fourth article deals with the pregnant women's perspectives and agency and will be submitted to a journal in spring 2010. In 2009 the research results were presented at one Finnish meeting and two international conferences. Researcher: *Anna Leppo*, Finnish Foundation of Alcohol Studies.

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

Plasticity of the nervous system is the basis for memory and learning. Especially the glutamatergic synapses in many brain areas are well known to be able to maintain different kinds of long-lasting changes that could be important in storing information. Addiction could be seen as a maladaptive learning phenomenon. Drugs of abuse are able to induce plasticity in some critical brain areas like the midbrain dopamine pathways, already after single exposure to a drug or after more continuous administrations. This is thought to enable the drugs of abuse to persist learning that guides in further use of the drug despite all the emerging negative effects. The same brain pathways work in the natural reward behaviour and reward-guided learning. The project started with our finding that diazepam induces similar modifications in midbrain's dopaminergic neurons as other classic drugs of abuse, for example stimulants, opioids and ethanol do. These findings, made with electrophysiological methods, were published this year. We aim to further clarify the neurobiology of drug induced plasticity in addiction, more specifically in benzodiazepine dependence. In the study we use both wild type mice and a genetically modified mouse line that expresses a fluorescent marker in the dopamine neurons, thus enabling the visualization of the neurons of our interest. Diazepam-induced modifications are studied with behavioural models (locomotor activity, sensitization to drugs, anxiety level). Morphine and amphetamine are known to affect the locomotor activity of the mice and induce sensitization and tolerance, depending on the program of administrations. We tested how morphine or amphetamine affects behaviour when diazepam has changed the glutamatergic regulation of these dopamine neurons. The first results imply that the morphine induced hyperlocomotion was attenuated 24 hours after diazepam pretreatment. On the other hand, the pretreatment had no effect on amphetamine induced acute hyperlocomotion, but attenuated the sensitization induced by amphetamine in the following three days. This means that 24–72 hours after diazepam, when the glutamatergic control of dopamine neurons in ventral tegmental area of the brain is changed, the effect of morphine and amphetamine in the brain is changed, probably due to different activation of the midbrain dopamine pathway. We study further the mechanisms of drug induced plasticity at the morphological level by Golgi staining the neurons, and at the gene expression level by

microdissecting the neurons of interest and running gene chips of dissected samples. The first morphological data imply that there are some changes in the morphology of the neurons of the area after diazepam treatment. The gene expression of the VTA dopaminergic neurons was changed at 24 hours after diazepam treatment. A lot of genes were affected. Also the GABAergic regulation of VTA dopamine neurons after diazepam is now being studied by electrophysiological methods. At the moment two manuscripts are being written. The publication aim includes two doctoral theses. Researchers: *Anne Panhelainen* and *Elena Vaschinkina*. Institute of Biomedicine, University of Helsinki.

211 *Drug users as the perpetrators and as the targets of law enforcement.*

My Ph.D study concerns drug misusers' habitual criminality from the perspective of the perpetrators and the police. The main aim is to explain the meanings, motives and values associated to criminal activity by the drug users, and police's conceptions of targeting this crime scene, and of drug users as perpetrators. The aim is to write two articles and a concluding article during two years. Drug-using habitual criminals perceived in the interviews that they are responsible for their criminal acting, and they admitted the injury and the existence of the victim. They didn't condemn others as immoral or hypocritical because they confessed to carry deviant criminal identity that differs from the morals of ordinary citizens. The criminal identity acts as a way of neutralization. Defending the honour one's own or one's peer group was the most essential principle and justified the rejection of other principles. In another article I will consider the police's role in policing drugs. Based on 20 police interviews, the possibilities in crime reduction, order maintenance, and service provision will be analysed. It seems that drug users' habitual criminality is linked more on lifestyle than addiction. Reseracher: *Tuula Kekki*, Finnish Foundation of Alcohol Studies.

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

The subject of this case study is Estonian alcohol policy, how it has been formed during the new independence, what has influenced alcohol policy decisions and how it has been affected after joining the EU. Research relies on multiple sources of evidence: analysis of alcohol related programs, documents, political discussions and decisions; open-ended individual interviews with state authorities,

key informants and interest groups. It also includes international comparison with Finland and other neighbouring states. Since the 1980s Estonian alcohol policy has seen several major changes. The development of alcohol policy regulations has been divided into five stages: (1) 1985–1990: falling apart of the old system; (2) 1991–1994: "laissez-boire" politics; (3) 1995–1999: increasing control over the alcohol market; (4) 2000–2004: implementation the new alcohol law; (5) 2005–2008: the first years of Estonia's EU membership. During the 1990s Estonia has been slowly regaining control of the somewhat chaotic situation at the beginning of the decade, imposing restrictions on alcohol production and trade. Although Estonian alcohol policies still remain considerably more liberal than in Nordic countries, there is eventually some development towards the implementation of more restrictive measures. There is an increasing awareness of the negative effects of growing alcohol consumption on peoples' health and society's social development, which means that Estonia needs stricter alcohol policy regulations in the near future. Researcher: *Kersti Kollom*, Tallinn University and Åbo Akademi, Departement of Sociology. (kerstiko@hotmail.com)

**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. 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. Two rat lines, AA (Alko, Alcohol) and ANA (Alko, Non-Alcohol), that differ in their voluntary alcohol intake were used in this study. The levels of BDNF mRNA in the prefrontal cortex, nucleus accumbens, amygdala and ventral tegmental area (VTA) of both nave rats and rats exposed to acute alcohol administration (2g/kg i.p.) were determined with quantitative PCR utilizing SYBR Green detection. The levels of BDNF protein were determined with ELISA-assay by the collaborator group of Eero Castrén (HU, Neuroscience center). The results were presented in Neuroscience 2009 congress in Chicago, USA. Researcher: *Noora Raivio*, Department of Alcohol, Drugs and Addiction, National Institute for Health and Welfare, supervised by *Kalervo Kiianmaa*. (noora.raivio@helsinki.fi)

214 *Investigating Gene-Environment Interactions in Alcohol Intoxicated Aggression.*

The aim is to shed light on the association between alcohol and aggression by examining main effects of alcohol use and measured polymorphic variations on aggressive behavior, with a specific focus on gene-environment interactions. The question is whether an individual's genotype influences the effect alcohol has on aggressive behavior. The study is the first one to experimentally investigate interactive effects between alcohol and genes on aggression. Candidate genes for an interaction with alcohol intoxicated aggression include genes related to the neurotransmitters serotonin and dopamine, and vasopressin as well as to the sex steroid testosterone. During the year 2009, 120 men (aged 18–30 years) have been tested in laboratory conditions for aggressive behavior. The participants were randomly allocated to either a condition where they received alcoholic drinks consisting of a total dose of 0.7g/kg body weight or placebo. Each participant filled in questionnaires regarding e.g. alcohol use, state and trait aggression and anger and was tested for inhibitory control. DNA was collected from saliva. Groups based on their polymorphic variants will be studied to examine interactive effects. In 2009, data were collected. Researchers: *Pekka Santtila, Ada Johansson, Bettina von der Pahlen*, Department of Psychology, Åbo Akademi, and *Lars Westberg*, University of Gothenburg, Sweden. (pekka.santtila@abo.fi)

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

Drinking habits and meanings related to drinking from the point of view of gender are being studied. Despite the fact that intoxication-oriented drinking unites both genders nowadays, it is not reasonable to assume that intoxication or drinking in general would mean the same for women and men. In addition to examining concrete drinking practices, this research highlights meanings and values related to drinking among women and men by age. By using the perspective of the generation, the research also aims to clarify the changes of drinking habits. By studying changes in drinking among women of different generations, the research adds knowledge about the changes of drinking cultures in Finland during past four decades. The main data of the research consist of 16 focus group interviews. Women and men from four different age groups and from two educational levels have been interviewed separately.

Collecting and processing the data was finished in the beginning of 2009. A manuscript deals with the discourses of intoxication and their changes among young women and men. It will be submitted in the beginning of 2010. Aanalysis of the data continued. The second paper will discuss the socialisation to the drinking culture of the women from different generations. Researcher: *Jenni Simonen*, Finnish Foundation for Alcohol Studies. ([jenni.simonen@thl.fi](mailto:jenni.simonen@thl.fi))

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