Our findings indicate a relation between reduced 5 HT-functioning and both, depression and impulsivity, however, not with impulsive aggressive behavior.

PERSONALITY DISORDERS AMONG CRIMINAL OFFENDERS: AN ANALYSIS OF 1498 CONSECUTIVE FORENSIC PSYCHIATRIC INVESTIGATIONS

G. Kullgren, M. Grann, G. Holmberg. *Department of Psychiatry, Umeå University, S-901 83 Umeå*

A new Forensic Psychiatric Legislation was introduced in Sweden in 1992. Whereas personality disordered criminal offenders were previously to a great extent considered mentally insane, the new Law was intended to be more restrictive. Only those offenders suffering from a *severe mental disorder*, which was the new legal concept, were to be excluded from imprisonment, the aim of this study is to analyse to what extent and under which circumstances personality disordered offenders are judged to fulfill legal criteria for *severe mental disorder* in forensic psychiatric investigations performed since 1992. An additional aim is to investigate prevalence of personality disorders among mentally disordered criminal offenders in relation to functional level, psychosocial stressors and crime.

Out of all 1498 forensic psychiatric investigations of male offenders in Sweden during 1992 through 1994, 453 individuals received a personality disorder diagnosis as principal diagnosis, alone or in combination with a diagnosis of drug abuse or dependence. Among those with personality disorder diagnoses, 19% were judged to fulfill criteria for a *severe mental disorder* compared to 49% among all 1498 individuals investigated. The most prevalent personality diagnosis among the 453 males was Atypical personality disorder (45%), followed by Borderline (18%) and Antisocial (17%) personality disorder.

The presence of a concomitant drug abuse/dependence or psychosocial stressors prior to crime did not significantly affect the odds ratio for *severe mental disorder*. Despite being severely disordered in terms of low functional level and frequent concomitant drug abuse, offenders with Antisocial PD were most unlikely to be judged as fulfilling criteria for a *severe mental disorder*. From a logistic regression model it was concluded that the most important factors comprising a *severe mental disorder* were a cluster A diagnosis, low functional level according to DSM axis V and a non-violent crime.

THE IMPACT OF PERSONALITY DISORDERS FOR THE PROGNOSIS OF DELINQUENCY

Norbert Nedopil. *Department of Forensic Psychiatry, Psychiatric Hospital of the University of Munich, Germany*

Prediction of future delinquency — or risk assessment — is required from the forensic psychiatrist, when previous delinquency was associated with some sort of psychopathology and when the offender is considered to be so dangerous that preventive detention may be required (if the law provides for such a detention). Two main diagnosis are regarded as being associated with delinquency andz especially violent crimes: Schizophrenia and Personality disorders. More than 75% of all detained mental patients in Germany received one of the two diagnosis.

This paper deals with the risk assessment of individuals with personality disorders. Personality disorders are characterized by a psychopathology that its fairly stable over time and by the fact that treatment has very little influence on them. From these assumptions one would conclude that risk assessment is not too difficult with these individuals. On the other hand there are typical age related decreases of delinquency especially in dissocial personality disorders which are generally most prone to relapse into crime. So risk assessment

has not only to rely on a specific diagnosis but also and even more on the individual course of the disorder and of other factors that are associated with relapse.

In our study we have applied an assessment approach that takes both static and dynamic factors into consideration: The main factors are: (1) index crime (Base rate, connection with personality traits, situational factors), (2) personality before index crime, (3) personality changes after index crime, (4) future social environment. Several instruments have been used to assess the probands, most important the FPDS (Nedopil et al. 1988) and the PCL-R (Hare 1991). The assessment were made to decide upon release from high or medium security hospitals. The analysis is based on 72 assessments, 42 of those assessed suffered from a personality disorder. Previous mean length of stay in security hospitals and prognostic evaluation did not differ significantly between patients with personality disorders and schizophrenics. Changes of symptoms, attitudes and behaviors could also be observed in personality disordered patients. In accordance with the literature (Hart et al. 1988) a high score on the PCL-R was, however associated with an unfavorable prognosis.

S87. Functional magnetic resonance imaging

Chairmen: P Woodruff, M Spitzer

VERBAL WORKING MEMORY: AN fMRI ACTIVATION PARADIGM FOR INVESTIGATING SCHIZOPHRENIA

J.D.C. Mellers, E. Bullmore, M. Brammer, S.C.R. Williams, C. Andrew, A. Simmons, P. Woodruff, A. David, R. Howard. *Institute of Psychiatry, London, SE5 8AF, UK*

Working memory deficits have been reported in schizophrenia and may be attributable to disrupted functional connections between prefrontal and temperoparietal cortex. The aim of the current study was to develop a working memory activation paradigm using fMRI to investigate brain function in schizophrenia. Using multislice, echoplanar fMRI we have contrasted regional brain activity during a control and an experimental condition which differed with respect to the demands placed on verbal working memory. Subjects were 7 right-handed healthy male volunteers. In the working memory condition, subjects viewed a pseudorandom series of letters and were asked to indicate when the current letter was the same as that presented two previously (eg: A-S-A). In the control condition, subjects were presented with letters appearing in alphabetical order and asked to respond when the letter X appeared out of sequence (eg: A-B-X). Analysis of group and individual data revealed activation in the anterior and posterior parasagittal cortex in all subjects, left temperoparietal cortex (6 subjects) and left dorsolateral prefrontal cortex (5 subjects). In agreement with previous brain activation studies, our results suggest that verbal working memory is subserved by a neurocognitive network comprising cortical regions involved in attention, executive function and short term mnemonic processes. This technique offers considerable potential for investigating the integrity of this neural network in schizophrenia. In particular, fMRI will allow longitudinal studies of the interaction between phenomenology, treatment and brain function.