The questions remains: Should these major studies results have an impact on treatment options in psychiatry?

Symposium: Excessive gambling in a hedonistic society

S51.01

Pathological, problem and at-risk gambling in German- and Italian-speaking Switzerland assessed with a DSM-IV-based instrument

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The purpose of the study was to assess prevalence rates of pathological, problem and at-risk gambling in German- and Italian-speaking Switzerland in 2007, employing a DSM-IV-based instrument. A random sample of 4997 individuals participated in a computer-assisted telephone interview and 1388 of the individuals who refused to participate on the telephone interview completed a paper questionnaire. The total sample included 6385 participants; the return rate was 52.2%. Among the general population over 18 years of age, 2% engaged in lifetime at-risk gambling, 0.5% in problematic and 0.3% in pathological gambling. We found past-year prevalence rates of 0.7% of at-risk gambling, 0.1% for problematic and 0.02% for pathological gambling. These rates are lower than rates in previous Swiss studies. This may be due to measures to reduce false positive diagnoses such as employing the National Opinion Research Center DSM Screen for Gambling Problems (NODS) instead of the previously used SOGS, an instrument which was found to overestimate prevalence rates in general population up to 50%.

S51.02

Prevalence of pathological gambling in Switzerland: A replication study

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This survey aimed to evaluate the prevalence of pathological gambling in the Swiss adult population in 2005 and the link between pathological gambling and alcohol abuse. This replication study made it possible to compare the prevalence rates of pathological gambling measured before and after the introduction of casinos and new preventive legislation in Switzerland.

Method: Two thousand eight hundred and three telephone interviews were completed using a standardized assessment instrument for identifying problem and pathological gamblers (SOGS) and alcohol abuse (CAGE).

Results: In Switzerland, the past year prevalence rates were 0.8% for problem gambling and 0.5% for pathological gambling in 2005. No relationship was found between alcohol abuse and gambling behaviour. The past-year prevalence of problem and pathological gambling did not change between 1998 and 2005.

When comparing the percentage of '' problem gamblers'' (levels 2 + 3) who probably have an alcohol problem found in 1998 with that found in 2005, results show a statistically significant difference [$\chi 2=4.1$; $p<.05$]. This important change may be related to the fact that slot machines were then present in public bars where alcohol was more readily available, without the controls of the preventive measures implemented in all Swiss casinos after 2002.

Conclusions: Despite widespread openings of casinos in Switzerland since 2002, the prevalence estimates of past-year disordered gambling have remained stable.

S51.03

Prevention of gambling behavior in Switzerland

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Background and Aim: The present study addresses the empirical basis for alerting health professionals to potential risk factors for excessive gambling. On the basis of international and Swiss literature on gambling, an explanatory model for the development of gambling problems is developed.

Hypotheses: This work is based on the hypothesis that the prediction rule for excessive gambling, based on a sample of the general population and for different types of frequent gambling preferences, differs from the prediction rule for disordered gambling in patients, seeking psychiatric treatment. The goal of this study is, therefore, to contribute to an early identification of disordered gambling behaviour in the general population, as well as in the target group of patients seeking psychiatric treatment.

Sources of Data: Various sources of information were analysed separately, in order to develop and test a prediction rule for excessive gambling, namely the 2002 Swiss Health Survey, which is a survey of the general population, involving 19'706 participants, as well as the data of psychiatric patients of the Lausanne/Geneva - region, recruited consecutively from 1996 to 2004 at the Psychiatric Hospital of the University of Lausanne. This patient population comprised a total of 886 patients. Further data from the Centre for Excessive Gambling in Lausanne are presented, covering 105 patients.

Outcomes: Results show that indicators of depressive behaviour as well as smoking are good candidates for the early identification of gambling problems. On the basis of these data it is safe to assume that signs of depressive behaviour should encourage health professionals to enquire about gambling problems.

S51.04

Neurophysiological and neuropsychiatric aspects of pathological gambling

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We will provide a general overview on neurophysiological aspects of pathological gambling, a form of nonsubstance addiction, including evidence that dopamine neurons of the ventral midbrain are activated by reward uncertainity. Dopamine in the state of excessive gambling may reinforce its addictive properties.

In addition, we will present neuropsychological evidence demonstrating that pathological gambling is related to a deficit in impulse control associated with attention deficit that impairs concentration, executive functions, and especially memory. The relationship between anxiety and selective disturbances in the visuo-spatial memory will finally be considered under the point of view of the cognitive competition hypothesis.

Further, we will present our actual project in which we investigate whether these pathological gambling-related deficits will have an influence on spatial memorization capacities as a function of anticipated reward.

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S51.05

Treatment-seeking gamblers and Parkinson's disease: Case reports

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Pathological gambling (PG) is a rare but well-established behavioural disorders of Parkinson's disease (PD) patients treated with dopamine agonist. We investigate the chronological relationship between PD and diagnosis of PG within treatment-seeking gamblers.

Sample and Methods: From 174 consecutively admitted pathological gamblers we identified 4 patients with PD. Standardized medical records include socio-demographic characteristics, past gaming behaviours and gambling-treatment modalities as well as the evolution of PD and the pro-dopaminergic medication history.

Results: All four patients developed PG after the onset of PD treatment. Three patients described a period of chronic exposure to gaming facilities years before and after onset of pro-dopaminergic treatment, with occasional or regular gambling, but without a compulsive component. In one patient, PG appeared suddenly without any previous gaming behaviour after the onset of medication. Despite a high treatment motivation, gambling specific cognitive therapy was unsuccessful.(c) Implication for the Field

The relationship between PD and PG appears to be complex: Confounders such as psychosocial factors or increase in accessibility of gambling opportunities may account for these findings. This case series confirm that pro-dopaminergic treatment can induce PG behaviour, but may be more likely in ''at risk'' groups. These patients pose specific treatment challenges.

Symposium: The role of 5-HT1AR in pathophysiology and treatment of schizophrenia

S48.01

The postsynaptic 5-HT1A-receptor and its role for cognitive functions in mice

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Schizophrenia is often accompanied by cognitive dysfunctions. Post-mortem and in vivo studies have revealed increased cortical 5-HT1A-receptor density and it was assumed that 5-HT1A-receptor active drugs could enhance cognition. Moreover, partial 5-HT1A-receptor agonists positively affected verbal memory in schizophrenic patients. However, the role of the 5-HT1A-receptor for cognition has not been fully clarified.

Recently, we have introduced transgenic mice overexpressing the 5-HT1A-receptor postsynaptically in the cortex and hippocampus. Function of the surplus receptors was verified by receptor activation with the agonist 8-OH-DPAT.

In this study we further investigated the role of postsynaptic 5-HT1A-receptors for cognition. Therefore, our mice were tested in the inhibitory avoidance, Morris water maze, and hole-board habituation task. Moreover, the effects of low and high doses of 8-OH-DPAT were examined in the inhibitory avoidance task.

Our transgenic mice showed no overall cognitive deficit. As a tendency, inhibitory avoidance retention was impaired in transgenic mice compared to wild-type controls. Both genotypes showed similar spatial learning abilities in the Morris water maze and habituated to the hole-board in a comparable manner. Anterograde amnesia induced by 8-OH-DPAT was in transgenic mice already apparent in a third of the dose used for wild-type mice. Retrograde amnesia could not be triggered.

Since the transgenic mice show untreated a rather normal behaviour, we assume that they possess compensatory mechanisms. However, after activation of the postsynaptic 5-HT1A-receptors the differences between wild-type and transgenic mice became more clear. Hence, our findings suggest that the cortical and hippocampal 5-HT1A-receptors play rather a modulatory role in learning.

S48.02

Effect of Serotonin-1A receptor on behavioral changes in animal model of schizophrenia-like behavior

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Some antipsychotics act as partial agonists on serotonin-1A receptors (5-HT1AR) localized postsynaptically in cortex and hippocampus and presynaptically on the serotonergic cell bodies and dendrites in raphe nuclei.

Our study's aim was to investigate the effect of pre- and postsynaptic 5-HT1AR activation on MK-801 (0.1, 0.3 mg/kg)-induced sensorimotor gating deficits and hyperlocomotion in a rat model of schizophrenia-like behavior. To investigate the effect of presynaptic receptor activation we used a partial agonist (buspirone; 1,10 mg/kg) and a low dose of full agonist (8-OH-DPAT; 0.025 mg/kg). The effect on both pre- and postsynaptic receptors was investigated by a high dose of full agonist (8-OH-DPAT; 1 mg/kg).

We found that buspirone in both doses had no effect on MK-801-induced deficit in senzorimotor gating. Contrarily, the low dose of 8-OH-DPAT ameliorated the deficit. The MK-801-induced hyperlocomotion was decreased by buspirone as well as by the low dose of 8-OH-DPAT. Activation of both pre- and postsynaptic 5-HT1AR had an opposite effect on MK-801-induced behavior.

Our findings accord with the published results that partial 5-HT1AR agonists could be effective in schizophrenia treatment, but full potent agonists could exacerbate psychotic symptoms. Observed differences between buspirone and the low dose of 8-OH-DPAT could be due to inhibition of D2 receptor.

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S48.03

The influence of polymorphism for Serotonin 5HT-1A receptor on phenotypic variables in schizophrenia

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Dysfunction of the serotonin system has been implicated in schizophrenia. 5-HT1A and 5-HT2A serotonin receptors are involved in

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