

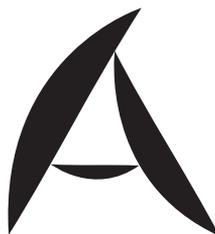
THE FINNISH FOUNDATION
FOR ALCOHOL STUDIES



REPORT ON ACTIVITIES

2013

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2013

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GENERAL OVERVIEW

In 2013, the projects funded by the Finnish Foundation for Alcohol Studies resulted in the publication of 9 academic doctoral dissertations, 27 original peer-reviewed articles in international and 5 original peer-reviewed articles in national scientific journals. Eleven other papers were published.

Alcohol and drug research received 397.363 euro in support for projects. In addition, 259.692 euro was granted to projects on gambling. Ongoing contract projects will be described below under the title *Research activities*.

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

ADMINISTRATION

The Board of the Foundation was composed of following members: four appointed by the Ministry of Social Affairs and Health, four appointed by the Federation of Finnish Scientific Societies, and one appointed 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 *Tommi 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

This report reviews the contract grants included in the Foundation's research programme.

RESEARCH CONTRACTS AND COLLABORATIVE PROJECTS

The ongoing contract projects progressed as follows:

207 Participatory Policies and Social Rights in Out-of-home Placement Services. Negotiated Agencies of Vulnerable Children.

The PhD thesis investigates what are the possibilities of turning participatory policies, in the meaning of involving the civil society, such as children, their parents and non-public service providers, into social rights for vulnerable children in out-of-home placement. The guiding questions have been: what role do the social needs of children who might suffer from multiple problems (including e.g. substance abuse) play when difficult lifestyle related issues are dealt with in varied networks? Are these social needs addressed, such as the need for assistance or treatment, or are there obstacles to meet such needs when participatory policies are applied? Two sets of data have been used. The first set of data was collected on the basis of participant observation and semi-structured interviews from three Professional Foster Homes. The second set of data was drawn from professional child welfare journals and policy documents. The theoretical perspective has been formed from two different traditions of moral thought: firstly, the "theory of justice" elaborated by John Rawls, and secondly, the idea of "communicative ethics". The results show that participatory policies, largely inspired by communicative ethics, do not automatically turn out in inclusive practices addressing children's social rights. Partnerships are seldom established on the basis of social needs. The main finding was that the most vulnerable children, such as those suffering from own substance abuse, were met with more repressive responses and demands for self-control than children with fewer own problems. Furthermore, participatory approaches which were set out to involve children in decision making in matters concerning their own lives, were frequently overruled in relation to this group. However, a supportive context with strategies for adult support and clear preventive policies, for e.g. substance use, appeared to create inclusive responses even for the "weakest ones". Thus, future efforts call for more coordinated and tailored guidelines at the national level on how to apply participatory practices for specific vulnerable groups in the context of out-of-home placement. In designing these practices, children's personal experiences might also have a role. Researcher: *Petra Kouvonon*, University of Helsinki.

208 *Not a Wet Generation but a Wet Nation: The Dynamics of Change and Stasis in the Finnish Drinking Culture from 1968-2008.*

The drinking culture in Finland has gone through profound changes over the last four decades. One explicit sign of transitions has been a nearly continuous increase in the total consumption of alcohol, which has threefolded since 1968. Increase in alcohol consumption has meant increase in various alcohol-related harms. Causes of death that are directly attributable to alcohol use are the leading cause of death among working-age men and women in Finland. In addition to harm to the drinker, excessive alcohol use results in various types of harms to others in the society through e.g. drunken driving, family and other violence, child neglect etc. Because the developments in alcohol-related harms depend on changes in both the total consumption level and the drinking patterns, a deeper understanding of the social determinants of these changes would be crucial in efforts to control development of harms cause by drinking. The aim of this study was to examine the changes in some central dimensions of the drinking culture in Finland over the past four decades; more specifically: (1) What long-term changes have there been in the norms and attitudes towards drinking? (2) How have the contexts and characteristics of Finnish drinking occasions changed? (3) Does light and heavy drinking occasion vary by socioeconomic status and has the relationship changed over time? (4) What kind of changes in the three temporal factors, i.e. age, period and cohort, underlie the temporal trends of drinking? The study was based on a survey data from six Finnish Drinking Habits Surveys, conducted between 1968 and 2008. They comprised a representative sample of the Finnish population aged 15 – 69, and the data-set consisted of 16,400 individuals. Attitudes towards moderate use of alcohol were found to have grown more permissive than ever over the past four decades. Alcohol policy opinions, however, were more varying: the latest major endorsement for more relaxed alcohol policies was seen at the turn of the 1990s, while the major liberalizations of alcohol policies in 1969, 1995 and 2004 caused great concern in the public. Drinking occasions in Finland have gone through two major transformations: in terms of the location, drinking has shifted towards homes, and in terms of the company, most of the drinking occasions are spent with a partner. In addition, even more than before, drinking has concentrated on the weekends. For light drinking occasions and wine drinking, the general finding was that higher socioeconomic classes drink small amounts of alcohol at a time more often, and wine drinking was substantially more frequent. In the case of heavy episodic drinking and very heavy episodic drinking, the direction of difference was found to be the opposite: manual workers drink large amounts of alcohol at a time more often than before. The analysis of age, period and cohort effects on drinking showed that the increase in alcohol consumption is affected by both period and cohort effects. Developments in light drinking were found to be quite similar across different cohorts over time, while there were great cohort differences in heavy episodic drinking. Heavy episodic drinking has increased systematically

with more recent cohorts so that there has been no one wet generation but several wet generations, comprising a wet nation. Researcher: *Janne Härkönen*, Finnish Foundation of Alcohol Studies.

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. In the studies performed in the Institute of Health and Welfare we have seen dose-dependent and temporal region-specific changes in the levels of BDNF mRNA after acute alcohol exposure in the brains of wistar rats. The results were published in the European Journal of Pharmacology (Raivio et al. Eur J Pharmacol. 2012, 687(1-3):9-13). Also, we have found that acute alcohol exposure alters the BDNF mRNA levels in AA and ANA rats in a similar manner as in wistar rats. Furthermore, we found a line-difference between AA and ANA rats in the basal levels of BDNF in the ventral tegmental area, amygdala and hippocampus, as well as in the response to alcohol in the frontal cortex. This suggests that BDNF in different brain regions may have a role in the different drinking preference of these rat lines. A manuscript presenting these results for publication is in the works. In the Autonomous University of Barcelona we have determined the effect of BDNF on dopamine synthesis and release in the rat striatum and found that BDNF decreases the synthesis of dopamine in the rat brain striatal miniprisms. On the year 2013 the researcher was on a maternity leave. Researcher: *Noora Raivio*, Department of Alcohol, Drugs and Addiction, National Institute for Health and Welfare (noora.raivio@helsinki.fi).

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

One of the greatest changes in the Finnish drinking culture in recent years is that women are drinking more than before. Increasing alcohol consumption and binge drinking among women have often been interpreted as a convergence of feminine and masculine drinking and, specifically, as women becoming more masculine in their drinking. This study aims to examine and assess this view in more depth. The research question is whether the increased drinking among women can be interpreted to mean that women are drawing closer to masculine drinking also in qualitative terms and that they are adopting characteristics of the masculine drinking culture. By examining the attitudes towards alcohol of women and men of different ages, the study aims to explore how the two genders and women especially construct and express their gender in drinking, and how this affects the assumption that feminine and masculine drinking styles are

converging. The study approaches the theme by analysing how women and men of different ages and of different educational backgrounds discuss their attitudes towards alcohol, the values and norms they associate with drinking, as well as the feminine and masculine traits they assign to alcohol use. The theoretical framework of the study is that gender roles are socially, not biologically, constructed. Following the relational theory of gender, studies on gender representations of alcohol use and thereby discussions on the suggested convergence of feminine and masculine drinking take into account the significance of several factors, such as age, educational background and certain historical context, on the construction of gender. This study approaches alcohol use not as individual drinking but as collectively shared cultural models of drinking that include culture-specific values and norms guiding alcohol use and that also offer a channel for expressing gender in a culturally understandable way. The main data for the study consists of focus group interviews carried out in Finland (N = 16) and Sweden (N = 19) with women and men representing four different age groups (women and men born in 1943 - 1950, 1959 - 1966, 1975 - 1982, and 1983 - 1990) and two educational levels. The comparative evaluation of alcohol attitudes in different age groups aims to clarify how the gender convergence approach applies to women and men of different ages. The attention to age groups will also show whether women and men have collectively shared attitudes towards alcohol which could be interpreted as generational experiences of drinking. The study gives both an affirmative and a negative answer to the initial question of whether feminine and masculine drinking habits are converging and whether this development can be interpreted as women adopting more masculine drinking styles. The affirmative answer applies, with certain restrictions, to the youngest age groups of women. It is associated with young women adopting masculine drinking, such as binge drinking. However, masculine influences are merging with feminine styles and contexts, resulting in a mix of feminine and masculine traits of drinking that diversifies also the masculine drinking traditions. The negative answer applies to the oldest age group of women. The traditionally feminine values and practices of older women with regard to drinking are in opposition to the assertion of increasing masculinity. These observations indicate that feminine drinking habits have multiple layers. They also reveal the level of challenge and complexity in the debate about the convergence of feminine and masculine drinking. The study shows that there are generational differences in women's drinking habits but not in men's. The oldest and the youngest groups of women in the study are living in different worlds of drinking and have different kinds of generational experiences concerning drinking. Compared to women, men have more uniform drinking attitudes across age groups. While there are no generational differences in masculine drinking habits, there are, nevertheless, differences stemming from educational background that are apparent among both the more educated and the less educated. As a whole, examining potential differences in drinking habits within and across gender groups introduces nuances to the debate about feminine and masculine drinking where gender categories are often

perceived as opposite and one-dimensional. This study indicates a blending of feminine and masculine drinking habits. It also shows that there are variations of masculine and feminine gender representations of drinking and increasingly diversified means of expressing gender in drinking. Researcher: *Jenni Simonen*, the Finnish Foundation for Alcohol Studies. (jenni.simonen@thl.fi)

217 *The Division of Labour between Social Care, Health Care, the Prison and the Police in the Handling of Intoxicant Related Harm.*

Colleagues and I have found that substance abuse problems became more common among prisoners from the year 1985 to 2006 and that the nature of the abuse problems shifted from alcohol to drugs. To some extent, these developments mirror the developments in “overall society”. I have related this development to the general development in other intoxicant related institutionalisations, using register data from the health authorities, social care authorities and the police. The mean number of institutionalised persons per day had increased from 1985 to 2006. Before the economic recession in the 1990s, the growth was due to an increasing share of rehabilitative substance abuse treatment within social care, and after the recession, due to an increasing share of new admissions of substance abusers to prison. The study parallels the criticism directed at the adequacy of non-residential care particularly for troubled substance abuser, both in quantity and sufficiency. The second part of the study deals with strategies for countering substance abuse in Finnish prisons: in accordance to international trends prisoner rehabilitation relies on assessing and targeting the so-called criminogenic needs. I have scrutinized how often prisoner’s abuse problems are recognized in prison risk and needs assessments and/or sentence plans: this is done by analyzing data from the prisoner information database in connection to the prisoner health investigation of 2006 concerning the same persons. I am currently analyzing to what degree support is given to those prisoners whose sentence plans or risk and needs assessments indeed states that they have problems with intoxicant abuse, using prisoner database information of all prisoners released during the year 2011, and what factors (of the prison and of the prisoners themselves) contribute to the support. The broader cultural perspective of the study is the changing locus of troubled substance abusers in connection to the increasing risk management, particularly within the prison. Two articles have been published, one is undergoing peer-review and I am currently working on the last one. Researcher: *Yaira Obstbaum*, the Finnish Foundation for Alcohol Studies. (yaira.obstbaum@om.fi)

221 *Polydrug use related Deaths: Trends, Prescription Drug abuse and Regulation of Risks.*

The topic of this doctoral study is polydrug use related deaths. The prevalent paradigm in addiction research for the past decades has been a single substance driven orientation. Studies have concentrated on particu-

lar substances and harms they cause. However, empirically it is evident that polydrug use, i.e. the concurrent or simultaneous use of licit or illicit substances, is very common. As research has concentrated on the use of single substances, polydrug use and its harms have remained little-studied. Recent studies and statistics show that drug situation in Finland has been rather stable for the past 10 years. Exception to this is drug-related deaths which have increased since 2003. This has been explained by the increase of poisonings due to prescription opioids, especially buprenorphine, often in combination with other drugs. Finland is not alone in this development as the non-medical use of prescription drugs has increased rapidly in Western countries in the past decades. This PhD study will address these themes a) by examining the trends of polydrug use deaths in Finland, b) by comparing polydrug related mortality across diverse population groups, c) by describing association between prescription drugs and polydrug deaths, and d) by exploring the users' perceptions of risks related to polydrug use. In 2013, results of the study have been presented in the KBS Symposium and various national seminars. Two article manuscripts were prepared. Researcher: *Sanna Rönkä*, University of Helsinki.

222 *The Role of Opioidergic Receptors in the Development of Alcohol Addiction.*

In order to develop more efficient drugs for treating alcoholism, it is essential to understand the neurobiological mechanisms that underlie the development of alcohol addiction and alcohol intake. Several different neurotransmitter systems participating in mediating the effects of alcohol with the opioidergic system have shown to be in a central role. Alcohol increases the release of endogenous opioid peptides which mediate their effects via e.g. μ - and κ -opioid receptors. These opioid receptors are found e.g. in the nucleus accumbens, a brain area shown to be important when studying alcohol drinking. μ -Opioid receptors have a significant role in controlling alcohol intake. On the other hand, the significance of κ -opioid receptors in alcohol addiction has been less studied and the results have been somewhat inconsistent. The aim of this study is to clarify the role of the opioidergic system, especially the role of μ - and κ -opioid receptors in controlling alcohol intake by using the alcohol preferring AA (Alko Alcohol) line of rats. In these studies we used rats that consumed stable amounts of alcohol before the initiation of the experiments. We studied the role of μ -opioid receptors in alcohol intake by the means of increasing μ -opioid receptor mediated signaling locally in the nucleus accumbens. This was achieved by dosing lentiviral vectors into the nucleus accumbens that produce μ -opioid receptor genes for excess receptor production. In our studies, the animals that received these viral vectors consumed more 10% alcohol solution than controls. According to our results, μ -opioid receptors have an important role especially in the initiation of alcohol intake. The results were presented at the international European Behavioural Pharmacology Society congress in France in September. We have also studied the significance of accumbal κ -opioid

receptors in controlling alcohol intake by dosing intra-accumbally drugs that act on κ -opioid receptors. In our studies the long-lasting κ -opioid receptor antagonist JD1c gradually increased ethanol intake during the course of the two week follow-up period as compared to controls. These results confirm the participation of κ -opioid receptors in controlling alcohol intake. All in all our studies confirm the significance of the opioidergic system when studying alcohol dependence. These studies aim at a Doctoral Thesis. Researcher: *Johanna Uhari-Väänänen*, University of Helsinki. (johanna.uhari@helsinki.fi)

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

The study has been carried out by Professor Pertti Panula, postdoctoral scientist Saara Nuutinen and two PhD candidates, MSc Jenni Vanhanen and MD Tiia Mäki. The role of H3 receptor in drinking relapse was studied using a mouse model. When the coupling of the cue and alcohol administration was removed, pressing of the lever decreased. After returning the cue mice which had received H3 receptor antagonist did not attempt to administer alcohol as the control mice. Blockade of the H3 receptor did not increase dopamine release in nucleus accumbens in mice. However, H3 receptor antagonist with alcohol increased histamine release; this supports the concept that histamine plays a major role in mediating the inhibitory effect of H3R antagonists in alcohol-induced place preference which we have reported earlier. The results motivate studies on H3 receptor antagonists in human alcoholics. To reveal the mechanism of the H3 receptor-mediated effects on alcohol behavior, we analyzed the effect of H3 receptor antagonist on dopamine-induced signaling systems. We found that some known dopamine signaling pathways were blocked by these drugs, which suggests that the H3 receptor is necessary for some dopamine-mediated effects in the striatum. The results were presented in a poster during the Society of Neuroscience Annual Meeting in San Diego in October 2013. Researcher: *Pertti Panula*, University of Helsinki. (pertti.panula@helsinki.fi)

224 *Environmental Effects on Developing Embryo: Epigenetic Changes in the Developing Brain caused by Ethanol Exposure.*

In humans, exposure to adverse environment during pregnancy can harm the developing fetus and have life-long effects on the individual's health and well being. The molecular mechanism by which environment affects the development of embryo is unclear, but accumulating evidence implicates the role of epigenetics in mediating gene-environment interactions. The environmental factor in our study is gestational ethanol exposure and we are investigating the mechanisms by which it affects the epigenetic reprogramming and gene expression in developing embryo. We also aim to reveal the molecular mechanisms which lead to the phenotypic characteristics of fetal alcohol spectrum disorder (FASD) and the most severe form of it, fetal alcohol syndrome (FAS). We are using mouse model of gestational ethanol exposure developed during

my postdoc period in Professor Emma Whitelaw's Epigenetics Laboratory (QIMR, Brisbane, Australia), the exposure period in this model is equivalent to the weeks 3-4 of human pregnancy. In our work we are focusing on brain. We are investigating changes in gene expression and DNA methylation in the different regions of brain (hippocampus, frontal cortex, corpus callosum, and cerebellum) of 28 days old gestationally ethanol-exposed mice. We have detected changes in the expression of several genes in hippocampi and the results of arrays are used to identify candidate genes for further analysis; the genes chosen have CpG islands and are assayed by bisulphite sequencing (DNA methylation). In preliminary studies we have observed correlation between promoter hypermethylation and the downregulation of gene expression, which indicates that epigenetic mechanism is involved in the effects of ethanol. To detect potential alterations in the brain structure of ethanol exposed offspring, we performed magnetic resonance imaging for adult (P60) male mice in co-operation with Brain Imaging Unit in University of Eastern Finland. Our preliminary results are very interesting and we have found significant differences between ethanol exposed and control brains. To confirm that the changes that we have found in our mouse model can also be detected in human cells, we have proceeded to human studies and started the Epigenetics of Fetal Alcohol Spectrum Disorder project (epiFASD). In collaboration with Kättilöopisto Maternity Hospital we are collecting samples from mothers that can be assessed to have an increased risk based on their alcohol consumption, and from their offspring. Our aim is to show correlation between epigenetic changes and the phenotype of the affected child. Our long-term goal is to find biomarkers for FASD diagnosis and to develop new diagnostic criteria. Because prevention of FASD is often impossible, early diagnosis and appropriate support have an important role for the children. Undergraduate students Heidi Marjonen and Anna Nyman finished their theses and master's degrees, and MSc Heidi Marjonen is working as a PhD student in this project. Researcher: *Nina Kaminen-Ahola*, University of Helsinki (nina.kaminen@helsinki.fi)

226 *Young People and a Changing Culture of Crime Control – Policing Alcohol Drinking, Delinquency and the Use of Public Space.*

This sociological PhD research examines encounters between young people, police and private security guards. The study focuses on how youth delinquency, alcohol drinking and free time activities are socially reacted to. The project studies the prevalence of youths' adversarial encounters with police and security guards, and social biases and risk factors of social control. In addition, the project examines how youth themselves perceive these encounters and how the trust between young people and control agents is constructed. The study uses mixed methods. The starting point for the study is an observation that the social control of young people has intensified. In addition, the study contributes to the (global and local) discussions concerning the changes of social control,

such as the emergence of risk governance and private security. The project began in 2011 and from May 2012 it continued as a research contract project. The plan is to publish four international articles (sub-studies) and to include them in the doctoral thesis. The two sub-studies are based on quantitative data. The study uses a nationally representative Finnish youth survey among young people aged 15 to 16 (NRK-2008, N = 5826). The first article was published in the international peer-reviewed journal in 2013. The article used multivariate logistic regression to examine which factors increase the likelihood of adversarial police contact. The findings indicated that a variety of delinquency and heavy alcohol use increased the risk of getting caught by the police. In addition, male gender, living in a city, having a single father, and low educational aspirations increased the likelihood of police contact, controlling for delinquency, and socio-demographic variables. The second article manuscript was under preparation and it was submitted in the autumn 2013. This article analyses how common it is for young people to encounter private security guards and the risk factors of being targeted for such control. The two sub-studies draw on qualitative data. The data consists of nine focus group interviews from Helsinki capital region (31 young people aged around 15 to 17). The interviews addressed encounters between young people, police and security guards from young people's perspectives. The study analyses how trust is constructed between young people and control agents. One focal issue is the social control focusing on young people's use of alcohol in the city space, and the study asks how young people construct their views of successful and unsuccessful adversarial situations. During this period, the researcher continued designing and conducting the interviews. Seven focus group interviews were done in the spring 2013 and the analysis was started in the autumn. The findings of the project were presented in an international conference and a lecture was given in the University of Turku. The researcher made a research visit to the University of York in January-March 2013. Researcher: *Elsa Saarikkomäki* (elsa.saarikkomaki@helsinki.fi)

227 *Association between Parental Substance Abuse Problems and their Children's Cumulative Risk Factors for Social Deprivation at Adolescence.*

The sociological dissertation study examines from different perspectives the social deprivation which is related to parental substance abuse and the inheritance of parental problems to the children. The study is based on the findings that there has been an increase in alcohol consumption in Finland over the last forty years, especially among women who are at parenting age, and the more prevalent drug use and the stabilization of higher drug use level than before during the 1990's. Harmful parental substance use in the child's living environment can significantly affect the child's wellbeing and it can also become entangled with other problems, such as parental mental health problems and the family's livelihood difficulties. The aim of this study is to find out associations between parental substance abuse and child's risk factors for health, social and

economic deprivation from birth to 20 years of age. The study is based on an extensive administrative register data of children born in 1991 and their biological parents. The data allows the follow-up of the cohort until year the 2011. The methods applied in the analysis are statistical analysis suitable for longitudinal data. In 2013, the study was funded by the research contract. During this period, the manuscript of the first article was prepared, content of the second article was planned and preliminary analyses were conducted. Getting the last piece of the research data was delayed due to lack of personnel resources of the Finnish Social Insurance Institution (Kela), and the research data were completed only in November 2013. Thus, the final analyses could start only at the end of the year. Preliminary results of the research project were presented at the conference of Kettil Bruun Society in Kampala, Uganda on 4th June 2013 with the title "Parental substance abuse and adolescent mental health disorders, self-destructive behavior and death – A register-based study on children born in 1991 and their biological parents". During 2014, the aim is to finalize two article manuscripts. Researcher: *Marke Jääskeläinen*, the Finnish Foundation for Alcohol Studies. (marke.jaaskelainen@alkoholitutkimussaatio.fi)

229 *Neuroinflammation in Mouse Models of Alcohol Consumption; Relevance of P2X7 Receptor.*

Neuroimmune signaling appears to have an important role in alcohol addiction. Immune system has been shown to have relevance in regulation of acute and chronic effects of alcohol. For example, the inhibitor of microglial activation minocycline reduces alcohol consumption in mice. However, the mechanisms of interaction between neuroimmune signaling and alcohol are not known. According to our hypothesis, immune system signaling molecule P2RX7 (P2X7 receptor), which has been connected to depression and alcoholism in genetic studies, could be an important factor in this interaction. The P2RX7 is activated by ATP and it regulates immune signaling also in microglial cells and influences the production of proinflammatory cytokines. In a recently described mouse model, acute lipopolysaccharide treatment (LPS) increased long term alcohol consumption in mice, supporting the hypothesis that neuroinflammation may promote alcohol consumption. We carried out drinking experiments according to this model, by monitoring 24-hour ethanol consumption in a two-bottle choice test with increasing ethanol concentrations. LPS treatment (1 mg/kg, i.p.) at the age of seven weeks caused changes in alcohol consumption only in male mice, not in females, when compared to control group. This difference was significant only during the consumption of 21% (v/v) alcohol. However, against earlier findings, LPS treatment decreased alcohol consumption. After one week ethanol deprivation all male mice decreased their ethanol consumption but LPS-treated mice still tended to consume less alcohol than control mice. In the next experiment, we used only male mice. LPS (1 or 1.5 mg/kg) or control treatment was given at the age of 12 weeks. In this experiment,

the mice treated with 1.5 mg/kg dose of LPS consumed less alcohol than other groups. After 1-week ethanol deprivation this difference disappeared. As our results were inconsistent with the previously reported findings we also studied the effect of lower LPS doses (0.2, 0.5 and 1 mg/kg) for 2-4 hour ethanol (15%, v/v) consumption utilizing the drinking-in-the-dark (DID) method. As before, we did not see an increase in alcohol consumption with the highest LPS dose, but the 0.5 mg/kg treatment tended to increase ethanol consumption in some of the test days. Our results indicate that the reported association between LPS-induced neuroinflammation and increased alcohol consumption depends on environmental factors and is not readily reproduced in other laboratories. We have also studied the effects of acute and chronic treatment with P2RX7 antagonists, especially Brilliant Blue G (BBG), on alcohol mediated behavior as locomotor activity, sedation, motor coordination and hypnosis (loss of righting reflex). In addition, we have studied the effect of subchronic BBG on alcohol consumption in the DID model. Our results indicate that BBG (50 mg/kg, i.p.) does not influence the acute behavioral effects of alcohol nor the alcohol drinking in the DID model when dosed subchronically (75 mg/kg/daily, i.p.). This suggests that P2RX7 does not play a major role in mediating the acute effects of alcohol or in regulation of alcohol consumption when LPS treatment is given four weeks earlier. BBG has been reported to be brain penetrant in basal conditions and we will also analyze the effect of BBG for brain immune system activation from brain samples collected from drinking experiments. This research aiming at a PhD thesis began in April 2013 as a new project. Researchers: *Mira Lainiola* and *Anni-Maija Linden*, University of Helsinki.

230 *From Dietetic Prudence to Clinical and Social Studies on Alcohol: Alcohol-related Phenomena in European Medicine in the Eighteenth and early Nineteenth Century.*

Alcohol-related pathologies became a specific object of medical knowledge-formation from the late 18th century onwards. By mid-19th century, alcohol-specific clinical concepts such as delirium tremens and chronic alcoholism were introduced. Before the late 18th century, excessive drinking had been mainly addressed in the framework of dietetic doctrines pursuing preservation of health. Excess in alcohol represented a deviation from the general norm of moderate manner of living which was deemed the moral duty of a virtuous human being. Deviation from that norm amounted to a self-explanatory cause of various ills. This research project aims to build a comprehensive picture of the changes and continuities between the specialized interest in alcohol misuse as an empirical question as it emerged at the turn of the 19th century and the traditional dietetic prudence. The project builds on and expands the scope of a PhD study, which argues for an emergence of sociocultural aetiology of alcohol-related pathologies in the early 19th century. This study aims to a) link the aetiological notions more rigorously with physicians'

endeavors at the bedside; and b) to dissect the continuity and change between the notions of moderation as a moral duty on the one hand, and excessive drinking as a phenomenon exceeding the sphere of personal morality on the other. The research project received six months' funding from the Finnish Foundation for Alcohol Studies in 2013. During this period, complementary primary sources (17th- and 18th-century texts) were gathered, analysis of the sources was started, and international research contacts were established (invitation to carry out research at the Centre for History in Public Health, London School of Hygiene & Tropical Medicine). An article manuscript which focuses on the question of habitual drunkenness in the dietetic and the early nineteenth-century medical thought will be completed in 2014. Researcher: *Arto Ruuska*, University of Helsinki.

PUBLICATIONS

DISSERTATIONS

Ekblad, Mikael: Smoking during pregnancy and fetal brain development. University of Turku, URN:ISBN:978-29-5374-5. PhD dissertation (article-based).

Härkönen, Janne: Not a wet generation but a wet nation: The dynamics of change and stasis in the Finnish drinking culture from 1968-2008. University of Helsinki, URN:ISBN:978-952-245-872-8. PhD dissertation (article-based).

Kouvonen, Petra: Participatory Policies and Social Rights in Out-of-home Placement Services. Negotiated Agencies of Vulnerable Children. University of Helsinki, URN:ISBN:978-952-93-1660-1. PhD dissertation (article-based).

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