

A preliminary study of individuals with autistic spectrum disorders in three special hospitals in England

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Contents

- **ABSTRACT**
- **INTRODUCTION**
 - 1-1 The autistic spectrum**
 - 1-2 Autism**
 - 1-3 Asperger's syndrome**
 - 1-4 Wolff's 'loners'**
 - 1-5 The prevalence of all autistic spectrum disorders in the total population**
- **METHODOLOGY**
 - 2-1.1 First stage**
 - 2-2 Second stage**
- **RESULTS**
 - 3-1 Prevalence of autistic spectrum disorders in the special hospitals**
 - 3-2 Demographic features**
 - 3-3 Sub-groups among the autistic disorders**
 - 3-4 Previous psychiatric diagnosis**
 - 3-5 Neurological conditions**
 - 3-6 Neuro-cognitive, psychological & psychiatric abnormalities in the autistic spectrum**
 - 3-7 Circumscribed interests, repetitive routines & obsessive behaviour**
 - 3-8 Mental health act status & hospital classification**
 - 3-9 Nature of offending**
- **DISCUSSION**
 - 4-1.1 The initial screening questionnaire**
 - 4-2 Prevalence**
 - 4-3 Hospital placement**
 - 4-4 Gender**
 - 4-5 Age**
 - 4-6 Length of time in hospital**
 - 4-7 Autistic spectrum sub-groups**
 - 4-8 Circumscribed interests & repetitive routines**
 - 4-9 Neurological conditions**
 - 4-10 'Primary' psychiatric diagnosis**
 - 4-11 Index offences**
 - 4-12 Reasons for offending**
- **CONCLUSIONS AND RECOMMENDATIONS**

- **REFERENCES**
 - **TABLES TO MAIN DOCUMENT**
 - Table 1 - Features of the autistic spectrum (*essential diagnostic criteria)**
 - Table 2 - Distribution of scores from initial screening questionnaire**
 - Table 3 - Patients scoring 5 and above the screening questionnaire**
 - Table 4 - Classification of patient scoring above cut-off level on screening questionnaire**
 - Table 5 - Gender**
 - Table 6 - Mean time in hospital**
 - Table 7 - Age**
 - Table 8 - Type of autistic spectrum condition**
 - Table 9 - Previous primary diagnosis (pre-1995)**
 - Table 10 - Previous primary psychiatric diagnoses (pre 1995) for autistic spectrum group**
 - Table 11 - Neurological conditions**
 - Table 12 - Neurological, psychological & psychiatric abnormalities in autistic spectrum group**
 - Table 13 - Circumscribed interests, repetitive routines and obsessional behaviour**
 - Table 14 - Circumscribed interests of the autistic spectrum group**
 - Table 15 - Mental Health Act status**
 - Table 16 - Intra-hospital classification**
 - Table 17 - Index offences**
 - Table 18 - Index offences of patients in autistic spectrum group**
 - **APPENDIX**
 - Screening questionnaire for Asperger's syndrome**
 - **ACKNOWLEDGEMENTS**
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Abstract

There was a concern among Special Hospitals professionals to establish the numbers of people with an autistic spectrum disorder detained under mental health legislation in secure psychiatric hospitals in England and whether such settings are appropriate. This paper reports on the first full-scale empirical study of the prevalence of autistic spectrum conditions among the population of the three Special Hospitals in England.

A total of 1305 patients were assessed using a screening questionnaire for autistic spectrum disorders in adults. This yielded a total of 240 patients, approximately 18% of the total Special Hospital population, to be further examined on the basis of their apparent impairments in social and interpersonal functioning. Of these, 215 were available for investigation.

The prevalence of autistic conditions in this group of patients is estimated. Psychiatric and neurological characteristics and the nature of the offences or behaviour leading to compulsory detention are examined. Some of the questions relating to meeting the needs of this group of people are discussed. Suggestions for further study are made.

1 Introduction

1-1 The autistic spectrum

1-1.1 The autistic spectrum (Wing 1996; Wing and Gould, 1979) is similar to but broader than the category of pervasive developmental disorder in ICD-10 and DSM-IV.

1-1.2 The spectrum covers a range of conditions that have in common the triad of impairments of social interaction, communication and imagination (that is the ability to think about possibilities as well as facts and to consider the consequences of one's actions).

1-1.3 This triad is associated with a narrow repetitive range of activities and interests. It can occur together with any level of cognitive ability and with any other physical or psychiatric disorder. (See Table 1).

1-1.4 The problems are, typically, present from birth or early childhood. There are rare cases in which conditions occurring later in childhood, such as viral encephalitis, can cause brain damage and a pattern of behaviour that is closely similar to an autistic spectrum disorder.

1-1.5 Sub-groups among the autistic spectrum disorders are suggested in ICD-10 and DSM-IV. However, the criteria include items referring to development before three years of age. Such information was not available for the individuals taking part in the present study.

1-1.6 It was more appropriate to use a system of sub-grouping based on recent and current descriptions of behaviour patterns. These sub-groups will be described below, with particular reference to offending behaviour.

1-2 Autism

1-2.1 **Kanner** (1943) was the first worker to publish a description of one sub-group of the autistic spectrum that he called early infantile autism. The characteristics of the young children with this developmental disorder were;

- Profound lack of affective contact with others
- Intense resistance to change in routines
- Muteness or abnormalities of language
- Fascination with manipulating particular objects, but not using them for correct function

Visuo-spatial or rote memory skills much better than other functions

1-2.2 Workers since Kanner have modified and expanded these criteria for autism. It is now known that the picture changes with increasing age, though the basic impairments remain throughout life.

1-2.3 In the present study, the diagnosis of autism was used for individuals who had little or no interest in social interaction or communication, and whose repetitive routines were directed towards objects rather than the more intellectual interests of those classified as Asperger's syndrome.

1-2.4 Most individuals in these sub-groups have moderate to severe learning disabilities and would not be considered legally responsible for any anti-social acts. In the past, a few were admitted to Rampton Hospital because their behaviour presented extremely severe management problems.

1-2.5 Only the minority of people with these forms of autism who have borderline, average or high intellectual ability might appear to be responsible for their actions in legal terms.

1-3 Asperger's syndrome

1-3.1 Asperger's first paper on this pattern of behaviour, which he referred to as "autistic psychopathy", was published in German in 1944 towards the end of the second world war. His ideas were known in continental Europe well before they received attention in English speaking countries.

1-3.2 Van Krevelan & Kuipers, both from the Netherlands, published a paper on the subject in English in 1962 but current clinical and research interest in what is now termed Asperger's Syndrome dates from Wing's (1981) seminal paper.

1-3.3 Since its publication, understanding and diagnosis of this condition has steadily increased and it is now generally considered to be within the spectrum of autistic conditions (Frith 1991; Tantam, 1988a; 1991; Wing, 1991). The features of the syndrome described by Asperger and put in operational form by Gillberg (Ehlers & Gillberg, 1993; Gillberg & Gillberg, 1989) are as follows;

- Severe impairment of social interaction, shown in odd, inappropriate behaviour rather than aloofness and indifference
- All absorbing, narrow interests, often to the exclusion of other activities
- Imposition of repetitive routines on self and others
- Good grammar and vocabulary but inappropriate use of speech.
- A tendency to engage in monologues on special interests
- Limited or inappropriate non-verbal communication
- A degree of motor clumsiness

1-3.4 In the present study, those with inappropriate social interaction, good grammar and vocabulary, but repetitive speech used for monologues rather than for conversation were classified as Asperger's syndrome

1-3.5 Although not usually associated with learning disability (most individuals with this syndrome have full scale IQ of 70 or above), the level of social handicap conferred by Asperger's syndrome often leads to needs and service requirements similar to those of the learning disabled.

1-3.6 Moreover, although global intellectual impairment is not a diagnostic feature of Asperger's syndrome, problems with a variety of cognitive processes are characteristic. These include difficulties with 'parallel' processing of information (Walker 1997) and abstract thinking.

1-3.7 Neuro-psychological signs associated with varying degrees of right-hemispheric dysfunction (Ellis et al 1994; McKelvey et al 1995) and frontal lobe pathology (Ozonoff et al 1991) appear to be present in many people with this condition. The cognitive problems are often not recognised and offenders with Asperger's syndrome are usually assumed to be legally responsible for their actions.

1-3.8 Asperger's syndrome and offending

Asperger (1944) noted that some children with his syndrome perpetrated 'mischievous, malicious acts' without regard for the consequences for other people. Other authors have described criminal offending in a minority of individuals with the syndrome and have discussed the possible reasons for such behaviour (Mawson, Grounds & Tantam 1985; Baron-Cohen 1988; Chesterman & Rutter 1993; Everall & Lecouteur 1990; Wing 1997).

1-3.9 Prevalence of offending behaviour in Asperger's syndrome

Mawson and his colleagues have speculated that the association between Asperger's syndrome and violent behaviour may be relatively robust, but as yet there have been no empirical studies examining this hypothesis, other than a review of published case reports (Ghaziuddin, Tsai & Ghaziuddin 1991).

1-3.10 However, the limited epidemiological research available to date (Scragg & Shah 1991) does appear to indicate that people with Asperger's syndrome may be over-represented in particular settings, such as secure psychiatric provision, as a consequence of a range of offending and anti-social behaviours.

1-3.11 To make useful comparisons for both research and clinical purposes, information is required on the level of occurrence of offending behaviour in the total population of people with Asperger's syndrome, but such information is not currently available. One possibility is that those people with Asperger's syndrome in secure provision may comprise the majority of the offending group within the whole Asperger's population, resulting in an inflated prevalence among the secure hospital population.

1-3.12 Offenders with Asperger's syndrome, because of their impaired social skills, may be more likely to be detected than are other offenders. For example, their ability to understand and use deception when perpetrating offences may be impaired. Anecdotal evidence would seem to support this theory, but more definite evidence is lacking.

1-3.13 Wing (1981) noted that 4 (12%) of the 34 individuals in her study, who had Asperger's syndrome in full or partial form, had committed bizarre anti-social acts.

1-3.14 In a survey of long-term users of mental health services who were regarded as socially isolated and eccentric, Tantam (1988b) found that 77 % of this group were subsequently diagnosed as having Asperger's syndrome. Of the total of sixty, two (3% of the sample) had been committed to secure hospital provision. However, it was noted that a substantial minority (44% of the sample) had committed isolated offences and 23% had committed actual criminal offences, primarily involving violence against other people.

1-3.15 Tantam reported that a "morbid fascination" for violence was displayed by 6 people in his sample, while 3 others had actually carried out anti-social actions. Both Wing's and Tantam's group were found from users of mental health services and, in this respect, were a biased population.

1-3.16 The prevalence of Asperger's syndrome among offenders

1-3.17 The need for prevalence studies in secure units was stated by Mawson et al (1985) and has been subsequently restated by Baron-Cohen (1988) and Ghaziuddin et al (1991). Scragg & Shah (1994) examined the prevalence of Asperger's syndrome among male patients in one of the Special Hospitals in England.

1-3.18 A prevalence rate of between 1.5% to 2.3% of the total male population in the hospital was found, depending on whether 3 individuals with equivocal diagnoses were included in the total. Scragg & Shah compared this to the prevalence of Asperger's syndrome and other high functioning autistic disorders in the general population, which has been estimated at about 0.7 % (Ehlers & Gillberg 1993) (see below).

1-3.19 However, given the manifest differences between the general population and that of a special hospital, it is not clear that this is a valid comparison to make.

1-4 Wolff's 'loners'

1-4.1 Sula Wolff (1995) has studied a group of individuals with average or high cognitive skills but marked social impairment. She originally referred to them as having 'Schizoid personality of childhood' but now considers that they overlap to a large extent with Asperger's syndrome and represent the most able end of the autistic spectrum.

1-4.2 Wolff calculated that the risk of delinquency in boys with this syndrome was only slightly higher than for boys of the same age in the general population.

1-4.3 However, she found that the rate for girls was significantly higher than for a control group of female clinic referrals. There are no population based studies of offending behaviour in adults in this group.

1-4.4 The prevalence of 'loners' among offenders

1-4.5 Coid (1996) identified 30 'schizoid' individuals with the features described by Wolff among 260 males and females detained for serious offences in maximum security hospitals or who were in special prison units because of their disruptive or dangerous behaviour while serving a sentence.

1.5 The prevalence of all autistic spectrum disorders in the total population

1-5.1 Ehlers & Gillberg (1993) carried out a prevalence study of Asperger's syndrome and other autistic disorders in children in mainstream schools in Gothenburg, Sweden. They found a rate 36 per 10,000 children for those fitting Asperger's descriptions and another 35 with social impairment but without the full Asperger's criteria.

1-5.2 The total of 71 per 10,000 is likely to include those with autism and IQs above 70, and Wolff's 'loners', as well as typical Asperger's syndrome (National Autistic Society, 1995). This is the population among whom offenders are found. This represents somewhere in the region of 320,000 people in the United Kingdom.

1-5.3 The rate for males is considerably higher than for females, especially among those with good cognitive ability. Estimates of the male: female ratios vary from 4:1 to 15:1. It is possible that, in females, the characteristic appears in subtle forms that are difficult to recognise.

1-5.4 The present study was funded by the British Department of Health to examine the prevalence of autistic conditions, in the three Special Hospitals in England. The fourth hospital in Scotland was not included in the research because of differences in legal systems between Scotland and the rest of Britain.

2-1 METHODOLOGY

A two-stage survey methodology was employed for the present study.

2-1.1 First stage

In the first stage, the population of the three special hospitals in July 1997 was screened using a screening questionnaire for autistic spectrum disorders in psychiatric patients developed by Nylander (1996) (Appendix). This 9-item questionnaire was completed by ward-level staff for each patient resident in the hospitals.

2-1.2 Those patients who were on trial leave to other forms of secure placement were not included in the study and a small number of others were missed for administrative reasons. The reliability and validity of the screening questionnaire for Asperger's syndrome and other high functioning autistic spectrum disorders were investigated in a separate study (Hare & Ferriter, in preparation).

2-1.3 The inter-rater agreement of the questionnaire when a 10% sample (N=46) from one Hospital was re-scored by different raters was found to be at the 82.6% level.

2-2 Second stage

2-2.1 In the second stage of the study, the principal worker [DJH] examined the records of those patients who had five or more positive responses on the screening questionnaire. Nylander (personal communication) had found that this cut-off point detected individuals with autistic spectrum disorders.

2-2.2 Any individual who already had a diagnosis of an autistic disorder was automatically included in the second stage. In the event, all such individuals also had scores of 5 or over on the initial screening questionnaire.

2-2.3 Clinical information was collected using a modified version of the Handicaps, Behaviours and Skills (HBS) schedule (Wing & Gould 1978). This covered details of impairments of social interaction, communication, imagination, repetitive, stereotyped activities and special interests, which are relevant for the diagnosis of autistic spectrum disorders. It also included items on motor function, self care and planning and organising ability, all of which are often impaired in autistic disorders.

2-2.4 The criteria for autistic spectrum disorder that were used were equivalent to those for the general category of 'pervasive developmental disorders' in the tenth edition of the International Classification of Diseases (ICD-10).

2-2.5 The reliability of this approach was examined in three ways. First, it was found that all of the people with an autistic condition identified in the earlier more intensive study at Broadmoor hospital (Scragg & Shah 1994) were identified in the present study.

2-2.6 Second, the prevalence of false negatives was investigated by a research team at Rampton Hospital ([Ferriter et al](#), in preparation). Third, the case notes of 26 individuals in Broadmoor Hospital with scores of 5 or more on the screening questionnaire were examined by two of the authors of this report (JG & LW).

2-2.7 There was 81% agreement with the diagnosis assigned by DJH. The only disagreements were between the categories 'definitely autistic' and 'uncertain' or between 'uncertain' and 'not autistic' - none were between 'definitely autistic' and 'not autistic'.

2-2.8 In addition to the clinical information, epidemiological data and data on index offence, Mental Health Act status, primary psychiatric diagnosis and any available information on psychological and neuro-psychological assessment were also collected.

3. RESULTS

3-1 Prevalence of autistic spectrum disorders in the special hospitals

3-1.1 A total of 1305 residents in the three special hospitals were screened. They did not include those on trial leave to other placements. A number of individuals were left out of the initial screening for various administrative reasons that had no clinical significance.

3-1.2 Overall, 96% of the special hospital population resident in the three hospitals at the time of the study was screened. The breakdown of the screening results according to scores on the screening questionnaire is given in Table 2.

3-1.3 A score of five was taken as the cut-off point for further investigation of a possible autistic condition (Table 3). This gave a total for the three hospitals of 240 patients rated as having severe social dysfunction to be considered in the second stage of the study as possible cases. This is equivalent to 18.4% of those screened. Rampton had the most and Ashworth the fewest scoring above the cut-off point. The difference was significant ($X^2=11.5$, df, 2, $p<.01$).

3-1.4 However, twenty-five of the 240 patients could not be followed up in the second stage, for the following reasons;

3 screening questionnaires had no hospital number, so the patients could not be identified

21 patients were discharged before the time of the follow-up

1 patient died before the time of the follow-up.

3-1.5 As shown in Table 4, of the 215 available cases with a score on the screening questionnaire of 5 or over, 31 definite cases of autistic conditions were identified on the basis of information in their hospital records. The differences among the hospitals were not significant. For the population surveyed, this is equivalent to 2.4% of the population screened.

3-1.6 The same number (31) of equivocal cases were also found. This 'uncertain' group contained those individuals for whom insufficient information was available to make a clear diagnosis of an autistic condition and/or diagnostic criteria were only partially fulfilled.

3-1.7 These cases were therefore treated separately from the autistic group. Further post hoc examination of the dataset as a whole indicated some differences, which supported the decision to keep the two groups separate. In a post hoc analysis, the presentation and behaviour of many of the 'uncertain' group of patients was noted to be akin to a standard definition of psychopathy (Hare 1980, 1986).

3-1.8 The remaining 153 patients appeared to have social and communication difficulties but, on the information collected using the schedule, they did not have sufficient criteria for inclusion in the autistic or for the uncertain groups. They will be referred to as the non-autistic social dysfunction group.

3-1.9 The mean score on the screening questionnaire for the autistic spectrum group was 6.7 (sd = 1.47), which did not differ significantly from either the uncertain group

(6.4, sd = 1.28) or the non-autistic social dysfunction group (6.4, sd = 1.23) (one-way anova, F-ratio = 0.883, df = 2, p - n.s)

3-2 Demographic features

3-2.1 In the autistic group, 29 (93.5%) were male and 2 (6.5%) were female. In the uncertain group there were 28 (90.3%) males and 3 (9.7%) females. In the non-autistic social dysfunction group there were 128 (83.5%) males and 25 (16.5%) females (see Table 5). The sex ratio for the last group is comparable with that for Special Hospital population as a whole ([Taylor et al](#) 1998). The differences were not significant.

3-2.2 Table 6 shows that the mean time spent as a patient in a Special Hospital (taking the date of the most recent period in hospital to allow for multiple admissions) did not differ between the three groups (one-way anova, F-ratio = 0.348, df, 2, p - n.s). These times are longer than the average stay of 8.5 years for patients at a Special Hospital ([Taylor et al](#) 1998).

3-2.3 The mean ages of the autistic group and of the uncertain group were not significantly different from the non-autistic social dysfunction group (one-way anova, F-ratio = 1.856, df, 2, p- n.s) (see Table 7).

3-3 Sub-groups among the autistic disorders

3-3.1 The patients diagnosed in this study as having autistic spectrum conditions were assigned to sub-groups, as shown in Table 8. The criteria used for sub-grouping were as described in the introduction. The autistic group was sub-divided into those with IQs of 50 or above (N = 4) and those with IQs below 50 (N = 6).

3-3.2 The four with IQs of 50 or above had all been previously diagnosed as autistic by clinicians in other centres. Those classified as Asperger's syndrome (N = 21) were not further sub-divided.

3-4 Previous psychiatric diagnosis

3-4.1 Table 9 lists those diagnostic labels that had been given as the primary diagnoses by the Special Hospitals' psychiatric staff. Eight individuals diagnosed in this study as having Asperger's syndrome had recently (post- 1995) been given this diagnosis, in seven instances by clinicians from outside the Special Hospitals who were asked for their opinion on diagnosis.

3-4.2 In three cases at one hospital [Rampton], earlier diagnoses of autism (made in 1960, 1962 and 1984) had been 'lost' by the mid-1980's. These late and 'lost' diagnoses are not included in Table 8 as, in most cases, they had been preceded or

superseded by other non-developmental psychiatric diagnoses. None of the individuals in the uncertain or non-autistic social dysfunction groups had been diagnosed as having autistic spectrum disorders.

3-4.3 Table 9 shows that a schizophrenic disorder was the single most frequent diagnosis for all three groups. Somewhat fewer of the autistic spectrum group had this diagnosis but the difference was not significant.

3-4.4 The primary diagnoses given to the sub-groups among those with autistic spectrum disorders are shown in Table 10. Individuals with Asperger's syndrome were those most likely to have had a previous diagnosis of a schizophrenic disorder. Twelve out of 21 (57%) had had this type of diagnosis compared with 2 out of 10 (20%) of those with autism, with or without severe learning disability.

3-5 Neurological conditions

3-5.1 Neurological conditions recorded in the case notes are listed in Table 11. Only one condition is given for each individual, using the hierarchy of the order in the table. Less than one fifth (18%) of the non-autistic social dysfunction group had a neurological condition recorded, compared with nearly half (48%) of those diagnosed as autistic.

3-5.2 The findings for the uncertain group (26% with a neurological condition recorded) were close to those who were non-autistic. The group differences (comparing autistic versus the rest and organic condition recorded versus the rest) were very significant ($X^2=37.81$ df, 1, $p<.001$)

3-5.3 The majority (25) of the autistic patients did not have an epileptic condition. Of the 3 diagnosed cases of epilepsy in the autistic group, 1 was described as temporal lobe epilepsy and 2 were of other origin / focus. Epilepsy was considered to be a possibility in 3 patients, in 2 of whom a temporal lobe focus was suspected.

3-5.4 Serious birth complications were recorded for three of the autistic group, while records of acquired cerebral insult were rare, with only one patient reported as having a road traffic accident at the age of five years and one case of childhood viral meningitis with resulting deafness.

3-5.5 Although the record is incomplete, when neuro-psychological investigations were carried out they showed a relatively high incidence (five cases) of frontal lobe related dysfunction. It should be noted that all of these observations are the lowest estimates as the intensity of assessment varied markedly, with some patients in the autistic group having had no recorded neuro-psychological or neurological assessments.

3-6 Neuro-cognitive, psychological and psychiatric abnormalities in the autistic spectrum group

3-6.1 Psychiatric disorders of any kind can complicate autistic disorders (Gillberg, 1985; Ryan, 1992; Tantam, 1991; Wing, 1981). They are most easy to recognise in those with enough language to talk about their symptoms

3-6.2 Details of these features in the autistic spectrum group are shown in Table 12. Auditory hallucinations were reported by or thought to be occurring in eight individuals. Two patients described these as akin to having a distinct controlling voice in their head or describing what they heard as being their own thoughts. Experiences of depersonalisation and derealisation were reported by two other patients in the autistic group.

3-6.3 Paranoid ideation was evident in five of the autistic group.

3-7 Circumscribed interests, repetitive routines and obsessional behaviour

3-7.1 The numbers of individuals with circumscribed interests, repetitive routines and obsessional behaviour are shown in Table 13. It can be seen that interests and routines were recorded for 26 (84%) of the autistic group, compared with 12 (39%) of the uncertain group and only 4 (3%) of the non- autistic group. The differences were very significant ($X^2 = 115.40$ df2, $p < 0001$).

3-7.2 The details of the circumscribed interests and routines in the autistic group are given in Table 14. In the sub-group of 6 individuals with autism and severe learning disabilities (IQs under 50), ritualistic and repetitive behaviours were present in 4, including insistence on holding two sticks, repetitively listening to music, flushing toilets and touching walls.

3-7.3 In the autistic sub-group with IQs of 50 or above, no special interests were reported in the case notes for three of this group. For two other patients, the circumscribed interest was described in the case notes in general terms (e.g. "violent and sexual themes" and "morbid offences") and in another they took the form of obsessional fears about various objects (telephones, aeroplanes, fire alarms, fire doors, carpet shampoo).

3-7.4 A quarter of the circumscribed interests reported involved fascination with violence and/or violence related topics. Nazism was mentioned as the main interest of three of the people with Asperger's syndrome.

3-8 Mental health act status and hospital classification

3-8.1 It was found that the majority of individuals in all three groups were detained without limit of time in hospital under section 37/41 of the Mental Health Act 1983 with discharge allowed only by the Home Office or by a tribunal (see Table 15).

3-8.2 The section with the second largest numbers was section 3, giving an indefinite period of detention but allowing discharge by the medical officers as well as by

tribunal or Home Office. Only one person in each of the autistic and uncertain groups was transferred from prison (section 47/49) compared with 20 (13%) in the non-autistic social dysfunction group.

3-8.3 A somewhat complicated picture of intra-hospital classification was found (Table 16). Among the autistic spectrum group, 8 (26%) were changed from personality disorder to mental illness and vice-versa. Over half of the non-autistic social dysfunction and the uncertain groups were classified as mental illness compared with 42% of the autistic spectrum group. Personality disorder was the second largest category for all three groups.

3-9 Nature of offending

3-9.1 The index offences leading to committal to Special Hospital are shown in Table 17. Although only a very small group of patients, the percentages of the autistic spectrum group with index offences of homicide or offences of violence are similar to those in the other two groups. The percentages for homicide and violent crime for the autistic spectrum group are also comparable to those for the total population of the special hospitals reported by Taylor et al. in 1998, these being 28% and 35% respectively.

3-9.2 The main difference from the overall special hospital population was in the percentage of patients who committed sexual offences. In the autistic spectrum group, only one person had such an index offence (3%), compared to 9% of the total special hospitals population. The one person in the autistic group in the present study who had an index offence of a sexual nature had specific right-hemispheric brain damage and left temporal lobe dysfunction.

3-9.3 Although direct comparisons are not possible with Taylor et al's data, higher numbers of people in the autistic spectrum group and the uncertain group had arson as an index offence (16% in each case). Ten per cent of the total special hospital population had an index offence involving arson / other property offences.

3-9.4 Table 18 gives the index offences for each of the autistic spectrum sub-groups. Those with IQs under 50 were more often admitted to a special hospital because of management problems in previous placements

4. DISCUSSION

4-1.1 The initial screening questionnaire

4-1.2 The questionnaire devised by [Nylander](#) (1996) proved to have high sensitivity but low specificity when used with a cut-off score of 5 and over. This gave a large number of false positive, but ensured that cases of autistic spectrum disorders were not missed.

4-2 Prevalence

4-2.1 In this study there were 31 individuals identified as definitely having autistic spectrum disorders. However, another 31 possibly had autistic spectrum disorders but the information available in the case notes was not sufficient to make a definite diagnosis.

4-2.2 Twenty-five individuals who scored 5 or more on the first screening schedule were not investigated in the second stage. Calculating from the percentage of those diagnosed as autistic among all those who were investigated in the second stage (31 out of 215 = 14.4%) there would possibly be another 3.6 individuals who were autistic and another 3.6 who were uncertain.

4-2.3 It is possible to estimate the lowest and the highest possible numbers and rates of individuals with autistic spectrum disorders among the population of 1305 residents of the Special Hospitals who were subject to the initial screening. If the 31 individuals who were diagnosed as having autistic spectrum disorders were the only cases, the rate would be 2.4%.

4-2.4 If, on the other hand, all those in the uncertain group did have autistic spectrum disorders, and the possible cases among the 25 with scores of 5 and over on the screening schedule also had this diagnosis, there would be a total of 69 individuals, which is a rate of 5.3%. (By chance, one of the individuals among the missing 25 with scores of 5 or above on the screening schedule was seen after the end of this study and diagnosed as having Asperger's syndrome.)

4-2.5 The actual rate probably lies somewhere between the two extremes of 2.4% and 5.3%. The lower rate is similar to the higher estimate suggested by Scragg and Shah (1994) in their study in Broadmoor.

4-2.6 Approximately 57 individuals who were resident in the three hospitals were missed in the initial screening. From the above percentages, if these individuals had been included, the absolute numbers of autistic individuals would range from a minimum of 32 to a maximum of 72.

4-2.7 The highest estimated rate for autistic spectrum disorders in the general population is 0.71% for individuals with I.Q. over 70 (Wing, 1996) Even the lowest estimate for the Special Hospitals population (2.4%) is more than three times higher. However, the particular characteristics of the special hospitals population do not permit conclusions concerning over representation of autistic disorders among offenders in general.

4-3 Hospital placement

4-3.1 Rampton Hospital had significantly more individuals scoring above the cut-off point on the initial screening questionnaire. This hospital had somewhat more people

diagnosed as having an autistic spectrum disorder but fewer who were in the uncertain group, though the differences were not significant.

4-3.2 The somewhat higher number of people with autistic spectrum disorders in Rampton hospital was accounted for by the presence of some individuals with severe learning disabilities.

4-4 Gender

4-4.1 There was a marked excess of males in all three groups especially among those diagnosed as autistic. The ratio of 15.5 males to 1 female in this group is similar to the highest sex ratios reported in the literature. This reflects the combined effect of the marked excess of males with autistic spectrum disorders and the marked excess of males among offenders in general.

4-4.2 It should be noted that the criteria for autistic spectrum disorders used in this study are those seen most typically in males. As Gillberg (1992) has pointed out, females tend to show autistic features in more subtle forms.

4-4.3 Diagnosis is more difficult in women and it is likely that an unknown number of cases are missed.

4-5 Age

4-5.1 The mean age of the autistic spectrum group was slightly younger than that of the other two groups but the difference was not significant.

4-6 Length of time in hospital

4-6.1 The mean lengths of time in hospital were similar for all three groups and were 2 to 3 years longer than the average of 8.5 years reported for patients in a Special Hospital (Taylor et al 1998). This may reflect the difficulty of placing offenders with social dysfunction or impairments outside the Special Hospitals.

4-7 Autistic spectrum sub-groups

4-7.1 Two thirds of the individuals identified as having autistic spectrum disorders fitted the criteria used in this study for Asperger's syndrome, which would include a few like the 'loners' with high cognitive abilities described by Wolff (1995).

4-7.2 A small number had more typical autism with IQs in the mild learning disability, average or high range of ability. Only one fifth had autism and severe

learning difficulties and most of these were admitted for management problems in previous placements.

4-7.3 These findings were expected because individuals with autistic spectrum disorders and good cognitive skills are those least likely to have their social and communication impairments recognised (see below under '**Primary diagnosis**').

4-8 Circumscribed interests and repetitive routines

4-8.1 The group diagnosed as having autistic spectrum disorders had very significantly more circumscribed interests and repetitive routines than the other two groups. Themes such as violence, weapons, and Nazism were common. In some cases, the special interests were directly linked to the offence committed (see below under 'Reasons for offending')

4-9 Neurological conditions

4-9.1 Those in the autistic spectrum group were very significantly more likely to have a neurological condition recorded in the case notes.

4-9.2 The high prevalence of such conditions was also noted by Scragg & Shah (1994) in their study of patients in Broadmoor hospital. The finding that nearly half of the autistic spectrum group had evidence of brain pathology is higher than that reported from epidemiological studies of autistic disorders in children.

4-9.3 This suggests that the presence of identifiable neuropathology may increase the likelihood of offending in individuals with autistic spectrum disorders who do not have severe learning disabilities.

4-10 'Primary' psychiatric diagnosis

4-10.1 Only 10% of the autistic spectrum group had been diagnosed as having an autistic spectrum disorder and for a further 10% autism had been mentioned in the case notes at some time before the middle 1980s.

4-10.2 A variety of psychiatric symptoms, including hallucinations and paranoid thinking, were recorded for many individuals in the autistic spectrum group. The previous diagnoses, mainly schizophrenia, personality and affective disorders, were presumably based on currently observed symptoms and behaviour.

4-10.3 In most cases, the possibility of an autistic spectrum disorder was not considered and therefore not investigated.

4-10.4 In a few individuals who were known to one of the present authors (LW) the odd thought processes and behaviour characteristics of an autistic spectrum disorder had been misinterpreted as evidence of schizophrenia or other psychosis. However, psychiatric illness can occur together with an autistic disorder and, when this happens, disentangling the complicated clinical picture presents formidable problems.

4-10.5 In the last few years, there has been increasing recognition of the possibility of autistic spectrum disorders among offenders in Special Hospitals. Consultants specialising in the field have been asked to see some individuals and have made positive diagnoses in several cases.

4-10.6 One person has been moved to a specialised placement and has settled well. It is not clear how much difference the diagnoses of an autistic spectrum disorder has made to the care and treatment of those remaining in the special hospitals.

4-10.7 The inter-hospital classification into mental illness and/or personality disorders reflects the predominantly psychiatric classification legally used. A category that would indicate an autistic spectrum disorder is not currently available.

4-11 Index offences

4-11.1 Murder, manslaughter and violence were common in all three groups. The low level of sexual offending in the autistic group fits with the clinical impression that a higher than average proportion of men with autistic spectrum disorders have little or no interest in sex with a partner.

4-11.2 This is an aspect of the overall difficulty in social interaction, sometimes combined with a dislike of physical contact. However, when individuals are interested in sex this is often manifested in highly deviant ways and a few do commit sexual crimes (Chesterman & Rutter, 1993).

4-11 Reasons for offending

4-11.1 The specific reasons for offending for each individual with an autistic spectrum disorder could not be ascertained from the case notes. However, the reasons that have been found from clinical experience with offenders with autistic disorders were discussed by Wing (1997) who listed them as follows:

4-11.1 - 1. Pursuit of a special interest, e.g. weapons, poisons, fire, violence against people or animals, and sadistic acts.

4-11.1 - 2. Experiences of bullying, teasing, rejection and a desire for revenge. This may lead to an assault on the perpetrator or displacement onto another, often completely innocent, person.

4-11.1 - 3. Hostility towards family members, usually the mothers. The victim may be blamed for all the problems the offender has suffered or else has upset the offender by not giving in to his every demand.

4-12.1 - 4. Oversensitivity to incoming stimuli leading to high arousal and violent behaviour, either directed at the source of the stimulus or random.

4-12.1 - 5. Passively following the lead of a stronger personality and committing an offence under their direction.

4-12.1 - 6. A cry for help, in which violence, even murder, is seen as the only way to obtain the care and protection desired.

4-12.2 A lack of awareness of wrongdoing, or an assumption that the individual's own needs supersede all other considerations, and indifference to the wider consequences of any actions are characteristic attitudes in offenders with autistic spectrum disorders.

4-12.3 Some have a purely intellectual interest in the result of their crime and are coldly detached from the effects on the victims. In some cases there is an intellectual acknowledgement that the offence was wrong but no real comprehension of what this means in social and emotional terms - a state of mind that is difficult to describe in legal terms.

4-12.4 As a result of the disconnection between intellectual understanding and emotional comprehension, it is difficult for the individual concerned to learn from the consequences of their actions.

5 Conclusions and recommendations

5-1.1 Individuals with autistic spectrum disorders form only a small proportion of all those in the Special Hospitals. However, they pose particular problems of management, treatment, and placement if a move from the Special Hospital is considered. Their lack of real comprehension of the consequences of their offences and their egocentric justification for their anti-social acts means that the possibility of re-offending is very high.

5-1.2 The possibility of the presence of an autistic spectrum disorder should always be considered when assessing offenders in Special Hospitals. It should be actively suspected in those whose reasons for offending are in the list given above and whose attitude to their offences and social behaviour are deviant in the ways described in this report.

5-1.3 A screening questionnaire with high sensitivity but better specificity than that used in the present study is required. Such an instrument is currently being developed by Ferriter and colleagues at Rampton Hospital.

5-1.4 Experience with people with autistic spectrum disorders who are not offenders has shown that they are more settled, more controlled and their difficult ‘challenging’ behaviour is minimised in environments specifically designed for them. The key features are a structured, organised programme of suitable daily activities in which unexpected changes are kept to the lowest possible level. Well trained, experienced staff and a clear visually presented time-table are essential. Most people with autistic spectrum disorders need their own personal space and dislike close proximity to others. Given the comparatively small numbers of people with autistic spectrum disorders in the Special Hospitals, it might be possible to set up a special unit for those who present problems in the other wards of the three hospitals.

5-1.5 When considering, for those with autistic spectrum disorders, moves to another placement or discharge, the reasons for past offences should be established as far as possible and the implications considered with care. As already emphasised; the possibility of re-offending is very high. The best way to avoid this is ensure that the person concerned does not experience again the circumstances that led to the previous offence or offences. For example, someone who committed murder in order to be given full time care and protection should not be expected to cope with less than full time supervision. Someone committing a crime under another person's direction will also need continuing close supervision and guidance. An individual with a fascination for the effect of poisons on other human beings is likely to find opportunities for experiments if discharged to the ‘community’. Behaviour during the time spent in hospital is not a good guide, especially if the person concerned had no exposure to the situations that led to the previous offences. Autism sensitive risk assessment procedures should be developed.

5-1.16 A follow-up study in, perhaps, 2 years time, would be useful. It would also be of particular interest to undertake a more intensive study of the women residents in the special hospitals. Clinical impressions suggest, in line with [Gillberg's](#) (1992) findings, that autistic spectrum disorders are manifested in subtle ways in women. Their behaviour can be as problematic as that of the men (sometimes more so) and they also benefit from a well organised, predictable environment.

5-1.7 At the time of writing, no study has yet been published of the prevalence of autistic spectrum disorders among young offenders or adults committed to prison. Such studies would highlight the difficulties of diagnosing and finding appropriate cure and treatment for those with autistic spectrum disorders who break the law.

5-1.8 The study reported here and other studies of offenders with autistic spectrum conditions raise the question of the legal status of individuals with this type of developmental disorder. Because they may score in the borderline, average on high range on standardised intelligence tests their impairments of social interaction, communication and understanding the consequences of their actions are, in many cases, overlooked. There is at present no legal category into which they conveniently fit. This gap in the law can lead to unfortunate consequences for the individuals concerned and those involved with them as family or, sometimes, as victims. There is a strong case for an amendment to the Mental Health Act so that the problems of individuals with autistic spectrum disorders who need care for any reason can be dealt with appropriately.

5-1.9 It is recommended that further study be undertaken on how the cognitive characteristics of autism may contribute to offending behaviour and impair rehabilitation.

5-1.10 Because the numbers are comparatively small their management in more generic settings such as the special hospitals is particularly difficult. Consideration should be given to setting up dedicated forensic unit(s) for the care and treatment of such individuals both within the special hospitals and under conditions of lower security.

5-1.11 It is recommended that awareness and training initiatives be undertaken by those authorities having responsibility for provision for the group. The National Autistic Society would be prepared to be actively involved in this process.

5-1.12 Finally, it must be emphasised that, for some, perhaps many, individuals with autistic spectrum disorders who commit offences, early diagnosis and appropriate care and education in childhood and help and support in adult life would have prevented the psychological confusion and distress that led to the crime being committed.

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Tables to main document

Table 1. Features of the autistic spectrum (*essential diagnostic criteria)

1. *Impairment of reciprocal social interaction and empathy
2. *Impairment of verbal and non-verbal communication
3. *Impairment of imagination and of the ability to plan and organise
4. *A narrow range of repetitive activities and/or interests
5. May be impairments of any other developmental skills
6. May be abnormalities of feeding, sleeping, responses to sensory input, mood, activity level. May be associated with any other physical or psychiatric disorder

Table 2 Distribution of scores from initial screening questionnaire

No. of behaviours	Ashworth	Broadmoor	Rampton
0	146 (31.2)	138 (35.6)	161 (35.8)
1	92 (19.7)	73 (18.8)	52 (11.6)

2	69 (14.7)	47 (12.1)	43 (9.6)
3	46 (9.8)	34 (8.8)	48 (10.7)
4	51 (10.9)	20 (5.2)	45 (10.0)
Cut-off for further investigation			
5	28 (6.0)	19 (4.9)	32 (7.1)
6	21 (4.5)	13 (3.4)	27 (6.0)
7	11 (2.4)	24 (6.2)	23 (5.1)
8	1 (0.2)	10 (2.6)	13 (2.9)
9	3 (0.6)	10 (2.6)	5 (1.1)
TOTAL	468 (100)	388 (100)	449 (100)

Table 3 Patients scoring 5 and above on the screening questionnaire

Hospital	Number of patients scoring 5 and above	Percentage of total for hospital
Ashworth	64	13.7 %
Broadmoor	76	19.6 %
Rampton	100	22.3 %

Table 4 Classification of patients scoring above cut-off level on screening questionnaire

Diagnosis	Ashworth	Broadmoor	Rampton	Total
Non-autistic	30	46	77	153
Autistic spectrum	8	10	13	31

Uncertain	8	18	5	31
Total	46	74	95	215

Table 5 Gender

Diagnosis	Male	Female	Transsexual originally male	Total
Non-autistic	128	25		153
Autistic spectrum	29	2		31
Uncertain	27	3	1	31

Table 6 Mean time in hospital

Diagnosis	Mean time in hospital in years	(sd)	Range
Non-autistic	10.75	(8.59)	1-40
Autistic spectrum	11.26	(7.81)	1-34
Uncertain	11.85	(7.58)	2-34

Table 7 Age

Diagnosis	Mean age	(sd)	Range
Non-autistic	42.24	(11.49)	20-77
Autistic spectrum	38.33	(10.60)	21-66

Uncertain	43.38	(9.49)	23-60
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Table 8 Type of autistic spectrum condition

	N
Asperger's syndrome	21 (66.6%)
Autistic (IQ 50+)	4 (13.3%)
Autistic (IQ <50)	6 (20 .0%)

Table 9 Previous primary diagnoses (pre-1995)

	Non-Autistic	Autistic spectrum	Uncertain	Total
Autistic spectrum	0	3	0	3
Schizophrenic disorders	(63%)	(45%)	(58%)	(59%)
Schizophrenia	62	11	9	82
Schizo-affective	14	1	0	15
Schizophrenia & personality disorder	20	2	9	31
Affective disorders	(7%)	(10%)	(6%)	(7%)
Affective disorder	6	2	1	9
Affective disorder & personality disorder	4	1	1	6
Personality disorders	(15%)	(26%)	(26%)	(18%)
Personality disorder/mental illness/learning disability	1	1	0	2

Personality disorder	18	6	7	31
Schizoid personality	4	1	1	6
Organic	4	0	1	5
Other/NK/none	20	3	2	25
Total	153	31	31	215

Table 10 Previous primary psychiatric diagnoses (pre 1995) for autistic spectrum group

	Asperger's syndrome	Autism IQ 50+	Autism IQ < 50	Total
Autistic spectrum	0	1	2	3
Schizophrenic disorders				
Schizophrenia	11	0	0	11
Schizo-affective	0	0	1	1
Schizophrenia & personality disorder	1	0	1	2
Affective disorders				
Affective disorder	2	0	0	2
Affective disorder & personality disorder	0	0	1	1
Personality disorders				
Personality disorder/mental illness/learning disability	0	1	0	1
Personality disorder	3	2	1	6

Schizoid personality	1	0	0	1
Organic	0	0	0	0
Other/NK/none	3	0	0	3
Total	21	4	6	31

Table 11 Neurological conditions

	Non-Autistic	Autistic spectrum	Uncertain	Total
Brain pathology	4	8	6	18
Epilepsy	22	3	2	27
Chromosomal	1	2	0	3
Meningitis in past	0	2	0	2
None recorded	119	16	23	165
Total	153	31	31	215

Table 12 Neurological, psychological & psychiatric abnormalities in autistic spectrum group

A1 Cerebral anoxia at birth, right hemisphere damage and L. anterior temporal and posterior frontal lobe dysfunction, visual and verbal memory problems, FSIQ66 and wide scatter of subtest scores

A2 Delusional, "personality" in head, unaffected by anti-psychotics; FSIQ88 and scatter of subtest scores

A3 Memories like events in which was not involved, voices like thoughts FSIQ114
Temporal lobe focus suspected

A4 Hears own thoughts like two voices, abnormal 10Hz α -wave in occipital regions, RTA at 5 years, unaffected by anti-psychotics; FSIQ 84 and scatter of subtest scores

A5 Paranoia, no hallucinosis, believed he was autistic in 1937

A6 Hypercalcaemia, paranoia; VIQ83, PIQ81 with scatter of subtest scores

A7 Paranoia, hears music, visual distortions, head injury and possible temporal lobe epilepsy

A8 Problems in sequencing information and social language comprehension

B1 Parental auditory hallucination, parietal lobe dysfunction, FSIQ96

B2 Impaired motor speed, depersonalisation and unreality, right posterior frontal pathology FSIQ 87

B3 Auditory hallucination, "alien" conversations about him

B4 Paranoia, catatonia, FSIQ 116, PIQ 102, VIQ125

B5 Atrophy on right temporal lobe

B6 Prefrontal pathology FSIQ 75-79

B7 Depersonalisation and derealisation

B8 Possible right hemisphere impairment / non-specific frontal dysfunction,FSIQ 80 with scatter of subtest scores

B9 Visual hallucinations, female voice in head

B10 Past history of hearing voices – now thinks were repetitive thoughts

R1 Abnormal EEG, savant memory for dates; VIQ103, PIQ76, FSIQ91

R2 Grand mal seizures, bilateral amygdectomy (no effect on behaviour); FSIQ 75

R3 Severe learning disabilities

R4 Severe learning disabilities, possible seizures

R5 Visual and auditory hallucinations; FSIQ64,

R6 Catatonia; FSIQ49

R7 Paranoia, generalised and temporal lobe focal epilepsy , secondary hypothyroidism

R8 Hypoxic brain damage, grand mal seizure, possible gluten allergy, severe learning disability

R9 Deaf, diffuse slow wave EEG abnormality, lateralisation failure on neuropsychological assessment, severe learning disability

R10 Severe learning disability, deaf, visual problems

R11 Childhood viral meningitis, frontal problems, deaf, paranoid; FSIQ 76

R12 Paranoia, catatonia, believes others know his thoughts, ideas of reference, alcohol abuse

R13 Cyanosis at birth, bipolar mood disturbance, problems with emotional words

Table 13 Circumscribed interests, repetitive routines and obsessional behaviour

	Non-Autistic	Autistic spectrum	Uncertain	Total
Circumscribed interests	4	22	8	34
Repetitive routines	1	4	4	9
Obsessional behaviour (OCD like)	2	0	1	3
Likes order & routine	3	0	4	7
None in notes	134	5	14	153
NK	9	0	0	9
Total	153	31	31	215

Table 14 Circumscribed interests of the autistic spectrum group

Patient	Interest	Index offence / reason for placement
A1	TV (was toy soldiers and cowboys & Indians)	Indecent assault
A3	Popular science, computers, cryptography	Wounding, damage to property
A4	Nazism, WW2, violent films	Manslaughter
A5	Water	Murder

A6	Violence, knives, bombs, cycling	Arson
A7	Computers, models, plastic figures, Enid Blyton, comics	ABH, affray
B2	Nazism	Assault
B3	Time and victim of offence	Manslaughter
B4	Chess	Manslaughter
B5	Militaria, harm to women, cryogenics	GBH, wounding with intent
B6	Ohm's law, martial arts, letter writing	Threatening to kill
B7	Aeroplanes, "pedantic cognitive rituals"	Wounding with intent
B8	Fire, railways	Arson
B9	Science fiction games, numbers	Assault
B10	Royal family	Assault
R1	Religion & philosophy	Manslaughter, wounding
R2	Morbid offences	Manslaughter
R3	Flushing toilets, touching walls	Violence towards staff & patients
R4	Sticks, breaking windows	Management difficulties
R6	Fire & fire-fighters	Arson
R7	Musical ability	Violence towards staff & patients
R8	Obsessive fears (fire doors, aeroplanes, etc.)	Assault on child
R10	Sex, knives & Chinese food	AOABH
R11	Sexual and violent themes, cleanliness	Manslaughter, assault
R12	Nazism, dictators, knives	Manslaughter
R13	Knives	Unlawful wounding

Table 15 Mental Health Act status

	Non-autistic	Autistic spectrum	Uncertain
Section 37 / 41 (1983)	93 (61%)	16 (52%)	24 (77%)
Section 6 (1913MDA)	1	0	0
Section 41 (1959MHA)	6	0	0
Section 3 (1983)	20 (13%)	8 (23%)	3 (10%)
Section 47 / 49 (1983)	20 (13%)	1 (3%)	1 (3%)
Section 5 CP / CI	7	4	0
Section 20 (1983)	0	1	0
Section 46 (1983)	0	0	1
Section 60/65 (1983)	2	0	0
pre- 1983 MHA	2	1	2
None/NK	2	0	0
Total	153	31	31

Table 16 Intra-hospital classification

	Non-Autistic	Autistic sp.	Uncertain	Total
Mental illness	86 (56%)	13 (42%)	19 (61%)	118
Personality disorder	28 (18%)	7 (23%)	10 (32%)	45
Personality disorder & mental illness	8	0	1	9
Mental illness (from personality disorder)	5	3	0	8
Personality disorder (from	9	5	0	14

mental illness)				
Mental illness & personality disorder & learning disorder	1	0	0	1
Mental illness & learning disorder (from pers.dis.)	3	0	0	3
Mental illness & learning disorder	3	0	1	4
Personality disorder & learning disorder	2	1	0	3
Other combinations	8	2	0	10
Total	153	31	31	215

Table 17 Index offences

	Non-Autistic	Autistic spectrum	Uncertain	Total
No index offence:				
Management in prior placement	14 (9%)	5 (16%)	1 (3%)	20
Index offence:				
Homicide	36 (24%)	8 (26%)	9 (29%)	53
Violence / assault	39 (25%)	10 (32%)	11 (35%)	60
Attempted murder/threatening to kill	8 (5%)	2 (6%)	2 (6%)	12
Arson	8 (5%)	5 (16%)	5 (16%)	18
Sexual offending	31 (20%)	1 (3%)	2 (6%)	34
Abduction	0	0	1 (3%)	1
Criminal damage	3 (2%)	0	0	3

Acquisitive offences	6 (4%)	0	0	6
NK	8 (5%)	0	0	8
Total	153 (100)	31 (100)	31 (100)	215

Table 18 Index offences of patients in autistic spectrum group

	Asperger's Syndrome	Autistic IQ 50+	Autistic IQ < 50	Total
No index offence:				
Management in prior placement	0	1	4	5
Index offence:				
Homicide	6	1	1	8
Violence/assault	8	1	1	10
Threatening to kill	2	0	0	2
Arson	4	1	0	5
Sexual offending	1	0	0	1
Total	21	4	6	31

Appendix

Screening questionnaire for Asperger's syndrome

1. Does the patient have any problems regarding contacts with others? e.g. cannot find same-age friends or reciprocally satisfying sexual partners?

[Yes] [No] [Maybe]

2. Is the patient odd, eccentric, "one of a kind"?

[Yes] [No] [Maybe]

3. Do you find the patient compulsive or rigid, occupied by rituals, routines or rules?
[Yes] [No] [Maybe]

4. Has the patient trouble with clothing, grooming and personal care? e.g. do they wear very old-fashioned or ill-fitting clothing?
[Yes] [No] [Maybe]

5. Has the patient, or has s/he had, special interests an intense interest that keeps the patient from engaging in other activities or an interest that the patient wants to talk about all the time? (The subject of the special interest is not important)
[Yes] [No] [Maybe]

6. Has the patient bizarre language or a strange/unusual voice? Does s/he speak in a very grammatically correct or old-fashioned way, use standard phrases or clichés, or talk in an unnecessarily loud or low voice? Does s/he talk in a monotonous or shrill or whining voice?
[Yes] [No] [Maybe]

7. Has the patient unusual non-verbal communication e.g. abnormalities of gaze, gesture or facial expression, unusual posture, stiff gait, etc.?
[Yes] [No] [Maybe]

8. Does the patient seem to have a lack of common sense, not foreseeing the consequences of their actions? Do they repeatedly get into difficult or embarrassing situations, or get others into these situations?
[Yes] [No] [Maybe]

9. Is the patient uneven in their abilities e.g. very skilful in some areas while lacking elementary knowledge or skills in others?
[Yes] [No] [Maybe]