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PLENARY PRESENTATIONS

PL-01

Subthreshold conditions: Prevention or medicalization?

JUDIT BALAZS

Institute of Psychology, Eötvös Loránd University, Budapest, Hungary
Vadaskert Child and Adolescent Psychiatric Hospital, Budapest, Hungary
E-mail: judit.agnes.balazs@gmail.com

Recently there has been a growing interest in subthreshold form of disorders in children and adolescents. In these cases individuals do not qualify for any diagnoses of mental disorders, when rigorous standardized classification criteria [Diagnostic and Statistical Manual of Mental Disorders 4th Edition (DSM-IV) (American Psychiatric Association, 1994) and International Classification of Mental and Behavioral Disorders 10th Edition (ICD-10) (World Health Organization, 1992)] are applied, however, they have clinically relevant psychiatric symptoms, which cause substantial functional impairment. Most research on adolescent subthreshold conditions, similarly to adults was carried out on subthreshold depressive episode. It was found to be a highly prevalent condition, which has an increased risk for developing future depressive episodes. Our data on 12,395 ado-

lescents from 11 countries show that adolescent subthreshold depression is associated with an increased burden of disease and suicide risk (Balazs et al., 2012). Subthreshold forms of behavior addictions have been gaining attention in recent years, however, definitions and diagnostic criteria of different types of behavior addictions are controversial. Focusing on Internet addiction we compared the characteristics of maladaptive and pathological Internet use among adolescents (Durkee et al., 2012). Based on international and our own data, subthreshold conditions may represent good targets for preventive interventions. While we appreciate the concerns about medicalization of normal variability of reactions, we would like to emphasize, that recognition and appropriate care of adolescent subthreshold conditions may improve and even save lives of young people.

PL-02

**Neurogenetics, medical monitoring and nutrigenomic solutions to diagnose and treat
Reward Deficiency Syndrome (RDS): From bench to bedside**

KENNETH BLUM^{1,3-7*}, DAVID HAN^{2,5} and JOHN GIORDANO^{3,7}

¹Department of Psychiatry & McKnight Brain Institute, University of Florida College of Medicine, Gainesville, Florida, USA

²Department of Management Science & Statistics, University of Texas at San Antonio, San Antonio, Texas, USA

³Department of Holistic Medicine, G&G Holistic Addiction Treatment, North Miami Beach, Florida, USA

⁴Global Integrated Services Unit, University of Vermont Center for Clinical & Translational Science, College of Medicine, Burlington, Vermont, USA

⁵Dominion Diagnostics, LLC, North Kingstown, Rhode Island, USA

⁶Department of Addiction Research & Therapy, Malibu Beach Recovery Center, Malibu Beach, California, USA

⁷Department of Nutrigenomics, LifeGen, Inc., Austin, Texas, USA

*E-mail: drd2gene@gmail.com

In 1990 Blum et al. reported in JAMA the first confirmed association in the field of “Psychiatric Genetics” of the dopamine D2 receptor *Taq A1* allele and severe alcoholics. While the media wrongly touted the concept of an “Alcogene” the study authors recognized the importance of a “Reward Gene.” Following replication and even controversy the finding has been established in the scientific literature as a major genetic polymorphism involved in multi-addictions not only drugs and alcohol. Moreover, in 1996, Blum et al. reported in the Journal of the Royal Society of Medicine on the then new concept “Reward Deficiency Syndrome (RDS)” to describe a common genetic rubric to explain behavioral addic-

tions. Utilizing Bayesian mathematical models they proposed that carrying the DRD2A1 allele at birth the predictive value for many addictions (e.g. drugs, alcohol, nicotine, glucose, ADHD, Tourette’s, autism, obesity, pathological gambling, Internet gaming, self-mutilation, sex, among others) was as high as 74%. In accord with the new definition of addiction published by the American Society of Addiction Medicine (ASAM), it is well known that individuals, who present to a treatment center involved in both chemical dependency and other documented related “Reward Deficiency Syndrome (RDS)” behaviors, have impaired brain reward circuitry. They have hypodopaminergic function due

to genetic or environmental negative pressures upon the reward neuro-circuitry. Over the last two decades our laboratory developed a number of important tools to assist in attenuating all RDS behaviors during the recovery process. To this end we have systematically evaluated the role of “Reward Deficiency Solution System™” which includes: 1) Genetic Addiction Risk Score (GARS) panel to diagnose RDS; 2) Comprehensive Analysis of Reported Drugs (CARD)™ to determine compliance to prescription medications as well as abstinence from licit and illicit psychoactive drugs; 3) a nutrigenomic based natural dopamine D2 receptor agonist

shown to activate mesolimbic caudate accumbens (fMRI study) dopamine to reduce cravings and also shown to induce regulation of widespread theta activity (qEEG study) in the PFC-Cingulate Gyrus brain region to reduce relapse and increase focus in both heroin and psychostimulant addicts; using mRNA analysis to determine treatment outcome by reward gene expressions pre and post. Finally our laboratory with others are developing lentiviral incorporation of various cDNA’s having dopaminergic function to rodent models (e.g. Lewis, etc.) as novel gene therapy approaches already established by Volkow’s group for cocaine and alcohol.

PL-03

Investigating compulsivity using endophenotype-probes: A trans-diagnostic perspective

NAOMI A. FINEBERG

National Treatment Service for OCD (England), Hertfordshire Partnership NHS Foundation Trust, Queen Elizabeth II Hospital, Welwyn Garden City, AL7 4HQ, United Kingdom
University of Hertfordshire Postgraduate Medical School, College Lane, Hatfield, Herts, United Kingdom
E-mail: naomi.fineberg@btinternet.com

Compulsions are repetitive, stereotyped behaviours, performed according to rigid rules and designed to reduce or avoid unpleasant consequences. Obsessive-compulsive disorder (OCD) is the archetypal compulsive disorder and represents an ideal illness-model for translational research into psychobiological factors underpinning compulsive activity and its remediation. A focus on compulsivity is also relevant for other disorders exhibiting compulsive behaviour such as behavioural or substance addiction; a current theory of addiction proposes a shift from impulsive to compulsive behaviour, ultimately dominated by stimulus-response habits. Identification of intermediate markers of brain dysfunction (endophenotypes), such as neuropsychological and neuroimaging parameters, may constitute a useful link between genotype and phenotype in disorders characterised by compulsivity. Patients with OCD and their unaffected first-degree relatives exhibit deficits in inhibitory control and aspects of mental flexibility, which have in turn been linked with grey matter and white matter changes in neural regions such as the right frontal lobes and basal ganglia. Additionally, functional MRI probes of orbitofrontal integrity

have identified *under-activation* in these neural systems during reversal of responses. This lateral OFC hypoactivity contrasts with *enhanced* ventromedial OFC activity that has been reported in both PET and fMRI studies following symptom-provocation in OCD, possibly reflecting functional subdivisions within the OFC. Resting state FMRI imaging additionally identifies functional disconnection of the orbitofrontal cortex in patients with OCD and similar changes in stimulant dependent individuals that correlate with the severity of compulsive activity across both patient groups and that may represent a biomarker for compulsivity across diagnostic categories. These data are compatible with theories implicating the failure of top-down cortical inhibition releasing striatally-mediated compulsive activity. Thus, compulsive symptoms could emerge from an imbalance of activity within the frontal cortex or the striatum, or both. The connectivity of these regions is a likely crucial factor. Different circuits may mediate action-outcome and habit learning, with OCD being biased towards the latter. Ongoing work shows enhanced avoidance-habits in OCD, which may turn out to be core to compulsion.

PL-04

Holistic interventions promote enhanced recovery from behavioral addictions in an in-patient facility: Where “science meets recovery”

JOHN GIORDANO^{1*} and KENNETH BLUM¹⁻³

¹Department of Holistic Medicine, G&G Holistic Addiction Treatment, North Miami Beach, Florida, USA

²Department of Psychiatry & McKnight Brain Institute, University of Florida College of Medicine, Gainesville, Florida, USA

³Global Integrated Services Unit, University of Vermont Center for Clinical & Translational Science, College of Medicine, Burlington, Vermont, USA

*E-mail: michg8@hotmail.com

In accord with the new definition of addiction published by the American Society of Addiction Medicine (ASAM), it is well known that individuals, who present to a treatment center involved in both chemical dependency and other documented related “Reward Deficiency Syndrome (RDS)” behaviors, have impaired brain reward circuitry. They have

hypodopaminergic function due to genetic or environmental negative pressures upon the reward neuro-circuitry. This impairment leads to aberrant drug or other thrill seeking behaviors including but not limited to overeating, overt sexual activity, pathological gambling among others due to the common induction of ventral tegmental caudate accumbens do-

pamine release. Based on numerous human studies from our laboratory including neuroimaging (fMRI and qEEG, etc.) involving neurochemical mechanisms and associated manipulation of the Brain Reward System through neuro-nutrient therapy shows continued reduction of both stress and craving behaviors along with improvement of cognition and focus especially at the Pre-Frontal Cortex – Cingulate Gyrus brain region (a site involved in relapse). In our clinic we employ many holistic programs including audio prescription music therapy which we have published showing significant benefits on mood during the recovery process. We incorporate yoga therapy as a way of also releasing neuronal dopamine as well as a number of cognitive therapies including Trauma Release Therapy (TRP). Unlike many centers in America we are cognizant that genetics play a significant role in outcome of the patients and our center is involved in a pioneering experiment involving a new diagnostic tool “Genetic Addiction Risk Score (GARS)” which will evidence stratification of risk of a patient entering treat-

ment as well as identifying associated medication necessity based on cytochrome P450 and metabolic issues. Additionally, epigenetic effects of the environment play a significant role in relapse and we therefore test all our patients for pollutants, toxins and trace metals (i.e. mercury). Our clients also are tested for associated endocrine problems such as thyroid and even testosterone and other hormones related to menopause as well. Based on this holistic approach our one-year relapse rates (telephonic self-reported not urine tested) are comparatively lower than most treatment centers as determined to be 11.1%. We are proposing herein that in order to achieve significant recovery rates treatment must include neurobiological approaches (such as neuro-nutrient therapy) coupled with appropriate genetic diagnostics; medication monitoring and modalities and 12 steps (may also potentially release dopamine) that address known hypodopaminergic traits (genetic) or states (epigenetic) which together will enhance recovery through scientifically sound holistic programming.

PL-05

Betting and the brain: Clinical implications of neuroscience research in problem gambling

ANNAKE GOUDRIAAN

University of Amsterdam, Amsterdam, the Netherlands; E-mail: agoudriaan@gmail.com

Evidence from neuroscience indicates that several neurobiological mechanisms are related to differential outcomes in addiction. For instance, higher levels of impulsivity have been related to earlier relapse, and brain activity patterns like higher responsivity to addiction related cues as measured in fMRI research, have predictive value for earlier treatment drop-out or relapse. The overall number of neuroimaging studies in pathological gamblers is still modest, but it has been increasing sharply in the last few years. Despite the relatively small number of studies, neurobiological processes have been shown to play a key role in the development of problem gambling, its continuation, and relapses in gambling problems after treatment. Functional MRI studies consistently show a diminished response of the reward-related mesolimbic-prefrontal brain circuit in problem gamblers

and pathological gamblers when responding to rewards or losses that they encounter outside of a gambling situation. However, neuroimaging studies that focus on the neural responses of problem gamblers and pathological gamblers in gambling situations, show that increased activation in this reward-related brain circuit is present, for instance in response to high-risk gambles, or when winning when the probability of winning is low. Similarly, studies of gambling cue-reactivity implicate an increased response in motivational and attentional brain circuitry, consistent with studies in substance use disorders. In this presentation, an overview is given focusing on the newest insights in the neurobiology of problem gambling and on clinical implications of these findings.

PL-06

Advances in the pharmacological treatment of behavioral addictions

JON E. GRANT

University of Chicago, Chicago, Illinois, USA; E-mail: jgrant4@bsd.uchicago.edu

Behavioral addictions, such as pathological gambling, kleptomania, pyromania, compulsive buying and compulsive sexual behavior, represent significant public health concerns and are associated with high rates of psychiatric comorbidity and mortality. Although research into the biology of these behaviors is still in an early stage, recent advances in our understanding of motivation, reward, and addiction, have pro-

vided substantial insight into the possible pathophysiology of these disorders. Improved neurobiological understanding of reward and inhibition has made advances in the pharmacological treatment of these behaviors possible. This talk will discuss recent advances in the pharmacological treatment of behavioral addictions and suggest ongoing challenges for the future.

PL-07

**Behavioural addictions – Past, present and future:
A personal perspective**

MARK D. GRIFFITHS

International Gaming Research Unit, Psychology Division, Nottingham Trent University, NG1 4BU, Nottingham, United Kingdom
E-mail: mark.griffiths@ntu.ac.uk

Behavioural addiction has become a topic of increasing research interest. There is now a growing movement that views a number of behaviours as potentially addictive including many that do not involve the ingestion of a drug (such as gambling, sex, exercise, work, videogame playing and social networking). The last decade has witnessed a significant increase in the number of empirical studies examining various aspects of behavioural addiction and video game addiction. This paper begins with a brief past history of how research into behavioural addiction has changed over the last few decades. This paper argues that all addictions consist of a number of distinct common components (salience,

mood modification, tolerance, withdrawal, conflict and relapse). The paper argues that addictions are a part of a biopsychosocial process and evidence is growing that excessive behaviours of all types do seem to have many commonalities. It is argued that an eclectic approach to the studying of addictive behaviour appears to be the most pragmatic way forward in the field. Such commonalities may have implications not only for treatment of such behaviours but also for how the general public perceive such behaviours. The paper concludes by looking at the trends in the field and a somewhat speculative examination of what the future of behavioural addiction might be.

PL-08

**How might food addiction relate to drug
and behavioral addictions?**

MARC N. POTENZA

Departments of Psychiatry, Neurobiology, and Child Study, Yale School of Medicine, New Haven, Connecticut, USA
E-mail: marc.potenza@yale.edu

Background: Obesity represents an increasingly prevalent public health concern. Given similarities between obesity and drug addictions, a food addiction model has been proposed and debated. Like most psychiatric disorders, obesity is a heterogeneous entity. Identifying clinically relevant subgroups of people with obesity may help to generate improved interventions. Certain obese individuals, for example those with binge-eating disorder (BED), appear to share more features of addictions (diminished self-control, elevated impulsivity) than do obese individuals without obesity. *Methods:* Using fMRI, we studied obese individuals with and without BED and a lean comparison group to investigate brain activations related to cognitive control and reward processing. *Results:* Obese individuals with BED and those without showed divergent findings, with the binge-eating group showing similarities to findings ob-

served in pathological gambling and nicotine and alcohol dependence (e.g., relatively diminished ventral striatal activation during reward anticipation). Furthermore, amongst obese individuals with BED, those who continued to binge following treatment as compared to those who did not showed relatively diminished activation of the ventral striatum during reward anticipation and ventromedial prefrontal cortex during reward outcome. *Conclusions:* These findings suggest relatively diminished activation of reward circuitry in BED in a manner analogous to patterns observed in behavioral and substance addictions, and that individual differences in neural activations during reward processing relate importantly to treatment outcome. Implications for prevention and treatment development will be discussed.

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PL-09

**Hypersexual behavior: Clinical and research perspectives
from the past decade**

RORY C. REID

Department of Psychiatry and Biobehavioral Sciences, University of California Los Angeles, Los Angeles, California, USA
E-mail: RReid@mednet.ucla.edu

Hypersexual behavior has been characterized as a phenomenon involving repetitive and intense preoccupation with sexual fantasies, urges, and behaviors, leading to adverse consequences and clinically significant distress or impairment in social, occupational, or other important areas of functioning. Patients seeking help for hypersexual behavior typically experience multiple unsuccessful attempts to control or dimin-

ish the amount of time spent engaging in sexual fantasies, urges, and behaviors in response to dysphoric mood states or stressful life events. Moreover, hypersexual patients often present with high levels of comorbid psychopathology including mood, anxiety, attention-deficit, and substance-related disorders. Personality characteristics such as proneness to boredom, impulsivity and shame, interpersonal sen-

sitivity, alexithymia, loneliness, and low self-esteem also have been observed in association with hypersexual behavior. Collectively, these comorbid conditions and characteristics create significant challenges for hypersexual patients. Subsequently, it is important to find effective treatments for hypersexual behavior given the gravity of its consequences including increased risk for loss of employment, legal problems, social isolation, and higher rates of divorce, and sexu-

ally transmitted infections. Although some studies have begun to investigate various interventions for hypersexual behavior, the field is in need of novel and innovative empirically supported treatments. In this presentation, Dr. Reid will discuss the constellation of issues associated with hypersexual behavior from a clinical and research perspective. Current treatments will be reviewed and recommendations for future directions for the field will be discussed.

PL-10

The role of impulsivity in addiction

WIM VAN DEN BRINK

Academic Medical Center, University of Amsterdam, Amsterdam, the Netherlands; E-mail: w.vandenbrink@amc.uva.nl

In this lecture I will provide an overview of the role of impulsivity in the onset and persistence of addictive behaviours, including substance use disorders and pathological gambling. I will pay special attention to ADHD as a risk and maintenance factor. I will start with an overview of the concept of impulsivity showing that impulsivity is a complex, multi-dimensional construct, including impulsive action (motor impulsivity), impulsive choice (delay discounting), and impulsive decision making. In addition, I will show that self-reported impulsivity is something very different from

neurocognitive impulsivity. I will then move to the role of impulsivity in the onset of addictive behaviours and its changing importance in the course of addictive behaviours, including the gradual change from impulsivity to compulsivity and the brain regions involved in these different stages of addictive disorders. Finally, I will discuss the role of ADHD in the onset and course of addictive behaviours looking separately at the epidemiological, neurocognitive, neurophysiological and finally the treatment and prevention aspects.

PL-11

Studies of Internet addiction disorder in Russia

ALEXANDER E. VOISKOUNSKY

Moscow State University, Moscow, Russian Federation; E-mail: vae-msu@mail.ru

Internet Addiction Disorder (IAD) has been known in Russia since the late 1990s, the earliest sources being popular media, mainly in computer science. Starting with 2000, professional publications (reviewing foreign experience) became accessible. In the new millennium some empirical work has been done, though not intense. No terminology other than IAD is used: even the term 'addiction' entered the professional vocabulary with IAD (before that physicians and psychologists used to tell about narcomania, alcoholism, etc.). Doubts in correctness of interpreting the IAD related behavior as a disease is sometimes expressed. The first Russian-language book on IAD has been compiled in the Ukraine, i.e. outside Russia. The first in Russia symposium devoted to IAD was held in 2009 at the Psychology Department, Lomonosov State University, Moscow. The published

Proceedings include papers by Russians and brief papers written specially by J. Suler, K. Young, M. Griffiths, J. Grohol, M. Fenichel, J. Morahan-Martin and S. Stern, all translated into Russian. Strong interest to investigating IAD is evident in Russian cyberpsychology; this interest is the strongest with the young generations. Most of the work done by now is methodologically based on translations of the initial Young's questionnaires, though a Taiwanese scale (by Chen et al.) has been recently adapted. Empirical work means largely correlational studies: IAD plus family problems, or plus diverse psychological measures (e.g. Big Five), or plus intensity of videogaming or participating in social networks, or plus coping strategies, etc. The studies refer mostly to teenagers, though younger children and young adults are also believed to be risky groups.

PL-12

Internet and videogame addiction and the neurobiological basis of behavioral addictions

AVIV WEINSTEIN

Sourasky Medical Center, Tel Aviv, Israel; E-mail: avivweinstein@yahoo.com

Problematic Internet addiction or excessive Internet use and computer game addiction are characterized by excessive or poorly controlled preoccupations, urges or behaviors regarding computer Internet use and videogames that lead to impairment or distress that may interfere with daily life. It is not clear whether Internet or videogame playing meets diag-

nostic criteria for a syndrome in DSM-V. This presentation will review the epidemiological, diagnostic and neurobiological evidence of the reward circuitry in Internet and videogame addiction. The diagnostic criteria and assessment questionnaires used for diagnosis vary between countries and yield variable rates of prevalence. Cross-sectional

studies on samples of patients report high co-morbidity of Internet addiction with psychiatric disorders, especially affective disorders (including depression), anxiety disorders (generalized anxiety disorder, social anxiety disorder), and attention deficit hyperactivity disorder (ADHD) which there is emerging evidence for its association with videogame addiction. Several factors are predictive of problematic Internet use, including personality traits, parenting and fa-

miliar factors, alcohol use, and social anxiety. Finally, psycho-physiological mechanisms underlying computer game addiction have been proposed mainly stress coping mechanisms, emotional reactions, sensitization and reward. There is increasing evidence that behavioral addictions like compulsive gambling, overeating, sex, computer game playing and shopping lead to long-term changes in the reward circuitry that resemble the effects of substance dependence.

PL-13

Understanding compulsive Internet use today

KIMBERLY S. YOUNG

Center for Internet Addiction at netaddiction.com; E-mail: KYOUNG@sbu.edu

Research over the last decade has identified Internet addiction as an emergent disorder. Most recently, the American Psychiatric Association has included the condition in the DSM-V and treatment centers around the world, especially in areas such as Korea and China, have inpatient treatment facilities specializing in cures for this new behavioral addiction. This presentation shows the latest research in how to diagnose and treat Internet addiction. In understanding

compulsive Internet use today, new standardized assessment tools such as the Internet Addiction Test, more commonly known as the IAT will be reviewed. This is the most widely known assessment tool helpful to diagnose patients. Various forms of the disorder such online role-playing games and cybersex will also be reviewed. Finally, evidenced-based therapy approaches such as CBT-IA and future trends in treatment will be covered.

ORAL PRESENTATIONS

OR-01

Problematic Internet use and the brain reward system: A pilot study

ANNA ALTBACKER*, JÓZSEF JANSZKY and ZSÓFIA CLEMENS

*University of Pécs, Pécs, Hungary; E-mail: annaaltbacker@gmail.com

Background and aims: Excessive Internet use can lead to behavioral addiction. Neuroimaging studies suggest that Internet addiction causes brain activity and morphology alterations in the reward system commonly associated with substance abuse. In this pilot study the aim was to investigate the relationship between problematic Internet use and gray matter volumes of the structures of the brain reward system. As gender differences may exist in the brain reward system, genders were analyzed separately. *Methods:* Healthy university students without history of neurological and psychiatric disorders or substance abuse were recruited ($N = 78$, 52 female and 26 male). Internet addiction was measured with the Hungarian version of the Problematic Internet Use Questionnaire (PIUQ). Subjects also completed an exploratory questionnaire about mental and physical

health and lifestyle (e.g., specific types of Internet use, drinking, eating and smoking habits). Gray matter volumes were assessed using a 3-T MRI scanner. *Results:* Problematic Internet Use was positively associated with left accumbens area, right amygdala, right putamen and negatively with left and right orbitofrontal cortex in females, while it was positively associated with left and right caudatum in males. *Conclusions:* Results of this pilot study may provide proof for structural brain changes in young adults with problematic Internet use. It is not yet known whether the brain alterations observed are the cause or consequences of excessive Internet use. To our knowledge this is the first study that could demonstrate such morphological alteration in association with behavioral addiction in adults.

OR-02

The role of craving for abnormal eating and addiction in obese children

ELISABETH ARDELT-GATTINGER*, DANIEL WEGHUBER, SUSANNE RING-DIMITRIOU and MARKUS MEINDL

*University Salzburg, Salzburg, Austria; E-mail: elisabeth.ardelt@sbg.ac.at

Background and aims: There is controversy about role of craving and addiction in obesity (Ellis et al., 1992; Pudel & Westenhöfer, 1998). In adults we have shown that BMI groups differ significantly craving/addiction with respect to food and that craving/addiction is a strong predictor of weight loss after surgical and behavioral interventions (Ardelt-Gattinger et al., 2000). Here we attempt to replicate this in children. *Methods:* In a cross-sectional study (CS) we surveyed 4,428 10–16-year-old pupils from a representative selection of Austrian schools. We included 66 (Out1) and 79 (Out2) 10–14-year-olds in interdisciplinary obesity group training of 2-year duration. Finally we observed 53 obese participants (age 10–14) of a three-week weight-loss camp

(CAMP). We used the child version of the food related craving/addiction questionnaire (FUN-KJ, Ardel-Gattinger & Moorehead, 2009) and measured weight and height (longitudinally pre/post). *Results:* The craving/addiction score (CAS) differed significantly $F(8, 4428) = 41.85, p < .01; \eta^2 = .07$ between BMI-groups in the CS. Patients with declining sdsBMI had significantly ($F(1, 66) = 6.52, p < .05$ Out1) and trend ($2, 36, p < .10$ Out2) lower baseline CAS and post treatment CAS ($F(1, 79) = 3.53, p < .01$ Out2). For the patients in CAMP CAS was the strongest predictor of weight loss (Beta = .503, $t = -2.25, p = .036$). *Conclusions:* These results prove the relevance of food craving/addiction in childhood obesity.

OR-03

Bulimia nervosa as behavioral addiction

MAGDOLNA BARBÓCZ

Medical and Health Science Center, University of Debrecen, Debrecen, Hungary; E-mail: barboczmaakti@gmail.com

Addiction is traditionally used for substances which clearly foster physical dependence, but not all addictions involve ingesting a substance. Addiction may refer to substance dependence or behavioral addiction. In the case of behavioral addiction, the person participates in an activity which they are unable to control or stop, he performs the activity repeatedly up to the point where it negatively affects his life. Although eating disorder is a separate category, we can define it as a behavioral addiction. Eating disorders all have symptoms and underlying mechanisms which support the similarity to the addictions. In bulimia nervosa there are episodes of binge eating, when the person eats an amount of food in a discrete period of time that is definitely larger than most

people would eat during a similar period of time. This behavior is usually cyclic in nature, with the person bingeing due to loneliness, depression and then purging due to feelings of guilt about bingeing. In the case of bulimia nervosa we can identify food addiction and especially vomiting addiction (Demetrovics & Kun, 2010). The addiction model of binge eating emphasizes the similarities to alcohol/drug abuse (e.g. carvings and urges to engage the behavior, loss of control, preoccupied with thoughts about the behavior, use the behavior to reduce negative feelings, etc.) (Fairburn & Wilson, 1995). The purpose of my presentation is to introduce the arguments which support the interpretation of bulimic symptoms as a behavioral addiction.

OR-04

A typology of skills: How sophisticatedly online addicts use the Internet

LINNY BIEBER

University of Mannheim, Mannheim, Baden-Wuerttemberg, Germany; E-mail: linny.bieber@gmx.de

Background and aims: Online gaming, compulsive surfing, cybersex addiction, etc. – the phenomenon of online addiction covers a variety of ways to use the Internet pathologically. In order to understand the complexity of online addiction, this paper aims to present a “typology of skills”. *Methods:* Developed from the perspective of media and communication studies, the typology will be based on a content analysis of postings by online addicts in German online forums writing about the way they use the Internet. *Results:* Online addicts show different ways of using the Internet. The results indicate for example “active” versus “passive”, “group-orientated” versus “single” use. Whereas porn addicts might be classified as rather passive and isolated con-

sumers, social media addicts act much more interactively and creatively. Of course, the latter use their capability to establish lively communities pathologically. However, this way of Internet usage can also be regarded as a skill. Being able to apply this “talent to interact” in the real world (i.e. by founding a self-help group, being a sponsor, or by visiting clinics to tell other addicts about his recovery), might help this type to build up a new healthy life. *Conclusions:* By examining the exact way the Internet is used and by focusing on a selection of characteristics, this typology emphasizes the skills needed in order to nourish the addiction. Regarded as qualities rather than deficits, these skills in turn might be useful in the course of the recovery process.

OR-05

Internet addictions: Same same but different

MATTHIAS BRAND*, CHRISTIAN LAIER and MIRKO PAWLIKOWSKI

*General Psychology, University of Duisburg-Essen, Duisburg, Germany; E-mail: matthias.brand@uni-due.de

Background and aims: Internet addiction receives a lot of attention in research and clinical practice. It is still under debate whether it is a uni- or multidimensional disorder. Davis (2001) has recommended differentiating between a generalized (GPIU) and a specific pathological Internet use (SPIU). *Methods:* We here report the development and validation of a short version of Young’s Internet Addiction Test (s-IAT, Pawlikowski, Altstötter-Gleich & Brand, 2012) to measure symptom severity of GPIU and its modifications for assessing symptom severity of SPIU with a focus on Internet gaming, cybersex and social networking sites. Using these instruments, we assessed several samples: Those who mainly use one specific application and those who use the Internet in a rather unspecific way. *Results:* Results from structural equation modeling on latent dimension suggest that for

GPIU and SPIU different variables explain the variance of the s-IAT and of the modified versions of the s-IAT. For example, life satisfaction was inversely and impulsivity as well as neuroticism positively related to GPIU. In addition, across different forms of SPIU both convergent and divergent correlates of symptom severity were found (e.g., life satisfaction predicted SPIU for gaming but not SPIU for cybersex). *Conclusions:* In conclusion, the s-IAT is a diagnostic screening instrument, which can be modified easily with respect to different types of SPIU. The results suggest that differentiating between GPIU and SPIU as well as between different types of SPIU is relevant for a better understanding of the mechanisms contributing to Internet addiction.

OR-06

Factors contributing to treatment retention and drop-out in pathological gamblers: Who is going to stay?

BARBARA BRAUN*, LUDWIG KRAUS, PAWEL SLECZKA and GERHARD BÜHRINGER

*IFT Institut für Therapieforschung, München, Germany; E-mail: braunbarbara@ift.de

Background and aims: Pathological gamblers are known to often determine treatment prematurely. Evidence points to socio-demographic (Stewart & Brown, 1988; Grant, Kim & Kuskowski, 2004), gambling-related (Shaffer et al., 2005), psychosocial and treatment-related factors (Echeburua, Fernández-Montalvo & Báez, 2001) that contribute to treatment drop-out. This study aims at investigating these factors in predictive models of treatment retention and drop-out in pathological gambling (PG). *Methods:* From April 2009 to March 2011 outpatients ($n = 337$) in addiction care facilities were examined. Socio-demographic (age, sex, marital status, nationality), gambling-related (gambling frequency, attended games, stakes/losses, debts, fulfilled PG DSM-IV-criteria), psychological (depressive symptoms, psychological distress, alcohol consumption) and treatment-related factors (symptom improvement, family support, former coun-

seling/treatment, attending self-help groups, debt counseling, group therapy) were measured and used as predictors for number of contacts and treatment drop-out in linear and logistic stepwise regression, respectively. *Results:* Number of contacts was predicted by older age, improvement of PG symptoms, family support and group therapy (adj. $R^2 = .35$). Predictors of treatment drop-out were higher educational level, migration background, higher gambling frequency, higher psychological distress, and former counseling/treatment (Pseudo $R^2 = .40$). *Conclusions:* Treatment retention appears to be influenced by adjustable factors, namely treatment measures such as group therapy and inclusion of family members. Socio-demographic factors and indicators of psychological crisis seem to contribute to treatment drop-out. Implications for treatment of PG will be discussed.

OR-07

The body as a simulacrum of identity: The subjective experience in the eating disorders

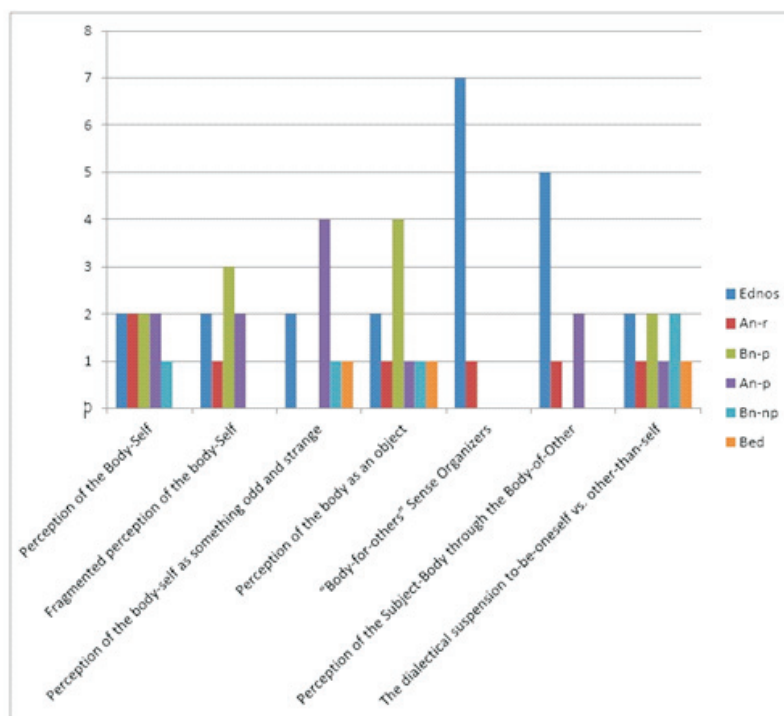
PATRIZIA BROGNA and EMANUELE CAROPPO*

Department of Psychiatry and Clinical Psychology, Università Cattolica del Sacro Cuore, Rome, Italy

*E-mail: emanuele.caroppo@rm.unicatt.it

Background and aims: Since eating disorders (ED) were first identified, psychopathology and nosography have been constantly struggling with the issue of the relationship between the obsession with food and that with bodyweight. Our hypothesis is that some people suffering from eating disorders, especially those with a diagnosis of Eating Disorders Not Otherwise Specified (EDNOS) experience their body mainly as body-for-others. *Methods:* We started with a

pool of 71 patients diagnosed with ED according to the criteria of the DSM-IV-TR, surveyed clinically and by distributing the Symptom check list-90, the Eating disorders inventory-2, the Eating disorder examination and the Body Attitude Test. *Results:* The preliminary data on 60 persons with EDs shows that the reason why persons with EDs overvalue their body shape and weight can be better understood as a specific disorder of lived corporeality, and more specifically



as the predominance of one dimension of embodiment. *Conclusions:* The hypothesis is that persons with EDs experience their own body first and foremost as an object being looked at by another, rather than kinesthetically or from a first-person perspective. Alienation from one's own body and from one's own emotions, disgust for it, shame, and an exaggerated concern to take responsibility for the way one

appears to the others, as well as the possibility to feel oneself only through the gaze of the others, through objective measures and through self-starvation, i.e. many of the features of persons with EDs, can be illuminated by looking at it in the light of the Sartrean concept of feeling a 'lived-body-for-others'.

OR-08

V.I.R.A.S. (Vulnerability and Indicators of Resilience in Asylum Seekers)

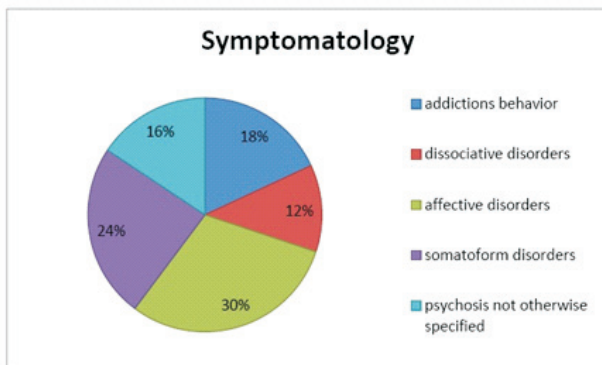
PATRIZIA BROGNA and EMANUELE CAROPPO*

Department of Psychiatry and Clinical Psychology, Università Cattolica del Sacro Cuore, Rome, Italy

*E-mail: emanuele.caroppo@rm.unicatt.it

Background and aims: Refugees and asylum seekers have to face a deterioration of their mental health and a high prevalence of risk factors for drugs addiction, including exposure to torture and trauma, loneliness and social deprivation. *Methods:* We analyzed the asylum seekers hosted in a center for refugees and asylum seekers near Rome, Italy. They host more than 500 people. *Results:* Victimization from torture is frequent, including 51% of the assessed individuals, and 17% had witnessed the assassination of a close relative or a

friend, while 35% lost their parents or the spouse for the same reasons lead them to escape from their country. The most frequent diagnoses were affective disorders (30%), somatoform disorders (22%), dissociative disorders (12%) and psychosis not otherwise specified (16%) and in the last six months addictions behavior (20%). Around 60% of the sample reported having had suicide ideation before arrival to Italy. Prevalence of PTSD in people exposed to potentially traumatic events was estimated to be 30% with people exposed to torture having the highest prevalence (60%) and to oppressive government. *Conclusions:* Young asylum seekers and refugees are especially vulnerable to mental health disorders and drugs addiction, particularly those who come from Iran, Afghanistan and Kurdistan. We found that the substance addiction in refugees and asylum seekers is associated with self-harm, compulsion and psychoactive drugs such as alcohol abuse, narcotics, stimulants, benzodiazepines, cannabis and opioids abuse. The preliminary data analysis underlines the absence of prevention of mental health reactions for the trauma conditions should be considerable risk factors for drugs addictions and for the long-term trauma effects.



OR-09

The modified integrated pathways model of Internet addiction

SAM-WOOK CHOI*, HAE-KOOK LEE, HYUN SOO KIM and KYE-SEONG LEE

*Gangnam Eulji Hospital, Eulji University, Seoul, Republic of Korea

E-mail: peaceinu@hanmail.net

Background and aims: Internet addiction is a heterogeneous and multidimensional disorder. The study aimed to modified pathways model that integrates the complex range of biological, emotional, personality, learning theory and psychosocial factors of problematic Internet users. *Methods:* It is hypothesized that problematic Internet users will cluster into distinct etiological subgroups, characterized by the presence or absence of emotional vulnerabilities, other types of addiction, impulsivities and co-morbidities. Considering the heterogeneous characteristics of Internet addiction, we have

modified a pathways model of pathological gambling into Internet addiction by adding some empirical and recent clinical evidences. *Results:* Three subgroups of problematic Internet users were identified, (1) behaviorally conditioned (2) emotionally-vulnerable, and (3) impulsive-vulnerable. *Conclusions:* This pathway model is a preliminary, empirical schema that hypothesizes the existence of three different subgroups of people with Internet addiction. Future research is needed to test the applicability of the integrated models for Internet addiction to problematic Internet users.

OR-10

The relationship between compulsive buying, compulsive Internet use and temperament in a sample of female eating-disorder patients

LAURENCE CLAES*, ASTRID MÜLLER, JAN NORRÉ, LEEN VAN ASSCHE, STEVE WONDERLICH and JAMES E. MITCHELL

*KU Leuven, Leuven, Vlaams-Brabant, Belgium; E-mail: Laurence.Claes@psy.kuleuven.be

Background and aims: Several studies report significant associations between compulsive buying (CB), compulsive Internet use (CIU) and eating-disorder (ED) symptoms. Additionally, the question is raised whether similar temperamental dimensions underlie both CB and CIU. Therefore, the aims of the present study are threefold: (1) to investigate the presence of CB and CIU in ED patients, (2) to correlate CB, CIU and ED symptoms, and (3) to assess common temperamental dimensions of both CB and CIU in ED patients. *Methods:* Sixty female ED patients were assessed by means of the Compulsive Buying Scale, the Compulsive Internet Use Scale, the Eating Disorder Inventory-2, the BISBAS scales, the Dimensional Assessment of Personality Pathology, and the Effortful Control Scale of the Adult Temperament

Questionnaire. *Results:* The prevalence of both CB and CIU was about 10%. Both CB and CIU were significantly related to restrictive eating behaviors (respectively, $r = .28$ and $r = .29, p < .05$); and CB was also significantly related to bulimic symptoms ($r = .34, p < .01$). Furthermore, we found a significant association ($r = .47, p < .001$) between CB and CIU. Both CB and CIU showed significantly positive correlations with Emotional Instability, Excitement Seeking and Lack of Effortful Control (more specific: lack of inhibitory and lack of activation control). *Conclusions:* The primary finding of our study is that CB and CIU are highly correlated and both are driven by lack of effortful control, which can be trained and which seems to make it possible to treat different impulse control disorders at the same time.

OR-11

Sexual sensation seeking and sexual compulsivity: Connections with attitudes toward sexuality and pornography use

BALÁZS CSONKA*, KRISZTINA HEVESI and ZSUZSANNA SURÁNYI

Hungary; *E-mail: hendiala@gmail.com

Background and aims: Sexual sensation seeking (SSS) and sexual compulsivity (SC) are usually considered within the confines of actual sexual behavior, but little is known about the role they may play in virtual sexual behavior, such as pornography use. Present study investigates the connections between SSS, SC and pornography use, also considering the associations with four dimensions of sexual attitudes. *Methods:* Hungarian versions of the Sexual Sensation Seeking Scale (SSSS; Kalichman et al., 1994), the Sexual Compulsivity Scale (SCS; Kalichman et al., 1994) and the Brief Sexual Attitudes Scale (BSAS; Hendrick et al., 2006) were tested with data from a sample of Hungarian university students ($N = 209$). Validation of the measurements above is also included. *Results:* Data analysis suggests, that higher frequency of pornography use is significantly associated

with SC ($r = .318^{**}$) and SSS ($r = .416^{**}$). Statistical analyses showed significant differences between groups of regular and non-regular users of pornography on SCS ($p < 0.001$) and SSSS ($p < 0.001$) scales. Both SC ($r = .345^{**}$) and SSS ($r = .554^{**}$) were significantly associated with permissive sexual attitudes. Positive correlation was found between SSSS and SCS scales ($r = .557^{**}$). Gender differences were observed on SCS ($p = 0.001$), SSSS ($p < 0.001$), permissive attitudes ($p < 0.001$), birth control scales ($p < 0.01$), frequency ($p < 0.001$) and regularity ($p < 0.001$) of pornography use. *Conclusions:* Results are consistent with the view, that compulsive sexual behavior and sexual sensation seeking can be defined in frames of pornography use, and connected to permissive sexual attitudes. Possible impacts of the escalation of online pornography are discussed.

OR-12

Cognitive functioning and aggressiveness related to Internet addiction in Korea

KIM DAI-JIN

Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea
E-mail: kdj922@chollian.net

Background and aims: The relationship between Internet addiction and psychiatric symptoms has been suggested by several studies. There is evidence for links between Internet addiction and substance use disorders, ADHD, depression, social anxiety and aggression. However, few studies have examined the differences in cognitive functioning and aggression between persons addicted to the Internet and per-

sons who are not addicted. *Methods:* Our group screened 642 middle and high school students for Internet addiction and compared 59 Internet-addicted students with 43 non-addicted students using an IQ test. *Results:* The Internet-addicted group scored significantly lower on the comprehension sub-scale than the non-addicted group. As the comprehension scale reflects ethical judgment and reality testing,

there may be a relationship between Internet addiction and weak social intelligence. Earlier onset of Internet addiction and longer addiction duration were associated with lower participant performance in areas related to attention. As this study is a cross-sectional study, it is not clear whether the persons who display weak cognitive functioning are susceptible to Internet addiction or if Internet addiction causes cognitive problems. *Conclusions:* However, as brain development remains active during adolescence, the possibility that

Internet addiction adversely affects the cognitive functioning of adolescents cannot be ruled out. Several studies have reported that the Internet addiction was strongly associated with aggression. However these previous studies could not confirm the above hypothesis. Therefore, we have analyzed several papers about the relationship between Internet addiction and aggression. We have a plan of clinical study to support the hypothesis.

OR-13

“Addiction” to physical inactivity?

MARTIN DAUMER, ON BEHALF OF THE “MOVE YOUR HEALTH STUDY GROUP”

SLCMSR e.V. – The Human Motion Institute, Munich, Germany; E-mail: martindaumer@gmail.com

Background and aims: Physical inactivity is a major risk factor for chronic diseases such as diabetes, cardiovascular diseases, colon cancer and more. Although it is well known that changing lifestyle to be more active can dramatically change hard outcomes such as mortality – active and normal weight people live an average 7.2 years longer than inactive and obese people according to a recent meta-analysis (Moore et al., 2012) – few people are able to follow the recommendations of health authorities such as NICE (UK), CDC (USA) or IQWiG (GER). *Methods:* We are exploring “Move Your Health®”, a motivational package consisting of an information leaflet that summarizes state-of-the-art knowledge about consequences of physical (in)activity in epidemiological studies and on a molecular basis. In our study, we explain the methods how to increase activity by “activity seeking” (integrating small bursts of activity in daily life). The motivational package is supported by a 3D-accelerometer (<http://www.actibelt.com>) in a belt

buckle that allows giving feedback about a person’s activity and is used to set and evaluate individualized goals. Important variables measured include real life gait speed, mean daily number of steps, step ratios and time spent at different activity levels (the “week-in-a-box” report). *Results:* We describe the results of a series of studies with this technology that demonstrate the feasibility to trigger a “health style” change of healthy individuals as well as people with diseases such as multiple sclerosis. More than 50 individuals have signed an informed consent and have completed the assessment. Responders show changes on selected variables between 10% and up to more than 80%. *Conclusions:* Modern technologies – mobile accelerometry and web-based information systems – are promising tools that may help individuals to trigger sustained changes in their health style. The important field of physical inactivity research will further benefit from interaction with methods and know-how in more “classical” behavioral addictions and vice versa.



Figure 1. Example “week-in-a-box” report of a 23-year-old female “Move Your Health®” responder. The increase in activity was achieved with a general advice to increase activity. We speculate that individual goal setting further increases likelihood and magnitude of response

OR-14

An exploratory study of the indicators of online shopping addiction

ARUN DHANDAYUDHAM^{1*} and SUSAN ROSE²

¹NHFT, Northampton, Northants, United Kingdom

²Henley Business School at the University of Reading, Henley on Thames, United Kingdom

*E-mail: arundhan@gmail.com

Background and aims: Compulsive and addictive forms of shopping and consumption behaviour have been extensively researched. Indications are that addictive and compulsive behaviour is now emerging in technology based shopping

which can be termed Online Shopping Addiction (OSA). Technology-based problem behaviour has been explored in relation to a number of fields including gambling, gaming and sex addictions and the objective of the paper is to report

a pilot study to identify six indicators of OSA based on technology addiction criteria established by Griffiths (1995) with measurements developed. The indicators tested are: Salience; Mood Modification; Withdrawal, Tolerance; Conflict and Relapse. *Methods:* A quantitative approach was used amongst a sample of 83 UK online shoppers drawn from the general population. Non-probability sampling was undertaken amongst online shoppers with a 16% response rate. A survey questionnaire was designed with measures developed for each of the six indicators with reference to diagnostic criteria for compulsive behaviour disorder adapted

to the context of online shopping. *Results:* Early pilot data is presented which provides evidence of the existence of three of the indicators: Salience, Mood Modification and Conflict within the sample. Tests for significance of the proportions for each measurement item found in the sample population were conducted and are reported. *Conclusions:* The findings provide tentative evidence for the application of the six Griffiths (1995) technology addiction indicators to online shopping. Future research is being undertaken to develop and validate a fuller, revised scale for OSA criteria and further developments of OSA sampling methodology.

OR-15

Female hypersexuality in the UK: A qualitative study

MANPREET KAUR DHUFFAR

Brunel University, London, United Kingdom; E-mail: manpreet_dhuffar@hotmail.co.uk

Sexual addiction in women rarely receives the same research and popular media attention received by men, so it continues to be underreported and minimised. Moreover, media and news coverage seems to cover female and male sex addiction differently. Female sex addicts are often portrayed as manipulative, power hungry, sex crazed and shameless individuals. In addition to the quantitative measures of hypersexuality in my research, I also felt that it was necessary to undertake some qualitative data as I wanted to gain greater insight into women who self-identified as sex addicts

within the British population. The primary aim of this study is to contribute to a psychological understanding of experiences of sexual addiction, considered from a phenomenological interpretative perspective. This investigation into four women who self-identified as sex addicts adds to the small number of qualitative studies in this field. It focuses on the experiences of sexual addiction, the ways participants make sense of their experiences in the contexts in which they occur, and the interpretations which can be discerned from participants' accounts.

OR-16

Interrelation between internalization, externalization and an Internet addictive behaviour

MICHAEL DREIER*, KLAUS WÖLFLING, KAI W. MÜLLER, MANFRED E. BEUTEL and EVA DUVEN

Outpatient Clinic for Behavioral Addictions Mainz, Department of Psychosomatic Medicine and Psychotherapy at the University Medical Center of the Johannes Gutenberg-University Mainz (UMC-Mainz), Mainz, Germany; *E-mail: Michael.Dreier@uni-mainz.de

Background and aims: Research on Internet addictive behaviour is still in its infancy. This qualitative study focuses on how Internet use and online over-engagement impact adolescents' behaviour, the psychological state and nutritional and physical activity behaviour. *Methods:* As part of a larger mixed-methods project [EU NET ADB] carried out across seven European countries, the German subsample of adolescents aged 15–16 years was administered the Internet Addiction Test (IAT). In-depth interviews were conducted with a subsample of 20 adolescents exhibiting signs of Internet addictive behaviour (score ≥ 40 points in IAT). The interviews were analyzed with the step-wise full version of Grounded Theory approach. *Results:* The subscales for ex-

ternalization and internalization based on the Youth Self Report (YSR) have been used to interpret the main paradigm of the EU NET ADB study. The analysis of the interviews has shown three ideal-typical developments in adolescent behaviour: increased internalization, decreased internalization and increased externalization. Explicit signs of this development range from coping mechanisms over conversation styles to antisocial behaviour and are linked with the overall paradigm of the EU NET ADB study. *Conclusions:* Findings provide important evidence on normative developmental and contextual considerations mediating increased online over-engagement and Internet addictive behaviours in regard to effects on internalization or externalization.

OR-17

Does the Internet change problematic gambling in adolescence? – A representative survey in Germany

EVA DUVEN*, SEBASTIAN GIRALT, KAI W. MÜLLER, MICHAEL DREIER, MANFRED E. BEUTEL and KLAUS WÖLFLING

Outpatient Clinic for Behavioral Addictions Mainz, Department of Psychosomatic Medicine and Psychotherapy at the University Medical Center of the Johannes Gutenberg-University Mainz (UMC-Mainz), Mainz, Germany; *E-mail: Duvn@uni-mainz.de

Background and aims: From a neurobiological and developmental perspective early onset gambling in children and ad-

olescents leads to an especially high risk for developing pathological gambling later in life. *Methods:* A representa-

tive survey on gambling was conducted with almost 4,000 participants between the ages of 12 and 18. Gambling severity was assessed via validated criteria for problematic gambling in youths (DSM-IV-MR-J, Fisher, 1999; German translation by Hurrelmann, 2003). From previous findings and clinical expertise we expected that problematic gambling in adolescence will go along with increased psychic strain. Also, the role of different forms of Internet Gambling was a major focus of the study. *Results:* Most of the adolescents between 12 and 18 years of age have gambled at least once in their lives (64.3%) – 41.2% of the surveyed youth have gambled in the last year. For 46.8% of those the motive

to gamble was hope for monetary gains, speaking against a pure entertaining effect of gambling. A total of 2.2% of the respondents was evaluated as problematic gamblers and another 3.7% as at risk gamblers. In the groups of users of Internet casinos, slot machines and online sports wagering the rate of problematic gamblers is the highest. Problematic gamblers also show higher mean values for symptomatology and more dysfunctional coping mechanisms. *Conclusions:* The present results show that the use of gambling facilities and problematic gambling in adolescence, especially Internet gambling is prevalent and comes along with accompanying mental problems.

OR-18

New classification and psychopathology of nonchemical addictions

ALEXEI EGOROV

IM Sechenov Institute of Evolutionary Physiology and Biochemistry, St. Petersburg, Russian Federation; E-mail: draegorov@mail.ru

It is obvious that the spectrum of addictive disorders consists of at least two groups: chemical and nonchemical (or behavior) addictions. Six common features of addictive behaviors: salience, mood changes, tolerance, withdrawal symptoms, conflict and relapse have been introduced and served as criteria for the diagnosis. Long-term experience shows that one

addiction can easily transform into the other, which happens both in chemical and nonchemical addictions. Potential nonchemical addictions cover all spectrum of human behavioral activity such as love, sex, work, money and shopping, religion, sport, etc. The following classification of nonchemical addictions may be offered:

1. Gambling
2. Erotic addictions
 - a. Love addiction
 - b. Sex addiction
3. Socially acceptable addictions
 - a. Workaholism
 - b. Exercise (sport) addiction
 - c. Relation addiction (talkaholism)
 - d. Buying (shopping) addiction
 - e. Religious addiction, etc.
4. Technological addictions
 - a. Internet addictions
 - b. Mobile phone (SMS) addiction
 - c. Other technological addictions (TV-addiction, gadget addictions, audio stimulus addiction, etc.)
5. Food addictions
 - a. Overeating addiction
 - b. Starvation addiction

Essentially the treatment of a socially unacceptable addiction comes to the shift of an addict into a socially acceptable form of the addiction, which is usually called stable remission. The basic idea of rehabilitation of a chemical addict

should be realized in strictly individual search and following strengthening of socially acceptable nonchemical addiction. If it is impossible, the next step should be replacement therapy.

OR-19

Associations of negative affect and impulsiveness with disordered eating and problem gambling in a community-based sample of adults

SARAH FARSTAD*, KRISTIN M. VON RANSON and DAVID C. HODGINS

University of Calgary, Calgary, Alberta, Canada

*E-mail: sfarstad@ucalgary.ca

Background and aims: Problem gambling (PG) and disordered eating (DE) often co-occur. This study examined whether individuals with comorbid PG + DE exhibited more negative affect and impulsiveness than individuals with PG, DE or controls. *Methods:* The sample included 1,002 community-based participants (59.5% female) drawn from 4 age cohorts (21–71 yrs). The NEO Personality Inventory measured negative affect and 3 types of impulsiveness. Participants were divided into 4 groups: DE ($n = 275$), PG ($n = 17$), comorbid DE + PG ($n = 19$), and control ($n = 691$). Factorial ANOVAs examined the effects of group membership and

gender on negative affect and impulsiveness. *Results:* In the DE group, women scored higher than men on negative affect ($p < .01$). Across all diagnostic groups, men scored higher than women on excitement-seeking ($p < .01$). The tendency to give into strong urges and the inability to persist on tasks differed by diagnostic group (all $p < .01$). Specifically, controls reported less negative affect and impulsiveness than disordered groups (all $p < .01$); however, disordered groups did not significantly differ from each other. *Conclusions:* Our results suggest that gender differences exist in the correlates of behavioral addictions. DE, PG, and comorbid DE +

PG involve marked negative affect and impulsiveness. However, no evidence suggests that any of these variables represents a specific risk factor for comorbid DE + PG. The

results of this study contribute to the emerging body of literature examining the similarities and differences that exist in the correlates of different behavioral addictions.

OR-20

Qualitative perspectives toward prostitution's perceived psychological addictiveness

MICHAEL W. FIRMIN*, ALISHA D. LEE, RUTH L. FIRMIN, LAUREN MCCOTTER DEAKIN
and HANNA J. HOLMES

USA; *E-mail: firmin@cedarville.edu

Background, aims and methods: In the present qualitative, phenomenological research study, we interviewed 25 women who were incarcerated in American county jails (at the time of interviews) for prostitution crimes. *Results:* The in-depth interviews with the research participants revealed four negative psychological dynamics related to prostitution. First, participants described accounts of physical and emotional violence which they experienced at the hand of clients and others involved in the lifestyle. Second, inter-

viewees explained an extreme dislike and loathing for their actions relating to and involving prostitution. Third, participants described how the lifestyle of prostitution had evolved into something which they viewed as an addiction. *Conclusions:* Finally, participants shared hopes of exiting prostitution and improving their lifestyles in the future, but believing this would require social service assistance in order to overcome their lifestyle addiction.

OR-21

A case study and literature review: Kleptomania, obsessive-compulsive disorder and substance use disorder

DANIELLE PETAH FLORIDA

Concord Repatriation General Hospital, Concord, NSW, Australia
E-mail: drdanielleflorida@hotmail.com

This paper presents a case study of a health professional with an opioid dependence and obsessive compulsive disorder, who begins abusing propofol. Careful history revealed a compulsive drive to take great risk to steal the propofol, with the reward being the thrill of stealing, rather than the minimal enjoyment from the effects of the propofol. This con-

tinued at great personal and professional loss. This case is considered in light of a literature review examining the genetic, phenomenological, clinical, epidemiological, and biological links between kleptomania, obsessive-compulsive disorder, and substance use disorders.

OR-22

Obsessive-compulsive disorder clinical staging: From endophenotype to behavioral addiction

GIACOMO GRASSI* and PALLANTI STEFANO

*University of Florence, Florence, Italy
E-mail: giacomograssimd@gmail.com

Reward dysfunction represents a key feature of addiction progression. Although anxiety symptoms are a core feature of obsessive-compulsive disorder (OCD), current literature shows growing evidences of a reward dysfunction in OCD, mainly in resistant patients. These data support the hypothesis that addiction and OCD share some common neurobiological dysfunctions and corroborate the idea that OCD starts as an anxiety disorder and becomes a behavioral addiction through the same stages of addiction. A common link between all substance abuse and the addictive behaviors is their rewarding effect. Compulsion is a suffering reducing activity that might step on the border of rewarding experience due to its capacity to reduce anxiety and distress generated by obsessions. In this perspective compulsion could be

potentially addictive. In fact, many patients report having a sort of "addiction to compulsions". From this perspective, it is possible to conceptualize OCD progression as a slow progression to a "compulsions addiction". In this view, it is also possible to hypothesize a clinical staging of OCD consisting of three main stages. First stage: the endophenotype stage. In this stage the patient present only subthreshold symptoms, but show endophenotypical abnormalities such as motor disinhibition and cognitive inflexibility. Second stage: the alarm stage. In this stage the patient has the OCD onset and the anxiety dimension is prominent. Third stage: the reward dysfunction stage. In this stage the patient becomes addicted to compulsions.

OR-23

Addiction on the Internet or addiction to the Internet? – The case of online gambling addiction

MARK D. GRIFFITHS

International Gaming Research Unit, Psychology Division, Nottingham Trent University, NG1 4BU, Nottingham, United Kingdom;
E-mail: mark.griffiths@ntu.ac.uk

As the Internet offers a new venue for gambling, the risks for engaging in pathological behaviors are potentially increased. This paper examines the relationship between gambling on the Internet and possible addiction by assessing Internet gambling in general and addictive gambling on the Internet specifically. Based on previous research, it is argued that a combination of individual, situational and structural characteristics determine whether and to what extent

individuals engage in Internet gambling. The results suggest that there are more problem gamblers on the Internet than in land-based venues. A reason for this may be the structural characteristics of the Internet inherent to this technology, namely availability, ease of access, anonymity, and convenience. In conclusion, however, the Internet cannot be claimed to be addictive *per se*, but rather to facilitate the engagement in addictive behaviors, including gambling.

OR-24

**Prevalence and correlates of gambling addiction
in a representative sample of Norwegian 17-year-olds**

DANIEL HANSS*, RUNE A. MENTZONI and STÅLE PALLESEN

University of Bergen, Bergen, Hordaland, Norway, Faculty of Psychology, Department of Psychosocial Science,
The Bergen Group for Treatment Research, Bergen, Norway

*E-mail: daniel.hanss@uib.no

Background and aims: Previous research suggests that adolescents may be at disproportionately high risk for developing gambling problems. This study is the first wave of a longitudinal survey to investigate prevalence and predictors of pathological gambling and problem gambling among adolescents and young adults in Norway. The aim of the first wave is to determine prevalence levels at age 17 and to identify correlates among various contextual (e.g., family cohesion, parental monitoring) and individual (e.g., gender, personality traits, gambling attitudes) variables. Data collection will be completed by the end of 2012. *Methods:* 3,000 individuals were randomly selected from the Norwegian Na-

tional Registry and invited to participate in the study. Those who decided to participate could choose between answering a paper questionnaire or alternatively an online version of the questionnaire. All participants received a gift certificate worth NOK200 (i.e., about €27). At the time of submission, the response rate was 66%; the final response rate will be presented at the conference. *Results:* Prevalence levels of pathological and problem gambling will be presented together with their correlates. *Conclusions:* Implications of the results for prevention and policy making will be discussed at the conference.

OR-25

Young male problem gamblers – How do adolescents and young adults describe their excessive behavior?

JOHANNA JÄRVINEN-TASSOPOULOS

National Institute for Health, Helsinki, Finland; E-mail: johanna.jarvinen-tassopoulos@thl.fi

Background and aims: The existence of youth gambling is a fact even though underage gambling is forbidden in many European countries. Young people may not understand the risks of gambling (loss of money and time, lack of interest in studies and work) and its harmful consequences (incoherent behavior, debts, loss of family's confidence and mental problems). Age at onset of gambling, gender and parents' active or problem gambling are factors that can predict a problematic gambling behavior in adult life. In my presentation I will discuss how Finnish male adolescents (under 16 years old) and young adults (16 to 20 years old) describe their excessive behavior as problem gamblers to an electronic counseling service. *Methods:* The 24 messages were

sent to the service between 2002 and 2008 before all games were forbidden to minors in Finland. These young males seek help in order to stop gambling, get rid of their debts and regain peace of mind. As method I used content analysis. *Results:* Adolescent gamblers played mostly on slot machines and tried to hide their gambling problems from their families. Young adults played poker and slot machines games. They had more money to spend on gambling than adolescents and many of them had serious financial problems. *Conclusions:* The small message data questions low age limits and expansive gambling operation, which may increase youth problem gambling.

OR-26

Internet addiction in Chinese adolescents: Personality traits, Internet use, online gaming and risk behaviors

QIAOLEI JIANG

Nanyang Technological University, Singapore, Singapore; E-mail: jiangqiaolei@gmail.com

Background and aims: As the country with the largest number of Internet users, China has witnessed an increase in the number of clinical cases in Internet addiction, especially among adolescents. This study investigated personality traits, multiple aspects of Internet use (including history, time, site, goal, intensity, and centrality), and online gaming as predictors of Internet addiction, and their relationships with other adolescent risk behaviors (smoking, drinking, gambling, and precocious sexual intercourse). *Methods:* To examine these interrelationships, clinical data of Internet-dependent adolescents ($N = 467$) were retrieved from the Chinese Youth Psychological Development Base, one of the earliest and largest Internet addiction clinics in China. In addition to demographic information, the retrieved clinical records contained measurement scales assessing personality (Eysenck Personality Questionnaire), Internet use (Internet Connectedness Index), online gaming, Internet addiction (Internet Addiction Diagnostic Questionnaire), and risk behaviors. *Results:* The findings showed that online gaming significantly predicted Internet addiction ($\Delta R^2 = 18\%$), and risk behaviors ($\Delta R^2 = 5\%$). Internet café patronage was significantly related to adolescents' Internet addiction and risk behaviors. The moderation effect of online gaming between Internet connectedness and Internet addiction was also identified. Extroversion was found to be a significant predictor of risk behaviors, but none of the personality traits was significantly associated with Internet addiction. *Conclusions:* Online gaming, as a popular online activity, was found to be a powerful predictor of Internet addiction, and significantly related to risk behaviors. Therefore, the addictive potential of gaming should be taken into consideration regarding prevention and intervention for Internet addiction.

Table 1. Hierarchical regression analysis of the impact of demographics, personality, Internet connectedness and online gaming on Internet addiction

Predictors	Internet addiction, β	ΔR^2
Block 1: Demographics		
Gender (male = 1)	-.01	
Age	-.00	
Education level	-.05	
Social status ^a (normal = 1)	-.09*	.03
Block 2: Personality		
Neuroticism – Stability	-.02	
Socialization – Psychoticism	-.05	
Extroversion – Introversion	.00	.00
Block 3: Internet connectedness		
History scope	-.06	
Task scope	.06	
Site scope (Internet café = 1)	.10*	
Goal scope	.14***	
Activity scope	-.06	
Intensity scope	.00	
Evaluation	.03	
Internet adhesiveness	.10*	
Computer interest	.08	.11
Block 4: Online gaming		
Online gaming hobby (yes = 1)	.37***	
Time began gaming	.05	
Number of friends online	.01	.18
<i>R Square</i>	.34	
<i>Adjusted R Square</i>		.32

Notes:

^a normal (at school or at work) = 1, not normal (school dropout, suspending and unemployed) = 0;

* $p < .05$; *** $p < .001$; $N = 467$.

OR-27

Pathological gambling among older adults: Factors that increase risk

CINDY KERBER

Illinois State University, Normal, Illinois, USA

E-mail: ckerber@ilstu.edu

Background and aims: The proliferation of legalized gambling opportunities has led to increased participation. Older adults who have more opportunities to gamble and have funds available may be vulnerable to gambling problems. The most vulnerable older adult populations are those with comorbid mental illness and those who are incarcerated. Also, research links decreased physical health and gambling problems. This presentation will synthesize two studies to highlight factors that increase vulnerability in the older adult (> 50 years) population. *Methods 1:* The first study interviewed 40 recovering pathological gamblers to diagnose comorbid psychiatric illnesses. *Results 1:* The results indicate a high level of comorbidity with depression, alcohol dependence panic and generalized anxiety disorders, obsessive

compulsive and avoidant personality disorders being among the most common. *Methods 2:* The second study compared perceived health and gambling problems among 43 incarcerated older adults from two county jails. *Results 2:* The South Oaks Gambling Screen (SOGS) identified that 48.83% of the sample scored in the problem or pathological range. SF-36 scores for this sample compared with United States norms for ages 55–64 showed significantly lower perceived health scores on role-physical, bodily pain, mental health, social functioning, and role-emotional. The problem and pathological gamblers showed significantly lower social functioning than the recreational gamblers. Assessment of health conditions and gambling behaviors becomes more important for quantifying current and anticipated burdens of

these conditions on correctional health care systems and the community. *Conclusions:* This presentation synthesizing two studies identifies factors that increase vulnerability in

the older adult and offers recommendations for practitioners and researchers.

OR-28

The concept of codependency and the characteristics of codependent individuals

ÉVA KNAPEK* and ILDIKÓ KURITÁRNÉ SZABÓ

Medical and Health Science Centre, University of Debrecen, Debrecen, Hungary

*E-mail: knapek.eva@sph.unideb.hu

The concept of codependency stems from the field of chemical dependency. The aim of the presentation is to raise awareness of the codependency, which can be considered as a maintaining factor of the partner's addiction. Codependency is mostly considered as a behavioural addiction, although it is not an official diagnostic category and the definition of the codependency remains still unclear. According to the literature the main characteristics of codependent individuals feel excessive responsibility, need of control, compulsivity, extreme reactivity and other non-specific symptoms as well. There are several models describing the etiology of the codependency. The psychodynamic authors

emphasize dysfunctional family, parental mental health problem, early traumatization, and parentification. The cognitive models underscore familial patterns, dysfunctional cognitions, early maladaptive schemas, and social learning. Depression, anxiety disorders, other behavioural addictions, chemical addictions and personality disorders can occur as comorbid disorders in the lives of codependent individuals. The presentation summarizes the existing theoretical approaches, the etiology and the comorbidity of codependency, as well as the characteristics of codependent individuals.

OR-29

Prevalence of behavioural and substance-related addictions: A preliminary study from Canada

BARNA KONKOLY THEGE^{1*}, IAN COLMAN², NADY EL-GUEBALY³, DAVID C. HODGINS¹, SCOTT PATTEN³, DONALD SCHOPFLOCHER⁴, JODY WOLFE⁵ and T. CAMERON WILD⁵

¹Addictive Behaviours Laboratory, University of Calgary, Calgary, Canada

²Applied Psychiatric Epidemiology Across the Lifecourse Laboratory, University of Ottawa, Ottawa, Canada

³Department of Psychiatry, University of Calgary, Calgary, Canada

⁴Centre for Health Promotion Studies, School of Public Health, University of Alberta, Edmonton, Canada

⁵Addiction and Mental Health Research Laboratory, School of Public Health, University of Alberta, Edmonton, Canada

*E-mail: bkonkoly@ucalgary.ca

Background and aims: We described the prevalence of self-attributed substance-related and behavioural addiction problems in two population-based samples of Albertan adults and examined whether prevalence estimates differed across two different survey modes. *Methods:* Sample 1 included 4,000 adults recruited from an online research panel; Sample 2 included 2,000 adults who completed computerized assisted telephone interviews. Identical survey items were used across samples, and asked respondents (1) to report self-attributed problems in the preceding year with four substances (alcohol, tobacco, marijuana, cocaine) and six behaviours (gambling, eating, shopping, sex, video gaming, work), and for each behaviour (2) whether they personally knew someone exhibiting a problem, and (3) perceived population prevalence. *Results:* About half of the participants in each sample reported experiencing past-year addiction problems. The most prevalent substance-related problems were

tobacco (21% and 16% in Samples 1 and 2) and alcohol (6% and 4%), while the most common behavioural problems were eating (23% and 19%) and work (17% and 18%). All respondents consistently overestimated population prevalence relative to self-reported problems. Although online survey participants consistently reported slightly higher rates compared to CATI respondents, rank-order correlations across self-, acquaintances-, and population-attributed prevalence estimates were high in both samples. *Conclusions:* Consistent overestimation of population prevalence suggests that people are aware of the importance of managing excessive behaviours but perceive problems rather than possible solutions. Convergence of results across data sets suggests that both survey modes provide useful information on addictive behaviours; however, further research should explore correlates of higher prevalence rates among online respondents.

OR-30

The Problematic Internet Use Questionnaire (PIUQ): Validation on different samples

BEATRIX KORONCZAI^{1*}, RÓBERT URBÁN¹, GYÖNGYI KÖKÖNYEI¹, ORSOLYA PÁPAY¹, BORBÁLA PAKSI²,
BERNADETTE KUN¹, JUDIT FARKAS¹, TAMÁS DOMOKOS³, ZSUZSANNA ELEKES², MARK D. GRIFFITHS⁴
and ZSOLT DEMETROVICS¹

¹Eötvös Loránd University, Budapest, Hungary

²Corvinus University of Budapest, Budapest, Hungary

³Echo Research Center, Székesfehérvár, Hungary

⁴Nottingham Trent University, Nottingham, United Kingdom

*E-mail: szeredibeatrix@hotmail.com

Background and aims: In an earlier study (Koronczai et al., 2011) we suggested that a suitable measure for assessing Internet addiction should meet six basic requirements. The measure ought to be (1) comprehensive, meaning it examines more than one aspect of problematic Internet use; (2) as concise as possible; (3) reliable and valid for different methods of data collection; (4) applicable for different age groups; (5) in different cultural settings; finally (6) cut-off scores should be defined on the basis of clinical examination. Our aim is to present how much the Problematic Internet Use Questionnaire (PIUQ) can fulfill these requirements. The PIUQ includes three subscales (obsession, neglect, control disorder), and exists in three different ver-

sions: having 6, 9 and 18 items. *Methods:* We tested the PIUQ on three off-line samples. The first was a Hungarian representative adult sample ($N = 963$, mean age 33.6, $SD = 11.8$), the second was a Hungarian representative adolescent sample ($N = 5,045$, mean age 16.4, $SD = 0.9$), and the final one was a sample of Chinese university students ($N = 768$, mean age 20.6, $SD = 1.6$). *Results:* The results of confirmatory factor analysis supported the original 3-factor model over the possible one-factor solution on all three samples. *Conclusions:* The PIUQ remained valid and reliable measurement for different age groups and different cultures. Additionally we found that the 6- and 9-item PIUQ kept the 3-factor structure of the original, 18-item PIUQ.

OR-31

Views on behavioural addictions among Finnish and French treatment professionals

ANJA KOSKI-JÄNNES^{1*} and LAURENCE SIMMAT-DURAND²

¹University of Tampere, Tampere, Finland

²Université Paris Descartes, Paris, France

*E-mail: anja.koski-jannes@uta.fi

Background and aims: This study aims to assess how professionals in different cultural contexts perceive the nature of excessive gambling and Internet use. Hence this study compares the views of Finnish and French treatment professionals on the risk of dependence, the chances of recovery and the responsibility for the onset of and recovery from gambling and net addictions. *Methods:* Survey data were gathered by mail from Finnish substance abuse treatment professionals ($n = 520$) in 2007–2008 and from French treatment professionals ($n = 471$) in 2011. The data were analysed by descriptive statistical methods and logistic regression analysis. *Results:* There were highly significant cultural differences in almost all the questions posed. French profes-

sionals assess the risk of dependence as higher than Finns, whereas Finnish professionals attribute more responsibility to the individual both for the onset and recovery from these behavioural addictions. Finnish professionals also believe much more than French professionals in the chances of recovery with treatment. The respondents' age and profession also modify these responses. *Conclusions:* The governing images of behavioural addictions seem to vary by culture, age and the composition of professions involved in the treatment of these problems. Possible causes and consequences of the observed views and their differences are discussed, keeping in mind particularly their consequences to individuals suffering from these problem behaviours.

OR-32

Religious addiction – The new behavioral addiction in adolescents

ESZTER KOVÁCS^{1*} and BETTINA FRANCISKA PIKÓ²

¹Semmelweis University, Budapest, Hungary

²University of Szeged, Szeged, Hungary

*E-mail: kovacs.eszter@ymail.com

Background and aims: Religious addiction is a new phenomenon in behavioral addictions that is featured by pathologic religious activity and narrowed focus on religious content in one's life. The aim of the present study is to reveal religious addiction and to map its correlations with substance

use and mental health. *Methods:* Questionnaire survey was conducted among 656 high school students (49.1% females, mean age = 16.5 years). Religiosity was measured by several items, namely, denominational belonging, level of religiousness, religious activity, prayer and the importance of reli-

gion. General addiction screening tool by Terry et al. (2004) was used to investigate the presence of religious addiction. We measured substance use, life and monthly prevalence, and mental health variables. *Results:* Findings showed that the level of religiosity was quite low among adolescents, therefore, the level of religious addiction remained also low. However, 0.8% of the sample showed religious addiction, 5.6% belonged to the high risk group, thus, this resulted in total 6.3% as risk group concerning religious addiction. Linear regression analysis was employed to explore the back-

ground factors. Of the predictors, the level of religiousness, religious activity, denominational belonging and the role of religion in daily life were significant. Regarding substance use smoking, binge drinking and marijuana use showed higher rates in the risk group. Of the mental health variables, depressive symptoms, external control and satisfaction with life was higher in dependents. *Conclusions:* Religiosity is a vague phenomenon, further investigation is needed to see when religiosity turns into religious addiction.

OR-33

Alcohol consumption and binge drinking in university students. Findings from studies conducted in Algeria, France and Hungary, 2010–2012

JOEL LADNER^{1*}, ANDREA LUKÁCS², NADIR BOUSSOUF³, BEATRIX VARGA⁴, SOUMIA ZATOUT³, MARIE PIERRE TAVOLACCI¹, SEBASTIEN GRIGIONI¹ and PIERRE DÉCHELOTTE¹

¹Rouen University Hospital, and INSERM UMR 1073, Rouen University, Rouen, France

²Faculty of Health Care, University of Miskolc, Miskolc, Hungary

³Batna University Hospital, Batna, Algeria

⁴Faculty of Economics, University of Miskolc, Miskolc, Hungary

*E-mail: joel.ladner@univ-rouen.fr

Background and aims: Binge drinking (BD) and associated behavioural risk factors among students in higher education remain actually to be explored. The objective of the study was to identify prevalence and factors associated with the regular BD in student population in Algeria, France and Hungary. *Methods:* Students from Batna (B, Algeria), Miskolc (M, Hungary) and Rouen (R, France) completed an anonymous self-questionnaire that collected a large sample of data, including age, gender, the curricula, the regular alcohol consumption (at least 10 times per month), alcohol misuse (using ADOSPA test), and the regular drunkenness. *Results:* A total of 2,877 students were included: 345 in B, 659 in M and 1,873 in R. The mean age was 21.1 years. One third of students reported at least one BG in the

last month in M and R (without significant difference in men and women), less 3% in B. In M, 83.3% of men and 55.8% of women presented at least one regular drunkenness ($p = 0.01$), 82.9% in men and 37.8% in women in R ($p = 0.001$); 2.7% in men and 0% in women in B ($p = 0.89$). Alcohol misuse is frequent students. *Conclusions:* Regular BD is frequent among university students, especially in male students in M and R. BD is associated not only with regular alcohol consumption but also alcohol misuse. These findings stress the need to develop investigations on this topic in student population, to have a better understanding of BD mechanisms and relations of BD with other risk compartments and social outcomes.

OR-34

Mental stress, sleeping disorders and risk of Internet addiction and eating disorders: New public health challenges among university students A prospective study in Algeria, France and Hungary, 2010–2012

JOEL LADNER^{1*}, ANDREA LUKÁCS², NADIR BOUSSOUF³, BEATRIX VARGA⁴, SOUMIA ZATOUT³, MARIE PIERRE TAVOLACCI¹, SEBASTIEN GRIGIONI¹ and PIERRE DÉCHELOTTE¹

¹Rouen University Hospital, and INSERM UMR 1073, Rouen University, Rouen, France

²Faculty of Health Care, University of Miskolc, Miskolc, Hungary

³Batna University Hospital, Batna, Algeria

⁴Faculty of Economics, University of Miskolc, Miskolc, Hungary

*E-mail: joel.ladner@univ-rouen.fr

Background and aims: Alcohol, tobacco and cannabis consumption are well documented as relevant public health topics in young populations. Recently, news compartment risks appear. The aim was to study the prevalence and risk factors of Internet addiction, mental stress, and sleeping disorders in students in higher education in Algeria, France and Hungary. *Methods:* Students from Batna (B, Algeria), Miskolc (M, Hungary) and Rouen (R, France) completed an anonymous self-questionnaire that collected a large sample of data, including age, gender, alcohol, tobacco and cannabis

consumption, mental stress (Cohen stress scale), risk of cyber addiction (Internet Stress Scale) and eating disorders (Scoff questionnaire) and sleeping disorders. *Results:* A total of 2,877 students were included: 345 in B, 659 in M and 1,873 in R. The mean age was 21.1 years (without significant difference in the 3 universities). Respectively in B, M and R, the mean stress level was 19.0 ($SD = 3.5$), 21.7 ($SD = 4.9$) and 16.0 ($SD = 3.3$) ($p < 10^{-4}$). Respectively in B, M and R, 23.0% of students, 10.5% and 29.3% presented a high risk of cyber addiction ($p < 10^{-4}$). In B, 33.1% of students,

61.1% in M and 34.6% in R reported sleeping disorders in the previous month ($p < 10^{-4}$). *Conclusions:* New behaviour risks as mental stress, cyber addiction and sleeping disorders appear problematic in the 3 countries. These findings stress the need to investigate health risks and behaviours and to ini-

tiate specific prevention interventions in student populations using integrated approaches. There is an urgent need for public health practitioners and social scientists working on these new challenges.

OR-35

Craving to pornographic cues in healthy and problematic cybersex users

CHRISTIAN LAIER*, JARO PEKAL and MATTHIAS BRAND

*University of Duisburg-Essen, Duisburg, Germany
E-mail: christian.laier@uni-due.de

Background and aims: Cybersex addiction is discussed with growing interest, but the number of studies addressing its psychological correlates and mechanisms of development is very limited. Brand et al. (2011) report subjective sexual arousal while watching pornographic cues predicts tendencies towards cybersex addiction. They consider craving and cue-reactivity as mechanisms contributing to the development and maintenance of cybersex addiction. *Methods:* To address the role of sexual arousal and craving in more detail, we used the short version of the German Internet Addiction Test (Pawlikowski et al., 2012) modified for cybersex to diagnose problematic cybersex users (PCU, $n = 25$) and matched them with healthy cybersex users (HCU, $n = 25$). To both groups, a cue-reactivity paradigm was applied in which 100 pornographic pictures were presented. Participants rated each cue regarding sexual arousal and indicated

masturbation urges prior to and following the experimental paradigm. *Results:* While there were no group differences regarding the number of real-life sex contacts and the sexual arousal rating of pornographic cues, PCU indicated greater craving reactions following the pornographic cue presentation in terms of an increase of the need to masturbate. The findings give reason to assume that mainly received gratification and not a compensation of real-life sexual contacts is the main mechanism underlying the development of cybersex addiction. *Conclusions:* The heightened craving reaction in PCU are in line with predictions considering problematic cybersex use as an addiction and is consistent with findings reported in research on substance dependency and other behavioral addictions. Cue-reactivity and craving seem to be fundamental mechanisms of maintenance of cybersex addiction.

OR-36

Use of virtual reality to explore the decision making in obsessive-compulsive disorder and Parkinson's disease

FILIPPO LA PAGLIA^{1*}, GIOVANNI ALBANI², CATERINA LA CASCIA¹, PIETRO CIPRESSO³, ROSALINDA RIZZO³, SIMONA RASPELLI³, GIUSEPPE RIVA³, ALESSANDRO MAURO² and DANIELE LA BARBERA¹

¹Department of Experimental Biomedicine and Clinical Neuroscience, University of Palermo, Palermo, Italy

²Department of Neurology and Neurorehabilitation, Istituto Auxologico Italiano, Piancavallo, Italy

³Department of Psychology, Istituto Auxologico Italiano, Piancavallo, Italy

*E-mail: filippolapaglia@gmail.com

Background and aims: Various studies reported that impulse control disorders may affect the executive functions: in pathological gamblers and alcohol-dependent patients, in greater kleptomania symptom severity, in substance-dependent abusers with poor family history status, in early-onset cannabis users versus late-onset users; in patients with suicidal behaviour. In Parkinson's disease (PD), presence of impulse control disorders has been associated with an impaired Stroop test and verbal learning and memory test. The aim of this study was to evaluate decision making in a group of non-demented and without impulse disorders PD patients versus a group of patients with a pure obsessive-compulsive disorder (OCD). *Methods:* We used a Virtual Reality ver-

sion of the Multiple Errand Test inside a virtual supermarket, in order to evaluate decision making ability in 17 PD not-demented patients, 10 OCD patients 14 controls. *Results:* By means of a Mann-Whitney U test, in respect of OCD patients, PD patients showed a prolonged decision making time ($p < 0.002$) and more altered strategies ($p < 0.005$). *Conclusions:* Last years, a dilemma has been keeping the scientific community busy concerning PD: How does the impulse control disorder fit of a preclinical rigid personality, which is lacking in vices. Is it all fault of dopaminergic therapy and progression of disease? Another question is rising up: in PD is altered decision making influenced by presence of impulse disorder or does it proceed?

OR-37

When smartphone outsmarts users: The moderating effects of user types on individual differences of stress induction

YU-KANG LEE¹, YOU LIN^{2*}, ZHAO-HONG CHENG² and CHUN-TUAN CHANG²

¹Department of Political Economy, National Sun Yet-Sen University, Kaohsiung, Taiwan

²Department of Business Management, National Sun Yet-Sen University, Kaohsiung, Taiwan

*E-mail: d994010015@student.nsysu.edu.tw

Background and aims: Mobile phone users may experience various levels of stress according to individual differences and user types. A major distinction between the user types (i.e., smartphone users vs. traditional mobile phone users) is the functions available to users which may result in different usage patterns. This difference may induce the influence of individual difference on stress from mobile phones to diverse. *Methods:* We develop an analytical model to examine the influence of four individual differences (i.e., locus of control, social interaction anxiety, need for touch, and materialism) on users' level of stress experienced with user type as moderator. *Results:* User type significantly moderates the

relationships between the selected individual differences and stress level experienced. Except for materialism, locus of control, social interaction anxiety and need for touch tendencies are positively related to stress induction for smartphone users than their traditional mobile counterparts. *Conclusions:* The level of stress induced by smartphone was influenced by the interaction between user type and individual difference. The findings provide theoretical as well as practical implications for mobile service providers, marketers, and government agencies who wish to better understand stress induced by smartphone use.

OR-38

The model of compulsive buying: Its determinants and effects

HUI-YI LO* and NIGEL HARVEY

*National Chung Hsing University, Taichung, Taiwan; E-mail: hyl@dragon.nchu.edu.tw

Background and aims: Many researchers have hypothesised that demographics and individual factors are associated with compulsive buying. The aim of this study was to identify the interactions between compulsive buying behaviour and other factors highlighted by previous studies. *Methods:* Two pilot investigations and one online questionnaire were conducted. 305 valid respondents gathered over a period of six weeks. Four comparison linear structural equation models were formulated to test possible patterns of causal dependency between variables. *Results:* Overall findings suggest that compulsive buying is more likely to derive from low levels of self-esteem and highly materialistic attitudes. By contrast, budget constraints and credit card usage are consequences of compulsive buying that interact with each other. Although some studies suggest that compulsive buying

might correlate with depression, anxiety or money attitude, our findings show that there is no significant relationship between compulsive buying and those factors. *Conclusions:* Our investigation extracted four factors underlying individual differences relevant to compulsive shopping, including two financial factors (i.e., budget constraints and credit card usage) and two psychological factors (i.e., materialism and self-esteem). It also outlined causal relations between compulsive buying and these four factors. In other words, materialism, triggered to some extent by low self-esteem, and an obsessive personality combine in compulsive shoppers to produce a need for high status products and an addiction to the process of shopping. These, in turn, produce the symptoms of compulsive shopping that we have identified.

OR-39

Problems detected at studying problem gamblers

MIRNA MACUR

Slovenia; E-mail: mirna.macur@fuds.si

Background and aims: Gambling is considered to be fun but many people have serious problems with gambling. Young people seem to be more vulnerable to this type of addiction – lifestyle and excessive use of Internet may contribute to this problem. There are plenty of reasons for extensive social science research. *Methods:* Standardised quantitative research instruments like SOGS and DSM-IV tests are frequently used to assess percentage of problem and pathological gamblers in population. Qualitative methodology should complement these findings in order to develop preventive mechanisms. *Results:* SOGS test was used also in Slovenia, discovering that 0.46% of adults are pathological gamblers.

Study among high school students (17–19 years old) in two Slovenian regions show substantially bigger share of pathological gamblers (2.57% and 3.73%). Also threat of developing gambling problems among the teens is much higher compared to adults in Slovenia. *Conclusions:* Complementary qualitative studies to SOGS test are hard to do because of small number of problem and especially pathological gamblers, who most often do not seek for help. Some characteristics of problem gamblers like denial and deceit do not help either. We are left with therapists, social workers, psychiatrist, and workers in gambling industry to give us additional information. Is second hand information reliable bear-

ing in mind that different therapists are competing for state funding? Workers in the gambling industry are open to cooperation on this issue but what is their primary com-

mitment? How can detailed social science research be conducted objectively from secondary sources?

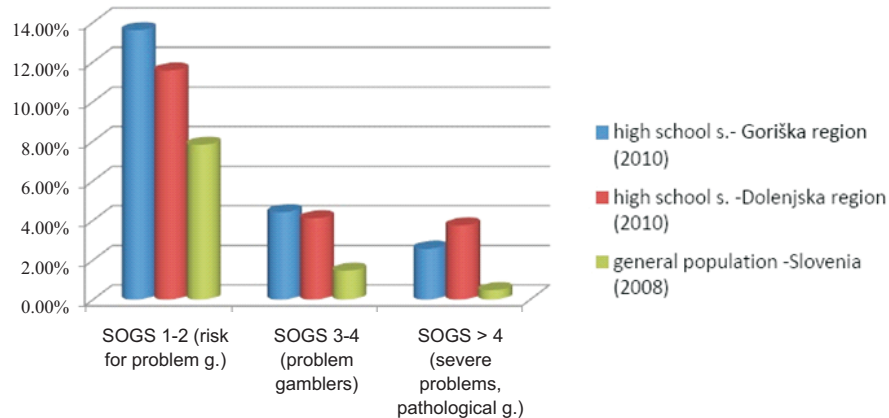


Figure 1. Problem gambling in Slovenia – High school students and general population

OR-40

Refining Internet use disorder criteria: A mixed methods study

TANIA C. MCMAHON* and DAVID J. KAVANAGH

Institute of Health and Biomedical Innovation, Brisbane, QLD, Australia

*E-mail: tania.mcmahon@qut.edu.au

Background and aims: Attempts to characterise Internet Use Disorder (IUD) have frequently focused on Pathological Gambling or Substance Use Disorder, rather than combining features or inductively deriving them from people who self-identify as having relevant problems. This paper describes a qualitative and quantitative study to test the applicability and comprehensiveness of the potential DSM-5 category. *Methods:* An online survey was conducted internationally with 2,581 participants, examining the frequency, factorial structure and relationship with distress of 14 potential IUD criteria adapted from DSM-IV and DSM-5 substance use and gambling. Qualitative interviews were conducted with 13 participants aged ≥ 16 who reported moderate to severe problems with Internet use, or endorsed ≥ 5 'Internet Use Disorder' criteria. *Results:* Twelve criteria were identified, based on strong factor loadings and ability

to discriminate respondents with high distress. Neglect of hygiene and craving emerged as two of these. Lying to others and staying online longer were recommended for removal. A cluster analysis identified a group with significant functional problems whose activities were not restricted to online gaming. A diagnostic cut-off of 6 criteria was suggested. Qualitative themes broadly supported previously identified IUD criteria, but also suggested that anhedonia, attentional changes and other features be considered. *Conclusions:* IUD criteria should include a combination of gambling, substance use, and other disorder-specific features. Inclusion of neglect of hygiene and craving and removal of lying and staying online longer should be considered. The pending publication of DSM-5 calls for refinement of criteria to be addressed in a timely manner.

OR-41

Prevalence of exercise dependence and eating disorders among clients of fitness centers in Budapest

ZSUZSA MENCZEL*, ESZTER KOVÁCS, JUDIT FARKAS, ANNA MAGI, ANDREA EISINGER, BERNADETTE KUN and ZSOLT DEMETROVICS

*Faculty of Health Sciences, Semmelweis University, Budapest, Hungary

E-mail: menczelzs@se-etk.hu

Background and aims: Exercise dependence (ED) means an extreme commitment to sport, first recognized as a disease in 1976 by Glasser. ED has a strong relationship to eating disorders (EAT), e.g. anorexia nervosa and bulimia nervosa. These consist of addictive features, such as obsessive thoughts on body image and eating – including starving and vomiting – or compulsive behaviors. The objective of the

present paper is to explore the frequency of ED and EAT, and their relationship in a sample of people attending fitness centers. *Methods:* The survey was conducted in 32 fitness centers in 2010. The final sample consisted of 1,732 subjects (58.6% females, mean age: 31.7 years of age). *Results:* Four groups were distinguished: control group (80.8%), EAT group (15.5%), ED group (1.8%), and EAT & ED group

(1.8%). Women were overrepresented in all groups ($p < .001$). In terms of sport attendance, we found that EAT group and ED group does sports about 6–10 times per week, and EAT & ED group 4 times weekly ($p < .001$) compared to the controls with 1 time. Observing the type of sport difference is indicated in doing cardio type of moving or body building ($p < .01$). A growing popularity is seen attending in

fitness centers among young people. *Conclusions:* The prevalence of ED and EAT is much higher among fitness goers, than in the normal population, and this might point out the strong link between the two symptoms. Further attention should be paid to see these phenomena separately in order to understand them more precisely.

OR-42

Video game addiction: Prevalence and correlates in a representative sample of Norwegian 17-year-olds

RUNE A. MENTZONI*, DANIEL HANSS and STÅLE PALLESEN

University of Bergen, Bergen, Hordaland, Norway, Faculty of Psychology, Department of Psychosocial Science,
The Bergen Group for Treatment Research, Bergen, Norway

*E-mail: rune.mentzoni@psysp.uib.no

Background and aims: The present study aims to investigate the prevalence of video game addiction and problematic video game use, and their associations with mental health variables, in a representative sample of Norwegian 17-year-olds. Included mental health variables were anxiety, depression, impulsivity, loneliness and aggression. *Methods:* An initial sample comprising 3,000 individuals was randomly selected from the Norwegian National Registry and contacted by mail with an invitation to participate in the survey. Individuals who chose to partake could reply by

mail or online. All participants were rewarded with a universal gift certificate of NOK200 (approximately €27). Final response rate will be presented at the conference, but at the time of submission, response rate was 66%. *Results:* Prevalence of video game addiction and problematic video game use, and their associations with mental health variables was not known at the time of submission. The results will be presented at the conference. *Conclusions:* Implications of the results will be discussed at the conference.

OR-43

Self-mutilation as a behavioural addiction in borderline personality disorder

KATALIN MERZA^{1*}, JÁNOS HARMATTA² and ILDIKÓ KURITÁRNÉ SZABÓ¹

¹Medical and Health Science Centre, University of Debrecen, Debrecen, Hungary

²Tünderhegyi Pszichoszomatikus és Pszichoterápiás Osztály, Budapest, Hungary

*E-mail: merza.katalin@sph.unideb.hu

Background and aims: Self-mutilative behaviour is regarded as a part of the addictive spectrum. In the etiology of self-mutilative behaviour childhood traumatization and trait impulsiveness play a significant role. Purpose of this presentation is 1) to identify self-mutilating and habitual self-mutilating patients in a borderline sample and 2) to assess traumatic childhood experiences and trait impulsiveness in the self-mutilating and habitual self-mutilating BPD group. *Methods:* The sample comprised of 67 psychiatric inpatients who met the criteria of borderline personality disorder assessed by the SCID-II interview. Test battery includes OSI, TAQ, ETI and BIS-11. *Results:* In this sample 43 BPD patients engaged into self-mutilation, and this group was divided into a self-mutilating ($N = 27$) and a habitual self-

mutilating ($N = 16$) subgroup. Habitual self-mutilating subjects reported extremely frequent self-mutilative acts, in this subgroup the onset of self-mutilation was earlier and the rate of analgesia was higher than in the self-mutilating subgroup. Among habitual self-mutilating patients the prevalence of childhood traumatization was significantly higher and they all have a history of childhood sexual abuse. Furthermore, habitual self-mutilating patients had higher scores on the BIS-11 than the other subgroup. *Conclusion:* In our study a relatively distinct subgroup (including habitual self-mutilating patients) was identified. Our results supported the role of trait impulsiveness and childhood traumatization in the etiology of self-mutilative behaviour.

OR-44

The influence of advertising on compulsive buying – The role of persuasion knowledge

KALINA MIKOLAJCZAK-DEGRAUWE* and MALAIKA BRENGMAN

Vrije Universiteit Brussel, Brussel, Belgium

*E-mail: kalina.mikolajczak@vub.ac.be

Background and aims: The growing concern over compulsive buying behaviour (CB) among consumers has led to vast amounts of research examining the antecedents of this maladaptive behaviour. The focus of previous research was

however mainly on examining the internal, psychological factors contributing to CB. The current research, on the other hand, sheds light on one of the external triggers which can possibly stimulate CB, namely advertising. *Methods:*

An online survey has been conducted to identify the attitudes and scepticism towards advertising, as well as ad avoidance and persuasion knowledge among a sample of 582 Belgian consumers. Furthermore, all participants were screened with regard to compulsive buying tendencies. *Results:* This research provides evidence that positive attitudes towards advertising can lead to CB. An important factor in this relation is persuasion knowledge. *Conclusions:* The study results lead to the conclusion that people higher in per-

suasion knowledge dispose less positive attitudes towards advertising which can subsequently prevent them from engaging in CB. Moreover, high scores on scepticism towards advertising and ad avoidance among Belgian consumers in the sample point to a need for advertisers to modify their practices in order to gain more trust from consumers. This study also shows that advertising in particular attracts and seems to affect an already disadvantaged group of people – namely compulsive buyers.

	Hypothesis	Test	Conclusion
Compulsive buying:			
Attitudes towards advertising	H1: positive relation	<i>Pearson r</i> .139**	confirmed
Scepticism towards advertising	H2: negative relation	-.068	not confirmed
Ad avoidance	H4: negative relation	-.058	not confirmed
Attitudes towards advertising:			
Ad avoidance	H3: negative relation	<i>Pearson r</i> -.355**	confirmed
Mediation through:			
Attitudes towards advertising	H5: PK*CB	CI_{low}/CI_{up} -.301/-.035	confirmed
Influence of advertisement via:			
TV	H6a: CB > nonCB	<i>Chi-square</i> .989	not confirmed
Magazines	H6b: CB > nonCB	.047	confirmed
Billboards	H6c: CB > nonCB	.001	confirmed
Internet	H6d: CB > nonCB	.005	confirmed

** $p < .01$ (two-tailed)

OR-45

Cognitive behavioral therapy versus telephone-guided self-help for compulsive buying

ASTRID MÜLLER*, AIMEE ARIKIAN, MARTINA DE ZWAAN and JAMES E. MITCHELL

*Hannover Medical School, Hannover, Germany; E-mail: mueller.astrid@mh-hannover.de

Background and aims: Compulsive buying (CB) is defined as extreme preoccupation with buying/shopping and frequent buying that causes substantial negative psychological, social, occupational, and financial consequences. There exists preliminary evidence that group cognitive-behavioural therapy (CBT) is effective in the treatment of CB. The present pilot study made a first attempt to compare group CBT for CB with telephone guided self-help (GSH). *Methods:* Fifty-six patients were allocated randomly to one of the three conditions: 1) group CBT ($n = 22$), 2) GSH ($n = 20$), and 3) a waiting list condition ($n = 14$). *Results:* The results indicate that face-to-face group CBT is superior not only to the waiting list condition but also to GSH. Patients who

received GSH tended to have more success in overcoming CB compared to the waiting list controls. *Conclusions:* Given the sample size the results must be considered as preliminary and further research is needed to address the topic whether GSH also could be a helpful intervention in reducing CB.

Reference

Müller, A., Arikian, A., de Zwaan, M. & Mitchell, J. E. (2012). Cognitive behavioural group therapy versus guided self-help for compulsive buying disorder: A preliminary study. *Clinical Psychology and Psychotherapy*. [Epub ahead of print] doi: 10.1002/cpp.773.

OR-46

Clinical characterization of Internet addiction: Analyses of psychopathological symptoms, level of functioning and co-morbidity in a clinical sample of treatment seekers

KAI MÜLLER*, MANFRED E. BEUTEL and KLAUS WÖLFLING

*Outpatient Clinic for Behavioral Addictions Mainz, Department of Psychosomatic Medicine and Psychotherapy at the University Medical Center of the Johannes Gutenberg-University Mainz (UMC-Mainz), Mainz, Germany
E-mail: muellka@uni-mainz.de

Background and aims: According to epidemiologic surveys reporting prevalence rates about 1%, the addictive use of the Internet (Internet Addiction, IA) has to be regarded as a growing health concern. However, there is still lack of knowledge concerning clinical features of IA, especially specific psychopathological symptoms and co-morbidity.

The aim of this contribution is to deliver a reliable clinical description of persons seeking treatment because of IA. *Methods:* Since 2008 the Outpatient Clinic for Behavioral Addictions in Germany is offering a specialized therapeutic program and diagnostics of IA. In total, 458 persons have received an initial clinical interview since then. In addition to a

standardized clinical diagnostic of symptoms of IA (e.g. craving, withdrawal, tolerance), socio-demographic characteristics, clinical questionnaires (Symptom Checklist 90R, Patient's Health Questionnaire) and expert ratings (Global Assessment of Functioning) were administered to characterize these treatment seekers. *Results:* 57% of the clients met criteria for IA. These were 23.6 years old in the average, male (95%) and without partnership (72%). SCL-90R revealed that compared to persons that did not meet criteria for IA, these patients suffered from significantly increased

psychopathological strain, especially depressive symptoms and social insecurity. Global Assessment of Functioning was significantly decreased in every domain. 47% of the patients with IA had at least one more psychiatric diagnosis, mainly affective and anxiety disorders. *Conclusions:* Analyses of this clinical sample show that IA causes remarkable psychosocial strain and is accompanied with a poorer level of functioning. Nearly half of the patients were suffering from further psychiatric disorders.

OR-47

Perceived hedonic value and perceived utilitarian value in mobile addiction

SOON JAE KWON and EMY ELYANEE MUSTAPHA*

Daegu University, Kyong San, Republic of Korea

*E-mail: elyanee@gmail.com

Background and aims: With the advancement of mobile services, mobile addiction (MA) has become more prevalent nowadays. However, the context of users' perceived hedonic and utilitarian value of mobile service is still left unexplored. Therefore, this study seeks to empirically analyze the moderating effect of MA against three constructs which are users' perceived hedonic value, perceived utilitarian value and fun experienced by using mobile service. On top of that, Technology Acceptance Model (TAM)-related constructs such as ease of use, usefulness, attitude and intention to use mobile service were also investigated. *Methods:* For this study, two steps were taken, firstly a pre-test conducted with 50 responses and followed by second test conducted by gathering 250 responses. The second test was done to prove

the proposed research hypotheses. *Results:* Statistical results revealed that compared to the low MA users, those high MA users show higher levels of perceived usefulness, perceived ease of use, and fun, leading to stronger attitudes and intention to use mobile service. Furthermore, those high MA users showed a stronger path coefficient from perceived hedonic value to perceived ease of use comparing with low MA users. On the other hand, low MA users would tend to use the utilitarian functions of mobile service, while high MA users who have already mastered the utilitarian aspects of mobile services have moved on to enjoyment of its hedonic aspects. *Conclusions:* MA is proven to show a statistically moderating effect on both TAM-related constructs and fun construct.

OR-48

Gambling in the mist of national economic bankruptcy

DANIEL THOR OLASON

Department of Psychology, University of Iceland, Reykjavik, Iceland; E-mail: dto@hi.is

Background and aims: In October 2008 the Icelandic financial system collapsed. This initiated a serious economic and social crisis, including mass unemployment and loss of capital assets. Building on earlier national gambling surveys in 2005 and 2007, a new study was conducted in 2011. *Methods:* A representative sample of 18 to 70-year-old adults was randomly selected from the national register to participate in a telephone-based survey. In total, 1,887 (response rate = 61.8%) adults completed the survey. In addition to questions regarding gambling behavior and problem gambling (Perceived Gambling Severity Index, PGSI), participants were asked about their financial situation and changes in their living conditions after the economic collapse. *Results:* In total, 76% of the adult population had gambled at least once in the preceding year and about 15% did so weekly. Comparing

gambling prevalence between studies revealed that gambling participation was more common in 2011 than in 2005 or 2007. Increased gambling was most prominent in lotto, poker, bingo and Internet gambling. Further analysis revealed that participants, who experienced financial difficulties or changes in living conditions, were more likely to buy lottery tickets than others. Prevalence of problem gambling was 0.8% (0.5–1.4%) and problematic gambling (> 3 or higher on PGSI) prevalence was 2.5%. Both figures were substantially higher than those obtained in 2005 and 2007. *Conclusions:* In general the results of the current study suggest that gambling participation and problematic gambling has increased during the economic crisis in Iceland. The potential implication of these findings will be discussed.

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The development and application of the Problematic Online Gaming Questionnaire (POGQ) and its short form (POGQ-SF)

ORSOLYA PÁPAY*, RÓBERT URBÁN, KATALIN NAGYGYÖRGY, MARK GRIFFITHS, CSILLA ÁGOSTON, JUDIT FARKAS, ZSUZSA ELEKES, TAMÁS DOMOKOS, BERNADETTE KUN, KATALIN FELVINCZI, GYÖNGYI KÖKÖNYEI and ZSOLT DEMETROVICS

*Eötvös Loránd University, Budapest, Hungary
E-mail: orsolya.papay@gmail.com

Background and aims: The increase of online gaming has led to concerns about problematic use of these games by some of its players. Several measures have been developed and applied to explore the phenomenon; however, only a few of them have been validated psychometrically. Our aims are to present the development of the 18-item Problematic Online Gaming Questionnaire (POGQ), its 12-item short form (POGQ-SF) and the prevalence of the phenomenon. *Method:* The original POGQ has been developed using an online sample of 3,415 gamers (90% males, mean age 21 years). Exploratory and confirmatory factor analyses were applied to determine the proper factor structure while latent profile analysis was applied to identify gamers at-risk. The POGQ-SF was validated on a national representative adolescent sample which consisted of 5,045 secondary school stu-

dents (51% males, mean age 16.4 years) of which 2,804 were gamers (65.4% males, mean age 16.4 years) by using pen-and-pencil method. Confirmatory factor analysis was applied to test the measurement model of problematic online gaming and latent profile analysis to identify the proportion of high-risk gamers. *Results:* In both cases a six-factor structure provided the best fit to the data. These were: preoccupation, overuse, immersion, social isolation, interpersonal conflicts, and withdrawal. 3.4% of the online gamer population and 4.6% of the adolescent population was considered to be at high risk. Another 15.2% of the online gamers and 13.3% of the adolescents were moderately problematic. *Conclusions:* Both POGQ and POGQ-SF seem to be adequate measurement tools for the assessment of gaming related problems.

OR-50

The effectiveness of an intervention for pathological gambling in South Africa

SONJA PASCHE*, HEIDI SINCLAIR, ADELE PRETORIUS, JON GRANT and DAN STEIN

South Africa; *E-mail: sonja.pasche@uct.ac.za

Background and aims: Preliminary results are presented for a country-wide evaluation of a treatment programme targeted at pathological gamblers in South Africa. There is a dearth of data regarding the effectiveness of clinical treatment for pathological gambling in South Africa, and to our knowledge this is the first study of its kind in Africa. A manualised treatment programme developed by Grant, Donahue and Odlaug (2011) was evaluated. Components of the treatment include cognitive-behavioural therapy, motivational interviewing and imaginal exposure. *Methods:* 222 participants were recruited via the National Responsible Gambling Programme. Individuals phoning the helpline, and who scored 5 or more on the Structured Clinical Interview for Pathological Gambling (SCI-PG), were included. Taking drop-out from treatment (32%) and incomplete data

(10%) into account, the analysis was confined to a sample of 128. Scores obtained on the Yale-Brown Obsessive-Compulsive Scale Adapted for Pathological Gambling (PG-YBOCS) and the Sheehan Disability Scale (SDS) were compared pre- and post-treatment. *Results:* Scores obtained on the PG-YBOCS and the Sheehan Disability Scale both decreased significantly from the first to the final session [$t(127) = 23.74, p < .001, r = .9$; $t(127) = 19.23, p < .001, r = .86$, respectively]. *Conclusions:* The urges and harmful behaviours related to pathological gambling, as well as the negative impacts on work, social and family life were significantly reduced among participants completing treatment. These preliminary results are promising for patients suffering from pathological gambling in South Africa and other low and middle income countries.

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Pathological gambling and cognitive state among methadone maintenance treatment (MMT) patients

EINAT PELES¹*, AVIV WEINSTEIN², SHAUL SCHREIBER¹, ANAT SASON¹ and MIRIAM ADELSON¹

¹Clinics for Drug Abuse Treatment and Research, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel, affiliated to the Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel

²Department of Nuclear Medicine, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel

*E-mail: einatp@tlvmc.gov.il

Background: To evaluate the Stroop interference effect and general performance (reaction times RTs) on the Stroop task among methadone maintenance treatment (MMT) patients

with pathological gambling (PG), obsessive-compulsive disorder (OCD), both PG and OCD or none. *Methods:* 86 MMT patients and 15 healthy controls underwent the Stroop

task which measured RTs of condition-related words (color, obsessive-compulsive disorder, pathological gambling, and addiction) and neutral-words. The mean RTs for responses to each condition-related word group and color Stroop score (congruent and incongruent colors and their difference as interference) were calculated and compared between groups using repeated measured multivariate analyses. *Results:* MMT patients had longer RTs on the Stroop task compared with controls. Within the MMT cohort, RTs were longer among OCD and in those who abused drugs on the study

day. The combined PG and OCD ($n = 14$) group had the longest RTs but they were also characterized as abusing more drugs, older age, and worse cognitive status. The RTs of the PG without OCD ($n = 8$) did not differ from that of MMT patients with no comorbidity. The modified condition-related Stroop interference did not show any interference effect of OCD, addiction or gambling words. *Conclusions:* MMT patients had generally longer RTs that were related to clinical OCD, drug abuse, poor cognitive state and older age. PG was not related to poor cognitive state.

OR-52

Excessive sporting as a risk? Study of substance use and mental health among high school students specializing in sports

TAMÁS PINCZÉS^{1,2*} and BETTINA PIKÓ³

¹Graduate School of Educational Sciences, University of Szeged, Szeged, Hungary

²Debrecen Sports Center, Debrecen, Hungary

³Department of Behavioral Sciences, University of Szeged, Szeged, Hungary

*E-mail: tamas050510@gmail.com

Background and aims: There are debates on the role of sports in preventing substance use and mental health problems. Some studies argue that sports can be a powerful preventive tool against substance use disorders. Other studies, however, find that among young athletes certain types of substance use, particularly alcohol drinking may occur at higher rates compared to their peers who are not engaged in regular sports activity. Our research aim was to compare substance use and mental health among adolescents in schools specializing in sports and those that have a normal curriculum. *Methods:* The data collection took place in three secondary schools in May 2012 ($N = 385$). Our research was

based on the results of a self-completed questionnaire which intended to investigate not only the socio-demographic aspects but also the students' health behavior habits and sporting features. *Results:* Our results confirm the fact that among high school students the harmful substances play an important part. In addition, not only can we find differences in terms of the different types of classes, but also there are differences between boys and girls. In particular girls specializing in sports report a higher occurrence of alcohol use and worse mental health. *Conclusions:* These results seem to draw attention to a possible role of excessive sporting in developing harmful habits and depression.

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Online gambling, online gaming and Internet overuse: Innovative approaches to assessment and treatment for transitional age youth

LISA PONT* and BRUCE BALLON

The Centre for Addiction and Mental Health (A World Health Organization and Pan American Health Organization)
University of Toronto, Toronto, Ontario, Canada; *E-mail: Lisa.Pont@camh.ca

Background and aims: Problematic Internet Use (PIU) is an issue of growing concern in our society. It is both an under-researched and under-served population. Advanced Clinical and Education Services (ACES) in the Problem Gambling Institute of Ontario at The Centre for Addiction and Mental Health (CAMH) is a pilot program that was born out of an increase in the number of clients presenting with PIU; many of whom were transitional age youth, 18–24. The aim of ACES was to respond to the specialized needs of this population. *Methods:* ACES developed and utilizes three pronged approaches to treatment; education (for parents and allied professionals), family support and individual/group counselling. This approach was based upon existing program structures for youth and best practices for treating addiction, and was modified to meet the needs of this popula-

tion. In order to build capacity to respond to this underserved population, ACES has established partnerships and delivered training across programs within CAMH and in the community where they have identified PIU as an issue for their clients. *Results:* Our treatment tools and interventions will be shared, as well as observable themes in the client population, including concurrent/co-occurring disorders such as depression, anxiety, Aspergers and other developmental difficulties. Retention rates, evaluations of training and treatment and anecdotal examples will be shared to highlight the impact of the ACES program. *Conclusions:* Thus far, the interventions offered have had positive results. ACES needs to continue to evaluate their work and the efficacy of the treatment provided.

OR-54

A periodisation analysis to see how to reduce behavioural addictions

ROBIN ELIZABETH POPE

Centre for Adaptive Behaviour and Cognition, Max Planck Institute for Human Development, Berlin, Germany
E-mail: pope@mpib-berlin.mpg.de

Background and aims: Pharmaceutical solutions are based on a static theory that behavioural addictions stem from chemical imbalances. This theory has minimal efficacy, especially in comparison with placebos, yet it means high costs for health insurers and patients, and often adverse side effects – deaths and suicides. *Methods:* This paper’s alternative solution is based on why people have common sense, and which family and socio-environmental factors enhance good decision making (good mental health). The model employs different periods with respect to 3 successive stages of knowledge and 8 associated emotions/satisfactions (see

Table). Each of the 8 emotions involves conflicts between repelling (top row) and attracting (bottom row) components. *Results:* Good decisions are learned through adequate exposure to repelling and repulsing outcomes in each of the three stages. Bad decision making stems from inadequate exposure to each phase or risk taking or to inadequate attention to those stages to be encountered in the more distant stages. The periodisation analysis will be illustrated with an example of gambling addiction. *Conclusion:* This paper suggests switching to a model of different periods which are differentiated by stages of knowledge.

Problem at time $t = -1$		Anticipated future secondary satisfactions
Pre-decision period (Act unknown)	1	Bad stress, e.g. time lost choosing, fear of choosing an act that yields a boring future, and
	2	Good stress, e.g. brain growth from the challenge of choosing
Act choice at time $t = 0$		Change in knowledge: now know which act have been chosen
Pre-outcome period (Act’s outcome unknown)	3	Fear, anxiety that one of the acts’ possible bad outcomes may come, and
	4	Thrills and hope that one of the acts’ possible good outcomes may come
	5	Depression at guaranteed bad aspects of the future, e.g. it seeming to be a boring irrelevant blur, and
	6	Joy in guaranteed good aspects of the future
Learn outcome at time $t = 1$		Change in knowledge: now know whether chosen act had a good outcome
Post-outcome period (Act’s outcome known)	7	Disappointment that one of the acts’ good outcomes did not occur, or
	8	Elation, thankfulness that one of the acts’ bad outcomes did not occur
	9	Regret and blame since rejected acts had better outcomes, or
	10	Rejoicing and praise since rejected acts had worse outcomes
	11	Bad shock by a completely unforeseen bad outcome of the act, or
	12	Good shock by a completely unforeseen good outcome of the act
New problem at time $t = 2$	1–12	Help in making next pre-decision period, choice at time $t = 3$

OR-55

Addiction model intervention for obesity, implemented as a smartphone app: A pilot study

ROBERT PRETLOW

eHealth International, Seattle, Washington, USA; E-mail: director@weigh2rock.com

Introduction: It is hypothesized that obesity is due to: 1) uncontrollable eating highly pleasurable foods as a coping mechanism (comfort eating) and 2) displacement activity (akin to nail biting) manifested by eating large amounts. Brain changes solidify the comfort and displacement activity eating, i.e. food addiction. *Methods:* A food addiction intervention was implemented as a smartphone app. Forty-four obese youth (mean BMI: 39.2), ages 10–21, 19 males, 25 females participated in an 18-week pilot study. In Phase 1 participants identified and proceeded through withdrawal from each of their problem foods. In Phase 2 participants repeatedly decreased amounts of all foods in 1/4 portion-size increments. Social networking and mentors were available via the app. An exit questionnaire was utilized. *Results:* Participants each identified 2 to 18 problem foods:

soda (59%), crisps (57%), ice cream (38%), pizza, (35%), and candy (24%). Successful withdrawal was accomplished by 89%: soda (mean 22.5 days), crisps (18.5 days), ice cream (15 days), and pizza (11 days). Weight loss resulted for 86%, mean BMI change -1.7 (-3.5% of initial BMI) at 10 weeks, dropping to -2% in the final 8 weeks, due to life traumas and reverting back to comfort eating. Problem foods withdrawal was easier than decreasing all food amounts, however, weight loss was less. Social networking and mentors were under-utilized. *Conclusion:* The addiction model appears effective as an obesity intervention. Each withdrawal increment is difficult for 2–3 days, then becomes easier, building successes. Treating psychological distress (basis of comfort eating) is necessary for sustainability.

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Eat yourself to eternity or to death? Death anxiety and food craving in obesity

SHARON RABINOVITZ

Bar-Ilan University, Ramat Gan, Israel; E-mails: sharonrs123@gmail.com; rabins@mail.biu.ac.il

Several biological and psychological similarities exist between food addiction and drug dependence including craving and uncontrolled intake. Obese individuals react to cues of high caloric food with enhanced craving and brain reward system activation. Human self-awareness and specifically awareness to the physical aspects of the human body makes individuals aware of their inevitable death. How does this knowledge influence food craving and is influenced by it? Two studies examined the association between food craving and awareness of death in obesity, through a Terror Management Theory perspective. Study 1 assessed the effects of a mortality reminder on self-reports of food craving. The findings indicate heightened craving after a mortality salience

induction in obese but not in normal-weight women. When hungry, death reminder prompted impulsive behavior and food craving. However, when satiated, death reminder prompted craving only moderately and supported self-control and delayed gratification. Study 2 examined the effect of food cue exposure on death-thought accessibility, and found it to be higher in the obese group. Hence, obese individuals primed with food cues showed elevated levels of death anxiety. Implications of terror management perspective in understanding food addiction and the relation between death anxiety and compulsive unhedonic overeating in spite of negative health consequences are discussed.

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Psychosocial risk factors of sedentary behaviour among Hungarian adolescents

FERENC MÁRVÁNYKÖVI^{1*}, JÓZSEF RÁCZ² and ÁGNES NÉMETH³

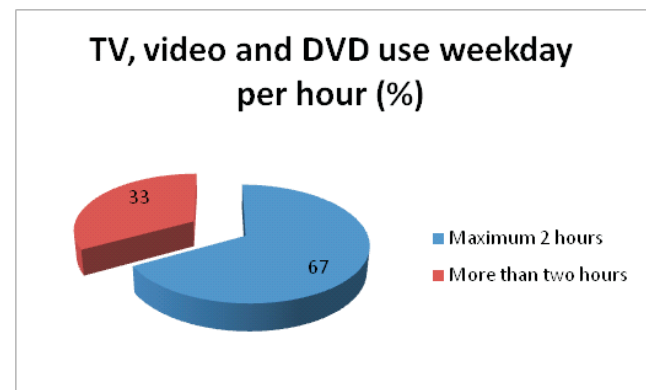
¹Drogtanulmányi és Projekt Értékelési Központ, Budapest, Hungary

²ELTE PPK Pszichológiai Intézet, Budapest, Hungary

³Országos Gyermekegészségügyi Intézet, Budapest, Hungary

*E-mail: marvanykovi@rids.hu

Background and aims: Data on Hungarian school-aged children (HBSC) suggest that Hungarian adolescents spend a great deal of their spare time by watching TV and using computers both during weekdays and at weekends. Although these figures are slightly below the EU average, there has been a considerable increase in adolescents' computer use since 2006. In addition, extensive research has found that TV viewing is an important risk factor for obesity. Therefore, the exploration of the most relevant psychosocial factors of both TV and computer use is a matter of crucial importance. Present study aims to investigate the multidimensional correlates of basic socio-demographic and psychosocial factors (family domain, peer domain, school domain, sensation seeking) and TV and internet use. Another aim is to explore a useful explanatory model for adolescent sedentary behaviour. *Methods:* Data collected during the 2010 wave of the cross national survey 'Health Behaviour in School-aged Children' (HBSC) was used for analysis on 11th-grade Hungarian students. Multivariate statistical analysis (binomial logistic regression) was carried out to analyse the data. *Results:* 33% of the sample watch TV and use computer for more than 2 hours a day during weekdays. These figures nearly double during the weekend. Incomplete family structure, mother's low economic status, living in northern Hungary, bad school performance, dislike



of school and contacting friends through phone or Internet very frequently are risk factors for watching TV more than 2 hours a day. Being a male, living in Western-Danubia and the north of the Hungarian plane, contacting friends through phone or Internet very frequently and reporting stronger depressive symptoms are determinants of playing computer games above the recommended level. *Conclusion:* Preventive strategies and messages should target economically disadvantaged and psychosocially less integrated students in tackling risky sedentary behaviour.

OR-58

Gambling and alcohol consumption of Finnish adolescents

JENNI-EMILIA RONKAINEN

National Institute for Health and Welfare, Helsinki, Finland; E-mail: jenni-emilia.ronkainen@thl.fi

The European School Survey on Alcohol and Other Drugs (ESPAD) targets adolescents and it has been conducted every four years since 1995. In 2011, the data was collected in 36 European countries. In my presentation, I will concentrate on the Finnish gambling results ($N = 3,744$). My aim is to demonstrate the connection between youth gambling and alcohol consumption. I will show time series and cross tabs, which illustrate overall trends, prevalence of youth gambling and quantity of alcohol consumption. Gambling habits differ a lot by gender among Finnish students. For example,

45% of the 15–16-year-old boys played on slot machines at least once a week when only 5% of the girls played that often. Regular gambling seemed to increase the risk of alcohol abuse in both gender groups. Heavy episodic drinking was twice as common to boys who played on slot machines at least once a week as to the control group who played less. To conclude, I will point out interesting differences between boys' and girls' gambling behavior. I will also show that risky gambling may have an impact on alcohol drinking.

OR-59

Patients with self-identified sex addiction: Comorbidity with substance use disorders and behavioral addictions – The early onset of sex addiction in a multi-addicted population

KORNELIUS ROTH

Bad Herrenalb, Germany; E-mail: info@Kornelius-Roth.de

Background and aims: Out of Control Sexual Behavior (OCSB) has been associated with and labeled among others as impulsive, compulsive, paraphilia related or addictive. Kafka (2009) conceptualized OCSB as a primarily non-paraphilic sexual desire disorder with an impulsive component and presented a proposal of inclusion in the DSM-5 as "hypersexual disorder". *Methods:* In this study a group of 17 non-paraphilic, self-identified sex addicts (15 male, 2 female; mean age 34) were selectively examined. *Results:* The results of detailed clinical screening on addiction showed 14 patients with (multiple) substance use disorders: dependency on alcohol (11), prescription drugs (7), illegal drugs (2) and nicotine (8). Three patients presented harmful use of prescription drugs. The screening for non-substance related

addictions showed bulimia nervosa (3), binge eating disorder (1) and pathological gambling (1). Five patients were without a substance use dependency, 3 patients were without any comorbidity within the addictive spectrum. It was of special interest of this study to apprehend function, interdependency and chronology of addictive usage (nicotine not included). Of 10 analyzable patients with at least one other dependency (4 cases were non-verifiable), 8 considered their sexual behavior to be their primary and earliest addiction. Addictive sexual behavior was usually provoked by emotional distress and unresolved conflicts. Alcohol intake was often connected to sex addicted behavior. It was mostly used to disinhibit sexual acting out and to cover up the guilt feeling after a sex relapse.

OR-60

Internet addictive behavior in adolescents in 7 European countries: Prevalence and related behavioral and emotional problems

TIM SCHOENMAKERS*, MARI JANIKIAN, ELENI TZAVELA, KJARTAN ÓLAFSSON, SZYMON WÓJCIK, GEORGE MACARIE, CHARA TZAVARA, CLIVE RICHARDSON, THE EU NET ADB CONSORTIUM and ARTEMIS TSITSIKA

*IVO Addiction Research Institute, Rotterdam, the Netherlands
E-mail: schoenmakers@ivo.nl

Background and aims: To investigate the prevalence of Internet addictive behavior (IAB) and related psychological and behavioral characteristics among adolescents in seven European countries (Greece, Spain, Poland, Germany, Romania, the Netherlands and Iceland). *Methods:* A cross-sectional study was conducted in a representative sample of 10th grade adolescents ($n = 13,284$; age range: 14–17, mean age 15.8) in the participating countries. A self-completed anonymous questionnaire included questions on Internet access and use, the Internet Addiction Test, and the Youth Self Report scale. *Results:* About one percent (1.2%) of adolescents exhibited IAB and an additional 12.7% was classi-

fied as being "at risk for IAB". Thus 13.9% had a dysfunctional way of using the Internet, i.e. dysfunctional Internet behavior (DIB). The prevalence of DIB was higher among boys than girls (15.2% vs. 12.7%) and it varied widely across countries. Adolescents who heavily engaged in specific online activities (e.g. gambling, social networking, gaming) at least 6 days per week had increased risk of developing DIB. DIB was associated with noteworthy behavioral and emotional maladjustment among adolescents. Multiple logistic regression analysis indicated that the educational level of the parents, age at first use of the Internet, use of social networking sites and gaming were independently asso-

ciated with DIB. *Conclusions:* Findings provide important evidence relating to further understanding the development

of Internet addictive behavior among adolescents in the studied European countries.

OR-61

Systematic review of online gaming addiction measures

KATERINA SKARUPOVA* and LUKAS BLINKA

*Faculty of Social Studies, Masaryk University, Brno, Czech Republic
E-mail: kachne@mail.muni.cz

Recent online gaming research uses variety of definitions and tools to measure its problematic forms, often referred to as excessive online gaming or online gaming addiction. The paper will present results of a systematic review of peer-reviewed quantitative research published between 2000 and 2012 with a special attention to measurements of online gaming addiction. The presentation will address topics of

conceptualization and operationalization of excessive online gaming. Several methodological limitations have been identified; issues of validity, reliability and comparability of research on online gaming addiction and related concepts will be also covered. Examples of good practice and recommendations for future work in the area will be given.

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New methods in examining sexual well-being and sexual problems

ZSUZSANNA SURÁNYI*, BALÁZS CSONKA and KRISZTINA HEVESI

*KGRE, Budapest, Hungary; E-mail: zszusanna.suranyi@gmail.com

Background and aims: Many previous sexual psychological studies have focused on the well-being linear correlates of sexual functioning. Our aim was to apply modern statistics (including non-linear analyses, person-oriented analyses) in examining sexual functioning and psychological well-being. *Methods:* Survey data has been collected from 198 university students. We have measured sexual functions (FSFI, Female Sexual Function Index, Rosen et al., 2000; IIEF, International Index of Erectile Function, Rosen et al., 1997) along with sexual arousal and desire inventory (Toledano & Pfaus, 2006) and psychological well-being (life satisfaction, Diener, Emmons, Larsen, & Griffin, 1985; positive negative affect, PANAS, Watson, Clark & Tellegen, 1988; sense of coherence, Antonovsky, 1993; Mindful Attention and Awareness Scale, MAAS, Brown & Ryan, 2003). We also included sensation seeking (Aluja, Kuhlman & Zuckerman, 2010) and spirituality (Daily Spiritual Experi-

ences, Underwood & Teresi, 2002). *Results:* A well-being component could be constituted from life satisfaction, PANAS, sense of coherence and mindfulness scales. Sexual arousal and desire and sexual function indices were both positively related to well-being ($r = .316^{**}$, $r = .292^{**}$). Spirituality and sensation seeking had no linear relation to well-being, yet spirituality was negatively related to sensation seeking ($r = -.142^{*}$), which was positively related to sexual desire ($r = .109^{**}$). We then identified five clusters. ANOVA showed that 'mid spirituality and mid sexual desire & functions' cluster had significantly higher well-being than all other groups ($F(df = 4) = 21.412$, $Sig = .000$). *Conclusions:* Traditional analyses showed positive linear relationship between sexual functioning and well-being. Our results highlight the importance of examining sexual functioning including nonlinear aspects and patterns.

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Prevalence and co-occurrence of addictions among former alternative high school youth

STEVE SUSSMAN*, THALIDA ARPAWONG, PING SUN, DONNA SPRUIJT-METZ and LOUISE A. ROHRBACH

Preventive Medicine and Institute for Health Promotion and Disease Prevention Research, University of Southern California, Los Angeles, California, USA

*E-mail: ssussma@usc.edu

Background and aims: Studies have tried to ascertain (a) prevalence of addictions and (b) co-occurrence of two or more. Previously, we provided a comprehensive review of 11 addictions (Table 1). We found that the 12-month prevalence of at least one addiction among U.S. adults averaged 47%, with a 23% co-occurrence. *Methods:* We used a multi-response item to assess these 11 addictions (Table 1), administered primarily by telephone interview to 668 former alternative (at-risk) high school youth from southern California, from 24 schools 3 years prior. Participants averaged 19.8 years, 57% were male, 65% were Hispanic, 12%

were non-Hispanic White, 23% were Other, 50% of their parents had completed high school. *Results:* Ever and last 30-day prevalence at least one addictions is 71% and 55%, respectively. Co-occurrence of two or more addictions, ever and last 30 days, is 55% and 34%, respectively. An exploratory factor analysis with varimax rotation, using the MINEIGEN criterion, resulted in four factors (variance explained = 1.87, 1.46, 1.37, and 1.08). Love, sex, exercise, and work loaded on the first factor over .40 (activity); cigarettes, alcohol, other drug use, and sex loaded on the second factor (risky behavior); binge eating, Internet addiction, and

Table 1. Prevalence and co-occurrence of addiction among former alternative high school youth

Addiction category	Time period assessed	
	Ever (%)	Last 30-day (%)
Cigarettes	22	12
Alcohol	13	5
Other drugs	26	11
Binge eating	21	11
Gambling	3	2
Internet	26	17
Shopping	16	9
Love	30	21
Sex	22	15
Exercise	25	16
Work	19	14

shopping addiction loaded on the third factor (nurturance); and only gambling loaded highly on the fourth factor (perhaps due to relatively low prevalence). *Conclusions:* These results converge with our review. Addictions may indicate a problem of lifestyle as well as person. Such high prevalence may reflect means to fulfill appetitive motives in a sedentary, modern world.

Notes to Table 1: The item these numbers were generated from is as follows: “Sometimes people have an addiction to a certain drug or other object or activity. An addiction occurs when people experience the following: they do something over and over again to try to feel good, for excitement, or to stop feeling bad; they cannot stop doing this thing, even if they wanted to; bad things happen to them or to people they care about because of what they are doing. Have you ever been addicted to the following things? Do you feel you are addicted to them now (in the last 30 days)?” Twenty-two categories of addictions were suggested with a 23rd which permitted participants to indicate an open-ended response to “any other addiction?” Expanding the number of categories to 22 addictions raises ever and last 30-day prevalence and co-occurrence to 77% and 61%, and 65% and 46%, respectively (not much higher than the 11 categories). Eleven addiction categories were the main focus of this study.

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OR-65

The common denominator of physically challenging and sedentary forms of behavioral addictions: Exercise and Internet addiction

ATTILA SZABO

Eötvös Loránd University, Budapest, Hungary
E-mail: drattilaszabo@yahoo.com

The extant scholastic literature contains voluminous publications on the topics of exercise and Internet addiction. The mass media also devotes substantial attention to these topics, because they are popular and trigger the keen interest of the general population. However, these two forms of ‘problematic behaviors’ may in fact be only the symptoms of other more specific psychological morbidities. Examination of the motives for exercise and Internet abuse is paramount in studying these exaggerated behaviors. For example, from a behaviorist perspective addiction that is fueled by negative reinforcement is an ‘obligation’ that needs to go on or else something bad will happen to the person. In contrary, positively reinforced over-involvement in exercise or Internet use, may only reflect a strong commitment rather than a pathogenic behavior. Further, the consensus-based know-

ledge should be untangled from a number of debated issues. In fact the existence of these addictive behaviors may be questioned, because nomothetic – most often questionnaire-based – research measures only susceptibility to the disorder rather than yielding a diagnosis of the morbidity. While commonalities exist between exercise and Internet addiction, in spite of the physically demanding and sedentary aspects of the two behaviors, the former may be more clearly defined in the specialist areas than Internet addiction. Indeed, the Internet is a virtual environment and addiction to an ‘environment’ is unheard of. Addiction to ‘specific behaviors’ or activities carried out on the Internet (e.g. gambling, sex, or shopping) may be more appropriate conceptualizations in the study of Internet-based exaggerated behaviors.

OR-66

Comorbid psychopathology of Internet addiction

BERT THEODOR TE WILDT*, MARION DREWS, PHILIPP SIEBRASSE and INKEN PUTZIG

*LWL University Hospital, Bochum, Germany
E-mail: berttewildt@me.com

Background and aims: As with substance related disorders, Internet addiction occurs with other psychopathological conditions. To further examine its comorbidity profile, patients with pathological Internet use (PIU) were compared to alcohol addicts and a control group. Moreover, samples of

patients with clinical depression and ADHD were screened for PIU. *Methods:* Patients fulfilling the criteria for PIU and alcohol addiction were examined with the Structured Clinical Interview according to DSM-IV (SCID). Patients with depression and ADHD were questioned about their media

use and PIU. All groups were examined psychometrically with a variety of questionnaires such as Internet Addiction Scale, Barrat Impulsiveness Scale, Symptom Checklist, Beck Depression Inventory, Connors' Adult ADHD Rating Scales and Wender-Utah-Rating-Scale. Each patient group ($n = 25$) was compared with samples of controls ($n = 25$) matching in terms of age, education and gender. *Results:* According to SCID and BDI, 19 PIU-patients (76%) suffered from a depressive syndrome. Six patients (24%) suffered from comorbid anxiety disorder. The comorbidity rate of the alcohol addicted patients was lower (44%), whereas

depression (36%) was also quite frequent. Of the primarily depressed patients 20% fulfilled the criteria for PIU. 16% of the ADHD-patients were identified as Internet addicted and 30.1% of the PIU-patients fulfilled psychometric criteria for ADHD. *Conclusions:* The finding that PIU shows common comorbid features with substance abuse disorders supports the classification as an addiction. To provide comprehensive help, comorbid psychopathology has to be addressed diagnostically and therapeutically. The role of comorbidity in the development of PIU has to be further examined in longitudinal studies.

OR-67

Cue reactivity and craving in pathological buying

PATRICK TROTZKE^{1*}, KATRIN STARCKE¹, ANYA PEDERSEN² and MATTHIAS BRAND^{1,3}

¹Department of General Psychology: Cognition, University of Duisburg-Essen, Duisburg, Germany

²Clinical Psychology and Psychotherapy, University of Muenster, Muenster, Germany

³Erwin L. Hahn Institute for Magnetic Resonance Imaging, Essen, Germany

*E-mail: patrick.trotzke@uni-due.de

Background and aims: In pathological buying, persons show recurrent, excessive buying behaviors which exceed actual requirements and lead to psychological strain. Focus of this behavior is located on the pleasantly experienced act of buying, rather than on purchasing goods. Pathological buying is classified as an impulse control disorder. Recently, it is discussed whether pathological buying shares key characteristics with other behavioral addictions. We investigated if findings on cue-reactivity and craving, reported for subjects with substance dependency and different behavioral addictions, can also be demonstrated in individuals with pathological buying. *Methods:* A cue reactivity paradigm often used in addiction research was applied to pathological buyers ($n = 22$) and matched controls. For assessing cue reactivity, subjective ratings (arousal and desire to buy) and skin conductance responses towards shopping and neutral

pictures were measured. Additionally, subjective craving-reactions for shopping were assessed before and after cue presentation. *Results:* Results indicate that pathological buyers show higher cue reactivity towards shopping pictures compared to control participants. They evaluated shopping pictures as more arousing, show a higher desire to buy, and exhibit elevated phasic responses in electrodermal activity. Furthermore, an increase of craving-reaction was detected after cue presentation in pathological buyers. Reactions towards neutral pictures did not differ between groups. *Conclusions:* Results indicate that cue-reactivity and craving seem to be related to pathological buying and might be important processes underlying the development and maintenance of this disorder. Given the parallels between pathological buying and other addictions, we argue for a classification of pathological buying as a behavioral addiction.

OR-68

Is gambling predictive of poor academic performance in university students?

CLAUDIA M. VAN DER HEIJDE^{1*}, PETER VONK¹ and FRANS J. MEIJMAN^{1,2}

¹Student Health Service, University of Amsterdam, Amsterdam, the Netherlands

²Department of General Practice & Elderly Care Medicine, VU University Medical Centre, Amsterdam, the Netherlands

*E-mail: c.m.vanderheijde@uva.nl

Background and aims: Apart from substance abuse, behavioral addictions could be hypothesized to be potentially harmful for identity formation, the establishment of intimate relationships, (mental) health and academic performance of students. The Student Health Service (UvA) developed the Student Health Check, an online self-regulation instrument for the promotion of student health, including a personalized feedback tool (the Traffic Lights project), enabling early recognition of amongst others: behavioral addictions. *Methods:* In a sample of 5,299 Dutch students (2012; from various study programs and phases; male-female proportion 32%–68%; average age 22.6, $SD = 4.32$; various living situations) we regressed academic performance (self-rated average grade) on the self-rated frequency of gambling, Internet use and buying behavior, controlling for gender, age, living

situation, high school average grade, quality of student life, satisfaction with study, smoking behavior, alcohol consumption, drug use, and physical and mental health. *Results:* At first view, from a linear regression ($R^2 = .34$ [$F(12, 4142) = 176.12$; $p = .000$]), scores on academic performance (average grade), were significantly related to self-rated frequency of gambling ($\beta = -.04$; $p = .003$), the largest amount of variance being explained by high school average grade and satisfaction with study. *Conclusions:* Further research is necessary to unravel the profiles of the various users (heavy versus occasional users; addicts versus non addicts) in terms of age, gender, study phase, living situation and the relationship with academic performance. Furthermore, we question if behavioral addictions contribute to worse academic performance in combination with substance abuse.

OR-69

Should frequent Internet use in university students be taken as a warning sign for suicidal risk?

CLAUDIA M. VAN DER HEIJDE^{1*}, PETER VONK¹ and FRANS J. MEIJMAN^{1,2}

¹Student Health Service, University of Amsterdam, Amsterdam, the Netherlands

²Department of General Practice & Elderly Care Medicine, VU University Medical Centre, Amsterdam, the Netherlands

*E-mail: c.m.vanderheijde@uva.nl

Background and aims: The Student Health Service (UvA) developed the Student Health Check, an online self-regulation instrument for the promotion of student health, including a personalized feedback tool (the Traffic Lights project). For students with a suicidal risk, early recognition of problems is extremely important. From previous studies, behavioral addictions (e.g. Internet use) appear to be related to suicidal risk, necessitating early recognition and education. *Methods:* In a sample of 5,299 Dutch students (2012; from various study programs and phases; male-female proportion 32%–68%; average age 22.6, $SD = 4.32$; various living situations) we regressed suicidal risk (SBQ-R) on the self-rated frequency of gambling, Internet use and buying behavior, controlling for gender, age, living situation, presence of handicap, quality of student life, satisfaction with study, smoking behavior, alcohol consumption, drugs use, and

physical and mental health. *Results:* From a linear regression ($R^2 = .24$ [$F(15, 1469) = 30.09; p = .000$]), scores on suicidal risk, were significantly related to the self-rated frequency of Internet use ($\beta = .06; p = .019$), the largest amount of variance being explained by physical and mental health, presence of handicap and quality of student life. *Conclusions:* Universities have to pay extra attention to education about the role of behavioral addictions with regard to suicidal risk for students. Furthermore, more advanced analyses (SEM) are needed to get a more detailed analysis into suicidal risk and behavioral addictions, also regarding various users (heavy versus occasional users; addicts versus non addicts). Furthermore, we question if behavioral addictions contribute to increased suicidal risk in combination with substance abuse.

OR-70

Online gamers in China: Internet addiction and cultural environment

SHI LU WANG, ALEXANDER E. VOISKOUNSKY* and OLGA V. MITINA

*Moscow State University, Moscow, Russian Federation

E-mail: vae-msu@mail.ru

Background and aims: The paper presents the study of Internet addiction within a sample of online gamers in mainland China. From a theoretical perspective, the Internet addiction is analyzed in terms of an ongoing conflict between Chinese traditional collectivism and the influence of Western individualism; this conflict is accelerated due to technological modernization accompanied by a rapid spread of the Internet. *Methods:* For the empirical study, a survey was administered with Chinese online gamers either online or traditionally, i.e. via paper-and-pencil. The questionnaire included 4 items on demography and gaming experience of the study participants ($N = 1574$), plus CIAS (Chinese Internet addiction scale) – 26 items measuring the Internet addiction. *Results:* The results show that the level of the Internet addic-

tion is high: 20.39% respondents were identified as addicts. Chinese online gamers face social pressure which is significant, compared to the gamers' problems with time management and psychological symptoms ($p < 0.000$); adults were more likely to get high scores on the Internet addiction scale than adolescents ($p < 0.000$); gender differences were not significant. Slight differences referring to the mode of the questionnaire presentation (online vs. paper-and-pencil) will be described in the paper. *Conclusions:* The results will be interpreted by referring to diverse attitudes of younger and older generations in the Chinese society towards the Internet use and in general – towards the trends of the Western influence.

OR-71

Measures of outcome expectancies, addiction and the use of snus

NORA WIIUM

University of Bergen, Bergen, Norway

E-mail: Nora.Wiium@psysp.uib.no

Background and aims: Swedish snus, a moist smokeless tobacco has been recommended as a safer alternative to individuals who are addicted to smoking. However, recent marked increase in the use of snus in Norway, especially among young males, may reflect another problem of addiction. As a major aim of the present study, reasons underlying the use of snus in the form of measures of outcome expectancies were studied in relation to reported frequency of snus

use. *Methods:* Data stem from a 2007 nation-wide survey in Norway among 16–20-year-olds. Only users of snus were included in the statistical analyses ($n = 589$). Frequency of snus use was measured as a categorical variable – occasional, weekly and daily use. *Results:* Four dimensions of outcome expectancies: 'mood regulation', 'smoking control', 'weight control', and 'negative health outcomes', were measured and verified in a confirmatory factor analysis. Use

of snus was found to be harmful to health, although participants supported the use of snus as a way to control own cigarette smoking. Males scored higher than females on 'mood regulation', and 'smoking control', while females scored higher than males on 'negative health outcomes'. In multivariate analysis, two of the four dimensions of outcome

expectancies: 'mood regulation' and 'smoking control', turned out to be particularly important predictors of frequency of snus use. No significant interactions with gender were found. *Conclusions:* The reliance on snus as a mood regulator or as a smoking cessation tool may cause prolonged use and addiction to the product.

OR-72

Social judgements of behavioural versus substance-related addictions

CAMERON WILD^{1*}, JODY WOLFE¹, BARNA KONKOLY THEGE², DONALD SCHOPFLOCHER³, IAN COLMAN⁴, NADY EL-GUEBALY⁵, DAVID HODGINS² and SCOTT PATTEN⁵

¹Addiction and Mental Health Research Laboratory, School of Public Health, University of Alberta, Edmonton, Canada

²Addictive Behaviours Laboratory, University of Calgary, Calgary, Canada

³Centre for Health Promotion Studies, School of Public Health, University of Alberta, Edmonton, Canada

⁴Applied Psychiatric Epidemiology Across the Lifecourse Laboratory, University of Ottawa, Ottawa, Canada

⁵Department of Psychiatry, University of Calgary, Calgary, Canada

*E-mail: cam.wild@ualberta.ca

Background and aims: Does the general public view behavioural addictions differently than substance-related addictions? *Methods:* 3,002 Canadian adults completed an online survey. Respondents initially considered 10 potential addiction problems (alcohol, tobacco, marijuana, cocaine, gambling, shopping, video gaming, eating, sex, and work). For each, they reported whether or not they (or an acquaintance) had a problem with each in the previous year, along with perceived population prevalence. Next, respondents were randomly assigned to rate one of the 10 on perceived addiction liability and the likelihood that related problems are caused by each of the 6 potential etiologic factors (e.g., character flaws, genetics). *Results:* Discriminant function analysis predicted social judgements of the 6 behavioural addictions versus the 4 substance-related addictions, using ratings of perceived addiction liability, etiologic factors, and accu-

racy of perceived population prevalence (weighted population prevalence minus perceived prevalence). Discrimination between the two types of judgements was achieved (Wilks' lambda = .875, $\chi^2(8) = 371.6, p < .001$; 68% correct classification). Correlations between predictors and the discriminant function indicated that, compared to behavioural addictions, substances were overestimated with respect to perceived population prevalence, were viewed as having more addiction liability, and were less dependent on character flaws. Results were replicated in stratified analyses comparing respondents with and without personal experience of the problem they rated. *Conclusions:* Canadian adults construe gambling, shopping, video gaming, eating, sex, and work as less addictive than substances. Problems with these behaviours are seen as less common, but more reflective of personal shortcomings.

OR-73

Coping and enhancement motives of compulsive buying and the heterogeneity of compulsive buyers

SUNGHWAN YI^{1*} and ROISIN O'CONNOR²

¹University of Guelph, Guelph, Ontario, Canada

²Concordia University, Montreal, Quebec, Canada

*E-mail: syi@uoguelph.ca

Background and aims: Compulsive buying has been predominantly viewed as chronic need of managing negative affect (e.g., O'Guinn & Faber, 1989), and this reflects a strong coping motive of buying. However, recent research on the heterogeneity of compulsive buyers (e.g., Mueller et al., 2010; Thornhill et al., 2011) indicates that compulsive buying may be driven by another major motive, which is based on positive rather than negative reinforcement (i.e., enhancement motive). Based on these findings, we propose that there may be substantial heterogeneity of compulsive buyers in the strength of coping motive and enhancement buying motive. Specifically, we hypothesize that the cluster of compulsive buyers with high coping motive may suffer more severe compulsive buying than the cluster of compulsive buyers with high enhancement motive. *Methods:* We developed the coping and enhancement buying motive

scales, and tested them with 860 individuals who frequently engage in buying lapses. *Results:* Confirmatory factor analysis confirmed the two factor structure ($\chi^2(13) = 135.69, p < .001$; CFI = .97, TLI = .94, RMSEA = .10, SRMR = .04). Nomological validity of the motive scales was satisfactory. Latent profile analysis of factor scores of the two motives identified three-clusters: the "high coping CB" cluster, the "moderate coping/enh CB" cluster, and the "low coping/enh buyer" cluster (see *Figure 1*). Furthermore, the high coping CB cluster had significantly more severe compulsive buying problems than the moderate coping/enh cluster, whereas few individuals in the low coping/enh cluster were compulsive buyers. Multinomial logistic regression showed that participants' cluster membership was significantly predicted by individual trait variables (see *Table 1*).

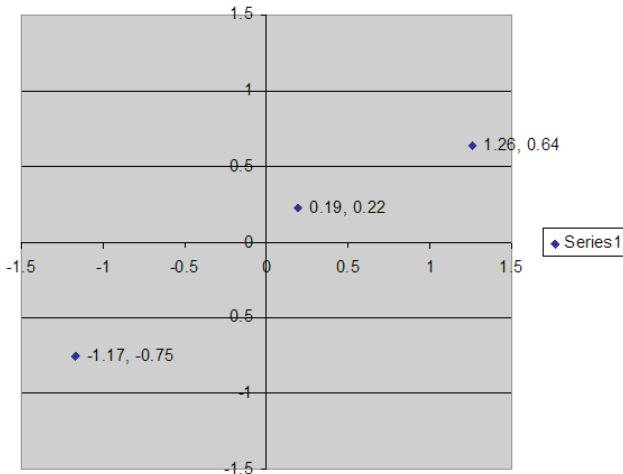


Figure 1. Three clusters of buyers extracted from latent profile analysis

Note: X axis refers to coping motive factor score, while Y axis refers to enhancement motive factor score. The location of the three clusters refers to the means of the two factor scores

Table 1. Results of multinomial logistic regression

(a) DV: Likelihood of being in the “high coping CB” cluster versus the “moderate coping/enh CB” cluster			
Predictors	B	t	p
Covert narcissism	1.38	2.79	.01
Overt narcissism	0.01	0.02	.98
Covert narcissism by overt narcissism (interaction)	0.79	1.95	.05
Materialism	-0.43	-1.24	.22
Trait self-control	-0.11	-0.36	.72
(b) DV: Likelihood of being the “moderate coping/enh CB” cluster versus the “low coping/enh CB” cluster			
Predictors	B	t	p
Covert narcissism	0.80	2.46	.001
Overt narcissism	1.20	1.69	.001
Covert narcissism by overt narcissism (interaction)	0.29	1.85	.06
Materialism	1.20	4.43	.001
Trait self-control	0.12	0.53	.60

Note: Covert narcissism was measured with Hypersensitive Narcissism [HSNS] (Hendin & Cheek, 1997), overt narcissism with Narcissistic Personality Index [NPI] (Raskin & Terry, 1988), materialism with Materialism Value Scale [MVS] (Richins, 2004), and trait self-control with Trait Self-Control scale [TSC] (Tangney, Baumeister & Boone, 2004).

OR-74

The activation of reward versus relief gambling outcome expectancies in regular gamblers

SUNGHWAN YI¹*, PAM COLLINS², MELISSA STEWART² and SHERRY STEWART²

¹University of Guelph, Guelph, Ontario, Canada

²Dalhousie University, Halifax, Nova Scotia, Canada

*E-mail: syi@uoguelph.ca

Background and aims: We tested whether the activation of different types of positive gambling outcome expectancies (GOE; i.e., learned memory associations between gambling cues, behavior, and outcomes) varies by an individual’s gambling motives. We hypothesized that the activation of reward GOEs (e.g., excitement) would be especially strong in enhancement-motivated gamblers, whereas the activation of relief GOEs (e.g., relaxation) would be especially strong in coping-motivated gamblers. Furthermore, we hypothesized that enhancement and coping gambling motives would moderate the effects of reward and relief GOEs, respectively, on gambling behavior. *Methods:* Fifty adult, community-recruited regular gamblers completed the Gambling Timeline Followback (Weinstock et al., 2004) to assess money risked and time spent gambling, and the Gambling Motives Questionnaire (Stewart & Zack, 2008) to assess coping and enhancement gambling motives. Then they en-

gaged in a GOE reaction time (RT) task measuring speed of response to reward and relief GOE targets immediately after being primed by gambling versus control (i.e., track-and-field) pictures. We used a 2 (gambling motive: high or low enhancement [or coping]) by 2 (prime type: gambling vs. control images) by 2 (target type: reward vs. relief words) mixed factorial design, with gambling motives group as the between-subjects factor and primes and targets as within-subject factors. *Results:* As hypothesized, reward GOEs were more strongly activated than relief outcome expectancies for gamblers with high enhancement motives. Moreover, both amount risked and time spent gambling were significantly predicted by the enhancement motives × reward GOE interaction. *Conclusions:* Results suggest that automatic activation of reward GOEs is particularly strong for enhancement-motivated gamblers.

OR-75

Two facets of narcissism and compulsive buying

SUNGHWAN YI

University of Guelph, Guelph, Ontario, Canada; E-mail: syi@uoguelph.ca

Background and aims: Although the association between narcissistic personality and compulsive buying has been posited (e.g., Krueger, 1988), there is still a dearth of empirical research on the issue. According to recent research on

narcissistic personality and pathology (Pincus & Lukowitsky, 2010), narcissism consists of two related but distinct facets. While overt narcissism is characterized by entitled attitudes, an inflated self-image without requisite ac-

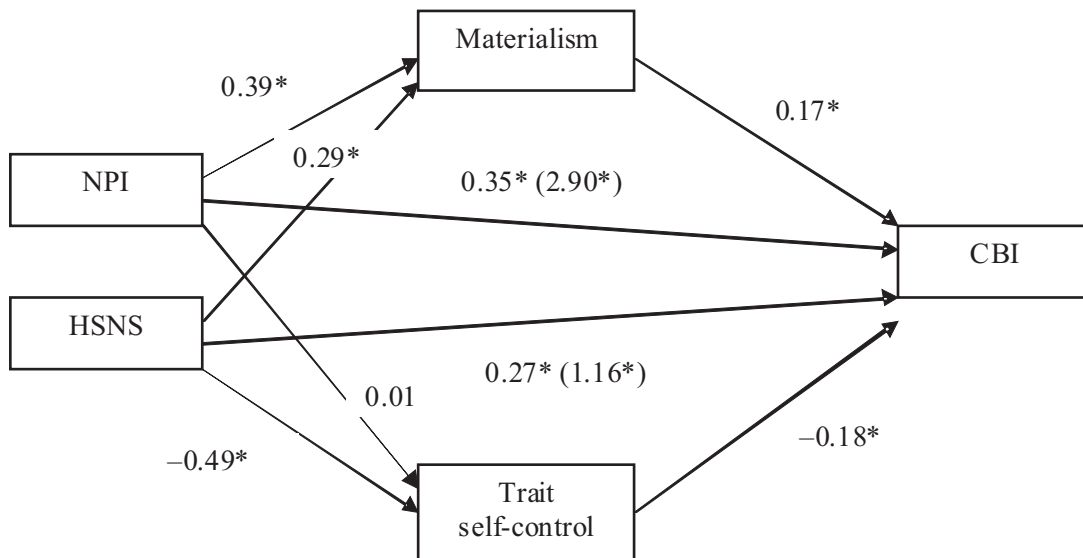


Figure 1. Path model that does not include the NPI by HSNS interaction term

Note: The path coefficients are standardized regression coefficients. The value in parentheses is the indirect effects; * $p < .05$. HSNS = Hendin and Cheek’s (1997) Hypersensitive narcissism scale; Materialism = Richins’s (2004) Materialism scale; CBI = Ridgway et al.’s (2008) Compulsive Buying Index. HSNS and NPI were mean-centered before forming the interaction term.

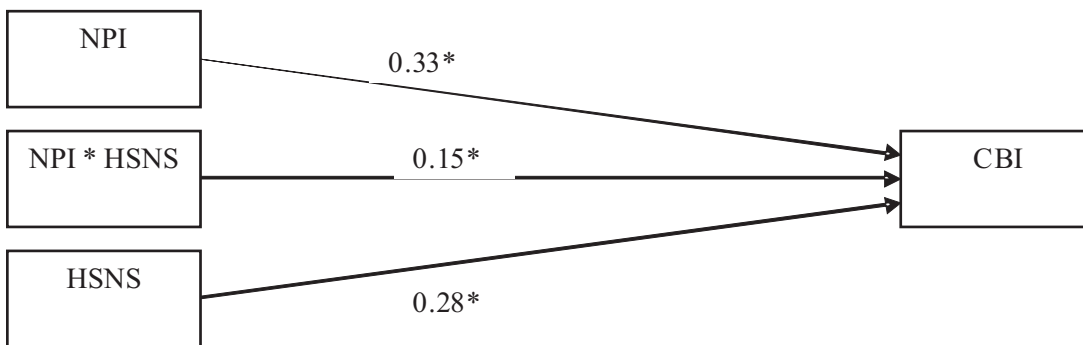


Figure 2. Regression model that includes the NPI by HSNS interaction term

Note: The path coefficients are standardized regression coefficients. The value in parentheses is the indirect effects; * $p < .05$. HSNS and NPI were mean-centered before forming the interaction term. R-square = 0.52; all VIF values were smaller than 1.5.

complishments and skills, as well as fantasizing omnipotence and superiority, hypersensitive narcissism is associated with privately holding inflated and perfectionistic fantasies of what one ought to be or achieve while feeling self-doubt and intense shame about not being able to fulfill them. Unfortunately, extant research has only focused on overt narcissism in compulsive buying, ignoring the contribution of hypersensitive narcissism on compulsive buying (Rose, 2007). We fill this gap in this manuscript by simultaneously assessing the association between hypersensitive narcissism *vis-à-vis* overt narcissism and compulsive buying. We hypothesize that both overt narcissism and hypersensitive narcissism have positive association with com-

pulsive buying. Furthermore, we hypothesize that the two facets of narcissism have the multiplicative effect on compulsive buying severity. Lastly, we hypothesize that materialism significantly mediates the association between overt narcissism and compulsive buying, whereas trait self-control mediates the association between hypersensitive narcissism and compulsive buying. *Methods:* These hypotheses were tested based on a large survey data from individuals who frequently engage in buying lapses ($N = 860$), of which 40% exceeded Faber and O’Guinn’s (1993) diagnostic cut-off for compulsive buying. All the hypotheses received strong support. Clinical implications are discussed.

OR-76

Behavioral addictions in euthymic bi-polar outpatients and matched normal controls

ADA H. ZOHAR*, RAN SAPIR, YAMIMA OSHER, YULY BERSUDSKY and HAIM BELMAKER

*Ruppin Academic Center, Emek Hefer, Israel; E-mail: adaz@ruppin.ac.il

Background and aims: Bi-polar disorder (BPD) resembles the emotional roller-coaster of addiction. The dopaminergic reward-sensitive-system driving behavioral addictions resembles the etiology of BPD. We hypothesize that BPD patients would have a different personality profile as measured by the temperament and character inventory (TCI) and a higher rate of behavioral addictions. *Methods:* Fifty euthymic BPD outpatients completed the TCI and the behavioral addictions scale (BAS). The BAS asks about addiction to: caffeine, chocolate, shopping, romantic love, music, Internet, work, and exercise (benign addictions) and about addiction to: smoking, alcohol, drugs, and gambling (harmful addictions). A demographically matched group of normal controls completed the questionnaires as well. *Results:* In personality, the BPD group was significantly higher in

harm avoidance, a temperament trait associated with many anxiety and mood disorders. In behavioral addictions, the control group reported a higher level of addiction to alcohol and drugs than the BPD group, and the BPD group reported a higher level of addiction to smoking, Internet, shopping, and music. The temperament trait of novelty seeking was positively associated with BAS, while the character traits of self-directedness and cooperativeness were negatively correlated with BAS. *Conclusions:* Personality plays a role in risk for – and protection from – BAS in BPD patients as well as in normal controls. Euthymic, medically compliant BPD patients are relatively low on harmful addictions, although their propensity to benign addictions may indicate a general vulnerability to BAS, which might be more dominant if treatment were less successful.

POSTER PRESENTATIONS

PO-01

Does exposure to sexually explicit films predict sexual activity of the in-school youth? Evidence from Addis Ababa high schools

LIOUL B. ALEMIE

Jageillonian University, Krakow, Poland; E-mail: lioulba@yahoo.com

Background and aims: Sexually explicit media depict sexual behaviors, acts or that expose the reproductive organs of the human body through movies, Internet, etc. Nowadays, exposure of urban youth, particularly to visual media of such content is argued to be a factor leading to early and risky sexual behavior. Our objective was to assess magnitude of exposure to sexually explicit films and the role of this exposure and related factors as predictors of in-school youth sexual activity. *Methods:* A cross-sectional study was conducted among 810 randomly selected students drawn from 18 Addis Ababa high schools. A structured, pre-tested, self-administered questionnaire was used to collect data on socio-demographic, behavioral factors and data related to exposure to sexually explicit films from March 11–15, 2008. *Results:* More than two-thirds (69.5%) of the participants

have watched sexually explicit films at least once. Watching such films often was major predictor of sexual activity among in-school youth with AOR 7.97 (95% C.I. = 3.19–19.86). Students from public schools and those who consume alcohol were more than twice as much likely to be sexually active while likelihood increased 3 and 4 times among those who chew khat frequently and those who have ever had a boy/girlfriend, respectively. Students who live with their parents and close relatives were less likely to be sexually active. *Conclusions:* Frequent exposure to sexually explicit films, alcohol, and khat consumption, were factors linked with sexual activity of the in-school youth. Developing criticizing skill of students' on sexually explicit films and encouraging parental guidance to decrease exposure to such films were recommended.

PO-02

Gamblers: Are they all the same?

GAËLLE BOUJU*, JEAN-BENOIT HARDOUIN, MARTHYLLE LAGADEC, LUCIA ROMO, MARC VALLEUR, DAVID MAGALON, MARC AURIACOMBE, ISABELLE CHEREAU-BOUDET, MICHEL REYNAUD, JULIE CAILLON, JEAN-LUC VENISSE and MARIE GRALL-BRONNEC

*Behavioral Addictions Federative Institute, University Hospital of Nantes, Nantes, France; E-mail: gaelle.bouju@chu-nantes.fr

Background and aims: Until now, international literature on the development and maintenance of pathological gambling was mostly focused on individual or environmental factors, leaving behind the object of addiction: the gambling activity itself. The objective of this study was to compare gamblers' profiles and gambling practices depending on their preferred gambling activity. *Methods:* The 622 participants were recruited in gambling places, in care centers and by press. Pure chance games ($n = 356$) included slot machines, video lottery terminals, scratch cards and lotteries. Games with an element of skill ($n = 266$) included black jack, horse racing and sports betting for bank games ($n = 188$) and poker for social games ($n = 78$). *Results:* First results indicated that gamblers of pure chance games were more often women, had experienced more traumatic events and suicide attempts, with

a clinical profile of anxiety disorders. They were characterized by a higher belief in luck and a higher tendency to reward dependence. At the opposite, gamblers of games with skill were more often men, with a higher tendency to seek novelty and more substance-related disorders. Gamblers of bank games were characterized by a higher frequency of gambling and problem gambling, with a predominant "chasing" profile, while poker gamblers were characterized by an earlier onset of gambling with a quicker access to care, a higher part of income invested in gambling and a higher tendency to gamble on the Internet. *Conclusions:* Beyond simple differences in profiles, our clinical impression is that the preferred gambling activity influences the effectiveness of care and of preventive action at multiple levels.

PO-03

Stock market addictions: Myth or reality?

JULIE CAILLON*, GAELLE BOUJU, JEAN-LUC VENISSE and MARIE GRALL-BRONNEC

*Behavioral Addictions Federative Institute, Hospital of Nantes, Nantes, France; E-mail: julie.caillon@chu-nantes.fr

Background and aims: The recent stock market crash has highlighted the dangers of trading on the stock market and the risk of financial losses. At the same time, many people have made an appointment with our hospital because of the loss of control of their trading on the stock exchange. Our objective was to summarize the state of research on stock market addiction and describe clinical cases from our practice to discuss their implications for research, treatment and prevention. *Methods:* Literature review from the keywords “addiction, trading, stock market, stock exchange” on three scientific databases (PsycINFO, PubMed, Francis) and study of clinical cases from our practice. *Results:* Literature

on the subject is very low. No study offers specific treatment strategy and prevention while features are found in these patients. The study of our clinical case reveals important similarities with pathological gambling in terms of diagnosis, course and comorbidities. *Conclusions:* Several observations and recommendations can be made: 1) conduct research on the subject, 2) develop and validate specific diagnostic tools, 3) develop strategies for treatment and prevention adapted to this population, 4) study more specifically comorbidities and the course of gamblers on the stock exchange.

PO-04

Risk and protective factors associated with problematic smartphone use in university students

SAM-WOOK CHOI*, JUNG YEON MOK, HYUN SOO KIM, KYE-SEONG LEE and HAE-KOOK LEE

*Gangnam Eulji Hospital, Eulji University, Seoul, Republic of Korea; E-mail: peaceinu@hanmail.net

Background and aims: Although smartphones have brought convenience and many entertaining features in daily life, excessive use and danger of addiction should be considered as risky aspects of smartphone usage. This research aimed to investigate differences of psychological and addiction related features between normal and problematic smartphone users. In addition, this study also aimed to find out whether characteristic strength and resilience could function as protective factors on smartphone addiction. *Methods:* A total of 297 university students (male = 106, female = 191) from three different regions in Korea participated in this research. A questionnaire consisted of Smartphone Addiction Scale, Internet Addiction Test, Beck Depression Inventory, State-Trait Anxiety Inventory-2, Alcohol Use Disorder Identification Test, Fagerstrom Test for Nicotine Depend-

ence, Character Strength Test and Connor–Davidson Resilience Scale were used as a measurement tools. *Results:* Smartphone addiction high-risk users not only had greater vulnerability on alcohol and Internet addiction than normal users ($p < .01$), but they also had higher anxiety level than the normal user group ($p < .05$). Furthermore, it was found that self-efficacy-tolerance-recovery (resilience) and temperance (characteristic strength) were influencing protective factors on 5 subtypes of smartphone addiction ($p < .05$). *Conclusions:* People who have high level of self-efficacy, tolerance and power of recovery or people who can control their immediate urges tend to enjoy smartphone use rather than to become addicted to it. These findings on protective factors of smartphone usage would contribute to prevent addiction and maintain healthy smart-life.

PO-05

Musicorexia: Conceptual analysis and the test of musical activity addiction

MARIANO CHÓLIZ* and GUILLERMO DALIA

*University of Valencia, Valencia, Spain; E-mail: choliz@uv.es

Background and aims: For many years, psychotherapists specialized in psychological interventions for musicians, have treated scenic anxiety and other performance problems. Therapists have found clinical evidence for a special form of addictive disorder. When some musicians are unable to play music, get irritable and anxious, some of them even express motor stereotypes (like if they were playing), or are uneasy about the waste of time because they were not rehearsing or practicing. All these facts prevent them from enjoying other aspects of the life, resulting in them being in good mood solely when they can devote to playing the instrument. This behavior is very frequent the presence of associated troubles, such as discomfort, family problems, etc. This pattern of behavior is similar to many others behavioral addictions (such as pathological gambling, Internet addic-

tion, etc.). The addiction to play music could be named Musicorexia. *Methods:* A questionnaire to evaluate Musicorexia was developed based on the substance dependence criteria of DSM-IV-TR. Such questionnaire was administered to 433 musicians. Reliability and factor analysis were carried out. *Results:* The questionnaire of Musicorexia is highly reliable (Cronbach’s alpha = .90), and has five factors which represent the main criteria for addiction of musical activity: a) Use the music as a negative reinforcer; b) Withdrawal syndrome; c) Family problems; d) Interference with other activities; and e) Difficulty in controlling the impulse. *Conclusions:* Conceptual analysis of music-playing addiction, the questionnaire of Musicorexia and its psychometric features are shown.

PO-06

Dimensions of impulsivity in technological addictions

MARIANO CHÓLIZ* and CLARA MARCO

*University of Valencia, Valencia, Spain; E-mail: choliz@uv.es

Background and aims: Addictions related to technology (Internet, mobile and video games) are the most recent behavioral addictions, which are particularly relevant in youth and adolescence. One of the most relevant characteristics of technological addiction is the difficulty to stop the behavior, or engage in some alternative activity when Internet, mobile or video games are present; i.e., the difficulty in controlling impulsivity. *Methods:* This study analyzes the main dimensions of impulsivity (urgency, premeditation, perseverance and sensation seeking) in 1,796 people (addicts and non-addicts to technologies) aged 13 to 30 years old. *Results:*

Statistical differences are found between addicts and non-addicts in urgency (mobile and Internet addiction). In the case of video game addiction, differences are also found in the sensation-seeking dimension. Special attention is paid to gender differences. *Conclusions:* Impulsivity is one of the most relevant characteristics of technological addictions. However, the various dimensions of impulsivity have different relevance, depending on the specific pattern of addiction, in each case. We make specific recommendations for controlling impulsivity in each technological addiction.

PO-07

**Inhibition and chasing behaviors in simulated slot machine play:
The role of near-miss outcomes**

GAËTAN DEVOS*, MARLENA KAZIMIERCZUK, LUKE CLARK and JOËL BILLIEUX

*Catholic University of Louvain-la-Neuve, Louvain-la-Neuve, Belgium; E-mail: gaetan.devos@uclouvain.be

Background and aims: It is established that gambling 'near-miss' outcomes (i.e. losing narrowly in a game of chance) promote persistent play. Although there have been recent advances in understanding the neurobiological responses to gambling near-misses, the psychological mechanisms involved in these events remain unclear. Recently, it has been shown (by using a laboratory slot machine task to deliver wins, near-misses and losses) that near-misses were more frequently perceived by problematic gamblers as an indicator of a future success (Chase & Clark, 2010; Clark et al., 2009). In addition, a study by Billieux et al. (2012) using the same task highlighted that "irrational" beliefs (e.g., beliefs that skills are involved in games of chances) predicted

both the subjective desire to play again after a near-miss and the persistence of gambling behavior. The aim of the present study was to explore the role of inhibitory capacities in gambling persistence on the simulated slot machine task. While impaired inhibition is implicated in case-control studies in pathological gambling, no studies have examined how inhibitory capacities moderate gambling behavior. *Results:* Preliminary results demonstrate that lower inhibition predicted a greater desire to play again after both wins and near-misses, as well as a tendency to persist in the game in the face of loss (i.e. chasing behavior). Further analysis will determine the extent to which irrational beliefs and inhibition capacities interact to predict persistent playing.

PO-08

Different meanings of body dissatisfaction for males and females

PAULA ELOSU

University of Basque Country, San Sebastian, Spain

E-mail: paula.elosua@ehu.es

Background and aims: Body dissatisfaction and eating disorders studies have traditionally focused on women and therefore most of the psychometric measures and self-reported questionnaires for assessing them have been designed for females. However, as interest in assessing the male population increases, the question arises as to the validity of evaluating male disorders with questionnaires designed for women. This problem is directly related to the validity of the psychological measures; in other words it affects the equivalence of the meaning of scores across gender. The aim of this work was to assess the factorial invariance across gender of two scales related to Body Dissatisfaction in order to evaluate the psychometric and substantive equiv-

alence of scores. *Methods:* The sample comprised of 1,616 adolescent males and 1,429 adolescent females. The scales, Body Dissatisfaction and Drive to Thinness, were derived from the Eating Disorder Inventory-3. *Results:* The results showed full invariance for the Drive to Thinness scale items, and partial invariance for Body Dissatisfaction scale items. The content analysis of the items confirmed that items related to the perception of thighs, stomach and hips showed differential functioning across gender. *Conclusions:* Different representation of the body dissatisfaction construct was concluded. Assessment and interpretation of body dissatisfaction in male samples with questionnaires designed for women should be treated with caution.

PO-09

Psychometric properties of the DSM-IV-MR-J questionnaire, and prevalence estimates of problem gambling behavior in a national sample of adolescents in Hungary

ÁRON GYEPESI*, ÁGOSTON GYOLLAI, RÓBERT URBÁN, TAMÁS DOMOKOS, ZSUZSANNA ELEKES and ZSOLT DEMETROVICS

Institute of Psychology, Eötvös Loránd University, Budapest, Hungary; *E-mail: gyepsi@gmail.com

Background and aims: Prevalence rates of problematic gambling vary not only regionally, but also across ages. Rates are 4–5 times higher among adolescents than among adults. Problematic adolescent gambling is related to truancy, poorer academic achievement, delinquency, depression, suicide ideation and attempts. The main aim of our study was to collect nationally representative data on adolescent gambling in Hungary. *Methods:* Data collection took place as a part of the European School Survey Project on Alcohol and Other Drugs (ESPAD). ESPAD offers comparable data on substance use among 15–16-year-old students. DSM-IV-MR-J questionnaire measures past year problematic gambling in a self-report form. Nine items measure the relevant DSM-IV criteria: preoccupation, tolerance, loss of control, withdrawal, escape, chasing, lies, unsocial acts and the risking of education or relationships. *Results:* Results

showed good internal consistency (Cronbach's alpha 0.815); confirmatory factor analysis confirmed one-factor structure of the questionnaire (RMSEA = 0.020 [90% CI = 0.016–0.023]; CFI = 0.99; TLI = 0.99; $\chi^2 = 11031.84$; $df = 36$, $p < 0.01$). Past year prevalence of problematic gambling was 2.6%. Gambling was more popular among boys. Grade points average was significantly lower, age was significantly higher in the problematic gamblers' group. They reported more suicide attempts. *Conclusions:* This was the first nationally representative study on adolescent gambling in Hungary. Psychometric properties of the questionnaire proved to be good. Prevalence-rates are similar to those reported from other European countries. Considering severe long-term social, economic, familial and psychological effects of adolescent problem gambling, we emphasize the importance of further research in the field.

PO-10

Attentional and motivational aspects of the processing of body stimuli in patients with eating disorders

STEFANIE HORNDASCH¹*, HARTMUT HEINRICH^{1,2}, OLIVER KRATZ¹ and GUNTHER H. MOLL¹

¹Department of Child and Adolescent Mental Health, University Clinic Erlangen, Erlangen, Germany

²Heckscher Clinic, Munich, Germany

*E-mail: stefanie.horndasch@uk-erlangen.de

Background and aims: In eating disorders (EDs), aspects of attention towards information on weight and shape and motivational salience of such information are discussed. The aim of this study was to assess reactions towards body stimuli of different weight categories in adolescent girls with EDs in comparison to typically developing (TD) girls: we investigated visual attention via eye tracking and the Late Positive Potential (LPP) as a possible indicator of motivated attention towards disease-specific pictures. *Methods:* Girls with an ED – anorexia nervosa (AN) and bulimia nervosa – and TD adolescent girls (aged 12 to 18 years) viewed pictures of underweight, normal-weight and overweight women while eye movements and EEG activity were recorded. Fixation duration within different body areas and two time windows of the LPP (450–680 ms and

850–1250 ms after stimulus onset) were examined for different picture categories. *Results:* Eye movements: all girls attended more to specific body parts (e.g. hips, upper legs), eating-disordered girls showed an attentional bias towards unclothed body parts. Late Positive Potential: for AN patients, as opposed to TD girls, highest LPP amplitudes for underweight women in the earlier as well as in the later time window were found. *Conclusions:* Increased visual attention towards unclothed body parts in eating-disordered adolescent girls could be a marker for overevaluation of shape and weight. A differential LPP pattern for girls with AN and TD girls may reflect motivational significance of strongly underweight body shapes. The different methods therefore illustrate two facets of attentional and motivational processing of disease-specific information.

PO-11

Does self-referential processing in the precuneus trigger the urge to neutralize in the insula? Evidence from thought-action fusion induction in sub-clinical obsessive-compulsive participants

RHIANNON JONES¹* and JOYDEEP BHATTACHARYA²

¹Department of Psychology, University of Westminster, London, United Kingdom

²Department of Psychology, Goldsmiths, University of London, London, United Kingdom

*E-mail: r.jones1@westminster.ac.uk

Background and aims: “Thought–Action Fusion”, or TAF, refers to the belief that thoughts and actions are inextricably linked. In Likelihood-TAF, commonly found in obses-

sive-compulsive disorder, an individual believes that thinking of a catastrophic event makes it more likely to occur in reality. This leads to intense feelings of anxiety and guilt,

and the urge to “neutralize”. We previously demonstrated that the urge to neutralize following TAF-induction is positively correlated with activity in the left anterior insula, suggesting a neural similarity between urge to neutralize and cravings in addiction (Jones & Bhattacharya, 2012). *Methods*: EEG was recorded from participants with High ($N=25$) and Low ($N=24$) levels of obsessive-compulsive (OC) traits during TAF-induction. *Results*: Immediately follow-

ing the TAF-induction manipulation, High-OC participants showed significantly greater high frequency activity in the precuneus than Low-OC participants, that correlated with magnitude of induced TAF. *Conclusions*: These results suggest that TAF is accompanied first by increased activation of the precuneus, possibly reflecting self-referential processing, which is then followed by urge-related activation of the insula.

PO-12

Relationship between regulation of positive emotion and problematic Internet use among adolescents

GYÖNGYI KÖKÖNYEI*, JUDIT FARKAS, RÓBERT URBÁN, ANNA MAGI, ANDREA EISINGER
and ZSOLT DEMETROVICS

Budapest, Hungary; *E-mail: kokonyei@gmail.com

Background and aims: Both motivation theory and neurobiology of addiction highlight the importance of impaired affect regulation in the development and maintenance of addiction. The main purpose of our study was to investigate the relationship between rumination and dampening of positive emotions and problematic Internet use among adolescents. We hypothesized that these regulation strategies will uniquely predict problematic Internet use even controlling for sensation seeking as a robust predictor of addiction. *Methods*: Data were collected from 224 adolescents (aged from 15 to 21, 62.5% female) attending high school. The Responses to Positive Affect Scale (Feldman et al., 2008), the Brief Problematic Internet Use Questionnaire (PIUQ; Koronczai et al., 2011) and the Brief Sensation Seeking Scale (Hoyle et al., 2002) were administered. Hierarchical linear regression analysis and general linear model for de-

tecting interaction between regulation strategies and sensation seeking were applied. *Results*: Dampening positively, while self-focused positive rumination negatively predicted the Obsession factor and the total score of the PIUQ even controlling for gender, age, parental education and sensation seeking. There was an interaction between self-focused positive rumination and sensation seeking: namely, high sensation seeking with low self-focused positive rumination resulted the highest score on the facets of the PIUQ. *Conclusions*: These findings suggest that self-focused positive rumination – as rumination on aspects of self and pursuit of personally relevant goals – can be a protective factor in behavioral addiction. These findings also indicate that deficits in regulation of positive emotions – such as dampening – need further studies.

PO-13

Cognitive control functions in pathological gambling: General or specific impairments?

ANJA KRÄPLIN*, RENÉ MAYER, THOMAS GOSCHKE and GERHARD BÜHRINGER

*Addiction Research Unit, Dresden, Germany; E-mail: kraeplin@psychologie.tu-dresden.de

Background and aims: Recent studies demonstrated associations between pathological gambling (PG) and impaired cognitive control functions. Furthermore, research on latent variables indicated that cognitive control can be decomposed into a set of distinct control mechanisms. Accordingly, we aimed to identify which mechanisms of cognitive control are specifically impaired in PG. *Methods*: A group of subjects with PG (according DSM-IV) and a matched control group ($n=20$ per group; age: 18–53 years) were examined using a comprehensive task battery to assess the following cognitive control mechanisms: inhibitory control, goal maintenance, anticipation of future outcomes and con-

flict monitoring. We hypothesized that subjects with PG show specific impairments in inhibitory control and anticipation of future outcomes. *Results*: There was a significant group difference in inhibitory control (Cohen's $d=.50$) and conflict monitoring (Cohen's $d=.54$). However, PG did not show impaired performance in goal maintenance and anticipation of future outcomes. *Conclusions*: Results suggest that PG do not show general impairments in cognitive control functions, but specific patterns. The results are relevant for the development of etiological models and for improving prevention and treatment strategies.

PO-14

Sexuality and addiction: All impulsive?

MARTHILLE LAGADEC*, FRANÇOIS-XAVIER POUDAT, JEAN-LUC VENISSE and MARIE GRALL-BRONNEC

*Department of Addictology, Behavioral Addictions Federative Institute, University Hospital of Nantes, Nantes, France
E-mail: marthille.lagadecsautob@chu-nantes.fr

Background and aims: According to Goodman, sexual addiction is considered as a loss of control on the growing

practice of sexuality and a continuation of the behavior despite negative consequences and suffering of the individual.

The person becomes submissive to his sexuality, tilting it in the register of need rather than desire. But this concept is the subject of controversies because it is also associated with paraphilias, obsessive-compulsive disorders and impulse control disorders. Impulsivity appears to be an essential variable to be taken into consideration during the initial evaluation of a sex-addict. The aim of this study was to measure the score for 4 impulsivity-related traits (Urgency, lack of Premeditation, lack of Perseverance and Sensation seeking) in a sample group of sex-addicts, and to highlight any links with certain elements of clinical data. *Methods:* The

UPPS Impulsive Behaviour Scale was administered in a systematic multi-axial assessment to French sex addicts in seeking treatment. *Results:* Preliminary results indicated that the score for the urgency facet (likely to express strong reactions) is closest to the maximum value. It appeared that participants displayed different clinical profiles according to the level and type of impulsivity. Data are being studied, therefore the final results will be discussed during communication and compared with those of the international literature.

PO-15

Problematic video game use: Is there a difference of severity of the practice between patients consulting for the first time in their life and patients who have consulting before?

JULIETTE LÉBOUCHER*, BRUNO ROCHER, MARTHYLLE LAGADEC, JULIE CAILLON,
JEAN-LUC VENISSE and MARIE GRALL-BRONNEC

*Department of Addictology, Behavioral Addictions Federative Institute, University Hospital of Nantes, Nantes, France
E-mail: juliette.leboucher@chu-nantes.fr

Background and aims: Patients seeking treatment in a specialist unit for problematic video game use have not all the same history of care. There are patients consulting for the first time and those who have consulted for this issue before. The objective of this study was to investigate, in a cohort of patients with problematic video game use, the difference of severity of the practice between patients who had a psychological help before (group 1) and the ones who had not have (group 2). *Methods:* The variables to evaluate the severity of the problem were the score from the Problem Video game Playing (PVP) questionnaire of Tejeiro and the degrees of impact of the practice on five domains of the life of the

patients (social life, family life, work/studies, mood, health/well-being). These data were collected during a systematic and standardized assessment of the patients at the beginning of their care. *Results:* Preliminary results showed that concerning the impact of the video game practice, patients of group 2 always had a higher (i.e. worse) score than patients of group 1, except for the health/well-being domain. The average score of these five domains is also higher in group 2 than in group 1. However, the PVP score is almost similar in both groups, but data are still being collected and the final results will be presented at the conference.

PO-16

Rate of Internet addiction among methadone maintenance treatment (MMT) patients

SHIRLEY LINZY, EINAT PELES*, ANAT SASON and MIRIAM ADELSON

*Tel Aviv Sourasky Medical Center affiliated to the Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel
E-mail: einatp@tlvmc.gov.il

Background and aims: As drug addiction shows vulnerability and predisposition to behavioral addictions, we evaluated Internet addiction among methadone maintenance treatment (MMT) patients. *Methods:* 143 non-selective patients from Las Vegas MMT clinic were studied using Internet Addiction Test (IAT) and CES-D for depression. Drugs in urines during the month prior to study administration, demographic variables and addiction history were taken from patients' charts. *Results:* 55.2% were males, aged 41.4 ± 14.3 . Of the whole group, none scored = 80 which would be suggestive of Internet addiction. Three patients (2.1%) scored 50–79 suggesting occasionally frequent problem due to Internet, 46 (31.9%) scored 20–49 suggesting spending long time before the computer but controlled Internet use on average, 58 (40.3%) scored < 20 reflecting no Internet problem at all. For 37 (25.7%) patients the IAT questions were not relevant.

Mean IAT was higher among men than women (14.5 ± 14.8 vs. 9.7 ± 12.6 , $p = 0.05$), among urine tested positive for cocaine (21.1 ± 20.9 vs. 11.7 ± 13.2 , $p = 0.03$) and for opiates (17.4 ± 15.9 vs. 11.4 ± 13.5 , $p = 0.05$) with a trend for cannabis (16.9 ± 18.2 vs. 11.4 ± 12.8 , $p = 0.07$). Mean CES-D was 28.7 ± 1.2 among the 3 scored 50–79 in IAT as compared to 18.9 ± 11.2 of all other patients ($p = 0.1$). CES-D score was higher among urine tested positive for benzodiazepine (23.2 ± 10.8 vs. 17.5 ± 11.0 , $p = 0.01$) and as a trend for amphetamines (23.3 ± 11.5 vs. 18.3 ± 11.0 , $p = 0.06$). Neither IAT nor CES-D was related to age, duration in MMT, education, and marital status. *Conclusions:* Internet was not used by 25% of MMT patients, and among the others Internet addiction problem is rare, but when present, it is accompanied by higher depression score.

PO-17

Compulsive buying behaviour in Hungarian shopping malls

ANIKÓ MARÁZ*, ANDREA EISINGER, RÓBERT URBÁN, BERNADETTE KUN, BORBÁLA PAKSI
and ZSOLT DEMETROVICS

Institute of Psychology, PPK, Eötvös Loránd University, Budapest, Hungary; *E-mail: aniko.maraz@ppk.elte.hu

Background and aims: The aim of the current study was to explore the prevalence of compulsive buying (CB) in Hungarian shopping centres and study the demographical and psychological factors beyond the behaviour. *Methods:* We systematically approached over 24,000 customers of 4 different shopping malls. 1,251 people filled out the Questionnaire of Addictive Buying Behaviour by e-mail. *Results:* 3.03% of the participants appeared to be compulsive buyers and shopped at least on a weekly basis. No difference was found between compulsive buyers (CBers) and non-com-

pulsive buyers (non-CBers) regarding age, gender and level of education. However, CBers appeared to over-estimate their actual income. Pathological buyers scored higher on personal distress, depression, anxiety and obsessive-compulsive symptoms than non-CBers. *Conclusions:* The prevalence of CB in stores is 3.03% which is 3 times higher than in the general population. CB is independent from the major demographical factors and reflects inner feelings and emotions.

PO-18

Disulfiram in the treatment of pathological gambling?

JOCHEN MUTSCHLER*, MARTIN GROSSHANS, KARL MANN and FALK KIEFER

*Psychiatric University Hospital, Zurich, Switzerland; E-mail: jochen.mutschler@puk.zh.ch

Background and aims: Pathological gambling and comorbid alcohol dependence are commonly co-occurring diseases, with serious consequences for social and mental health. Disulfiram is one of the proven drugs for alcohol dependence. It was shown recently, that disulfiram is also effective in relapse prevention of cocaine addiction. In addition to its inhibiting effect of the acetaldehyde dehydrogenase (ADH), disulfiram inhibits the dopamine β -hydroxylase (DBH) and thereby augments dopamine and depletes norepinephrine concentrations in CNS in both, animals and humans. Previous research indicates common neurochemical substrates for pathological gambling and cocaine addiction. This suggests that dopamine substrates may directly govern the reinforcement process in pathological gambling. *Methods:* In this report we now present the clinical data of a patient who was treated with disulfiram in our outpatient unit for addic-

tion treatment due to existing alcohol dependence. The patient suffered also from severe pathological gambling. *Results:* Initially we started to treat the patient with supervised disulfiram because of his alcohol dependence. During the treatment with disulfiram the patient's desire for gambling disappeared entirely and he has not gambled ever since. *Conclusions:* The exact mechanism of action by which disulfiram reduces urge to gamble is not yet fully understood. Because craving is a key contributor to relapse, strategies aimed at modulate dopamine increases are likely to be therapeutically beneficial in gambling. Although uncontrolled case observations can only be interpreted with caution disulfiram seems to deserve further investigation and may hold the potential for preventing relapse in gamblers suffering from additional alcohol dependence.

PO-19

A comparison of impulsivity and sensation seeking in pathological gamblers and skydivers

HELGA MYRSETH*, RENATE TVERÅ, CAMILLA LINDGREN, SUSANNE HAGATUN and RUNE A. MENTZONI

*University of Bergen, Bergen, Norway; E-mail: Helga.Myrseth@psysp.uib.no

Background and aims: Previous research indicates that personality factors such as impulsivity and sensation seeking may be associated with both extreme sports and pathological gambling. The aim of the present study was to explore possible differences in impulsivity and sensation seeking between pathological gamblers and skydivers compared to controls. *Methods:* The Eysenck Impulsivity Scale and the Arnett Inventory of Sensation Seeking were administered to pathological gamblers ($n = 29$), skydivers ($n = 93$), and a control group ($n = 43$). A two-way multivariate analysis of variance was conducted to explore differences in impulsivity and sensation seeking between the groups and possible group by gender and group by age interaction effects. *Results:* The results showed significant main effects of Group, Gender and Age, and a significant Group by Gender interaction effect.

The results showed no statistically significant differences in impulsivity between pathological gamblers and skydivers; however, both groups scored higher than the controls. The skydivers scored higher compared to the pathological gamblers and controls on both sensation seeking subscales. Pathological gamblers scored higher than the controls on the subscale Need for Stimulus Intensity, although lower than the controls on the subscale Need for Novelty. *Conclusions:* We conclude that skydivers are characterised by more sensation seeking compared to pathological gamblers, but skydivers and pathological gamblers do not seem to differ in terms of impulsivity. Skydiving, as opposed to pathological gambling, is not considered a psychiatric disorder, and skydiving may represent a more non-pathological way to fulfill the need for stimulus intensity.

PO-20

Intact implicit learning and consolidation in patients with chronic alcoholism

DEZSŐ NÉMETH^{1*}, ANIKÓ HORVÁTH², ZOLTÁN BUJDOSÓ² and KAROLINA JANACSEK¹

¹Eötvös Loránd University, Budapest, Hungary

²Gálfi Béla Hospital, Pomáz, Hungary

*E-mail: nemethd@gmail.com

Background and aims: Chronic alcoholism is known to impair the functioning of short-term and long-term explicit memory functions (e.g., working and episodic memory). Nevertheless, characterization of implicit/non-conscious memory and learning processes in alcoholic patients has received little attention so far, despite its potential clinical relevance. The goal of the present study was therefore to determine whether alcoholic patients, who were abstinent for at least 3 weeks and received treatment, were able to acquire complex new sequential knowledge implicitly. *Methods:* Fifteen patients and 12 controls, matched on age, gender and education, participated in the study. Implicit learning and its retention after a 24-hour delay was measured by the alternating Serial Reaction Time (ASRT) Task. In addition, we administered verbal fluency and listening span tasks to

examine working memory and executive functions. *Results:* We found that both groups showed similar sequence-specific learning in the learning phase. Consolidation of the acquired knowledge was also intact in the alcoholic group. In contrast, alcoholic patients showed decreased performance on fluency and listening span tasks. *Conclusions:* These results suggest that chronic alcoholism may affect brain regions connected to explicit memory processes (e.g., frontal, mediotemporal areas) while subcortical structures (e.g., basal ganglia) mediating implicit learning processes are less influenced. These findings can help to design more effective rehabilitation programs relying more on implicit learning abilities in order to change alcohol consuming behavior in the long-term.

PO-21

The advantages of e-learning training within a university-based training programme on excessive gambling

SOPHIE NUNWEILER-HARDEGGER*, MÉLINA ANDRONICOS, HUGO BABEL, JÉRÉMIE BLASER, CHERYL DICKSON and OLIVIER SIMON

Centre for Excessive Gambling, Community Psychiatry Service, Vaud University Hospital

(Centre Hospitalier Universitaire Vaudois; CHUV), Lausanne, Switzerland

*E-mail: Sophie.Nunweiler@chuv.ch

Background and aims: Within Switzerland, new gambling legislation has necessitated the development of specialist support services. Social measures within gambling venues are also legally required. In order to meet these demands, the CHUV and the University of Lausanne have developed a Certificate of Advanced Studies (CAS). The programme, entitled “excessive gambling: prevention, treatment and community action” includes 6 modules of lectures, presentations, and workshops. Students also participate in an e-learning platform, and undertake therapeutic work with a so-called “virtual patient”. During the programme a tutor is responsible for overseeing the participants’ academic progress. The current presentation will describe these interactive e-learning tools and examine their advantages within a classical training programme on addictology. *Results:* The first

CAS cohort (2009–2011) included an average of 14 participants. Satisfaction questionnaires were completed at the end of training. These indicated that e-learning training was positively appraised by participants. Its ease of use and opportunities to individualise the training were particularly appreciated. The second cohort started in November 2012. Following this, further evaluation will be conducted to confirm our findings and enable enhancement of training tools. *Conclusion:* Despite the high cost and amount of resources required for their development, e-learning tools are proven to be effective. Moreover, they offer diverse possibilities for dissemination and use. In order to receive optimal benefits they should be integrated into an effective curriculum and accompanied by a personal tutoring system.

PO-22

Psychometric evaluation of the 7-item Game Addiction Scale (GAS)

DANIEL THOR OLASON*, EGGERT JÓHANN ÁRNASON and JÓHANNES SVAN ÓLAFSSON

Department of Psychology, University of Iceland, Reykjavik, Iceland; *E-mail: dto@hi.is

Background and aims: Recent studies in Iceland suggest that video game playing is very common among youth. Furthermore, the potential negative consequences of video game playing have generated considerable interest in public discussion and lately by researchers worldwide. However, the availability of instruments measuring potential video

game addiction is scarce. The main aim of this study was to evaluate the psychometric properties of the Icelandic version of the 7-item Game Addiction Scale (Lemmens, Valkenburg & Peter, 2009). *Methods:* Data was collected in two separate samples. Firstly, 220 upper secondary school students answered a questionnaire including GAS and ques-

tions on gaming during class. Secondly, 297 students at the University of Iceland answered a similar Internet based questionnaire. *Results:* In total, about 80% of students in both samples played video games, and video gaming was more common among males than females. Psychometric analysis of the GAS revealed satisfactory reliabilities ($\alpha = .83$ to $.86$) and in both samples a one-factor solution was

found best describing the variance in items of the GAS. Further analysis also revealed expected correlations with gaming behavior, such as frequency and time spent playing video games. *Conclusions:* In general, the results of the current study suggest that the Icelandic version of the GAS-short version has acceptable psychometric properties, concurring with the original scale.

PO-23

Which factors are associated with excessive exercise in a cohort of French outpatients with eating disorders?

MORGANE ROUSSELET^{1,2*}, SYLVAIN LAMBERT¹, BRUNO ROCHER¹, GAËLLE BOUJU^{1,2}, JULIETTE LÉBOUCHER¹, JEAN-LUC VENISSE¹ and MARIE GRALL-BRONNEC^{1,2}

¹Department of Addictology, Behavioral Addictions Federative Institute, University Hospital of Nantes, Nantes, France

²EA 4275 Biostatistics, Pharmacoepidemiology and Subjective Measures in Health Sciences, University of Nantes, Nantes, France

*E-mail: morgane.rousselet@chu-nantes.fr

Background and aims: Although excessive exercise (EE) is often associated with eating disorders (ED), little is known about its prevalence in this population. Depending on studies, prevalence varies from 30% to 80%. These results are mainly due to the lack of consensus on the definition of EE. According to several authors, EE has received disproportionately little attention up to now. Indeed, EE is involved in the aetiology, development and maintenance of ED. It is also associated with higher levels of ED symptoms and higher risk of relapse. The objective of this study was to investigate the prevalence and the characteristics associated with EE in a cohort of patients with ED. *Methods:* Data were collected from a systematic and standardized assessment of outpa-

tients with ED (anorexia nervosa, bulimia nervosa, binge eating disorders and eating disorders not otherwise specified) at the beginning of specific treatment. The cohort began in September 2012. *Results:* Preliminary results showed that gym activities and running were the most frequently reported exercises. The reasons of EE were: to lose weight / not to gain weight, to control body shape and to regulate negative emotions. EE was often present before the onset or at the start of ED. It was associated with earlier age at the onset of ED, lower body mass index and higher scores at the Eating Disorder Inventory (drive for thinness, bulimia, ineffectiveness). Results will be discussed based on international literature and our own clinical practice.

PO-24

The occupational engagement of addicted multi-player online gamers

JING SHI* and BONNIE KIRSH

*University of Toronto, Toronto, Canada; E-mail: j.shi@mail.utoronto.ca

Background and aims: Occupational issues arise when people who are engaged in online gaming neglect other areas of their lives such as school, work, and social activities (Griffiths, Davies & Chappell, 2004). A full appreciation of the impact of online gaming on the occupational lives of individuals has not been attained. Through the lens of occupational science, a holistic view of the individuals' occupations will be addressed. Our present aim is to gain an understanding of the occupational lives of addicted multi-player online gamers. *Methods:* This study is an explanatory sequential mixed methods design. A survey will be distributed in Toronto and Vancouver to collect socio-demographic

and gaming habit data using the Program Video Game Playing Scale (Salguero & Moran, 2002). Addicted Online gamers will then be purposefully selected from the survey participants to take part in semi-structured interviews in order to delve further into their occupational lives ($n = 20$). The participants selected for the interviews will also keep an activity log for 2 weeks to keep track of video game playing and other activities of daily living. *Results:* Taking part in excessive online gaming activities may negatively impact other important occupations in an individual's life which will have implications for assuming societal roles, and ultimately impacts society as a whole.

PO-25

Clinical profile and psychiatric co-morbidity of treatment-seeking individuals with pathological gambling

HEIDI SINCLAIR*, DAN STEIN, SONJA PASCHE and ADELE PRETORIUS

*University of Cape Town, Cape Town, South Africa; E-mail: heidi.sinclair@uct.ac.za

Background: Pathological gambling is a prevalent and disabling mental illness, which is frequently associated with mood, anxiety, and substance use disorders. However, there is relatively little data on comorbidity in pathological gambling from low and middle income countries such as South

Africa. *Methods:* The Mini-International Neuropsychiatric Interview (MINI) was used to assess the frequency of DSM-IV-TR disorders among 100 female and 100 male treatment-seeking individuals with pathological gambling in South Africa. The Sheehan Disability Scales were used to

assess functional impairment. *Results:* In a South African sample of individuals with pathological gambling, the most frequent current comorbid psychiatric disorders were major depressive disorder (28%), anxiety disorder (25.5%) and substance use disorder (10.5%). Almost half of the participants had a lifetime diagnosis of major depressive disorder (46%). Female pathological gamblers were significantly

more likely to be diagnosed with a co-morbid major depressive disorder or generalised anxiety disorder than their male counterparts. *Conclusions:* Data from South Africa are consistent with previously published data from high income countries. Psychiatric co-morbidity is common among individuals with pathological gambling.

PO-26

Examination of potential new protective factors against problematic video game use: Gaming motives, goals in life and parental rearing behavior

MÁTÉ SMOHAI* and ZSUZSANNA MIRNICS

*Faculty of Education and Psychology, Eötvös Loránd University, Budapest, Hungary
E-mail: smohabasketball@gmail.com

Background: Several researchers have been concerned about the potential for some people to demonstrate problematic patterns of video game usage. The aim of our study was to examine gaming motives, goals in life and parental rearing behavior as potential protective factors against problematic video game use. *Methods:* A total of 2,846 Hungarian adolescent regular video game players (66% males, mean age 16 years) were recruited through secondary schools. Questionnaires were completed online during computing classes. Correlational methods were applied. *Results:* All types of video game play motives were positively related,

while importance of intrinsic goals in life (e.g. personal growth) were weakly, negatively and significantly related, to problematic use of video games. Among different parental rearing behaviors: warmth negatively, rejection and overprotection were positively and significantly related to problematic play. *Conclusions:* Our results show the importance of intrinsic goals in life and parental rearing related to problematic video game play. High parental warmth, low rejection and even low overprotection could help adolescents not to develop problematic use of video games.

PO-27

Is Internet addiction a psychopathological condition distinct from pathological gambling?

FEDERICO TONIONI, MARIANNA MAZZA*, GIANNA AUTULLO, ROBERTA CAPPELLUTI, VALERIA CATALANO, GIUSEPPE MARANO, VALERIO FIUMANA, CLAUDIA MOSCHETTI, FLAMINIA ALIMONTI and CARLO LAI

*Catholic University of Sacred Heart of Rome, Rome, Italy; E-mail: mariannamazza@hotmail.com

Background and aims: In the present study, we aimed to test whether Internet addiction disorder (IAD) patients present different psychological symptoms, temperamental traits, coping, emotional and relational patterns, compared to pathological gambling disorder (PGD). *Methods:* We compared 3 groups (IAD, PGD and Control) collected in 2011 and 2012, in a psychiatric service for IAD and PGD in a university policlinic in Italy. Two clinical groups participated in the study, 31 IAD patients (age: 24.7 ± 11.4) and 11 PGD patients (age: 31.6 ± 9.5) and a control group (38 healthy subjects age: 27.2 ± 10.4). We assessed anxiety, depression, coping, alexithymia, attachment, temperaments and characters scales, and global assessment of functioning. *Results:*

Results showed significantly ($p < .05$) higher levels of alexithymia and impulsivity in both clinical groups than in control group. Furthermore, IAD patients showed significantly ($p < .05$) lower cooperativity, use of instrumental social support, planning, and higher level of mental disengagement and denial. Moreover, IAD patients showed significantly ($p < .05$) higher level of alienation, and lower level of trust and communication in parents and peers than controls. *Conclusions:* Notwithstanding Internet addiction and pathological gambling presented similar clinical symptoms data suggest that IAD patients show a major social and relational impairments compared to pathological gambling.

PO-28

Trichotillomania as difficulties to diagnose in dermatology

ENIKŐ TELEGDY

Markusovszky Hospital Nonprofit Zrt., Szombathely, Hungary
E-mail: telegdy.eniko@markusovszky.hu

The impairment and distress due to trichotillomania should not be underestimated. It is often difficult to diagnose the disease as it can show different clinical pictures. Trichotillomania can be associated with serious sociological and

psychological effects (e.g. strong feelings of shame and embarrassment, as well as avoidance behaviour including potentially dangerous avoidance of medical care). It can easily lead to significant decline in quality of life for patients and

their family. There is often violence or abuse in the background, but the disorder may also be associated with other problems such as mental retardation, schizophrenia, autism or drug abuse. When the diagnosis is confirmed, further difficulty could be the management of the family or surround-

ing people. The authors present different cases from their praxis, with different clinical pictures, history and treatment differences. For the effective treatment in collaboration with the family, help of psychologist or psychiatrist is required.

PO-29

The association between suicidality and Internet addiction and activities in Taiwanese adolescents

CHENG-FANG YEN

Department of Psychiatry, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan
Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan
E-mail: chfaye@cc.kmu.edu.tw

Background and aims: The aims of this cross-sectional study were to examine the association of Internet addiction and activities with suicidal ideation and attempt in a large representative Taiwanese adolescent population. *Methods:* 9,510 students aged 12–18 years were selected by stratified random sampling strategy in Southern Taiwan and completed the questionnaires. The five questions from the Kiddie Schedule for Affective Disorders and Schizophrenia were used to inquire the participants' suicidal ideation and attempt in the past one month. The Chen Internet Addiction Scale was used to assess participants' Internet addiction. Family support, depression, and self-esteem were evaluated by the Family APGAR Index, the Center for Epidemiological Studies Depression Scale, and the Rosenberg Self-Esteem Scale, respectively. The association of suicidal ideation and attempt with Internet addiction and activities were examined using logistic regression analysis. *Results:*

After controlling for the effects of demographic characteristics, depression, family support and self-esteem, Internet addiction was significantly associated with suicidal ideation (odds ratio [OR] = 1.25; 95% CI = 1.08, 1.44) and suicidal attempt (OR = 1.59; 95% CI = 1.29, 1.96). Online gaming, MSN, online searching for information, and online studying were associated with increased risk of suicidal ideation. While online gaming, chatting, watching movie, shopping, and gambling were associated with increased risk of suicidal attempt, watching online news was associated with reduced risk of suicidal attempt. *Conclusions:* The results of this study indicated that adolescents with Internet addiction have higher risks of suicidal ideation and attempt than those without. Meanwhile, different kinds of Internet activities have various associations with the risks of suicidal ideation and attempt.

PO-30

Clinical features of treatment seeking video game players

CORALIE ZUMWALD*, STÉPHANIE MÜLLER, CHERYL DICKSON, AUDE PITTET,
STÉPHANIE HOURIET and OLIVIER SIMON

Centre for Excessive Gambling, Community Psychiatry Service, Vaud University Hospital
(Centre Hospitalier Universitaire Vaudois; CHUV), Lausanne, Switzerland
*E-mail: Coralie.Zumwald@chuv.ch

Background and aims: Within Switzerland, Internet users seeking specialised treatment are usually referred to gambling addiction services. The Centre du Jeu Excessif (CJE) is a specialised gambling addiction service in Lausanne University Hospital. Between 2003 and 2012 the service received 75 adults seeking treatment for Internet disorders. This included video gaming (57), sexual contents (8), shopping (8) and others (2). According to international literature, Internet disorder treatment programmes have been developed. However, little is known about the socio-demographic and clinical profile of users seeking treatment. Studies into Internet or gaming disorders typically employ internet survey methods or use student samples. The current presentation will outline demographic and clinical features of video gamers receiving treatment at the CJE. *Method:* Data were

collected from the medical records of 57 video gamers seeking treatment at the CJE between 2003 and 2012. *Results:* The sample includes 93% men, mostly single (91%), with an average age of 25 years ± 7 . On average the sample spent 9 hours ± 5 per day playing video games. A disorder had emerged an average of 3 years ago ± 3 . The crisis preceding the first consultation was familial (50%), emotional (29%) or professional (16%). 65% of the sample had a mood disorder and 20% reported suicidal ideations. *Conclusions:* Our results suggest that the treatments should address comorbidities and family problems associated with video game disorders. Further research is needed to evaluate clinical features of individuals with Internet disorders. Studies should include clinical and general population samples.