Psychiatry Research 230 (2015) 387–393

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Attention-deficit–hyperactivity disorder and associated functional impairments in mentally disordered offenders

Susan Young [a,c,*], Gisli Gudjonsson [b,c], Linda O'Rourke [a], Emma Woodhouse [a], Karen Ashwood [a], Declan Murphy [a], Philip Asherson [a]

[a] Centre for Mental Health, Division of Brain Sciences, Department of Medicine, Imperial College London, 37 Claybrook Road, London W6 8LN, UK
[b] Institute of Psychiatry, Psychology & Neuroscience, King's College London, 16 De Crespigny Park, London SE5 8AF, UK
[c] Broadmoor Hospital, West London Mental Health Trust, Crowthorne, Berkshire RG45 7EG, UK

ARTICLE INFO

Article history:
Received 7 October 2014
Received in revised form
15 July 2015
Accepted 13 September 2015
Available online 15 September 2015

Keywords:
Forensic
Outcomes
Personality disorder (PD)
Offenders

ABSTRACT

This study examines the rate of attention-deficit–hyperactivity disorder (ADHD) and associated functional impairments in mentally disordered offenders (MDOs). One hundred and thirty-one male MDOs with a primary diagnosis of either severe mental illness (SMI) or personality disorder (PD) completed screening questionnaires for ADHD. If positive, they were invited for a comprehensive diagnostic interview. Additional data pertaining to self-rated impairments, and objective records of critical incidents and episodes of seclusion were obtained from patient records. Twenty-six patients screened positive (7 with SMI, 19 with PD). On further assessment, no SMI patients met criteria for ADHD. Four PD patients met criteria for persistent 'syndromatic' ADHD, whereas six met 'symptomatic' ADHD criteria, giving overall prevalence estimates of 8.6% and 12.9% respectively. Greater functional impairments were self-reported by the PD+ADHD screener positive group, compared with screener negative peers, with large effect sizes. A significant but small effect was found for spending longer in seclusion. Compared with population norms, a high rate of ADHD and associated impairments are present in MDO's with a primary diagnosis of PD. These individuals have complex needs and both pharmacological and non-pharmacological interventions are required for their rehabilitation.

1. Introduction

Research shows that the number of offenders in prison reached a record high of 88,179 prisoners in December 2011 (Berman, 2012). Of these, 4100 were female, 9292 were juvenile or young offenders (aged 15–20 years) and a further 426 young people (12–15 year olds) were residing in secure training centres or children's homes. As might be expected, 81% of prisoners were unmarried and 66% were unemployed. However, other characteristics of this population makes for interesting reading, as 47% of male prisoners had run away from home as a child, 50% had been excluded from school and 25% of young male offenders were fathers (Berman, 2012). Furthermore, a greater proportion was shown to have abused substances than seen in community populations. Around 3.4% of juvenile offenders report a family history of psychiatric disorders (Margari et al., 2015). Such qualities identify the prison population as a highly vulnerable group with a tendency towards chaotic, impulsive and isolated lifestyles. These are features frequently seen among those suffering from severe mental health problems, personality disorder (PD) or developmental disorders such as attention-deficit–hyperactivity disorder (ADHD).

Over the past ten years, research among the prison population has defined rates of psychiatric illness with increasing accuracy. A systematic review of 62 surveys from 12 countries showed 3.7% of male prisoners suffer from a psychotic illness, 10% from major depressive disorder and as many as 65% from PD (Fazel and Danesh, 2002). A review by the UK Adult ADHD Network (UKAAN) into the identification and management of ADHD offenders within the Criminal Justice System noted that the high reported rates of ADHD in this population are often based on screening questionnaires as opposed to diagnostic clinical interviews. It was estimated that up to 45% of young offenders detained in prison settings have clinically diagnosed ADHD (Young et al., 2011a). A recent meta-analysis of 42 studies reported the estimated pooled prevalence of ADHD to be 30% for youth offenders and 26% for adult offenders, when assessment was based on a diagnostic clinical interview (Young et al., 2014). These figures exclude those who fell subthreshold of a syndromatic diagnosis (the maintenance of the full diagnostic status, defined according to the

* Corresponding author at: Centre for Mental Health, Division of Brain Sciences, Department of Medicine, Imperial College London, 37 Claybrook Road, London W6 8LN, UK.
E-mail address: susan.young1@imperial.ac.uk (S. Young).

http://dx.doi.org/10.1016/j.psychres.2015.09.024
0165-1781/

DSM-IV cut-off of six or more items, both currently and in childhood). Many individuals who fall below threshold of a 'syndromatic' diagnosis experience some persisting symptoms and associated functional impairments (Young and Gudjonsson, 2008).

In the United Kingdom, offenders with severe mental health problems are diverted to secure hospital mental health settings for treatment, and research has indicated elevated rates of ADHD in these services. Young et al. (2003) reported that in secure settings, one-third of patients with a primary diagnosis of PD screened positive for ADHD.

Thus there seems to be a strong association between ADHD, antisocial and criminal behaviour. Indeed, analysis of official statistics has shown an association between ADHD and younger onset of offending behaviour, a 4–5 fold increased likelihood of being arrested, multiple arrests and higher rates of recidivism (Satterfield et al., 1994; Satterfield et al., 1982; Young et al., 2011b). The association may be mediated by conduct disorder and/or cognitive deficits (Berman, 2012; Bramham et al., 2009; Gudjonsson et al., 2013, 2014; Rose et al., 2009; Young et al., 2009, 2007). In secure mental health hospital settings, official records of 'critical incidents' have shown a strong association between ADHD symptoms and incidents of verbal and behavioural aggression (Young et al., 2003, 2009). In the prison setting, this represented an 8-fold increase compared with non-ADHD peers (Young et al., 2009). More recently, a large Swedish epidemiological study found that among a population sample of over 25,656 adolescents and adults with a diagnosis of ADHD, there was a 4-fold increase in rates of criminal convictions. Furthermore, the data suggested that prescribing medications targeted at ADHD led to a decrease in rates of criminal convictions (Lichtenstein et al., 2012).

The aim of the present study was to extend findings from earlier research by ascertaining rates of ADHD and associated functional impairments within offender mental health settings for patients with a primary diagnosis of severe mental illness (SMI) or personality disorder (PD). A comprehensive diagnostic protocol was utilised, which involved screening all participants for ADHD, and completing a clinical diagnostic interview (DIVA; Kooij and Francken, 2010) with those who screened positive. In addition, data relating to critical incidents and use of seclusion was extracted from records to quantify behavioural problems for each participant. Seclusion involves the supervised confinement of a patient in a room, which may be locked. Seclusion aims to contain severely disturbed behaviour which is likely to cause harm to others, but is only used when other de-escalation techniques have been unsuccessful.

Based on the literature, it was hypothesised that: (a) significantly higher rates of ADHD would be found in offenders with a primary diagnosis of personality disorder (PD) compared with population norms; and (b) this group of patients would have greater functional and behavioural impairments, indicated by higher self-ratings and elevated rates of critical incidents and seclusion, respectively. The prevalence of ADHD and functional impairment in patients with a primary diagnosis of severe mental illness (SMI) could not be hypothesised from the literature, and this investigation was therefore exploratory.

2. Method

2.1. Participants

The sample comprised of adult patients from both high and medium security establishments in the greater London area. Three hundred and forty one mentally disordered offenders (MDOs), all of whom were detained under the UK Mental Health Act, were resident at these two secure services; $N=241$ (71%) from the high secure and $N=100$ (29%) from the medium secure service. The majority of patients in these settings have a primary diagnosis of either severe mental illness (SMI) (e.g. schizophrenia, schizoaffective disorder, bipolar disorder) or personality disorder (PD). Exclusion criteria included age >65 years, those patients who were too mentally unstable to participate, had severe cognitive deficits due to neurological illness or head injury, posed a risk of violence to the researcher and/or who lacked capacity to consent to participate in the study. Of the 341 patients, 93 (27%) were identified as ineligible to participate: 68 (20%) met the study exclusionary criteria and a further 25 (7%) were on trial leave or discharged prior to the assessment. Of the 68 patients who met the exclusion criteria, 28 lacked capacity to consent and 40 were mentally unstable due to severe mental health problems other than ADHD, at the time of assessment. Thus, a total of 248 patients were eligible to take part in the study. From this sample of 248 patients, a further 115 (46%) patients refused to participate in the research: 79 (69%) from high and 36 (31%) from medium secure services. Hence at total of 133 mentally disorder offenders (MDOs) participated in the study. Due to an uneven gender ratio (M:F, 131:2) the two female subjects were removed from subsequent analysis. The final sample comprised 131 male patients: 92 (70.2%) from the high secure psychiatric service and 39 (29.8%) from the regional medium secure service.

All participants had a DSM-IV primary diagnosis of SMI ($N=79$, 60.3%) or PD ($N=52$, 39.7%). Four patients in the SMI category refused access to records so we were unable toascertain their primary diagnosis, offence history, ethnicity, age, critical incidents, and episodes and duration of seclusion. The SMI group consisted of patients with a primary diagnosis of psychotic ($N=69$, 92%) or bipolar disorders ($N=6$, 8%). The PD group consisted of patients with a primary diagnosis of borderline ($N=24$, 46.2%), antisocial ($N=23$, 44.2%), schizoid ($N=3$, 5.8%), narcissistic ($N=1$, 1.9%) and histrionic ($N=1$, 1.9%) personality disorder. As with all secure mental health hospital settings, there were high rates of comorbidity within the sample, however only six patients had a history of ADHD noted in their records, three in the SMI group and three in the PD group, and none were receiving medication for ADHD during the assessment period.

In terms of ethnicity, the majority of SMI patients were classified as White ($N=38$, 50.7%), Black ($N=32$, 42.7%), Asian ($N=1$, 1.3%) and Mixed Race ($N=4$; 5.1%). In the PD group, 47 (90.4%) patients were classified as White, two (3.8%) as Black, one (1.9%) Asian and two (3.8%) Mixed Race.

Participants were aged between 19.3 and 64.3 years old with no significant difference in age between the SMI ($M=37.36$, $SD=10.7$) and PD groups ($M=40.26$, $SD=11.19$) ($t(125)=-1.47$, $p=0.14$). Nearly all the participants had a history of violence ($N=93$; 73.2%) and/or sexual violence ($N=26$; 20.5%). Other offences ($N=8$; 6.3%) included arson, burglary and driving offences.

The joint South London and Maudsley (SLaM) and the Institute of Psychiatry NHS Research Ethics Committee approved the study protocol (LREC Ref: 08/H0807/17). Additional permission was granted by the London West Health Research & Development Consortium. All participants gave their written informed consent to participate in the study.

2.2. Procedure

The study took place over a 16-month period. An information sheet describing the study and specifying inclusion and exclusion criteria was sent to clinical teams. Patients deemed eligible by the clinical team were approached by researchers who explained the study and obtained informed consent. Researchers then completed ADHD screening questionnaires with patients. Critical incident data, seclusion data and demographics, collected by staff