# Prevalence of pathological internet use among adolescents in Europe: demographic and social factors

## The problem

Compulsive use of the internet among young people, to the extent that it interferes with day to day functioning – school, work, family relationships -- is frequently observed but has not been accepted as an "addiction" by the medical and scientific community

## Goal

To investigate the prevalence of "pathological" internet use among adolescents

## How did they investigate?

The Project, Saving and Empowering Young Lives in Europe (SEYLE), was funded by the European Union and was designed as a randomised controlled trial involving 12,000 young people in 11 European countries. Internet users were classified by gender as either adaptive, maladaptive or pathological based on their score in the Young Diagnostic Questionnaire for Internet Addiction

## What did they find out?

More than 13 per cent of young people in the study showed maladaptive use of the internet while just over 4 per cent showed pathologic al use. Females were more likely to show maladaptive use while males were more likely to show pathological use. Pathological users spent just under four hours per day on the internet (excluding school work) – double the time spent by maladaptive users. Interestingly the study did not find a link between internet accessibility in a country and maladaptive and pathological use. However there were clear social risk factors – mapdative and pathological use was highest among those who did not live with a biological parent, whose parents were unemployed and who reported low levels of parental involvement and lack of emotional and psychological support.

## Implications

The findings suggest that that the situation at home, and the relationship with parent(s), have important implications on the psychological health of the adolescent and their risk of developing addictive behaviours. The study also found that as with abuse of chemical substances there is a clear gender difference in addictive behaviours, with females showing maladaptive behaviour more frequently than males but not stepping into pathological use to the same extent as males.

**Tony Durkee1 et al.** Prevalence of pathological internet use among adolescents in Europe: demographic and social factors. Addiction (December 2012). 107. 2210 -2222

*Ben Teoh writes: This is an extremely interesting study involving large numbers of adolescents. It seems a pity that the DSM-5 committee did not find internet addiction worthy of being included in section 3 of the new manual because the findings here suggest very similar patterns in pathological internet use to those seen in substance use addictions. As with addiction to chemicals psycho-social factors seem to play a big role in development of compulsive use and dependence.*

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# The D2/3 dopamine receptor in pathological gambling: a positron emission tomography study with [11C]-(+)-propyl-hexahydro-naphtho-oxazin and [11C]raclopride

## The problem

Pathological gambling (PG) shares diagnostic features with substance use disorders (SUD) but the neurobiological mechanisms are poorly understood. It is likely that abnormalities in dopamine, a neurotransmitter implicated in reward and reinforcement is involved, as is seen in SUD. The hypothesis is that compulsion seeking of addictive "reinforcers" – behaviour or chemicals – is a compensatory response to low D2 receptors.

## Goal

The goal of the Canadian study, led by researchers from the centre for Addiction and Mental Health in Toronto, Canada, was to investigate whether variations in dopamine levels are similar in gamblers and people addicted to alcohol and drugs.

## How did they investigate?

Using a case control study design 13 males meeting DSM 1V criteria for PG were compared with 12 healthy controls matched for age, education, verbal comprehension and BMI. Participants filled out a self-report questionnaire, participated in a gambling session and were each given two PET scans.

## What did they find out?

In contrast to studies of substance users there was no significant difference in the dopamine levels, measured by D2/3,of pathological gamblers and their healthy counterparts. However pathological gamblers reporting more compulsive and more severe symptoms showed variations in the D3 receptor which were similar to changes seen in people addicted to alcohol or drugs.

## Implications

There are different neurobiological mechanisms at play in people with behavioural disorders compared with people with substance use disorders. The heightened levels of D2/3 receptors seen in people with SUD may be the effects of the chemicals themselves. However there seems to be some link between higher D3 receptor levels and severity of symptoms and compulsion in gamblers and people with SUD.

**Citation: Isbelle Boilieau, Doris Payer et al.** The D2/3 dopamine receptor in pathological gambling: a positron emission tomography study with [11C]-(+)-propyl-hexahydro-naphtho-oxazin and [11C] raclopride. Addiction (May 2013). 108. 953 -963

*Ben Teoh writes: this is an extremely interesting addition to the addiction literature as the neurobiology of addiction is still an emerging area. As we get to know more about the role of different dopamine receptors in healthy people and people with addiction it is likely that more targeted, effective treatments will be developed.*

# National Gambling experiences in the United States: will history repeat itself?

## The problem

Pathological gambling has been recognised as a psychiatric disorder in the US since 1980, However it is still rarely treated or diagnosed and there is little Federal funding for research into prevalence, treatment and prevention.

## Goal

To see whether there would be opportunities for improved research and treatment for gambling in the light of the fact that DSM-5 will for the first time include gambling alongside substance use disorders as the first non substance- related addictive disorder.

## How did they investigate?

Literature review

## What did they find out?

The lifetime prevalence of pathological gambling in the US is between 0.4 to 2 per cent – potentially affecting up to 6.2 million and the past year prevalence is between 0.2 to 1 per cent – affecting up to 3.1 million. Yet less than 10 per cent of these have received treatment, particularly young people. While a proportion of gambling derived revenue from most states is used to fund gambling treatment, access is limited and treatment may be provided by clinicians with limited experience of gambling disorders. The National Institutes of Health provide little research funding for gambling and as of 2011 there were only five NIH funded studies on gambling treatment and none on prevention.

## Implications

The authors suggest that the decision to place gambling alongside substance use disorders as an addictive disorder may increase awareness and lead to more research being published in prestigious journals. Their 10 point plan includes better designed trials to further determine commonalities and differences between pathological gambling and substance use disorders; implementation and evaluation of prevention campaigns; screening and early intervention in high risk populations; development of empirically validated treatments; expansion of treatment and an increased focus on the young.

**Citation: Nancy M Petry and Carlos Blanco.** National gambling experiences in the United States: will history repeat itself. Addiction. June (2013) 108, 1032-1037

*Dr Ben Teoh writes: Given the wide range of gambling opportunities in Australia – from lotteries, casinos, sports betting and internet gambling the issues are very similar to the US and a similar focus on improved treatment availability and research would be beneficial.*