

THE FINNISH FOUNDATION FOR
ALCOHOL STUDIES

REPORT ON ACTIVITIES

2007

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General overview

The projects funded by the Finnish Foundation for Alcohol Studies resulted in the publication of five academic doctoral dissertations and 16 peer-reviewed articles in international scientific journals in 2007. In addition, 15 other scientific papers were published. Seven ongoing research contract projects received additional funding and one new research contract projects were launched. This new project will study changes in drinking cultures in Finland between the years 1968–2008. Other contract projects will be described below under the title *Research activities*.

In 2007, the foundation was able to fund 30 % of the total sum applied for alcohol research. The state subsidy for the foundation has remained unchanged from 1995 onwards, while the cost of living has increased over 20 %.

During the five-year period 2002–2006, funding by the foundation resulted in 23 academic doctoral dissertations and 108 peer-reviewed articles in international scientific journals. Input of one million euros brought about on the average 8.8 doctoral dissertations and 41.1 peer-reviewed articles. Productivity of doctoral dissertations was 6.4-fold and that of peer-reviewed articles 3.8-fold compared with the average productivity of universities in Finland.

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 200 000 euros for grants to study gambling problems. The Alko retail monopoly donated 75 000 euros for funding a forthcoming 2008 drinking habit survey.

Administration

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.

The Foundation's Research Director is the only full-time staff member. A contract between the Foundation and the National Research and Development Centre for Welfare and Health provides administrative and technical support for the Foundation.

An Executive Committee composed of the scientist members of the Board reviews the issues falling within the Board's field of responsibility. The Head of Alcohol and Drug Research, National Research and Development Centre for Welfare and Health (STAKES) and the Head of Alcohol Research Center, National Public Health Institute (KTL) act as permanent advisory experts to the Executive Committee.

Research activities

The Foundation awards two types of grants: ordinary grants to support projects proposed by the scientific community, and contract grants ensuring the long-term funding of projects deemed to be of major significance. In 2007, Foundation expenditure totalled 681.375 euros; the share of research activities amounted approximately to 607.000 euros.

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

The ongoing contract projects progressed as follows:

168 *The Changing Relationship between the Finnish Alcohol System and the Welfare State.*

The project is related to the overall changes in the Finnish social policy system. The scope is international and institutional. The aim of the study is to create a reliable picture of the changes and the reconstruction of the relationship between the Finnish social policy system and Finnish alcohol policy system in the 1980's and 1990's. Alcohol policy is considered from four different perspectives: ideological, institutional, policy field and policy implementation. Research was begun in the year 1998. A draft manuscript has been scrutinized by professors Kyösti Pekonen and Pekka Sulkenen. Researcher: *Mika Alavaikko*, Seurakuntaopisto, Järvenpää.

169 *Brain Histamine and Alcohol-Related Behaviour.*

Histamine is known to exist in mammalian brain, but its role in behavior is unclear. Prior to this project, we observed that alcohol-preferring rats had unusually high histamine levels in the brain, and drinking was regulated by H3-receptor ligands. Our working hypothesis has been that high histamine levels may associate with alcohol-induced motor incoordination, whereas histamine H3 receptor might be a key regulator of alcohol preference. The study was performed to reveal the background of high brain histamine levels in alcohol-preferring rats, and to find out the behavioral significance of this phenomenon. We used alcohol-preferring AA rats, normal laboratory rats and gene knock-out mice. The methods included in situ hybridization, receptor ligand binding and behavioral assays. The study was performed according to the plan without major problems. The study was initiated in 2002 and has now been completed. High histamine levels in alcohol preferring rats are due to increased activity of histidine decarboxylase rather than increased breakdown. Mice lacking histidine decarboxylase showed the same degree of alcohol preference as the control strain. This, together with earlier results from rats, supports the concept that H3 receptor signalling is important in alcohol preference. Researchers: *Pertti Panula*, University of Helsinki, *Minnamajja Lintunen*, Åbo Akademi University and University of Helsinki and *Adrian Lozada*, Åbo Akademi University (pertti.panula@helsinki.fi).

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*, Finnish Foundation for Alcohol Studies (*katariina.warpenius@stakes.fi*).

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

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. This review and the manual have accepted to Alcohol and Alcoholism. Other researches are at writing phase. We start instruct doctors and nurses in A-clinics and health care centres to use the manual. Researcher: *Esti Laaksonen* Turku City Health Office and University of Turku.

180 *The Effectiveness of Naltrexone and Brief Intervention in the Treatment of Excessive Alcohol Consumption.*

There is no controlled research on the combination of brief intervention and naltrexone in the treatment of risky alcohol consumption. This is a double-blind, placebo-controlled prospective multi-centre clinical trial evaluating the effectiveness of naltrexone in the treatment of excessive alcohol consumption. Three different doses of naltrexone, taken intermittently during high-risk days, will be compared with placebo. All subjects will receive brief intervention. Altogether 160 male and female subjects will be recruited from occupational health care centers. The outcome variables are alcohol consumption, relapses to heavy drinking, retention in treatment, self-reported well-being, functional capacity and alcohol-related biologic markers. Follow-up examination will

take place eight months after the start of the treatment. The project was started in December 2000 and the clinical phase has ended in October 2004. The data analysis and reporting goes on. Researcher: *Hannu Alho*, Department of Mental Health and Alcohol Research, National Public Health Institute (hannu.alho@ktl.fi).

182 *Molecular Mechanisms and Prevention of Relapse to Drug Use*

Relapse, return to drug use after a period of abstinence, is one of the characteristics of drug addiction. Relapse can be triggered by stress, re-exposure to the drug, and by conditioned drug-associated stimuli such as environments where the drug has been used and objects present during drug use. Drug-conditioned stimuli activate brain areas critical for the regulation of motivation and emotions. With the help of animal models, the project examines neuronal activation in different brain regions following exposure to alcohol- and amphetamine-associated stimuli that trigger relapse. Neuronal activation will be measured by quantifying the levels of Fos, Extracellular Signal-Regulated Kinase (ERK), and cAMP Response Element Binding Protein (CREB) using immunohistochemical methods. The neurotransmitters glutamate and dopamine regulate the activation of Fos, ERK, and CREB through NMDA and D1 receptors, respectively. Therefore, the study also aims at clarifying whether relapse and accompanying neuronal activation can be attenuated by administration of glutamate receptor antagonists or potential substitution medications for amphetamine dependence. The project will start in 2008 with the development of rat and mouse models of relapse. The results of the study will add to the existing knowledge of the neuronal mechanisms leading to alcohol relapse and bring new knowledge about the so far largely unexplored neurobiology of amphetamine relapse and its pharmacological prevention. The results will aid in the development of new pharmacotherapies for alcohol and drug addiction. Researcher: *Pia Bäckström*, National Public Health Institute, Department of Mental Health and Alcohol Research. (pia.backstrom@ktl.fi)

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 will 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 submitted. The results of the project have been discussed in three international meetings during the year. The project constitutes three PhD projects and will last at least until through 2008. Researchers: *Esa R. Korpi, Teemu Aitta-aho, Tommi Møykkynen and Anne Heikkinen*. Institute of Biomedicine, University of Helsinki.

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

The aim of the project is to study the role of women in Finnish alcohol history. Women will not be seen as a uniform group, but divided by e.g. social hierarchy. Consumption of alcohol in Finland was minimal before the 1970s and thus in general other aspects than consumption are more important. In spite of the minimal consumption, alcohol issues were very visible in Finnish public discussion throughout the 20th century. The main interest is on the impact of women on the abolition of the prohibition law in Finland in 1932. Another important topic is the experiences of women of the more tolerant alcohol policy after the 1960s. The project started in 2002 and ended in 2007. Kaartinen will continue her dissertation *Women and Prohibition* as a personal project in 2008. Some of the results from this project have already been published in the anthology *Alkoholien vuosisata* (Finnish Literature Society 2006). Researchers: *Aija Kaartinen*, The Finnish Foundation of Alcohol Studies, *Matti Peltonen* and *Hanna Kuusi*, Department of Social Science History, University of Helsinki.

185 *Sense of agency in narrative processes of repeatedly convicted drunk drivers*

Repeatedly convicted drunk drivers usually sign up for counseling as a result from legal sanction. Violation of social contract and personal responsibility define strongly referral to treatment. These themes are though only indirectly present in treatment contents.

The study examines narratives that were told by repeatedly convicted drunk drivers during counselling conversations. The aim is to identify ways drunk drivers construct sense of agency in situation in which they are questioned to take responsibility for violating social contract. The study material consists of five-hour counselling sessions 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 will be completed in 2008. In analysis of thirty stories of repeated drunk driving six plotlines of agency were detected. Ways of narrating agency contributed to possibility to process responsibility. In the plotlines of externalized (2) and normalized (6) agency DUI was not processed as self-produced action, which does not allow the emergence of sense of responsibility. The plotlines of reactive-agency (6) and justified agency (3) constructed the meaning of DUI around the immediate affect reactions related to situation of getting caught and to momentum to drive and (actively) passed over responsibility for one's intentional acting. The plotlines of akratic (7) and reflective (2) agency constructed the meaning of DUI as personally meaningful action and responsibility was processed explicitly. Both in the akratic plotline and in reflective plotline the violation was construed as an attempt to enhance the acknowledged sense of weak agency. The akratic agency plotlines constructed the resolution of agency problem as unsolvable and repeated sense of not responsible agency. Among the total 30 stories only in the reflective plotlines (2) the agency position changed as narrators reflected the sense of weak agency and not accepted responsibility. Researcher: *Minna-Leena Pulkkinen*, Department of Psychology, University of Jyväskylä.

187 *The Psychedelic Drug Use and the Philosophy of Life of the User.*

The research focuses on psychedelic drug (mostly hallucinogenic substances) use in contemporary Finland. Psychedelic drug use refers drug taking that fulfils higher motives such as awareness of consciousness, consciousness expansion, heightening experiences, seeking, personality growth and self-actualization. This research will focus closer on the ideology of psychedelic drug taking and the life of the users, their values and attitudes towards life in the 21st

century Finland. The data consist of interviews of the drug users and their written reports of their experiences in addition earlier research literature. The psychedelic drug users can be divided in three different classes: 1) a scientist type whose world view is based on natural science, 2) a psychotherapist type who is interested in his or her own psyche and introspection, and 3) a lifestyle (hippie) type for whom ecological questions are important and who is interested in meditation and other spiritual issues. It seems that psychedelic drug use is a more varied and wider phenomenon than it was in the hippie movement in the 1960's. It seems to be more individualistic and the users do not form unified psychedelic culture or share mutual ideology. The research will focus particularly on the issue how the effects of psychedelic drugs are interpreted. According to the collected data and other research material public opinion of the effects of psychedelic drugs seems to be too narrow in range and one-sided. Researcher: *Sari Sjöberg*, Department of Comparative Religion, Åbo Akademi University (sari.sjoberg@abo.fi).

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

The research investigates changes in Finnish drug policy and drug treatment practices from an ethnographic perspective. The case of needle change services and their everyday life and operation is used as a window to the transition that took place in 1990's in the form of the adaptation of harm reduction policies and measures alongside restrictive policies applied traditionally. The key question is what has changed in Finnish drug and how the social status of drug users has changed. These questions are explored from the "grass-root" perspective. Sociological theories of governing in liberal societies and of institutional control and interaction are used as analytical frameworks. The data consist of field notes based on the observation made in four needle exchange services located in the Helsinki metropolitan area, interviews with the clients and workers of the service as well as various documents that represent the service's ideas and actions, during 2003–2007. The outcome of project will be PhD-study that will consist of five refereed articles and a concluding summary. The project will be finished in June 2009. In 2007 the first article was published in Finnish. Another submitted to an international journal. The results show that drug users are still a very marginal population in Finland and it is very hard for them to

find care and treatment that could fulfill their versatile needs. The rhetoric in official documents speaks different language than the reality. Client-centeredness that is common in documents is often nothing but control. However, needle exchange services seem to be exceptions to the rule and "new professionalism" that highlight drug users rights and tries to establish new kind of methods to work with drug users has found a breeding ground in them. Researcher: *Riikka Perälä*, Finnish Foundation for Alcohol Studies.

193 *The Role of Transcription Factor Δ FosB in Drug Addiction.*

The regulation of gene expression is considered to be involved in the cerebral mechanisms leading to and maintaining the addictive state. Transcription factors Δ FosB and CREB have been suggested to participate in the long-lasting changes induced by addictive drugs. The aim is to study the relation to and the mechanisms of the sensitization phenomenon thought to be important in the development of addiction. Thus, we study in alcohol-preferring AA and alcohol-avoiding ANA the expression of Δ FosB after different drugs of abuse. In parallel with Δ FosB expression studies we have performed behavioural experiments to see whether the expression of Δ FosB correlates with addictive behaviour. Furthermore, we will study the CREB expression in these rats. In 2007 one article about the results of the project was published in an international journal. We found that compared with ANA rats the AA rats are more easily sensitized to morphine and nicotine, but unlike previous findings with cocaine, no clear correlation was found between changes in sensitization and Δ FosB expression induced by these drugs. However, the significantly greater basal Δ FosB expression in the nucleus accumbens of AA rats may contribute to the greater sensitivity of AA rats to the different drugs of abuse. At present, we are preparing a third manuscript. The CREB results will be analyzed during spring 2008. Researcher: *Kristiina Kaste*, Faculty of Pharmacy, University of Helsinki, supervised *Liisa Ahtee* (kristiina.kaste@helsinki.fi).

195 *Paths to Recovery – A Study of the Past, Recovery and Life Today of Those Recovered from Alcohol Problems through Different Routes.*

The goal is to provide a picture about a process of recovery in a course of life. In this research there is a convenience sample which has been recruited with the help of media. These people have recovered through different routes: self-help groups, professional care and spontaneous remission. The sample includes 104 people

who have at least three years of abstinence or modest drinking. Material has been collected by questionnaires, life lines, written descriptions about the recovery and by interviews. The project was started in 2004 and the report is expected to be finalized by the end of 2008. Analysis was completed at the end of 2007. The end of the funding period will be used for writing up a monograph. Researcher: *Katja Kuusisto*, Department of Social Policy and Social Work, University of Tampere (katja.n.kuusisto@uta.fi).

196 *Drugs and Societal Problems.*

The subject of my study is the drug markets 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 year 2007 was spent in analyzing the data and writing a manuscript. The research is ready during the year 2008. Researcher: *Jussi Perälä*, Finnish Foundation for Alcohol Studies.

197 *Biomonitoring of Ethanol Consumption.*

Although alcohol abuse is a continuously growing problem in health care, no single, specific laboratory method has been developed for biomonitoring alcohol consumption. The specific mechanisms responsible for ethanol-induced tissue toxicity are also largely unknown. The aim of this project has been to develop new methods for detecting excessive alcohol consumption and to compare the usefulness of various currently available methods in clinical materials. Previously, studies have shown that as a result of ethanol metabolism covalent protein adducts may be generated from acetaldehyde, the first metabolite of ethanol and from ethanol-induced lipid peroxidation products, malondialdehyde and 4-hydroxynonenal. Such adducts are immunogenic and create immunological responses and the production of antibodies in vivo. A major objective of this project has been to develop new methods for monitoring alcohol abuse based on the detection of ethanol-induced protein adducts and to compare such methods with other currently available methods (CDT, liver enzymes) and their combinations. The aim of this work has also been to explore the

role of protein adducts as possible mechanisms of ethanol-induced tissue damage in the liver, brain, muscle, gut and blood cell formation using immunohistochemical and biochemical methods. The data has indicated that the generation of protein adducts plays an important role in the pathogenesis of alcoholic liver injury through stimulation of adverse immunological reactions and fibrogenesis. Under conditions, which involve enhanced oxidative stress (excess body iron, high fat diet, obesity) or lack of biological protective mechanisms (folate deficiency), alcohol abuse leads to more abundant amounts of adducts thereby increasing the risk for tissue damage. This project was carried out during years 2004–2007. During the year 2007, six research articles in international journals and three thesis books were published based on this work. Researcher: *Onni Niemelä*, EP Central Hospital Laboratory, Department of Clinical Chemistry and Hematology, and the Department of Medicine, University of Tampere (onni.niemela@epshp.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 heavy-drinking or drug-using citizens, the aim is to find political, institutional and professional factors determining the choice of measures – compulsory treatment versus other measures. The reasons in these choices and the social rights of the heavy abusers will be analysed. Information about four types of clients were collected through client records and board protocols from 1936, 1950, 1966, 1985 and 2000 in three Finnish and three Swedish municipalities. Clients were interviewed and a vignette study with local decision makers was carried out. The first results were presented and published. The final research report draft was presented at a seminar in Stockholm. Another presentation was held in Helsinki in October. Following comments, additional data have been gathered. The project has received additional funding from The Swedish National Board of Institutional Care. The aim is to finalise the report in 2008. Researcher: *Kerstin Stenius*, National Research and Development Centre for Welfare and Health (Stakes) and University of Stockholm (kerstin.stenius@stakes.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 took place in Finland in 2004. The aim of the study is to assess to what extent this affected alcohol-related mortality, hospitalizations and crimes in Finland. The methods include before-after comparisons, time-series analysis, and ecologic analysis. The data were obtained from Statistics Finland, Stakes and the police. In the third year of the research two studies have been completed: a study on the impact of the reduction in the price of alcohol on interpersonal violence, and a study on changes in alcohol-related mortality and its socioeconomic differences. Additionally, we have prepared time-series analysis on alcohol-related and total mortality and alcohol-related hospitalizations. Two articles have been completed and submitted to international peer review journals. 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.*

Young adults' drinking in nightclubs has become more common and it is undoubtedly intoxication-oriented. This is explained by the liberalisation of alcohol policy and the loosening of control by the bar staff. But despite the freedom to drink, behaviour in nightclubs is spontaneously controlled by the drinkers themselves, and nightclubs are not arenas for problem drinking. What regulates drinking, and does it include gender differences that favour women as it is often thought? To answer the question, the study examines young adults' actual drinking behaviour, motives of drinking and drinking habits in nightclubs. The data are ethnographic observation, personal diaries and interviews. Perspectives from phenomenology, pragmatism and structuralist semiotics are used as theoretical resources. In the study it is observed that drinking and other behaviour in nightclubs is bound with quickly changing situations of partying. In different situations the drinkers' gender and other socio-economic factors affect behaviour in different ways and with varying intensity. On the basis of situational behaviours, three distinct styles of sociability are identified. Affiliative sociability is casual togetherness often with a carnivalist tone; independent sociability highlights the distinctness of individuals; and duelling sociability celebrates individual

achievements and their comparison. Also the regulation of drinking and gender differences in behaviour appear differently in different styles of sociability. Most nightclubs and their patrons manifest all three styles of sociability, so the differences cannot be reduced to the socio-economic status of the partygoers or to the character of the nightclub. The study started in 2003; the final report will be written in 2008; and the study ends in 2009. In 2007, three articles and several minor texts were published. Researcher: *Antti Maunu*, Finnish Foundation for Alcohol Studies. (antti.maunu@helsinki.fi).

202 *Pattern of drinking and the risk of adverse health outcomes.*

In order to assess the net effect of alcohol consumption to public health, it is important to know how alcohol related harms are distributed in population by the level of intake, by the pattern of drinking, and by harm. Recent studies have shown that the health effects of alcohol consumption do not depend only on the average level of intake but also on the pattern of drinking. In this project, the connection between pattern of drinking and various measures of health will be explored. In addition, analyses will provide information for example on how psychosocial factors modify the relationship between pattern of drinking and health. The study data are derived from two large, internationally unique population-based follow-up studies, which represent 20 to 54 year-old (sample size 23 000 persons) and 15 to 69 year-old (sample size 8 400 persons) Finnish men and women. The data are linked with follow-up information from national health registers. The main method is regression analysis. The project started in 2005 and it will end in 2008. During the year 2007, a manuscript about the relationship between symptoms of depression and drinking patterns was submitted. Two other manuscripts were prepared. The first study was about the interaction between prolonged heavy drinking and stress in the onset of symptoms of depression. The other was about the relationship between drinking patterns and alcohol-related hospitalizations and death among men. Researcher: *Tapio Paljärvi*, University of Helsinki, Department of Public Health (tapio.paljarvi@helsinki.fi).

203 *Drug users in the criminal justice system.*

The penalties for drug offences were reformed in autumn 2001, whereby the police were empowered to impose fines on drug users. It was not assumed that users would be automatically fined, since

one purpose of the reform was to place emphasis on alternative measures. Focus was placed on two particular groups of drug users. Instead of imposing fines, young people would be reprimanded, whereas drug abusers in need of treatment would be directed to treatment. The research will focus particularly on sanction practices. The aim is to publish doctoral dissertation in law. The study is likely to be completed by the end of the year 2008. Researcher: *Heini Kainulainen*, National Research Institute of Legal Policy. (heini.kainulainen@om.fi)

204 *Double-blind, randomized comparison of memantine and escitalopram for the treatment of major depression co-morbid with alcohol dependence.*

The aim of the study was to identify a possible new treatment options for major depressive disorder in patients with comorbid alcohol dependence. The efficacy of memantine, a non-competitive glutamate NMDA-receptor blocker, was compared with escitalopram, a selective serotonin re-uptake inhibitor (SSRI), escitalopram. Additional aim was to compare the effects of these medicines to cognitive functions and alcohol use. The research was performed in three different A-clinics in Helsinki, total sample of patients being 80. The study was randomized and double-blind. The beginning was in December 2004 and the last visit was in May 2006. The duration of treatment was six months. The drop-out in both treatment groups was 27.5%. Both treatments significantly reduced the baseline level of depression and anxiety symptoms. Cognitive functions were primarily in the range of normal values and were not changed in either group. Quality of life outcomes were improved in both groups. An article containing these findings is in press in the Journal of Clinical Psychiatry. Decrease in AUDIT and Obsessive-Compulsive Drinking Scale was significant in both groups. There was a slight tendency of memantine to produce better results than escitalopram in drinking outcomes. An article on these results is under review and another on the predictive signs for successful treatment choices. Poor treatment outcome was found in patients with the early onset of the major depressive disorder who were treated with escitalopram. Two other articles are under preparation. Researcher: *Leea Muhonen*. (leea.muhonen@ktl.fi)

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 deleterious effects of ethanol to the developing brain may be, at least in part, due to effects on cholesterol and steroid homeostasis. Steroids in the fetus and in supporting tissues such as yolk sac and placenta have protective biological role during the fetal life. 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. To study all sources of lipids for the developing embryo, defects in lipid synthesis and transferring from mother to embryo through placenta were studied. Steroids with a protective biological role have also been studied in supporting tissues. Pregnant mice with two intraperitoneal injections of ethanol were used as a model. Embryos exposed to ethanol were analyzed by applying following methods: microarray analysis, 2-D proteomic analysis, Western blot, Northern blot, RT-PCR, hematoxylin staining, wholemount immunostaining, HPLC, mass spectrometry, TLC and electron microscopy. Our recent results show reduction in cholesterol synthesis in the brain in response to ethanol together with perturbation of LDL-related protein receptor ligands in brain. A large series of experiments has enabled us to construct a detailed time table of the ethanol-induced alterations in gene expression in the placenta and embryo. Cholesterol and steroid levels were studied in the dam (maternal) serum, placenta, yolk sac, embryo head and trunk. The effects of steroids on cell migration during embryonic development were studied as well. Ethanol perturbs most dramatically synthesis and metabolism of cholesterol and other steroids. Cholesterol pools were perturbed both in the placenta and embryo. In addition, other steroid pools were also altered in response to ethanol and rescue treatment. Steroid metabolizing genes are expressed also in neural crest cells. Interestingly, our results show also perturbed neural crest migration in FAS. Furthermore, we have found at least one way to rescue the ethanol-induced defects of the neural crest migration. The rescue treatment increased the steroid pools in the dam serum, yolk sac, placenta, head and trunk. The main goal in our future studies is to discover the specific compound in the lipid mixture responsible for the rescue. Researchers: *Markku Savolainen, Saeid Haghghi Poodeh and Tuire Salonurmi*, Department of Internal Medicine, University of Oulu (markku.savolainen@oulu.fi).

206 *Identification of hazardous drinkers by biological markers*

The main aim of the present study is to search for new proteomic biomarkers which could be used for to detect and predict reliably hazardous drinking. We use in this study the most modern proteomic tools e.g. MALDI-TOF/TOF (matrix assisted laser desorption ionization time-of-flight) and ESI-IT (electrospray ion-trap) mass spectrometers, two-dimensional gel electrophoresis (2-DE) and multi-dimensional liquid chromatography (MudPIT). The samples are collected from alcohol-preferring and alcohol non-preferring rats, and from humans who have been collected voluntarily into the large FinnRisk 2007 study in Finland. Samples are collected from blood, urine and cerebrospinal fluid. The research was started in the beginning of 2007 with the collection of the samples. Several rat cohorts were treated with or without alcohol and/or a control non-alcoholic beverage. Samples were collected until the end of the year. Human samples were collected after careful clinical examination and interview of the candidates. In the end of 2007 we started also the preliminary studies on the proteomic characterization of the samples from the control rats. Both blood and urine were tested. Experiments were conducted to deplete the most abundant proteins and also a pre-fractionation procedure was evaluated. All rat and human samples were collected and stored according to the schedule. The project has been conducted according to the research plan and the only draw-back has been the delay in finding a new post-graduate student. The originally nominated student left to be employed by a commercial company. We succeeded to hire a new student from 01.10.2007. Researcher: *Marc Baumann*, Helsingin Yliopisto, Biomedicum Helsinki

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 the home is severe substance use in the family or own problematic substance use. The study presented here is an institutional ethnography looking into the practices of three so called professional foster homes, where the majority of children have experience of substance abuse. The foster homes, which became prevalent in 1990's in Finland, represent liberally governed institutions with only little state interference. The means and aims of the practices becomes an issue of negotiation between the children, parents and other adults. The liberal influences on governing practices

in the child protection field and the increased demand on taking children's own agency into consideration are in focus of this study. The areas of interest are: what does the focus on children's own agency and right of participation mean in practice for children with an abusive background, what kind of (problem) identities, ideological goals and life perspectives are created and re-created in the setting, and what kind of role does the professional foster home take in the field of child protection. Theoretically the study falls into a study of governmentality, where the logics of dominant discourses and social practices are studied. Secondly, the study takes its stand point in institutional ethnography, paying attention to the identity formation that takes place within the context of the institutional setting. The timetable of the first nine months of this study is up to date with the original research plan. The field work has started successfully but will not end until April 2008. Researcher: *Petra Kouvonen* (petra.kouvonen@stakes.fi)

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