and colleagues that investigated the effects of olanzapine on neurochemistry in manic adolescents, NAA levels increased in treatment remitters (p=0.05) and decreased in nonremitters (p=0.03). Additionally, investigators suggested that olanzipine-induced increases in choline may lead to abnormalities in cell membrane metabolism or second messenger pathways that are thought to play a role in BPD pathology [Delbello MP et al. *Neuropyschopharmacol* 2005].

Functional magnetic resonance imaging (fMRI) may also reveal how treatment impacts brain function. Overactivation of the ALN has been implicated in disease progression, according to fMRI studies, specifically related to increased amygdala activation and decreased prefrontal modulation [Eliassen et al. *Biol Psychiatry* 2006; Olson et al. *Biol Psychiatry* 2006].

Advances in technology and psychopharmacology have increased our understanding of the pathophysiology of psychotic and mood disorders, such as schizophrenia and BPD. While definitive diagnoses are not always feasible, we are now able to identify potential biomarkers and may be able to use imaging to predict treatment success and disease risk. Metabolic abnormalities and structural changes within the brain have also provided insight into disease pathology. Established protocols are still being developed concerning optimal treatment strategies for psychosis and mood disorders, but clinical practice is beginning to move toward an imaging-based approach to diagnosis and treatment.

New Research Looks at Internet Dependency and the Impact of Violent Video Games

Internet and computer game dependency is not just a symptom of other psychiatric conditions, but should be a diagnostic entity in itself, according to new research presented at the American Psychiatric Association's Annual Meeting. Computer games played on the Internet seem to contain an addictive potential comparable to substance abuse disorders, the authors said.

The research poster, *Diagnostic Aspects of Pathological Internet use: A Prospective Study on Psychiatric Phenomenology and Comorbidity of Internet Dependency* (NR7-02), was presented by Bert T. te Wildt, MD, Hanover Medical School, Hanover, Germany and suggests that this new diagnostic entity might best be labeled as Internet dependency or a more encompassing, media dependency.

Patients seeking psychiatric assistance and fulfilling the criteria for pathological Internet use were compared to a group of healthy controls. The average time spent in Cyberspace was 6 ½ hours per day, mostly in multiplayer online role-playing games and online first-person shooter games. Similar to other studies, they found mostly depressive, anxiety, and personality disorders exist alongside Internet dependency. The study however, cannot explain whether a depression or anxiety disorder is a cause or effect of the pathological Internet use.

According to most previous studies, the average patient presenting with pathological Internet use is a young male who has withdrawn himself from real life and escapes into a virtual parallel world, mostly to alleviate his lack of self-esteem and self-confidence by playing the hero he could not be in real life. The addictive potential of Internet and online games may be especially relevant for children and adolescents, who ever more often seem to develop a dependency on the Internet and computer games without a distinct comorbid pathology the researchers argue.

Researchers concluded, "against the background of an ever increasing number of young and adult Internet dependent individuals ... it has become undisputable that Internet dependency has to be taken seriously from a medical point of view."

In the meantime, however, the researchers suggest that psychiatrists "must not forget to examine the patients for comorbid psychopathology, in order to provide a comprehensive treatment regimen. Yet, to sufficiently understand and treat those patients, psychiatrists also have to be empathically interested in the parallel virtual lives of their patients." Some patients, the researchers note, may need an antidepressant to treat depression or anxiety, and psychotherapeutic approaches to address the media dependency to help them re-establish real life as an attractive and fulfilling existence.

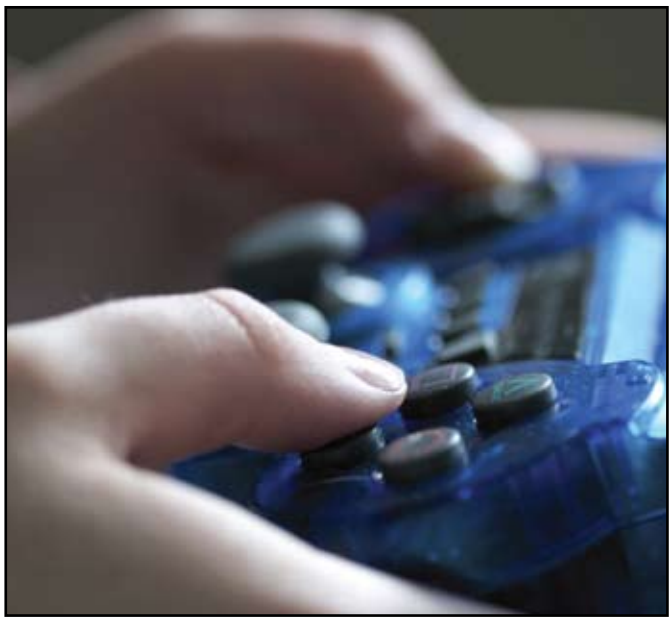
Players of violent video games have significantly higher feelings of aggression and differences in brain activity during both cognitive motor activity and resting periods, according to research results to be presented by at the American Psychiatric Association's Annual Meeting in New Orleans.

There has been increased interest in the influence of violent video games on the behavior of players, and recent research shows an increase in aggression due to the intensive use of first-person shooter games (FPSG) but little is known about the influence of the games on the brain activity.

Researchers led by Gregor R. Szycik, PhD, Hannover Medical School, Hannover, Germany, investigated

intensive use of first-person shooter games on the brain function of young male adults, particularly looking at both the possible impact of such games on morphological and functional structure of the brain and its relation to processing cognitive tasks. Subjects had to complete questionnaires and underwent fMRI scanning while they relaxed.

The groups differed in the aggression scores, with the FPSG players showing significantly higher levels of felt aggression. The research also showed differences in brain activity during cognitive and motor resting periods between the FPSG users and the control group. "This frontal increase in default-mode network (DMN) may indicate executive dysfunctions of FPSG users having influence on the high scores in the aggression questionnaire," the researchers concluded.



Excess Mortality Risk Associated With Most Illicit Drugs

Persons who have been treated for cannabis, cocaine, amphetamine, and opioid use disorders have a significantly increased risk of dying within several years, according to a Danish nationwide registry.

The study estimated the standardized mortality ratios (SMRs) among 20,581 persons who underwent substance abuse treatment for cannabis, cocaine, amphetamine, MDMA (ecstasy), heroin, and other opioids (morphine, methadone, buprenorphine) between 1996 and 2006 in Denmark. The registry was linked with Danish mortality registries, and SMRs were calculated for the drug abusers versus the gender- and age-matched Danish population.

"Risk was more pronounced for females than for men. We found a high degree of excess mortality except among primary users of ecstasy," said Signe O.W. Jensen, MSc, Aalborg Psychiatric Hospital, Aalborg, Denmark. "Females had slightly higher SMRs than men, especially for heroin and cocaine users, indicating that substance abuse may have a worse impact on females."

The SMR is the ratio of observed deaths to expected deaths. The overall SMR was 7.8 for any substance abuse, meaning nearly an 800% increase.

For the individual classes of drugs, the SMRs were 9.1 for heroin (95% CI, 8.5 to 9.8); 7.7 for other opioids (95% CI, 6.6 to 8.9); 6.4 for cocaine (95% CI, 3.9 to 10.0); 6.0 for amphetamines (95% CI, 4.2 to 8.3); 4.9 for cannabis (95% CI, 4.2 to 5.8), and 2.7 for MDMA (95% CI, 0.5 to 9.1; Figure 1)). The highest SMR was for female cocaine users, 16.3 (95% CI, 6.8 to 39.2), and female heroin users, 12.2 (95% CI, 10.3 to 14.4).

"Although the SMR of primary users of cannabis is slightly smaller than what was found for cocaine, amphetamine, and opioids, it is still noteworthy," commented Mikkel Arendt, MD, Aarhus University Hospital, Risskov, Denmark. Increased mortality that is associated with cannabis was an unexpected finding, Dr. Arendt said, but might be explained by a higher rate of vehicular accidents and other reckless behavior.

Figure 1. SMRs by Drug Class.