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FACULTY OF MEDICINE, HEALTH AND LIFE SCIENCES

School of Psychology

Asperger Syndrome in Adulthood:

Outcomes and Access to Services

by

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ABSTRACT

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ASPERGER SYNDROME IN ADULTHOOD: OUTCOMES AND ACCESS TO SERVICES

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Long-term studies suggest poor outcomes for adults with Asperger syndrome (AS). First, studies are reviewed exploring outcomes and life-issues for adults with AS. Overall, adaptive functioning is lower than expected given the intellectual ability associated with AS. Consideration of focal issues, including those relating to mental health, employment, and contact with forensic services, suggest adults with AS are likely to experience significant difficulties in independent living. Implications are considered, including addressing current service provision in relation to this population. Statutory services may be failing adults with AS, increasing vulnerability and risk for these individuals. While receipt of a formal diagnosis may validate challenging life-experiences and facilitate access to support, provision is limited and professionals across services lack relevant knowledge and understanding. Future directions for research and clinical practice are discussed, including identifying awareness of AS among relevant professional service groups.

Next, nurses' perceptions, causal attributions, and responses toward adults with AS presenting in mainstream health settings are reported. Participants observed a clinical-vignette depicting an adult with AS, and completed a questionnaire. Effects were considered within the context of diagnostic information regarding AS, and nurse training. Findings suggested provision of diagnostic information increased the likelihood nurses' would perceive observed behaviour to be associated with an autism spectrum disorder; no effects were found relating to causal attributions or responses. Participants receiving nurse training were likely to consider observed behaviour to reflect characteristics over which others had control. Observed behaviour was associated with anxiety or obsessive-compulsive disorder, regardless of nurse training.

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LITERATURE REVIEW

Asperger Syndrome in Adulthood:
A Review of the Literature

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[1] See Appendix A for Guide for Authors

Asperger Syndrome in Adulthood:
A Review of the Literature

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Abstract

This paper reviews studies exploring outcomes and life-issues for adults with Asperger syndrome. First, published long-term outcome studies are examined to establish the current knowledge base; findings suggest variable but typically poor outcomes. Overall, adaptive functioning is lower than what may be expected, given the intellectual ability associated with Asperger syndrome. Next, more focal issues are addressed, including those relating to mental health, employment, and contact with forensic services. The literature reviewed suggests the vast majority of adults with Asperger syndrome are likely to experience significant difficulties in independent living. Finally, implications are considered including addressing current service provision in relation to the needs of this population. It is apparent statutory services may be failing adults with Asperger syndrome, increasing vulnerability and risk for these individuals. While receipt of a formal diagnosis may validate difficulties that have been experienced and facilitate access to support, provision is limited and professionals across services lack relevant knowledge and understanding. Future directions for research and clinical practice are discussed.

Asperger Syndrome in Adulthood:
A Review of the Literature

Asperger syndrome (AS) is a pervasive developmental disorder characterised by qualitatively abnormal development of reciprocal social interactions and restricted or repetitive interests and behaviours. Individuals with AS may have difficulties recognising and interpreting non-verbal behaviours related to social communication (e.g. gestures, eye contact, facial expression), and are often unsuccessful in developing age-appropriate peer relationships. Restricted or repetitive behaviours and interests may manifest as a preoccupation of unusual intensity, inflexible adherence to non-functional routines, or stereotyped motor movements. As a consequence of these features, individuals with AS experience significant difficulties in many areas of life, including social and occupational activities. While individuals with AS present with some of the characteristics associated with other pervasive developmental disorders (e.g. autism), there are no clinically significant delays in language development, although communication may appear pedantic or focused on specific topics of interest. In addition, intellectual development proceeds in the typical range. Recognition of AS in the psychiatric literature has a relatively short history, with seminal observations being published on opposite sides of the Atlantic Ocean during the final stages of World War II (Asperger, 1944; Kanner, 1943). Diagnostic criteria as presented in DSM-IV-TR and ICD-10 are displayed in Appendix B (American Psychiatric Association [APA], 2000; World Health Organization [WHO], 1993).

Prevalence

There is a lack of accurate data regarding the prevalence of AS in the general population (APA, 2000), due in part to the relative 'youth' of this condition. A review of the few recent surveys published in this area found the prevalence of AS ranged from .3 – 48.4 per 10,000; disparities in estimates were influenced by factors such as sample size, diagnostic criteria, and utilised screening measures. Further, these surveys were conducted in the UK or Scandinavia, limiting conclusions that can be drawn. Based on these data, a conservative working point prevalence rate of 2 per 10,000 was suggested (Fombonne & Tidmarsh, 2003), although this was recently surpassed by a more accurate estimate of 9.5 per 10,000 based on a survey of over 26,000 children in one National Health Service Trust (Chakrabarti & Fombonne, 2005).

A more pragmatic approach has also been taken to estimating the number of people with autism spectrum disorders, including AS, who may need to access services. The Department of Health has estimated approximately 500,000 people present with an autism spectrum disorder, although the number of individuals known to services is yet to be established (DoH, 2001, 2006). More specifically, the National Autistic Society (NAS) has estimated approximately 200,000 people have AS, with just over three-quarters of these being adults (Barnard, Harvey, Potter, & Prior, 2001). Thus, there are a substantial number of adults in the UK who may present with AS.

Asperger Syndrome or High-Functioning Autism?

There is, at present, a degree of confusion surrounding the diagnosis of AS. Debate focuses on the presence or absence of qualitative differences in communication skills, with some questioning whether individuals diagnosed with AS actually lack impairment in this area (e.g. Mayes, Calhoun, & Crites, 2001). Individuals presenting, before the age of 3 years, with qualitative impairments in social and communication skills and restricted or stereotyped patterns of behaviour may fulfil diagnostic criteria for autism (APA, 2000; WHO, 1993). Although not specified in diagnostic criteria, individuals with intellectual functioning in the typical range are often referred to as having 'high-functioning autism' (HFA). HFA as a term was introduced to illustrate those who displayed features of autism when children, but where features decreased in severity over time and intellectual functioning was assessed as being in the typical range (e.g. DeMyer, Hingtgen, & Jackson, 1981). Thus debate has arisen regarding the distinction between AS and HFA.

Although there is discussion regarding the status of AS and HFA in nosology, at a pragmatic level there is little to differentiate between people with such diagnoses (Howlin, 2003, 2004). The current view is that AS is a variant on the continuum of autism spectrum disorders (Frith, 2004), and such a position is unlikely to change until future studies refine our knowledge of the genetics of these conditions (Foster & King, 2003). There is insufficient evidence at the present time to differentiate between AS and HFA, and the clinical presentation of people with these diagnostic labels appears similar (Attwood, 2006; Woodbury-Smith, Robinson, Wheelwright, & Baron-Cohen, 2005). The term AS will be used throughout this review, and studies referring to both conditions were selected for inclusion.

Asperger Syndrome in Adulthood

Autism spectrum disorders, including AS, have attracted a great deal of clinical and research attention. The vast majority of literature regarding autism spectrum disorders, however, is child-oriented and there has been a lack of interest and understanding of adults presenting with such conditions; consequently, relatively little is known about the experiences of adults with AS. This may be due, in part, to the fact autism spectrum disorders were identified relatively recently (Asperger, 1944; Kanner, 1943). It may also be the classification of autism and AS as pervasive developmental disorders has narrowed the receptive audience to those researchers and clinicians interested mainly in child-related issues (Taiminen, 1994). Additionally, children with AS are likely to demonstrate relative strengths in verbal skills, thus reducing the likelihood of recognition of social and behavioural difficulties until they get older (APA, 2000); research demonstrating the average age of diagnosis of AS to be 11 years in comparison to 5 years 6 months for autism may further evidence this (Howlin & Asgharian, 1999). Despite this, it remains that pervasive developmental disorders have lifelong implications (APA, 2000), and individuals with such disorders are likely to live into old age (Isager, Mouridsen, & Rich, 1999). Given this, consideration of outcomes and life-issues relevant to adults with AS is an important exercise.

While childhood may be a testing time for individuals with AS, adult life is likely to present very different challenges. Adulthood is interspersed with a variety of differing personal and social roles, including studying for further- or higher-education, gaining employment and independence, acquiring relationships with others, marriage and raising children. Following this, adjustments must be made as one considers retirement and the death of family and friends; it is possible adults with AS will encounter the majority of these experiences during their lifetime (LeBlanc, Schroeder, & Mayo, 1997). Times of transition appear to be particularly stressful for adults with AS, and crisis-points are likely to be experienced during significant events on the typical developmental trajectory (Tantam, 2000, 2003).

Despite some evidence suggesting improvement in social and communication abilities over time (Piven, Harper, Palmer, & Arndt, 1996), individuals with AS are likely to experience a range of difficulties in adulthood (Nylander & Gillberg, 2001). Recent qualitative studies demonstrate young adults with AS and their parents consider intense or unusual interests, a dislike of change and social immaturity to lead to difficulties 'fitting in' with peers. In addition, respondents identified longer-term risks associated with social isolation, dependency on parents, mental health problems, and unemployment to be pertinent (Portway & Johnson, 2005). Adults with AS can also experience difficulties developing personal and working relationships with others (Sperry & Mesibov, 2005), despite a desire to form such relationships (APA, 2000). Additionally, young adults with AS judge their own quality of life to be reduced as a result of their condition, reporting weaknesses in social and occupational functioning (Jennes-Coussens, Magill-Evans, & Koning, 2006).

The focus of this paper is to review the outcomes and life-issues relevant to adults with AS. The following review is divided into three sections. First, published studies will be reviewed to establish the current knowledge base regarding outcomes for adults with AS. Next, more focal aspects of the experiences of adults with AS will be addressed, including those relating to mental health, employment, and forensic issues. Finally, the review will consider the implications of these studies for adults with AS, and how service provision is currently addressing the needs of this population.

Review of Published Outcomes in Adulthood

Studies published in peer-reviewed journals reporting the long-term outcomes of adults with AS form the basis of the first part of this review. These studies predominantly focus on social adjustment and the quality of adaptive behaviour skills (Pellicano, 2007), providing a rich source of information on this subject (Howlin, 2000).

Published outcome studies presenting data on individuals with AS over the age of 18 years were obtained through literature search-engines and inspection of reference sections of relevant books and articles; while some were detailed investigations, others were brief reports. Where groups included participants of a younger age, best efforts were made to differentiate data relating to those over 18 years. Studies were only included if a clear diagnosis of autism or AS was recorded, and evidence was presented estimating intellectual functioning to be in the typical range (i.e. IQ > 70; Harris, 2006). Again, some authors have included data on individuals with intellectual functioning estimated below this level, and best efforts were made to differentiate participants meeting this criterion. The studies will be reviewed in chronological order, followed by a summary and critique of relevant issues.

Autistic Children as Adults: Psychiatric, Social, and Behavioral Outcomes

Rumsey and colleagues explored outcomes in a group of men with autism in North America (Rumsey, Rapoport, & Sceery, 1985). Fourteen participants were recruited through national organisations; each was at least 18-years-old, had a documented developmental history of autism, and was physically healthy. Nine were high-functioning with regard to intellectual and language skills, although abnormalities in expressive language and social skills were noted alongside substantial repetitive behaviours.

A particular point of interest in this study pertains to the methods used to collect data on participants' outcomes. All but one of the participants were admitted as an inpatient for the duration of data collection; the remaining participant was seen on an outpatient basis, but it is unclear as to whether this individual was high-functioning. While this method allowed researchers to collect detailed data, the constraints introduced in an unfamiliar environment also likely increase the probability participants would behave as they would in their typical environment. Data collection involved assessment using diagnostic interview schedules, cognitive assessment, staff observation, and interviews exploring early memories, personal explanations for ritualistic behaviours, and perceived quality of the parent-child relationship. Participants' parents were interviewed regarding their child's developmental history and current functioning, providing information on social, adaptive, and occupational functioning.

Approximately half of the participants demonstrated an unusual use of language, including talking to themselves on a regular basis, developing idiosyncratic meanings for words, and perseverating with words or phrases. One-third had significant limitations using spontaneous speech. All but one of the participants displayed a distinct impairment in social interactions, and one-third were considered aloof or oppositional during social exchanges. Any relationships between staff or other participants were formed during structured activities; individuals had substantial difficulties maintaining these relationships without support. Additionally, staff noted one-third of participants appeared to have limited awareness of their social environment as demonstrated, for example, through inappropriate nudity. Most of the participants displayed limited cognitive flexibility and stereotyped arm, hand, or finger movements. Almost half had obsessional or perseverative thought patterns, although none reported delusions or hallucinations. A quarter of participants were depressed, two-thirds displayed generalised anxiety, and over half of the parent interviewed indicated participants had been aggressive to others or property following difficulties managing social situations and making independent decisions.

Adaptive and social functioning skills were lower than expected relative to observed cognitive abilities. This effect was most likely due to poor self-direction, lack of social relationships, and stereotyped behaviour patterns. Only two participants attended college; the majority needed support to find regular employment. Those who were employed were mainly engaged in vocational training programmes or sheltered workshops; poor initiative, compulsive behaviours and cognitive rigidity impeded performance in these settings. Two-thirds of participants lived with parents; the remainder received professional living support. Thus, it is clear the adults in this sample experienced significant social difficulties, and few were able to experience independent living.

Outcome and Prognostic Factors in Infantile Autism and Similar Conditions: a Population-Based Study of 46 Cases Followed Through Puberty

Gillberg and Steffenburg (1987) report on a Swedish population-based follow-up of children diagnosed with autism compared with childhood psychoses. While 23 adults with autism were included, only four male participants were 18 years or older during data collection and had an IQ over 70 as assessed before 6 years of age. Data were collected through clinical review and structured telephone interviews with parents. All high-functioning adults in this study were less than 20 years old. Three had an IQ between 71 - 85 and communicative speech at 6 years of age. Two lived with their parents while one lived in a foster home; all experienced social difficulties and lacked relevant support. The fourth participant had an IQ over 85 and demonstrated communicative speech at 6 years of age. In contrast to the other participants, however, he was considered self-supportive and typical in respect of social and occupational functioning.

A Follow-Up Study of High-Functioning Autistic Children

A Canadian study exploring outcomes for children diagnosed with high-functioning autism before 6-years was reported by Szatmari and colleagues (Szatmari, Bartolucci, Bremner, Bond, & Rich, 1989). Forty-five children who attended a treatment centre for children with autism were identified for inclusion; all had a diagnosis of autism and IQ over 65. Of these, 16 children and their parents consented to participate between 11 to 27 years after first contact with the treatment centre. The participants ranged in age from 17 to 34 years (mean = 26 years), assessed IQ ranged from 68 to 110 (mean = 92). Outcomes are presented for 11 males and 3 females who were older than 18-years and had an IQ over 70. Data were collected using a rating scale for social impairments; intellectual functioning was assessed using the WAIS-R. Participants' parents were also approached to provide information regarding the individuals' psychosocial status, adaptive and emotional functioning, and details of early developmental history to inform diagnostic interviews.

Specific information regarding the high-functioning adults relates to social circumstances, educational attainment, and occupational activity. One individual was married and living with his wife; a further six had dated at least once. One-third of participants were living in apartments, and over half were living at home with parents. One was living in a group home. While almost half the sample had received special education provision, one-third had achieved a Bachelors degree and one individual a Masters degree. The remainder had studied to at least college level education. All but two participants were engaged in meaningful daytime activity, with a quarter working in a supported workshop, two individuals working as salesmen, and two continuing further study.

All participants scored lower than expected on measures of communication and socialisation in comparison to intellectual ability. In addition, interviews suggested parents described symptoms related to anxiety and obsessive-compulsive disorders; participants themselves were more likely to describe experiences of hallucinations and paranoid thoughts.

A Follow-Up Study of 201 Children with Autism in Kyushu and Yamaguchi Areas, Japan

A Japanese study reported by Kobayashi, Murata, and Yoshinaga (1992) presented outcomes on a group of adults with autism who had attended a therapeutic camp or clinic during childhood. From a total sample of 201 individuals aged 18-years or over, 47 had an IQ over 70 when 6 years old. Data were collected in approximately 80% of cases by interviewing participants or their parents; the remainder were collected through discussion with professionals actively involved in the individuals' clinical, educational, or social provision.

Specific information regarding outcomes for high-functioning adults is restricted to 17 individuals who were employed; 14 were male, age ranged from 19 to 27 years. Fourteen participants lived at home with their parents, with most experiencing difficulties living independently. All but one had functional receptive and expressive communication skills. Employment ranged from providing services as a physical therapist, to industrial or office work, manual labour, or working in the food industry. The remaining two participants demonstrated inappropriate behaviour requiring substantial support.

A Follow-Up Study of High-Functioning Autistic Children

Venter, Lord, and Schopler (1992) report on a North American study exploring predictors of academic achievement and adaptive functioning in a follow-up study of children with HFA. Fifty-eight children with an estimated IQ over 60, who had attended a Child and Family Psychiatric or TEACCH clinic, were followed up on average 8 years after initial assessment. The mean age of the group at follow-up was 15 years. All had lived at home until at least the age of 19 years, and had received continuous education between to 16 years old. The mean IQ for the group was 79, and all met diagnostic criteria for autism.

Limited data are presented regarding outcomes for 22 participants who were over the age of 18 years at follow-up. Six were employed, 13 remained in special education or in sheltered employment, and three were unemployed and not receiving further education. All employees were retained in service industries, and had needed support in obtaining employment; it was also found that employees had a higher verbal IQ and level of academic achievement than those who were unemployed. One participant had achieved a university degree, while another left University before completion. No participant had married; two participants lived alone and four lived in apartments with social support. Eighty-six percent of participants aged over 18 years demonstrated adaptive behavioural skills below that expected in the typical population.

Longitudinal Examination of the Behavioral, Language, and Social Changes in a Population of Adolescents and Young Adults with Autistic Disorder

A study reported by Ballaban-Gil and colleagues describes outcomes for a group of adolescents and adults with autism who were initially diagnosed in childhood at an average age of 7 years (Ballaban-Gil, Rapin, Tuchman, & Shinnar, 1996). Data were collected via telephone interviews with parents of participants. Forty-five adults, ranging in age from 18 to 30 years, were included in the sample; 13 of these were estimated to function intellectually in the typical range.

Just over half of the adults without intellectual disability were described as exhibiting behavioural difficulties, including aggression and tantrums. One-third engaged in self-injurious behaviour, and a quarter demonstrated stereotypic behaviour. Regarding social functioning, half were described as behaving in a socially inappropriate manner, and a further third as being socially withdrawn. Over two-thirds of adults were living with their family at the time of data collection, and a further quarter were housed in residential placements, including group homes and residential schools. Only one adult was described as living independently by their parents. These results suggest that, despite typical levels of intellectual functioning, adults in the sub-sample were characterised by difficulties in leading an independent lifestyle.

The Outcome in Children with Childhood Autism and Asperger Syndrome Originally Diagnosed as Psychotic. A 30-Year Follow-Up Study of Subjects Hospitalized as Children

Larsen and Mouridsen (1997) report a Danish study exploring outcomes for children admitted to two child-psychiatry departments during 1949 to 1951. Re-examination of case-notes in 1996 suggested 18 children met ICD-10 (WHO, 1993) criteria for autism or AS; 14 of these had an IQ in the typical range (age range from 32 to 44 years). Outcome data were collected by examining national registers, with functioning restricted to that known in 1980. Based on these data, a global judgement of outcome was made.

The majority of adults with IQ in the typical range were placed in sheltered workshops or were in receipt of a disability pension. One had built on her artistic talents and was a porcelain painter, and one worked as a nursery teacher. While two adults were married, another two had divorced and the remainder were single. Both of the married participants, and one of the divorced, had children. Two adults lived with their spouses, five lived in apartments, three were living at home with their parents, another three were living in institutions for adults with psychiatric problems or learning disabilities, and one lived in a foster-home. While five of the participants were not in receipt of additional support, the majority had at least minimal, and in some cases constant supervision. One adult had received a fine for theft. Over 70% of participants had been admitted to an adult psychiatric hospital at some point, with difficulties ranging from acute reactive depression following divorce to those reporting delusions and hallucinations; just over half of the sample were prescribed psychopharmacological medication at the time of follow-up.

Global judgement regarding outcome suggested roughly equal numbers of participants could be classified as having a good, fair, or poor/very poor outcome. Thus, one-third had achieved normal or near-normal levels of social and occupational functioning; one-third had made some social or educational progress despite behavioural or interpersonal problems; and one-third had significant difficulties precluding independent living.

Autism and Developmental Receptive Language Disorder - A Comparative Follow-Up in Early Adult Life

A UK follow-up study of 19 males diagnosed with autism has been reported by Howlin and colleagues (Howlin, Mawhood, & Rutter, 2000; Mawhood, Howlin, & Rutter, 2000). Participants ranged in age from 21 to 27 years (although initial assessment was conducted between ages 7 and 8 years) and average IQ was in the typical range.

At follow-up, two-thirds of participants scored below 10-years on a measure of receptive language, and half scored below 10-years on a measure of receptive language. Over 80% experienced difficulties with conversational skills, and other language difficulties including echolalia and stereotyped phrases were evident. Verbal and nonverbal social-communication skills were impaired. Only 10% individuals were described as having typical levels of social contact, although the majority of the remainder did not describe themselves as lonely. None were married, and only 1 had experienced a close relationship with a partner. Two-thirds of participants had ritualistic behaviour problems that interfered with daily life, or found unexpected changes in situations difficult to manage.

Scores on measures of adaptive functioning were lower than expected compared to intellectual functioning. Nearly half of participants lived in residential settings, while one-third lived with parents. Only a quarter of participants were considered able to manage their own self-care and finances. One-third of participants went to University or college, but only 3 individuals had maintained jobs; two-thirds went to day-centres. Nearly half of participants were rated as experiencing significant difficulties with challenging behaviours, and one participant had received input from a psychiatric outpatients clinic.

Overall, only 16% of participants were considered to have attained normal or near-normal levels of functioning. Howlin and colleagues concluded the majority of participants continued to experience difficulties associated with autism into adulthood.

Psychosocial Functioning in a Group of Swedish Adults with Asperger Syndrome or High-Functioning Autism

Patients in all psychiatric and habilitation teams in one county in Sweden were screened to identify those over 18 year of age with a diagnosis of AS or HFA (Engström, Ekström, & Emilsson, 2003). Forty-two individuals were identified, ranging in age from 18 years to 49 years. First, professionals providing support for this group completed a psychosocial questionnaire regarding current functioning. Second, a representative sample (in terms of age and gender) of 16 participants were interviewed regarding their experiences and the support provided for them; three-quarters of this subsample allowed a significant other to be approached to gather further data.

Specific outcome data are only provided on those 16 who were interviewed. No participant had married, and none had children; 5 had a partner, and one cohabited at the time of data collection. Nine participants lived in an apartment, but the vast majority required significant support to achieve this. The majority received a state disability pension; only one was in paid employment, 6 were placed in sheltered workshops or were employed by relatives, and 6 were unemployed. Given the sample was selected from those receiving psychiatric or habilitation services, it is not surprising that all required public sector support. In general, participants in this study experienced difficulties with independent living, were often socially isolated and unemployed.

Adult Outcome for Children with Autism

The most recently published outcome study is reported in the UK by Howlin, Goode, Hutton, & Rutter (2004), being a follow-up of children diagnosed with autism and a non-verbal IQ over 50. Of these, 44 individuals functioned in the typical range. The average age of adults during follow-up was 29 years (range = 21 to 49 years). All diagnoses and levels of intellectual functioning were reconfirmed in adulthood.

Despite this being the most recently published study, data were collected between 1985 and 1991, bringing into question the current validity of the findings. Half of adults with typical levels of intellectual functioning experienced severe language problems. Ritualistic and stereotyped behaviours a significant problem for some and impacted on daily functioning, often related to fixed routines and resistance to change. Fifteen participants had achieved an academic qualification, including 5 at graduate or postgraduate level. One-third of participants were employed, with a relatively even division between those working independently and those working in sheltered employment or in voluntary roles. Most jobs were described as being low-level, and support was often required to arrange such positions. Approximately half of the sample reported having no friends; the remainder had at least one acquaintance, but these were often the product of attending arranged social groups. Three men had married, and one had divorced. The vast majority lived at home with their parents or in residential accommodation; only 3 adults lived independently. In summary, over half were considered to have a poor/very poor outcome with limited independence in adulthood. One-third of participants were considered independent and employed, with an effective social network. Further examination of the data revealed adults with an IQ over 100 did not seem to have better outcomes than those with an IQ ranging from 70 – 99. Thus, this study reports longer-term outcomes for adults diagnosed with autism with typical levels of intellectual functioning is highly variable; behaviours and symptoms associated with autism may negate the potential afforded by an IQ in the typical range.

Summary and Critique

It is clear from the studies presented above there is wide variation in outcomes among those adults with AS. It is striking that a series of studies exploring prospects for adults with AS and intellectual ability in the typical range can report such variation between individuals (Howlin, 2000). While some may achieve social and occupational independence, given the data this is not to be expected for the majority. This is in contrast to what may be expected for the typically developing population, given recent data relating to adults living in the UK, for example (Office for National Statistics, 2007). Nearly 75% of adults of working age were in paid employment, only 15% of adults had no formal qualifications, and approximately 25% reported attaining a University degree or higher education qualification. Nearly two-thirds of adults were married or cohabiting. While approximately half of all men between the ages of 20-24 years lived with their parents, this decreased to less than 10% between the ages of 30-34 years; it is likely the current economic climate is an important factor contributing to this observation. One in six adults were also reported to experience anxiety or depression, with less than 1% experiencing psychosis-related disorders. While cultural issues are likely to be important in determining the psychosocial outcomes for both typically developing adults and those with AS, it is clear from the studies reviewed that adaptive functioning is lower than what may be expected, given the intellectual ability associated with AS (Tsatsanis, 2003). Overall, adults with AS are likely to experience significant social and occupational difficulties, but it is not clear what factors may predict greater levels of independence.

It is important to recognise the methodological limitations inherent in the research studies presented above. Outcome studies generally reported on small samples; this may, in part, be due to the majority of people with autism spectrum disorders presenting with intellectual disability, thus limiting the population from which adults with AS may be selected. Samples also tended to be made up of young adults. This may be a function of the relatively recent recognition of AS; although a case-report has been published regarding an older adult with AS (Naidu, James, Mukatoeva-Ladinska, & Briel, 2006), further consideration of outcomes across the lifespan would be beneficial, and generalisation of these findings should be made with caution.

A further limitation to be considered relates to the range of data collection methods used across studies. While Ballaban-Gil and colleagues (1996) collected data by interviewing parents over the telephone, for example, Larsen and Mouridson (1997) examined national registers to ascertain outcomes of adults with AS. In some cases, findings were published long after data had been collected (e.g. Ballaban-Gil et al., Howlin, 2004). This inconsistency extended to outcome measures utilised across studies. Some studies employed the use of composite measures and global rating scales to determine outcomes; these used a wide variety of social, occupational and adaptive behavioural measures, and were generally inconsistent between studies. Independent living status was also reported in most studies, but this is dependent on local or national policy that can vary across countries making conclusions hard to reach (Engström, Ekström, & Emilsson, 2003).

Difficulties associated with longitudinal research are also apparent. Some studies, for example, relied on intellectual functioning estimates made when participants were young to classify adults as high-functioning (Kobayashi, Murata, & Yoshinaga, 1992). While there is some evidence to suggest intellectual functioning remains stable over the lifespan in typically developing individuals (Deary, Whalley, Lemmon, Crawford, & Starr, 2000), it is possible estimates in the present population may not be so constant. It is also apparent that some measures may have been used to estimate outcomes in childhood that were not appropriate for re-administration in adulthood (Tsatsanis, 2003); the use of different measures over time may compromise the validity of findings.

Finally, it is important to consider the effects that education and intervention may have had on the outcomes of adults with AS. There is ample evidence to suggest early intensive behavioural intervention, for example, it effective for children with autism spectrum disorders (Eikeseth, 2001). While it was noted some individuals had received this intervention (e.g. Howlin, Mawhood, & Rutter, 2000), it was not clear in most studies if participants had been exposed to such interventions. Participants in a further study were recruited from those who had attended a therapeutic camp as children (Kobayashi et al. 1992); little is known about the effects such intervention had on the data presented.

There is a continued need for longitudinal data describing the outcomes of adults with AS, and autism spectrum disorders in general (Pellicano, 2007). In addition to addressing the problems outlined above, it will be useful to consider if the cognitive and behavioural aspects of autism change over the lifespan; authors are encouraged to report data on outcomes identifying factors related to specific outcomes.

Focal Aspects of Adults' Experience of Life With Asperger Syndrome

The literature presented above considers outcome studies relating to adults with AS. The present review will now consider more focal aspects of experiences relevant to adults with AS. Specific areas for review have been dictated by the available literature, focusing on issues related to comorbid mental health problems, employment opportunities, criminal behaviour and contact with forensic services. While other areas including relationships and sexuality are important to consider, research is extremely limited (Hellemans, Colson, Verbraeken, Vermeiren, & Deboutte, 2007) or restricted to monographs detailing clinical or personal experiences (e.g. Aston, 2006; Attwood, 2006; Howlin, 2004).

Comorbid Mental Health Problems

Little is known about the mental health problems experienced by adults with AS. A survey of 1200 parents of adults with autism and AS conducted by the NAS, however, provides some insight into the difficulties faced by these individuals (Barnard, Harvey, Prior & Potter, 2001). Of the 450 replies, it was estimated one third of adults with an autism spectrum disorder have experienced mental health problems, increasing to half of all those adults who were not diagnosed until after 30 years of age. Of those parents reporting mental health problems in their adult children, just over half had experienced depression and one-in-ten had contemplated or attempted to commit suicide. While the report was based on parental views and those who responded may have been more aware of their adult children's difficulties, the statistics presented give some indication of the scale of mental health problems experienced by this population.

The published literature on mental health problems experienced by adults with AS is limited (Sverd, 2003). A seminal report describing the experiences of people with AS included 18 people aged 16 years or older; of these, 13 presented with a co-morbid psychiatric disorder ranging from depression and anxiety disorders to psychosis and attempted suicide (Wing, 1981). In a larger study, 35% of a sample of 85 adults with AS presented with symptoms fulfilling diagnostic criteria for a mental health problem, with depression and anxiety disorders being the most common (Tantam, 1991). A descriptive study examining consecutive referrals of people with AS for help with social and communication difficulties found nearly three-quarters of those aged between 13 and 51 years had symptoms indicative of a psychiatric disorder, with depression being the most common (Ghaziuddin, Weidmer-Mikhail, & Ghaziuddin, 1998). Finally, Howlin (2000) collated data from six outcome studies and two extensive case reports of people with HFA or AS. A total of 74 individuals were identified as displaying symptoms consistent with a psychiatric disorder, with 41% experiencing depression, 18% experiencing psychosis, and 8% having a diagnosable anxiety disorder. While exploration of the data revealed patterns of mental health problems that may be observed across adults with AS, generalisation of the data is limited due to methodological differences between reports.

The available literature points to depression, anxiety disorders, and psychosis being the most likely co-morbid clinical diagnoses made in adults with AS. What follows is a consideration of these mental health problems as experienced by adults with AS. While the literature is limited, it is important to recognise these difficulties and how they may manifest in adults with AS.

Depression.

While there are no population-based studies exploring the prevalence of depression in adults with AS, it is estimated to be the most common co-morbid psychiatric disorder in this population (Ghaziuddin, 2005). This observation is based on clinical experience, however, as those studies reporting on depression in this population are of variable methodological quality (Stewart, Barnard, Pearson, Hasan, & O'Brien, 2006). Depression may appear to be a more significant problem for those with high-functioning autism or AS than for people with intellectual disabilities and autism, although this may be a product of the relative ease of diagnosis of mental health problems in more able individuals (cf. Priest & Gibbs, 2004). Despite this, the expected prevalence of depression is such that it has been suggested adolescents and adults with AS should be regularly screened for depression to prevent or manage associated difficulties (Ghaziuddin, Weidmer-Mikhail, & Ghaziuddin, 1998).

Adults with AS may experience the typical clinical features of depression, including sadness, a reduction in interest in activities, crying, sleep and appetite disturbance, and suicidal behaviour (Ghaziuddin, Ghazziuddin, & Greden, 2002). Recognising depression in adults with AS can, however, be challenging, given the inherent difficulties with communication, emotional awareness, and considerable overlap between characteristics of AS and depression (Lainhart & Folstein, 1994; Stewart et al., 2006). Clinical features of depression in adults with AS may include increased social withdrawal above that expected with this condition, and a change in the frequency and topography of ritualistic behaviours. A person preoccupied with astronomy, for example, may describe 'falling into the dark hole of space' when depressed (Ghaziuddin, 2005). Thus, while clinical features of AS are relatively stable over the life-course, these same features may exacerbate during episodes of depression (Lainhart, 1999).

It has been suggested adults with AS may become vulnerable to depression as they develop recognition of their social differences and difficulties, particularly surrounding issues regarding failed relationships (Lainhart, 1999). While this may be an important risk factor, there remains no data on the impact of specific life-events on the emotional experiences of adults with AS (Ghaziuddin et al., 2002). This is especially important to consider if instances of self-harm related to depressed mood are to be anticipated and managed appropriately. Attempted and completed suicide have been reported in adults with AS, typically in those with chronic depression that have been inadequately managed using antidepressant medication (Ghaziuddin, 2005). The occurrence of completed suicide is similar to that observed in the general population, and may encompass a variety of methods including jumping from high buildings or overdosing on prescribed medication (Isager, Mouridsen, & Rich, 1999). Given adults with AS may not independently report suicidal-ideation, however, it is important for those around to be vigilant and recognise signs of depressed mood as a risk for self-harm (Lainhart, 1999).

Anxiety.

Adults with AS can experience chronic and significant levels of anxiety, often precipitated by a change in normal routines, difficult social situations, or exposure to uncomfortable sensory experiences (Attwood, 2006). The observed frequency of anxiety is so common that, under current criteria, generalised anxiety disorder is considered a superfluous diagnosis in those with a pervasive developmental disorder (APA, 2000). There are, however, no formal studies reporting a prevalence of anxiety disorders in adults with AS (Ghaziuddin, 2005).

While anxiety experienced by adults with AS may be associated with ‘core’ aspects of autism spectrum disorders, such as a change in routine for example, more distinct anxiety disorders can also develop, including obsessive-compulsive disorder (OCD), post-traumatic stress disorder, and social anxiety disorder (Ghaziuddin, 2005). While it is difficult to diagnose the latter condition concurrently in people with AS (APA, 2000), clinical observation suggests such adults may experience significant anxiety in social situations warranting an additional diagnosis.

Obsessive-compulsive disorder presents as an interesting case in adults with AS. The characteristics of OCD include intrusive thoughts and repetitive non-functional behaviours recognised by the individual as excessive or causing significant distress (APA, 2000). A diagnosis of OCD can only be reliably considered if the frequency of obsessions or compulsions appears to increase over what would typically be observed in that individual. Such symptoms are considered to be egodystonic, unlike the rituals adults with AS may actively engage in; thus, clinical assessment focuses on gaining a qualitative understanding of how and when typical obsessions and compulsions become distressing (Ghaziuddin, 2005). A particular challenge relates to differentiating between repetitive thoughts and behaviours typically experienced by adults with AS and those associated with OCD. While compulsive behaviours, for example, may appear topographically similar in both groups, those presenting in adults with AS are usually more disorganised and less sophisticated than those associated with OCD in typically developing adults (Lainhart, 1999). A recent study exploring the nature of obsessions and compulsions in adults with AS and HFA supported this; while 25% of adults with AS present with symptoms characteristic of OCD, symptoms were generally less severe than those observed in typically developing adults with OCD (Russell, Mataix-Cols, Anson, & Murphy, 2005).

Psychosis.

Psychosis is associated with (i) positive symptoms, including hallucinations, delusions, disorganised behaviour or speech, and (ii) negative symptoms, including the absence of typical emotional responses, speech, or social withdrawal. Significant social and occupational difficulties are observed over a period of at least 6 months (APA, 2000). While autism spectrum disorders and psychosis-related disorders have long been associated (Ghaziuddin, 2005), there are few data to suggest adults with AS are at increased risk of developing psychosis above that observed in the typically-developing population; estimates suggest the prevalence of schizophrenia is 0.6% (Volkmar & Cohen, 1991). Adult patients admitted to psychiatric intensive care units with a diagnosis of psychosis may better be described as having AS; one recent study suggested this might apply to 0.2% of this population (Raja & Azzoni, 2001)

The nature of psychosis and AS pose some important diagnostic questions, and can often lead to confusion in clinical practice. While psychosis may appear more prevalent in those with AS than lower-functioning individuals with autism due to the importance of verbal report of symptoms (Volkmar & Cohen, 1991), subtle language difficulties, concrete thinking and obsessions can make diagnosis difficult in those with AS (Howlin, 2000). Features associated with AS, including lack of social interaction and restricted emotional expression, may be misdiagnosed as negative psychotic symptoms; social-communication difficulties can also be misconstrued as positive symptoms such as thought disorder (Lainhart, 1999; Ryan, 1992). Diagnostic overlap is also a possibility; in particular, adults with AS may meet criteria for schizophrenia with disorganised speech, behaviour, and inappropriate displays of emotion (Konstantareas & Hewitt, 2001). Thus, adults with AS may inadvertently receive a diagnosis of psychosis, even in the absence of hallucinations or delusions (Volkmar & Cohen, 1991); this may be a particular risk in adolescent and young adult populations (Morton-Cooper, 2004).

While differentiation between AS and psychosis in adults can be a challenging exercise, detailed developmental assessment can help to provide clarity (Clarke, Littlejohns, Corbett, & Joseph, 1989). Thus, life-long stable patterns of behaviour associated with AS may be differentiated from gradual or episodic deterioration in adolescence or adulthood associated with psychosis (Ghaziuddin, 2005).

Assessment and Intervention.

While adults with AS can experience significant mental health problems, there is a lack of understanding in this area. It is important to continue research into risks associated with AS that predisposes individuals to mental health problems (Howlin, 2000; Stewart et al., 2006). Clinical assessment of comorbid mental health problems in adults with AS represents a significant challenge. Assessment of presenting problems should be considered in relation to the individuals' level of baseline functioning, and the level of distress caused (Ghaziuddin, 2005). Obsessive behaviour may be characterised as part of a comorbid disorder, for example, but in the absence of associated distress could be considered central to AS. There is also a distinct lack of research investigating the effects of psychological interventions on mental health problems experienced by adults with AS (Attwood, 2006); pharmacological intervention appears to be relatively common for people with autism and AS (Martin, Scahill, Klin, & Volkmar, 1999; Stewart et al., 2006). The published literature regarding psychological interventions focuses mainly on cognitive-behaviour therapy (CBT). A number of modifications to CBT delivered to the typically developing population have been suggested, including using written and visual material during sessions, emphasising the importance of affective education, using concrete examples to support discussion, and recruiting family or carers to help generalise gains beyond sessions (Anderson & Morris, 2006; Attwood, 2003). While these adaptations may improve access for some, the limited literature seems to focus on symptom reduction using behavioural intervention (e.g. relaxation training) and the challenging of negative automatic thoughts (e.g. Hare, 1997). Given the lack of research and variety of suggested adaptations, no reliable conclusions can be stated (Anderson & Morris, 2006). The nature of, and intervention for, concurrent mental health difficulties continue to be an important area for continued clinical and research interests.

Employment

Employment opportunities for adults with AS are limited, with less than 20% being employed in full- or part-time work (Barnard, Harvey, Prior & Potter, 2001). While some achieve further or higher education qualifications, there are few opportunities for adults with AS to utilise their skills (Howlin, Goode, Hutton, & Rutter, 2004); most work in poorly paid and unskilled jobs, often found through informal contacts or family and friends (Howlin, 2004). Difficulties obtaining and sustaining employment impact on quality of life and may contribute to the development and maintenance of emotional and psychiatric disorders (Evans & Repper, 2000; Hurlbutt & Chalmers, 2004). Additionally, long-term unemployment or attendance at day-centres costs the wider economy approximately £10,000 per person per annum (Järbrink, McCrone, Fombonne, Zandén, & Knapp, 2007). While the personal and economic impact may be variable across adults with AS, it is important to understand the challenges facing these individuals seeking employment, and to explore practical suggestions for improving the employment prospects for this group of people.

A number of reasons may help to explain the difficulties adults with AS experience finding and maintaining successful and productive employment (Howlin, 2004). Communication difficulties, including lack of coherence and ineffective social-communication styles, may preclude employment in the rapidly expanding service industries. Inherent difficulties understanding social rules and idiosyncratic work patterns may also contribute to occupational problems. Adults with AS may also have difficulties with self-directed tasks, and could need to work to detailed task-schedules. Idiosyncratic obsessional interests and resistance to changes in routine are potential areas conflicting with work-related activities. Adults with AS are also prone to receiving abuse from co-workers given their social-communication difficulties. A recent study involving six adults with AS revealed that while employees could often manage required tasks, social-communicative aspects of employment, including getting along with colleagues and demonstrating 'personal qualities' during interviews, were significant sources of stress and anxiety (Hurlbutt & Chalmers, 2004). Finding and maintaining employment is often as much about social skills as task competence, which can lead many adults with AS to experience significant difficulties (Romoser, 2000).

Despite apparent difficulties, there are a variety of vocational opportunities available for adults with AS, ranging from sheltered workshops often delivering restricted and repetitive activities to competitive employment in the independent sector (Gerhardt & Holmes, 1997). While limited, the available literature focuses on supported employment where individuals are assisted to engage in activities appropriate to their own abilities (Robertson & Emerson, 2006). Mawhood and Howlin (1999) report on a two-year pilot-study of a supported employment scheme managed in Greater London, in collaboration with the NAS. Thirty adults with AS or

HFA who were actively seeking work, able to travel independently, and experiencing no health or psychiatric difficulties precluding successful employment were provided with assessment and support to find suitable jobs. Support workers provided full-time input for up to one month, including help with social- and task-related demands, for example, and consulting with employers regarding the nature and needs of individuals with AS. Over 60% of those receiving support found and maintained paid employment, compared with 25% of adults with AS in a control group not receiving support services. Half of the supported employees had permanent contracts, mostly in administrative or clerical positions. The supported individuals earned more, on average, per hour than those not receiving support, and found the service to enhance their interviewing skills and future employment prospects. These gains appear to have been maintained over a long-term follow-up study, and with continuing financial support from the UK government has been able to expand to 4 cities across England and Scotland (Howlin, Alcock, & Burkin, 2005). Service provision is dependant on support workers, however, and this can be a demanding role for them. Additionally, there is limited evidence for the impact of this scheme on social or domestic outcomes; what data there is suggests those who were supported continued to experience difficulties socialising with colleagues, and were still likely to live in the parental-home.

Recent interview-based research has helped develop an understanding of the support required for adults with AS seeking employment. Müller, Schuler, Burton, & Yates (2003) explored these issues with 18 adults with AS with a range of educational qualifications and current employment status. While participants generally viewed themselves as hardworking, precise, and technically skills, they described often being over-qualified for jobs and having difficulty learning tasks and being accepted by peers due to social difficulties. Lack of social understanding and miscommunication were perceived as significant barriers to successful employment, contributing to a view that technical competence does not necessarily mean they were the 'right person' for the job. Participants' suggested they were more likely to succeed at jobs involving technical skills while minimising social demands. Clear routines and flexible working schedules were also seen as beneficial, in an environment devoid of sensory stimulation. Occupational mentors were also considered to be supportive in helping adults with AS to have a clear understanding of their role and responsibilities (Hurlbutt & Chalmers, 2004). Fourteen adults with autism who were successfully employed in the community were interviewed by Hagner and Cooney (2005). While no information was available on participants' intellectual ability, suggestions for better practice included providing written schedules to aid routine and alternatives to social interaction during work-breaks. Supervisory staff responsible for these individuals also noted specific concrete reminders and social-skills training were effective in aiding adults with autism.

While employment opportunities for adults with AS have been challenging, specific supported employment schemes and strategies to accommodate individuals in the workplace have proved effective. Thus, paid employment can be considered a realistic option for adults with AS provided with appropriate support (Engström, Ekström, & Emilsson, 2003).

Criminal Behaviour and Contact with Forensic Services

While it is apparent adults with AS are capable of committing criminal offences, there are few data with which to make reliable estimates of the rates of such behaviour in this population. Two studies have been reported, however, which provide some indication of the situation in England; both examined the prevalence of patients with AS detained in Special Hospitals. In 1994, Scragg and Shah suggested patients with AS may go unidentified in forensic settings. The records of 392 male patients detained at Broadmoor were screened for the presence of identifying characteristics, and those patients considered to have a likely diagnosis of AS were interviewed and observed to supplement clinical impressions. In total, six patients were diagnosed with AS on this basis, representing 1.5% of the male population of the hospital. A similar study sought to establish the prevalence of autism spectrum disorders in Ashworth, Broadmoor, and Rampton hospitals (Hare, Gould, Mills, & Wing, 1999). Following initial screening using a brief questionnaire, clinical information was gathered from hospital records regarding those patients who were considered likely to present with an autism spectrum disorder. Of 1305 patients detained at these hospitals, 21 presented with characteristics associated with an ICD-10 (WHO, 1993) diagnosis of AS, representing 1.6% of the total population of Special Hospitals in England. This figure may be higher given the lack of information available in some patients' records, and the number of cases where an equivocal diagnosis was possible. Further examination of the data revealed patients with AS were more likely to commit arson and less likely to commit sexual offences than those patients without a diagnosis of AS.

It has been suggested characteristics associated with AS may predispose individuals with such diagnoses to commit criminal offences. Thus, criminal acts that adults with AS may engage in often relate to social naivety, aggressive behaviour caused by disruption of routines, anti-social behaviour caused by lack of understanding of social cues or resulting from restricted interests. Given the apparent difficulties experienced when attempting to establish social relationships, adults with AS are vulnerable to being exploited by others who may approach them to commit an offence on their behalf, such as shoplifting for example (Barry-Walsh & Mullen, 2004; Haskins & Silva, 2006; Howlin, 2004; Stephenson, 1995). In contrast to the broader forensic population, however, adults with AS are less likely to have a history of offending behaviour or attempt to deny or conceal their actions (Murrie, Warren, Kristiansson, & Dietz, 2002).

A range of offences have been reported involving adults with AS, including illegal entry, stalking/harassment, and sexual offences (Debbaudt, 2002). Arson and other offences related to fire-setting are relatively common in individuals with AS; this may be due to an extreme preoccupation with fire allied to a lack of concern for other people or their property (Everall & LeCouteur, 1990; Haskins & Silva, 2006). It appears from published case-studies that serious acts of arson are preceded by narrow interests related to flames and matches, for example, and may also be linked to instances of perceived injustice and misinterpreting social situations (Barry-Walsh & Mullen, 2004; Murrie et al., 2002).

Case-studies have also been published regarding instances of sexual offending. Seeking relationships or fulfilling sexual needs, combined with limited social understanding and appropriate skills, can lead to situations where individuals with AS touch another person inappropriately, through to repeated acts of sexual abuse (Murrie et al., 2002). Milton and colleagues describe a man in his early thirties who had been detained following making obscene telephone calls. Further investigation revealed a long-standing history of interest in female genitalia, particularly relating to gynaecological examinations. Subsequent assessment at a treatment centre for offenders with personality disorders revealed a developmental history consistent with AS. The man had particular difficulties forming relationships with others, and often used resulting confrontations as material for subsequent fantasies during masturbation (Milton, Duggan, Latham, Egan, & Tantam, 2002). A report regarding a 16-year old male with AS also revealed an exceptionally naïve approach to social situations, often resulting in sexual and/or aggravated offences (Kohn, Fahum, Ratzoni, & Apter, 1998). The authors suggested his behaviour was maintained by an inability to appreciate the social consequences of his actions; a difficulty that he had displayed throughout his development.

There have been some claims adults with AS may be at increased risk of committing violent acts, possibly due to a lack of social understanding and empathy with others (e.g. Tantam, 1991). Mawson, Grounds and Tantam (1985) describe a 44-year old man with AS detained in a Special Hospital following repeated acts of violence and aggression toward females. Further exploration of these incidents suggested the individual perceived the women were transgressing social rules in the way they dressed, for example. Another case study provides details of a 21-year old man who was referred following difficulties with social communication, problems adapting to change, and frequent incidents of violence toward his 71-year old girlfriend (Baron-Cohen, 1988). Through interview with the individual and his relations it was established the man had AS and his aggressive behaviour was maintained by a lack of appreciation for the effects it had on others, and a superficial understanding of relationships. In addition to these published case studies, a recent media report described a 20-year old man with AS who hit a young girl who had been harassing him as he worked at a fast-food restaurant in West Sussex, England (British Broadcasting Corporation, 2006). Following his subsequent dismissal, the man purchased a knife from a nearby shop and returned to murder his manager. Details of this case study suggest he displayed excessive rumination regarding the nature of his dismissal, and became frustrated to the point of retaliation to correct the perceived injustice of losing his job (cf. Murrie et al., 2002).

Despite these reports, a review of over 40 years of literature exploring the association between violence and AS found the link to be tenuous. Of 132 people described in terms of clinical features of AS, only 3 were reported to have committed an act resulting in harm to another person (Ghaziuddin, Tsai, & Ghaziuddin, 1991). While the authors acknowledge that strict inclusion criteria may have accounted for low numbers of reports of violence in this population, the study demonstrated the lack of evidence available at the time to support such assertions. Recent research comparing a group of patients with AS with patients with a diagnosis of psychosis or personality disorder detained in a Special Hospital in England found those with AS were less likely to have committed an offence resulting in serious injury or death than those in the other groups, and were unlikely to have a history of drug or alcohol abuse. Thus, while it appears there are isolated reports of violence in adults with AS, this is not the norm.

While there is evidence supporting the notion adults with AS may commit criminal offences, prevalence studies are based on samples based in Special Hospitals. To make a reliable estimate of the prevalence of criminal behaviour in this population, studies including wider community samples are necessary. Until then, the available published case studies are at risk of perpetuating a misunderstanding of adults with AS; this may be far from the reality given the condition is characterised by a preference for following rules (Howlin, 2004; Palmero, 2004). There is also a need to develop an appreciation of the criminal behaviour shown by some adults with AS beyond what is currently known, such that it is not explained solely by a general characteristic common to all with the diagnosis (e.g. a lack of social understanding).

Discussion

The literature presented above suggests the vast majority of adults with AS are likely to experience significant difficulties in independent living throughout their lives. The present review will now place these findings in context by exploring how service provision is currently addressing the needs of this population, and consider the implications of these studies for adults with AS.

Current Service Provision for Adults with Asperger Syndrome in the UK

At present, "statutory agencies [in the UK] are failing adults with autism and Asperger syndrome" (Barnard, Harvey, Prior, & Potter, 2001, p. 7). When adolescents and young adults with AS leave educational provision, there are currently no national support services specific to the needs of this population. Adults with AS who once received individual or familial support through Child and Family services are no longer eligible due to age, and Adult Mental Health services may be reluctant to provide a service, as AS is not strictly a psychiatric condition. While the majority of adults with autism may receive some input from Community Learning Disability services due to their level of intellectual functioning, adults with AS are unlikely to qualify for such support. Thus, "people with Asperger syndrome fall into a therapeutic limbo, too able for learning disability services and too foreign for general psychiatry" (Berney, 2004, p. 349). Adults with AS may find it extremely difficult to establish a route to access specialist support services (Tantam, 2003). The lack of specific provision often results in adults being passed from Learning Disability to Adult Mental Health services and vice versa; given this, adults with AS may be amongst the most vulnerable and excluded in society (Kroese, Johns, Henshall, McGarry & Langton, 2006; Ramharakh, 2006).

Assessment and Diagnosis of AS in Adulthood

Given the difficulties highlighted above, accurate assessment of AS may be a starting point in identifying and developing appropriate services (cf. Brown-Wright & Gumley, 2007). While diagnosis can give credence to individuals and families regarding the difficulties an adult with AS experiences (Raja & Azzoni, 2001; Tantam, 1988), it can also be used to facilitate access to relevant support, information and resources (Berney, 2004). It is often parents who first seek advice regarding a possible diagnosis of AS, even when the individual is an adult (Tantam, 2000). Consequences arising from a lack of diagnosis and subsequent support services include reduced opportunities for independent living, high parental dependency, mental health problems and increased risk of self-harm (Portway & Johnson, 2005). Thus, diagnostic provision can represent an essential component of support necessary for adults with AS.

Formal clinical assessment of AS requires interdisciplinary expertise considering developmental history, neuropsychological and behavioural functioning (Klin & Volkmar, 2003). Diagnostic assessment instruments specific to adults with AS may also be useful, but there are a lack of clinically useful measures at present (Gillberg, Gillberg, Råstam, & Wentz, 2001). Given the relatively subtle presentation of AS in comparison to other autism spectrum disorders, valid and reliable screening tools that can be used in primary care settings may prove useful in identifying adults who may benefit from more detailed assessment (Woodbury-Smith, Robinson, Wheelwright, & Baron-Cohen, 2005). While a small selection of structured assessment instruments have recently been published, further work is necessary to ascertain their reliability, specificity, and validity in clinical practice (Baron-Cohen, Wheelwright, Robinson, & Woodbury-Smith, 2005; Gillberg et al., 2001, Wing & Gould, 2006).

It is not uncommon for assessment of AS to be considered in contexts other than those where the adult or their family instigate a referral. Diagnosis may, for example, come as a direct result of involvement with the criminal justice system (Debbaudt, 2002). It has been suggested Mental Health services may reconsider psychiatric diagnosis in favour of a more appropriate explanation related to AS in those who are regarded as 'treatment resistant' (Ryan, 1992). A recent case-study presenting a 66-year-old man highlights this, where developmental characteristics and current presentation helped support a diagnosis of AS in the context of a referral to Older Adult services regarding depression (Naidu, James, Mukatoeva-Ladinska, & Briel, 2006). Whatever the route that formal assessment and diagnosis is requested, however, provision of such services needs to be improved so adults with AS can be supported appropriately (Howlin, 2000).

Awareness of Asperger Syndrome Amongst Service-Providers

Given the important role diagnosis has in facilitating access to appropriate and informed resources, it is of concern that there is currently a lack of diagnostic provision for adults suspected of having AS. While diagnostic support is limited, adults with AS will still likely encounter situations where others will need to develop an awareness and understanding of individual needs without access to relevant information regarding the individual. This is likely to be compounded by the reality that up to 65% of adults with autism spectrum disorders have not had a community care assessment, rendering them unknown to services (Barnard, Harvey, Prior, & Potter, 2001). Thus, it will be important to explore the present situation regarding different service-providers awareness and understanding of adults with AS, especially in situations where the often subtle presentation of difficulties may not be recognised easily (Portway & Johnson, 2005).

Adults with AS are likely to encounter a range of services throughout their lives. Despite this, professionals working in services in the UK often lack knowledge of such conditions. In educational provision, for example, it is important for teachers to develop an understanding of AS and the difficulties it entails, so that needs can be met appropriately (Myles & Simpson, 2002). While teachers in mainstream education are starting to recognise the nature of AS and the support required (Dahle & Gargiulo, 2004), the situation in further- and higher-education is less clear. Difficulties that are encountered are often the product of teaching staffs' lack of understanding of AS and failing to make appropriate modifications to instructional activities.

Recognition of the lack of awareness of autism spectrum disorders has also been raised with regard to the criminal justice system. A recent survey reported 92% of police officers and 78% of solicitors thought there was not enough awareness of autism spectrum disorders in the criminal justice system. Additionally, 92% of police officers and 94% of solicitors indicated they had not received training in this area, mainly due to lack of resources and available training time (NAS, 2005). The present situation can pose risks for those adults with AS coming into contact with the criminal justice system, either as victims or perpetrators.

There is also a general lack of awareness of AS amongst health professionals (Morton-Cooper, 2004). Autism spectrum disorders are strongly associated with paediatric services; there is likely to be a dearth of knowledge and support available for adults with AS accessing adult services, including those relating to mental health (Taiminen, 1994). Within Adult Mental Health services, difficulties can often arise when developmental history is not considered; thus, presentation can be misattributed to acute mental health problems rather than a pervasive developmental disorder such as AS. When combined with an outdated belief that people with AS cannot experience mental health problems, this can lead to potential risks for the individual concerned and those around as a result of a lack of appropriate support (Ghaziuddin, 2005).

Future Directions for Research and Clinical Practice

The findings of this literature review suggest a variable, but generally poor, outcome for adults with AS. Difficulties can be experienced across the life span, and adults with AS are vulnerable to experiencing mental health problems, challenges obtaining and maintaining appropriate employment, and contact with the criminal justice system. Future research with adults with AS may help develop a more detailed understanding of outcomes for this population, including greater exploration of factors predictive of relative success or otherwise. It will also be important to continue research into more focal aspects of the lives of adults with AS; as well as those detailed previously, other areas that are in need of further research include social integration, relationships and sexuality. This will help to build a broader understanding of adults with AS and the challenges they face on a daily basis with minimal or no support from services.

The observed lack of service provision for adults with AS highlights some areas for further work. First, assessment and diagnostic services need to be provided on a wider scale, to allow adults with AS to benefit from a clearer understanding of their own presenting difficulties. This may also involve the development of habilitation services to support adults with AS; although such services exist in some areas of the UK regarding employment, for example (Howlin, Alcock, & Burkin, 2005), it will be beneficial to extend support through such areas as education, access to healthcare, and the development and maintenance of relationships. As well as support for individuals and families, professionals in all areas would likely benefit from input regarding AS in adulthood. While not expected to be specialists, many health, social-care or statutory service providers are likely to meet adults with autism spectrum disorders (Wing, 2005). Recently published good-practice guidelines relating to services for adults with AS suggest training for health and social services professionals should include content on autism spectrum disorders (Powell, 2002). By identifying awareness of AS among different professional groups, relevant support may enable more appropriate services to be provided to adults with AS when required.

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APPENDIX A

Research in Autism Spectrum Disorders: Guide for Authors

Research in Autism Spectrum Disorders: Guide for Authors

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ELECTRONIC SUBMISSION Authors should submit their articles electronically via the Elsevier Editorial System (EES) page of this journal http://ees.elsevier.com/rasd. The system automatically converts source files to a single Adobe Acrobat PDF version of the article, which is used in the peer-review process. Please note that even though manuscript source files are converted to PDF at submission for the review process, these source files are needed for further processing after acceptance. All correspondence, including notification of the Editor's decision and requests for revision, takes place by e-mail and via the Author's EES homepage, removing the need for a hard-copy paper trail.

SUBMISSION REQUIREMENTS: Allow ample margins and type DOUBLE SPACED throughout. One of the paper's authors should enclose a letter to the Editor, requesting review and possible publication; this letter must also state that the manuscript has not been previously published and has not been submitted elsewhere. Papers accepted for Research in Autism Spectrum Disorders may not be published elsewhere in any language without written permission. Should a paper be accepted for publication, the author will be asked to complete a Transfer of Copyright form.

TITLE PAGE: The title page should list (1) the article title; (2) the authors' names and affiliations at the time the work was conducted; (3) a concise running title; (4) an unnumbered footnote giving address for reprint requests and any acknowledgments; and (5) the corresponding author's telephone and fax numbers and E-mail address.

ABSTRACT: An abstract should be submitted that does not exceed 200 words in length. The abstract should be brief, concise, and complete in itself without reference to the body of the paper. Include purpose, methodology, results, and conclusions where applicable.

STYLE AND REFERENCES: Manuscripts should be prepared using the American Psychological Association Publication Manual, 5th ed., 1994.

The word retarded should be used as an adjective rather than a noun; retardate should be avoided. Terms that are scientifically precise should be adhered to. Therefore, mentally retarded will be preferred to retarded because it specifies the type of retardation, and intellectually average or normal intelligence will be preferred over normal. A similar format should be followed if other disabilities are involved. Abbreviations should be held to a minimum and should appear only after the full length term has been spelled out once in the text. It is understood that all investigations have been approved by the human subjects review committee of the author's institution.

The reference section must be DOUBLE SPACED and all works cited must be listed. Avoid abbreviations of journal titles and incomplete information.

TABLES AND FIGURES: All tables and figures should be grouped together at the end of the manuscript and numbered separately using Arabic numerals. Clearly visible notes within the text should indicate their approximate placement. The appropriate format for figures is described at: http://www.elsevier.com/artworkinstructions. Please see the EES web page (http://ees.elsevier.com/rasd) for full detailed instructions.

PROOFS AND REPRINTS: One (1) set of page proofs of the article will be sent to the corresponding author. These should be carefully proofread. Except for typographical errors, corrections should be minimal, and rewriting of text is not permitted. Page proofs should be returned within 48 hours of receipt.

The corresponding author will receive (along with page proofs for reading), a form for ordering reprints and full copies of the issue in which their article appears. Twenty-five (25) free reprints are provided. Orders for additional reprints must be received before printing in order to qualify for lower prepublication rates.

APPENDIX B

Diagnostic Criteria for Asperger Syndrome

Diagnostic criteria for DSM-IV-TR Asperger's Disorder (APA, 2000)

A. Qualitative impairment in social interaction, as manifested by at least two of the following:

    1. marked impairment in the use of multiple non-verbal behaviours such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
    2. failure to develop peer relationships appropriate to developmental level
    3. a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by showing, bringing, or pointing out objects of interest to other people)
    4. lack of social or emotional reciprocity

B. Restricted repetitive and stereotyped patterns of behaviour, interests, and activities, as manifested by at least one of the following:

    1. encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
    2. apparently inflexible adherence to specific, non-functional routines or rituals
    3. stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
    4. persistent preoccupation with parts of objects

C. The disturbance causes clinically significant impairment in social, occupational, or other important areas of functioning.

D. There is no clinically significant general delay in language (e.g., single words used by age 2 years, communicative phrases used by age 3 years).

E. There is no clinically significant delay in cognitive development or in the development of age-appropriate self-help skills, adaptive behaviour (other than in social interaction), and curiosity about the environment in childhood.

F. Criteria are not met for another specific Pervasive Developmental Disorder or Schizophrenia.

Diagnostic criteria for ICD-10 Asperger's syndrome (WHO, 1993)

A. There is no clinically significant general delay in spoken or receptive language or cognitive development. Diagnosis requires that single words should have developed by 2 years of age or earlier and that communicative phrases be used by 3 years of age or earlier. Self-help skills, adaptive behaviour, and curiosity about the environment during the first 3 years should be at a level consistent with normal intellectual development. However, motor milestones may be somewhat delayed and motor clumsiness is usual (although not a necessary diagnostic feature). Isolated special skills, often related to abnormal preoccupations, are common, but are not required for a diagnosis.

B. There are qualitative abnormalities in reciprocal social interaction (criteria as for autism).

C. The individual exhibits an unusually intense, circumscribed interest or restricted, repetitive, and stereotyped patterns of behaviour, interests, and activities (criteria as for autism; however it would be less usual for these to include either motor mannerisms or preoccupations with part-objects or non-functional elements of play materials).

D. The disorder is not attributable to the other varieties of pervasive developmental disorder: simple schizophrenia; schizotypal disorder; obsessive-compulsive disorder; anankastic personality disorder; reactive and disinhibited attachment disorders of childhood.

EMPIRICAL PAPER

Reactions of Student Nurses in Mainstream Health Services to Contact with Adults with Asperger Syndrome: The Effects of Diagnostic Information and Training

Prepared as if for submission to:

Journal of Autism and Developmental Disorders[2]

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[2] See Appendix A for Checklist for Manuscript Submissions

Reactions of Student Nurses in Mainstream Health Services to Contact with Adults with Asperger Syndrome: The Effects of Diagnostic Information and Training

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Running Head: Nurse Contact with Adults with Asperger Syndrome

Abstract

This paper reports on student nurses' perceptions, causal attributions, and responses toward adults with Asperger syndrome presenting in general hospital settings. Participants observed a clinical-vignette depicting an adult with Asperger syndrome admitted for surgery, and completed a questionnaire. Effects were considered within the context of diagnostic information regarding Asperger syndrome, and nurse training. Findings suggested provision of diagnostic information increased the likelihood nurses' would perceive observed behaviour to be associated with an autism spectrum disorder; no effects were found with respect to causal attributions or responses. Participants receiving nurse training were more likely to consider observed behaviour to reflect characteristics over which others had control. Observed behaviour was associated with anxiety or obsessive-compulsive disorder, regardless of nurse training.

Key Words: Nurse, Asperger Syndrome, Adult, Training, Diagnosis

Reactions of Student Nurses in Mainstream Health Services to Contact with Adults with Asperger Syndrome:

The Effects of Diagnostic Information and Training

Asperger syndrome (AS) is a pervasive developmental disorder resulting in qualitatively abnormal social development and restricted or repetitive interests and behaviours. In contrast to other pervasive developmental disorders, clinically significant delays in language or intellectual development are not observed (American Psychiatric Association [APA], 2000; World Health Organization [WHO], 1993). Recent estimates suggest a prevalence of approximately 10 per 10,000 in the UK (Chakrabarti & Fombonne, 2005). While the majority of research regarding AS, and autism spectrum disorders in general, focuses on child and adolescent experience, attention has recently expanded to consider outcomes for adults. Long-term studies suggest outcomes are variable but generally poor, with individuals experiencing difficulties with mental health and employment, for example (Howlin, 2004). Qualitative studies demonstrate young adults with AS and their parents consider intense or unusual interests, a dislike of change, and social immaturity to lead to difficulties 'fitting in' with peers. In addition, respondents identify longer-term risks associated with social isolation, dependency on parents, mental health problems, and unemployment (Portway & Johnson, 2005). While some may achieve social and occupational independence, others remain isolated and dependent, requiring significant daily support. Overall, adaptive functioning is lower than expected given the intellectual ability associated with AS (Tsatsanis, 2003).

As in the typically developing population, adults with AS are likely to engage with a range of services including health, education, and criminal justice. Despite this, professionals working across settings will often lack knowledge regarding AS

(Wing, 2005). A particular problem for service providers relates to difficulties recognising AS and the impact the condition has on an individuals' behaviour. An adult with AS presenting with impaired social skills and ritualistic behaviour, but communication skills and intellectual functioning in the typical range, is likely to raise challenges for service-providers across settings (Klin & Volkmar, 1997). Thus, adults with AS can be considered to have 'hidden impairments' that are not immediately apparent to service providers (Aylott, 2004); this has implications for the quality of service provided to such individuals.

The present study explores healthcare provision for adults with AS. Much the same as the typically developing population, adults with AS require access to effective and appropriate healthcare (La Camera & La Camera, 1997). While quality healthcare provision at every level should be accessible to all, irrespective of an individual's condition, barriers exist making this difficult to achieve. Health professionals' awareness and understanding of AS is likely to impact on access to appropriate services. While little is known about this situation in relation to AS, there is a growing literature relating to access to healthcare for people with intellectual disabilities. Health professionals can lack confidence, experience fear and vulnerability, and may struggle to meet the needs of people with intellectual disabilities in hospital settings due to a lack of awareness and understanding of appropriate methods of care (McMurray & Beebee, 2007; Sowney & Barr, 2006). Given the difficulties healthcare professionals experience in providing care for people with intellectual disabilities, it is expected the situation for adults with AS is likely to be less than optimal (Morton-Cooper, 2004). While facilitating access to healthcare for people with intellectual disabilities has been promoted through national policy, meeting the healthcare needs of people with autism spectrum disorders has been largely neglected. In addition to the need for research focusing explicitly on improving access to healthcare for people with intellectual disabilities (Brown & MacArthur, 2006), the same can be said for people with autism spectrum disorders, and adults with AS specifically.

The present research focuses on health professionals' perceptions, attributions, and responses toward adults with AS presenting in general hospital settings. As nurses represent one of the largest groups of health professionals involved in both acute and chronic care, it seems pertinent to explore these professionals and the contact they may have with adults with AS. Broadly speaking, perceptions and attributions regarding the behaviour of others are important in understanding subsequent emotional and behavioural responses (Weiner, 1980, 1993). Thus, if an individual attributes another persons' actions to uncontrollable factors, for example, feelings of sympathy and helping behaviours are more likely to occur. If an individual attributes another persons' actions to controllable factors, however, feelings of anger and avoidance behaviours are more likely. Researchers have begun to explore nurses' causal attributions regarding errors made in clinical settings, for example (Meuri, Vincent, & Parmar, 1998). Understanding nurses' attitudes will also likely facilitate access to healthcare for people with intellectual disabilities (McConkey & Truesdale, 2000); the present research expands on this to consider nurses' perceptions and attributions regarding adults with AS in general hospital settings.

Attributions regarding observed behaviours have been explored across areas of patient and service-user care. Research has explored staff attributions toward challenging behaviour displayed by people with intellectual disabilities living in residential settings, for example (Tynan & Allen, 2002). Using written vignettes, the study sought to establish the impact level of intellectual disability had on staff attributions. It was found individuals' with mild intellectual disability were more likely to be perceived as having control over their behaviour than those with more severe intellectual disability. In turn, it was expected that staff working with individuals' with mild intellectual disability would become angry and less willing to engage in specific interventions than those working with people with more severe intellectual disabilities. A similar study sought to ascertain the effects of psychiatric labels on mental health nurses perceptions and causal attributions (Markham & Trower, 2003). Findings demonstrated patients with borderline personality disorder were more likely to be perceived as in control of challenging behaviour than those with schizophrenia or depression. Additionally, it was found staff who perceived challenging behaviour to be under the patients control were less likely to be sympathetic towards those patients. Given these findings and the application of Weiner's (1980, 1993) model across settings, it is important to understand nurses' perceptions and attributions regarding the behaviour of adults with AS. Such behaviour may be considered 'odd' or 'strange', for example (Aylott, 2004); this is likely to have implications for the standard of care provided. Nurses' attributions regarding the behaviour of adults with AS may disable the people they are trying to care for (Aylott, 2000).

In addition to perceptions and attributions, it will be important to consider nurses' responses to the behaviour of adults with AS. Weiner (1980, 1993) discusses helping behaviour in the context of causal attributions, and subsequent research has utilised self-report measures of participants' likelihood of helping in relation to behaviour described in written vignettes (e.g. Dagnan, Trower, & Smith, 1998). This represents a vague measure of behavioural response, however, and inclusion of such a measure in the present research will not enhance our understanding in this area. Alternatives to this procedure include interviewing participants with a view to understanding their own reactions to actual situations (e.g. Dagnan & Weston, 2006), but such an approach in the present study would be inappropriate given the difficulties identifying and accessing situations involving adults with AS. Thus, the present study sought to explore nurses' personal reactions to the behaviour of adults with AS, with a view to describing these and considering associations with causal attributions in future research.

Little is known about nurses' perceptions, attributions, and responses toward adults with AS in general hospital settings. While the present study will attempt to provide some understanding of this, it is also important to consider two pertinent issues. The first relates to the impact of a recorded diagnosis of AS on nurses' judgements and reactions. Such information may facilitate access to relevant support and give service providers information with which to make patient-centred decisions (Berney, 2004). Despite this, there are many adults with AS who do not have a formal diagnosis (Aylott, 2001), and recognition of such a condition is likely to be made in the absence of important clarifying information. Thus, it is important to establish the impact of a recorded diagnosis of AS on nurses' perceptions, attributions, and responses toward adults with AS. The second issue relates to the impact general nurse training has on these issues. In the absence of specific education and training, nurses' attitudes toward people with intellectual disabilities are likely to be similar to those of the general public (Shanley & Guest, 1995). Previous research exploring nurses' attitudes toward people with intellectual disabilities have used undergraduate university students not involved with health-service training as a 'yardstick', allowing exploration of the effects of nurse training

(McConkey & Truesdale, 2000); a similar strategy was employed in the present research. To control for the content and format of nurse training, final-year undergraduate nursing students were recruited to participate in this research.

Research Questions

The current research is presented in two parts to address the above issues and enhance clarity. Part 1 explores the impact of a recorded diagnosis of AS on nurses' perceptions, attributions, and responses to a clinical-vignette; specific research questions include: -

- Are nursing students' perceptions regarding an adult with AS different if a formal diagnosis is recorded?
- Are nursing students' causal attributions regarding an adult with AS different if a formal diagnosis is recorded?
- Are nursing students' perceptions of their own ability to manage a situation regarding an adult with AS different if a formal diagnosis is recorded?
- Are nursing students' personal responses regarding a situation with an adult with AS different if a formal diagnosis is recorded?

Part 2 explores the effects of nurse training on perceptions and attributions regarding a clinical-vignette; specific research questions include: -

- Are nursing students' perceptions regarding an adult with AS different from those of undergraduate students not involved in health service training?
- Are nursing students' causal attributions regarding an adult with AS different from those of undergraduate students not involved in health service training?

Given the role nurses have in providing care for patients, it was considered irrelevant to explore the personal responses of those who had not received health service training. All research questions were addressed using a questionnaire to collect quantitative and qualitative data regarding participants' responses to a clinical-vignette.

Part 1 - The Effects of Diagnostic Information

Method

Design

A between-groups design was used. The independent variable related to provision of a clinical diagnosis of AS being given in the clinical-vignette. Dependent variables included nursing students' (a) perceptions of the clinical diagnosis of the person depicted, (b) causal attributions regarding the individuals' behaviour, (c) perceived management capacity of the situation, and (d) own personal response to what they observed. At $\alpha = .05$ and assuming a medium effect-size, 64 participants per group are required to achieve power at .8 (Cohen, 1992). Research similar to that presented has not been published, and given the timescale and nature of the project pilot-studies were impractical. A medium effect-size was assumed, as one may expect to observe a difference between groups' perceptions and personal reactions that would be apparent through normal experience (Cohen, 1988).

Participants

Permission was sought from the University of Southampton School of Nursing and Midwifery to recruit final-year undergraduate adult-branch nursing students (Appendix B). One-hundred-and-twenty-seven students participated; 61 were provided with information regarding a diagnosis of AS while observing a clinical-vignette (Group A); 66 were not provided with such information (Group B). The median age of students in Group A was 26 yrs (range = 20 - 45 yrs). The median age of students in Group B was 22 yrs (range = 20 - 51 yrs). Further demographic details are presented in Table 1, and were considered representative of the population

Table 1.

Further Demographic Characteristics of Nursing Students

	Group	
	A	B
Characteristic	*n* (%)	*n* (%)
Total	61 (100)	66 (100)
Gender		
Male	4 (7)	5 (8)
Female	57 (93)	61 (92)
Highest level of education completed		
GCSE or equivalent	5 (8)	7 (11)
GCE A Level or equivalent	44 (72)	45 (67)
Diploma or equivalent	4 (7)	7 (11)
Bachelors degree or equivalent	8 (13)	7 (11)
Previous occupational experience related to mental health	21 (34)	20 (30)
Previous educational qualifications related to mental health	2 (3)	0 (0)

students were sampled from (B. Marjoram, personal communication, May 8, 2007). During the 3-year adult nursing programme, students received lectures providing an overview of mental health issues and user-experiences; autism was addressed as an associated condition (Appendix C).

Materials

Clinical-Vignette

To overcome some deficiencies associated with written vignettes, including lack of ecological validity and inadequate representation of subtle clinical conditions (Jopp & Keys, 2001), a 5-min clinical-vignette was filmed for this study. Actors were recruited and prepared to play the parts of an adult male with AS (the 'index patient'), medical and nursing staff. The clinical-vignette was filmed on the teaching ward at the University of Southampton School of Nursing and Midwifery. A script was carefully developed based on the experiences of clinicians and researchers familiar with AS, autism spectrum disorders and intellectual disabilities; the clinical-vignette thus portrayed an adult meeting criteria for a diagnosis of AS (APA, 2000; WHO, 1993; Appendix D). A specialist registrar in general surgery was consulted regarding the script and relevant medical procedures. The mother of an adolescent diagnosed with high-functioning autism and a nurse were present during filming to advise regarding behavioural characteristics and health-related procedures respectively.

The clinical-vignette depicted the index patient presenting on a general hospital ward for surgery the following day regarding a strangulated hernia; this condition was suggested given the clinical need for urgent surgical intervention. The clinical-vignette opens in the early evening with the index patient asking a nurse about hospital-related procedures (e.g. "How many operations are carried out in the morning?"). The index patient is shown making no direct eye contact with the nurse, and is engaged in stereotyped finger-movements. The index patient also states that he has a doctorate in applied mathematics, facilitating the portrayal of an individual with a level of intellectual functioning relevant to an adult with AS.

The next scene depicts a handover conversation between nursing and medical staff, including discussion of the index patients' presentation during the day and planned surgical procedure. During this exchange it is noted "There are no other significant medical issues, but there is a note on him having Asperger's". Manipulation of the independent variable was achieved through careful editing of the film; thus two clinical-vignettes were produced, differing only in the presentation of information given regarding the index patients' diagnosis of AS.

Next, the clinical-vignette shows the index patient sat by his bed several hours later. The index patient then stands and proceeds to move his bed, cabinet and chair in accordance with his preferred alignment. Nursing and medical staff approach, attempting to encourage the index patient to stop moving the furniture. The index patient explains, "Everything needs to be at 42 degrees, that's how I sleep at home". During this scene a nurse touches the index patient, who reacts abruptly saying "Please don't touch me, I will discharge myself". Subsequently, the index patient states "I told you I can discharge myself and I will discharge myself, now will you kindly get out of my way" and pushes a nurse aside; she falls to the floor. The index patient then leaves the ward.

Given the central function of the clinical-vignette in this research, it was important to establish the ecological validity of the film. In addition to the advice detailed above, the clinical-vignette was shown to 26 adults with a diagnosis of AS and parents attending a local AS support-group. Commentary supported the validity of the clinical-vignette and the reactions of health professionals; one parent remarked that her own child had experienced a similar incident. Concern was raised suggesting the clinical-vignette may give viewers the impression all people with AS are aggressive; discussion around the incident and the non-combative nature of the index patients' actions resolved any apprehension. Thus, support-group members endorsed the clinical-vignette.

The clinical-vignette was also shown to various professionals blind to the study aims: (a) a clinical psychologist with extensive experience of diagnosing individuals with autism spectrum disorders and developmental delay, (b) a consultant clinical psychologist with extensive experience of diagnosing and providing clinical support for children and adults with intellectual and developmental disabilities, and

(c) a clinical psychologist with experience working with medical staff in health settings. Positive commentary was made regarding the validity and accurate representation of the index patient, clinical setting, and behaviour of health-professionals; thus, the ecological validity of the clinical-vignette was deemed suitable for the present study.

Questionnaire

Nurses' perceptions regarding the index patients' clinical diagnoses were elicited using the Diagnostic Categories Questionnaire (DCQ; Lewendon, 2004; Appendix E). Participants were asked to rate how strongly they felt the index patients' behaviours was specifically associated with a range of differential diagnoses relevant to AS, including anxiety disorder, attention deficit/hyperactivity disorder, depression, learning disabilities, obsessive-compulsive disorder, personality disorder, and schizophrenia (Berney, 2004). The scale contained 9 items; participants' ratings were made on a Likert scale ranging from 1 (*not at all* associated) to 9 (*definitely* associated).

Jones and Hastings' (2003) third-person version of the Revised Causal Dimension Scale (CDSII; McAuley, Duncan, & Russell, 1992; Appendix F) was used to explore participants' causal attributions regarding the index patients' behaviour. First, participants responded to an open-ended question regarding the single most likely cause for the index patients' behaviour. Next, participants were asked to rate this cause in relation to 12 items, on a Likert scale ranging from 1 to 9. Items condense into 4 subscales regarding the attributional dimensions 'Locus of Control', 'Stability', 'Personal Control', and 'External Control'; these were used for subsequent analysis. High scores on the 'Locus of Control' subscale indicate perceptions reflecting characteristics of the index patient rather than the situation.

High scores on the 'Stability' subscale indicate perceptions reflecting permanent characteristics of the index patient. High scores on the 'Personal Control' subscale indicate perceptions reflecting characteristics over which the index patient has control. High scores on the 'External Control' subscale indicate perceptions reflecting characteristics over which people other than the index patient have control. Internal consistencies of subscales included in Jones and Hastings third-person version were acceptable (Cronbach's α between .75 and .80). Internal consistencies of subscales in the present research were .63, .50, .72, and .76 respectively, suggesting caution should be taken when interpreting outcomes on 'Locus of Control' and 'Stability' subscales.

Perceptions of personal management ability and response were measured using the Management Capacity and Response Questionnaire (MCRQ; Appendix G). Part 1 asked participants, based on what was presented in the clinical-vignette, to rate their own ability to manage the index patient on first contact after the incident on a Likert scale ranging from 1 (*could not be managed*) to 9 (*could definitely be managed*). Part 2 asked participants to respond to an open-ended question regarding their personal response to the clinical-vignette.

Participants provided demographic information following completion of the above measures, including sex, age, highest completed educational qualification, and previous occupational or educational experience relevant to working with people with mental health problems (Appendix H).

Procedure

Approval was sought from the School of Psychology Ethics Committee and University of Southampton Research Governance office prior to data collection (Appendices I & J). Nursing students participated during scheduled lectures, and were randomly allocated to groups. First, participants were given information regarding the study (Appendix K); informed consent was obtained via returning questionnaires. Next, participants were given standard instructions:

> 'I am going to show you a film that is five minutes long. The first person you will see is a man called Dr. Collins. He is a patient on a general hospital ward. The other people in the film are nurses or doctors working on the hospital ward. While you are watching the film, I would like you to imagine that you are also working on this ward. When the film is finished, I will ask you to complete a questionnaire.'

The clinical-vignette was then displayed using a laptop and data-projector. Questionnaires were distributed when the film finished, and were collected once all participants had completed items. Debriefing statements (Appendix L) were then distributed and students thanked for their participation.

Data Reduction

Nurses' personal responses to the clinical-vignette were subjected to content analysis, using sentences as the basic unit of analysis (cf. Dey, 1993). On the basis of common content in nurses' sentences, categories were identified relating to specific topic areas. Only sentences relating to nurses' personal responses to the vignette were included in the analysis. These categories formed the basis of a codebook (Appendix M), incorporating nurses' responses to the clinical-vignette. As further responses were examined, some categories were combined or split if data were best described in this way, and definitions of categories were developed. Finally, sentences in all interview transcripts were re-coded into the content categories represented in the codebook.

Reliability

To establish inter-rater reliability, a doctoral-level psychologist with significant experience using content analysis procedures coded 26 (20%) randomly selected nurse responses using the codebook. Agreements between coders' ratings were scored when both signified statements corresponded to a category in the codebook or when both did not indicate the presence of a statement corresponding to a category. Inter-rater agreement was calculated in two ways. Using Kappa (Cohen, 1960), overall agreement was .77 ($p < .001$). Agreement ranged from 83% to 100% (mean = 95%) using a simple percentage agreement index formula ([agreements/[agreements + disagreements]] x 100%). Both measures indicate acceptable inter-rater reliability.

Results

The few missing values in the data set were replaced with the mean value for the relevant item prior to running the analysis. Demographic data were also compared between groups to identify significant differences. One-sample Kolmogorov-Smirnov (K-S) tests indicated participants' ages in both groups were not normally distributed; subsequent Mann-Whitney analysis revealed no significant difference between groups. Categorical data were explored using Chi-square tests where expected cell values were over 5; otherwise data were visually inspected. No significant associations were found between demographic data and group membership.

Perceptions of Clinical Diagnosis

Prior to analysis, one-sample K-S tests were used to explore the nature of nurses' responses to DCQ items. Responses to the item 'Autism Spectrum Disorder' were normally distributed, but the remaining items were not. Subsequent transformation of DCQ items failed to yield normally distributed data; thus, non-parametric statistics were selected for analysis. Median ratings on DCQ items made by nurses in both groups are displayed in Figure 1, with descriptive and Mann-Whitney test statistics presented in Table 2. Given the number of analyses, a Bonferonni correction was applied with $\alpha = .006$ (Everitt, 1996). The only significant difference between groups' DCQ item ratings related to 'Autism Spectrum Disorder' ($U = 1287.0, p < .001$); nurses viewing the film containing a diagnosis of AS were more likely to rate the index patient as having an 'Autism Spectrum Disorder' than those nurses who were not given the diagnosis.

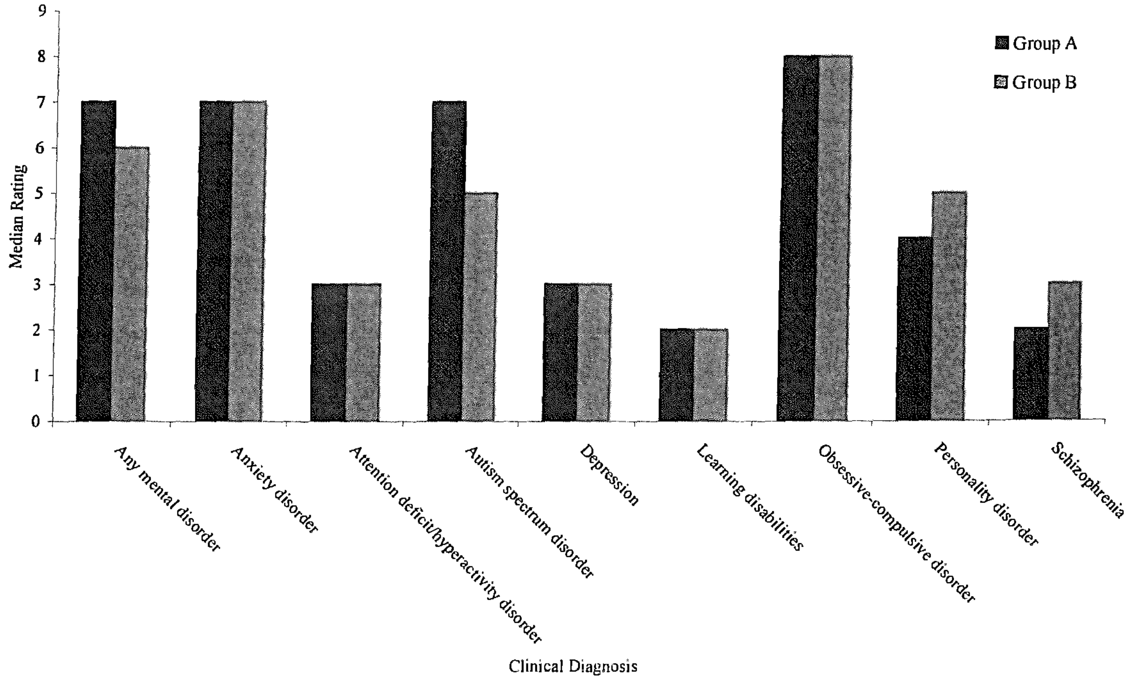

Figure 1. Median ratings on Diagnostic Categories Questionnaire items for Group A ($n = 61$) and Group B ($n = 66$).

Table 2.

Descriptive and Inferential Statistics for Responses to Diagnostic Categories Questionnaire Items

	Group					
	A		B			
Diagnosis	*Mdn*	(Range)	*Mdn*	(Range)	*U*	*p*
Any mental disorder – irrespective of type	7	(1 – 9)	6	(1 – 9)	1862.0	*ns*
Anxiety disorder	7	(1 – 9)	7	(4 – 9)	2006.0	*ns*
Attention deficit/hyperactivity disorder	3	(1 – 9)	3	(1 – 9)	2013.0	*ns*
Autism spectrum disorder	7	(1 – 9)	5	(1 – 9)	1287.0	< .001
Depression	3	(1 – 7)	3	(1 – 7)	1869.5	*ns*
Learning disabilities	2	(1 – 9)	2	(1 – 8)	1891.0	*ns*
Obsessive-compulsive disorder	8	(1 – 9)	8	(1 – 9)	1927.0	*ns*
Personality disorder	4	(1 – 9)	5	(1 – 9)	1668.0	*ns*
Schizophrenia	2	(1 – 8)	3	(1 – 8)	1654.5	*ns*

Note: Diagnostic Categories Questionnaire scores range from 1 – 9. High scores are indicative of increased strength of association between participants' observation of the index patient and specific diagnostic category.

Differences within groups' DCQ ratings were explored separately for each group, given the significant difference found between groups. Given the substantial number of significant correlations between DCQ items within groups (see Appendix

N), Friedman tests were used. Results indicated that significant differences existed within ratings made by nurses given a diagnosis of AS (X^2 (8, n = 61) = 240.79, p < .001) and by nurses not given such a diagnosis (X^2 (8, n = 66) = 263.11, p < .001). Post-hoc Wilcoxon statistics for groups, with Bonferonni-corrected α = .001 (see Appendix O), suggested that nurses presented with a diagnosis of AS were significantly more likely to rate the index patient as having an 'Anxiety Disorder', 'Autism Spectrum Disorder', or 'Obsessive Compulsive Disorder' than 'Attention Deficit/Hyperactivity Disorder', 'Depression', 'Learning Disabilities', 'Personality Disorder', or 'Schizophrenia'. Nurses not given a diagnosis were significantly more likely to rate the index patient as having an 'Anxiety Disorder' or 'Obsessive Compulsive Disorder' than 'Autism Spectrum Disorder', 'Attention Deficit/Hyperactivity Disorder', 'Depression', 'Learning Disabilities', 'Personality Disorder', or 'Schizophrenia'.

Causal Attributions Regarding Observed Behaviour

Participants' responses to CDSII subscales were normally distributed; mean ratings on CDSII subscales are displayed in Figure 2, with descriptive and t-test statistics presented in Table 3. Levene's tests were non-significant; equal variances were assumed. No significant differences were found between groups, suggesting a diagnosis of AS made no difference to nurses' causal attributions regarding the index patients' behaviour.

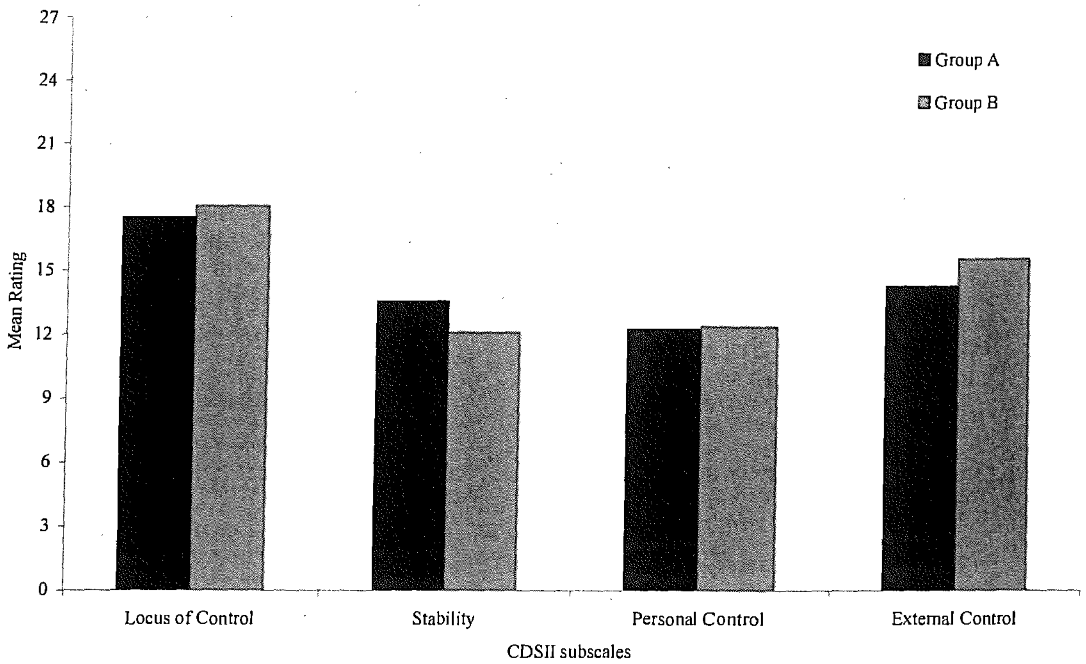

Figure 2. Mean ratings on Revised Causal Dimension Scale subscales for Group A ($n = 61$) and Group B ($n = 66$).

Table 3.

Descriptive and Inferential Statistics for Responses to Revised Causal Dimension Scale Subscales for Groups A and B

	Group					
	A		B			
Causal Attribution	*M*	(*SD*)	*M*	(*SD*)	*t*	*p*
Locus of Control	17.49	(5.08)	18.03	(4.54)	-.631	*ns*
Stability	13.54	(5.21)	12.08	(4.88)	1.635	*ns*
Personal Control	12.25	(4.47)	12.38	(5.19)	-.154	*ns*
External Control	14.26	(5.39)	15.55	(6.36)	-1.221	*ns*

Note: Revised Causal Dimension Scale subscales range from 3 – 27.

Differences within groups' CDSII ratings were explored as one group, given the lack of significant differences found between groups. Levene's test was significant; parametric statistics were inappropriate as variances between groups were unequal. A Kruskal-Wallis test indicated significant differences existed within participants' ratings (H (3, n = 127) = 74.95, $p < .001$). Post-hoc Mann-Whitney test statistics are presented in Table 4. Participants were significantly more likely to make a high rating on the 'Locus of Control' subscale than on other subscales, suggesting they considered the index patients' behaviour to reflect an aspect of that individual rather than the situation.

Table 4.

Post-Hoc Mann-Whitney U Statistics for Responses to Revised Causal Dimension Scale Subscales

	1.	2.	3.
1. Locus of Control			
2. Stability	3844.0*		
3. Personal Control	3512.5*	7960.5	
4. External Control	5769.5*	6348.0*	6000.0*

* $p < .05$

Perceived Management Capacity

Nurses' MCRQ ratings were not normally distributed. The median rating for Group A was 6 (range = 3 – 9), compared with 6 (range = 1 – 9) for Group B, suggesting participants generally considered themselves neither able nor unable to manage the index patient. No significant difference was found between groups on ratings of perceived management capacity (U = 1728.5, *ns*).

Personal Responses to Clinical-Vignette

Participants identified a variety of personal responses to the clinical-vignette. Categories endorsed by at least 20% of participants are presented in Table 5, including an example of the category taken from written responses and the number of endorsing participants (cf. Symes, Remington, Brown, & Hastings, 2006). Chi-square statistics were calculated for each category to ascertain whether participants' personal responses were related to group membership; no significant associations were found.

Table 5.

Nursing Students' Personal Responses to the Clinical-Vignette

		Group			
		A		B	
Category	Example	*n*	(%)	*n*	(%)
Talk to, reassure, and help the patient calm down	"I would talk calmly to [the patient] and try to relieve their anger and anxiety."	25	(41)	35	(53)
Gain information from the patient regarding his ritualistic behaviour or restricted interests	"[I would try to] understand his needs, for example, regarding moving furniture."	30	(49)	35	(53)
Help the patient to move hospital furniture	"I would help [the [patient] to move his bed and other furniture to the 42° angle that he wished."	31	(51)	26	(39)
Provide the patient with further information regarding the planned surgical procedure, the risks of surgery, and possible consequences of his actions	"I would have calmly explained his risks of walking and his need for rest."	15	(25)	23	(35)

Part 2 – The Effects of Nurse Training

Method

Design

This study employed a between-groups design. The independent variable was the undergraduate programme of study participants were registered on. The dependent variables were students' perceptions of the clinical diagnosis of the person depicted and causal attributions regarding the individuals' behaviour.

Participants

Permission was sought from the University of Southampton School of Nursing and Midwifery to recruit final-year undergraduate adult-branch nursing students (Appendix B), and from the School of Geography to recruit final-year undergraduate geography students (verbal consent obtained). Sixty-six nursing students comprised Group B (see Part 1, above), and 53 geography students comprised Group C. The median age of nursing students was 22 yrs (range = 20 - 51 yrs). The median age of geography students was 21 yrs (range = 20 - 27 yrs). Further demographic characteristics are presented in Table 6. Given some control participants had previous occupational experience related to mental health ($n = 5$), their responses to the main dependent variables were compared with those control participants who did not have such experiences; no significant differences were found, indicating these experiences had not unduly influenced control participants' responses.

Materials

Clinical-Vignette

The clinical-vignette described in Part 1 was used; no information was given regarding the index patients' diagnosis of AS.

Table 6.

Further Demographic Characteristics of Students

	Group	
	B	C
Demographic Characteristic	*n* (%)	*n* (%)
Total	66 (100)	53 (100)
Gender		
Male	5 (8)	20 (38)
Female	61 (92)	33 (62)
Highest level of education completed		
GCSE or GCE A Level	52 (78)	53 (100)
Diploma or Bachelors degree	14 (22)	0 (0)
Previous occupational experience related to mental health	20 (30)	5 (10)
Previous educational qualifications related to mental health	0 (0)	0 (0)

Questionnaire

The DCQ, CDSII and demographic questionnaires described in Part 1 were used.

Procedure

Recruitment of nurses in Group B was described in Part 1. Control participants in Group C were recruited during a scheduled lecture. First, participants were given information regarding the study (Appendix K); informed consent was obtained via returning questionnaires. Next, participants in Group C were given standard instructions:

> 'I am going to show you a film that is five minutes long. The first person you will see is a man called Dr. Collins. He is a patient on a general hospital ward. The other people in the film are nurses or doctors working on the

hospital ward. While you are watching the film, I would like you to imagine that you are a patient on this ward in the bed next to Dr. Collins. When the film is finished, I will ask you to complete a questionnaire.'

The clinical-vignette was then displayed using a laptop and data-projector. Questionnaires were distributed when the film finished, and were collected once all participants had completed items. Debriefing statements were then distributed and students thanked for their participation.

Results

Prior to analysing the data, the few missing values apparent in the data set were replaced with the mean value for the relevant item. Demographic data were also compared between groups to identify significant differences. One-sample K-S tests indicated participants' ages in both groups were not normally distributed; non-parametric analysis revealed a significant difference between groups, with nursing students being significantly older than geography students ($U = 1048.50, p < .001$). Exploration of categorical data suggested there were significantly more females in the nursing group (χ^2 $(1, n = 119) = 16.11, p < .001$), more nursing students had a diploma or bachelor's degree (χ^2 $(1, n = 119) = 12.74, p < .001$) and previous occupational experience with people with mental health problems (χ^2 $(1, n = 119) = 7.71, p < .01$). None of the participants recruited had previous educational qualifications relevant to working with people with mental health problems.

Perceptions of Clinical Diagnosis

Prior to analysis, one-sample K-S tests were used to explore the nature of participants' responses to DCQ items; none of the items were normally distributed. Subsequent transformation of DCQ items failed to yield normally distributed data; thus, non-parametric statistics were selected for analysis. Median ratings on DCQ items are displayed in Figure 3, with descriptive and Mann-Whitney test statistics presented in Table 7. Given the number of analyses, a Bonferonni correction was applied with $\alpha = .006$. The only significant difference between groups' DCQ item ratings relates to 'Attention deficit/hyperactivity disorder' ($U = 1053.0$, $p < .001$); nurses were less likely to rate the index patient as having an 'Attention deficit/hyperactivity disorder' than participants in the control group.

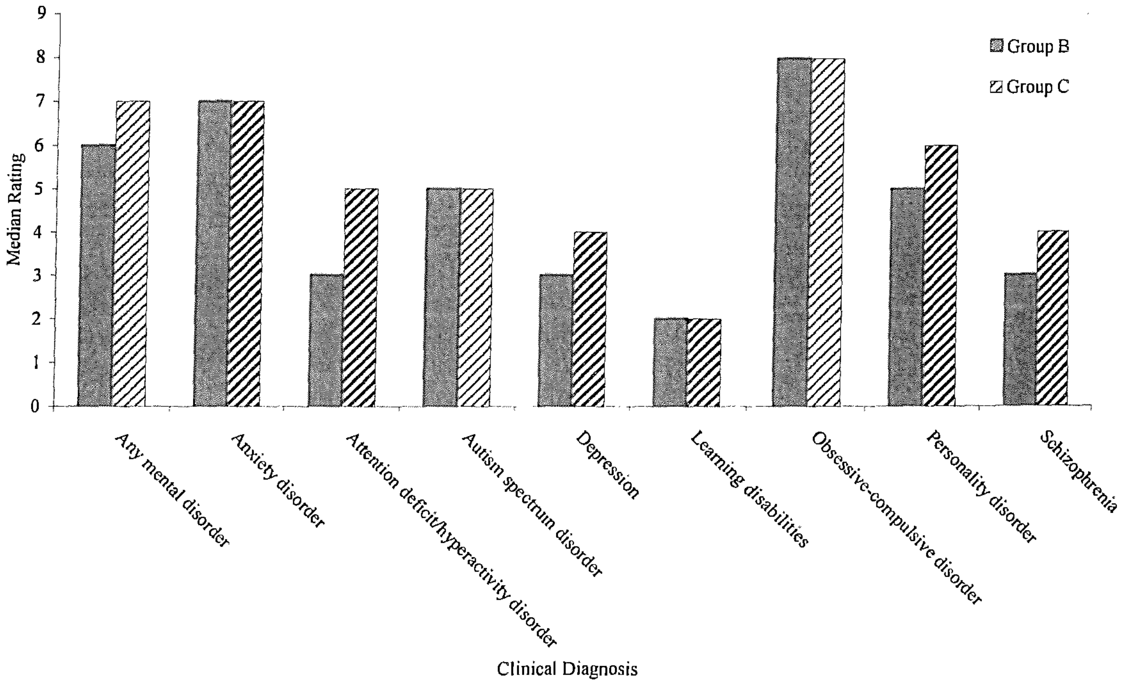

Figure 3. Median ratings on Diagnostic Categories Questionnaire items for Group B ($n = 66$) and Group C ($n = 53$).

Differences within groups' DCQ ratings were explored separately, given the significant difference found between groups. Given the substantial number of significant correlations between DCQ items within groups (see Appendix N), Friedman tests were used. Results indicated significant differences existed within

Table 7.

Descriptive and Inferential Statistics for Responses to Diagnostic Categories Questionnaire Items

	Group					
	B		C			
Diagnosis	*Mdn*	(Range)	*Mdn*	(Range)	*U*	*p*
Any mental disorder – irrespective of type	6	(1 – 9)	7	(2 – 9)	1527.0	*ns*
Anxiety disorder	7	(4 – 9)	7	(5 – 9)	1612.0	*ns*
Attention deficit/hyperactivity disorder	3	(1 – 9)	5	(1 – 8)	1053.0	< .001
Autism spectrum disorder	5	(1 – 9)	5	(1 – 9)	1599.5	*ns*
Depression	3	(1 – 7)	4	(1 – 8)	1642.0	*ns*
Learning disabilities	2	(1 – 8)	2	(1 – 6)	1735.0	*ns*
Obsessive-compulsive disorder	8	(1 – 9)	8	(3 – 9)	1739.5	*ns*
Personality disorder	5	(1 – 9)	6	(1 – 9)	1423.0	*ns*
Schizophrenia	3	(1 – 8)	4	(1 – 8)	1595.0	*ns*

Note: Diagnostic Categories Questionnaire scores range from 1 – 9. High scores are indicative of increased strength of association between participants' observation of the index patient and specific diagnostic category.

both groups' ratings (Group B: X^2 (8, n = 66) = 263.11, $p < .001$; Group C: X^2 (8, n = 53) = 254.66, $p < .001$). Post-hoc Wilcoxon statistics for both groups, with

Bonferonni-corrected α = .001 (see Appendix O), suggested that nurses and participants in the control group were significantly more likely to rate the index patient as having an 'Anxiety Disorder' or 'Obsessive Compulsive Disorder' than 'Autism Spectrum Disorder', 'Attention Deficit/Hyperactivity Disorder', 'Depression', 'Learning Disabilities', 'Personality Disorder', or 'Schizophrenia'.

Causal Attributions Regarding Observed Behaviour

Participants' responses to CDSII subscales were normally distributed; mean ratings on CDSII subscales are displayed in Figure 4, with descriptive and t-test statistics presented in Table 8. Levene's tests were non-significant for 'Stability' and 'Personal Control' subscales; equal variances were assumed. Equal variances were not assumed for 'Locus of Control' and 'External Control' subscales. The only significant difference between groups' CDSII subscale ratings related to 'External

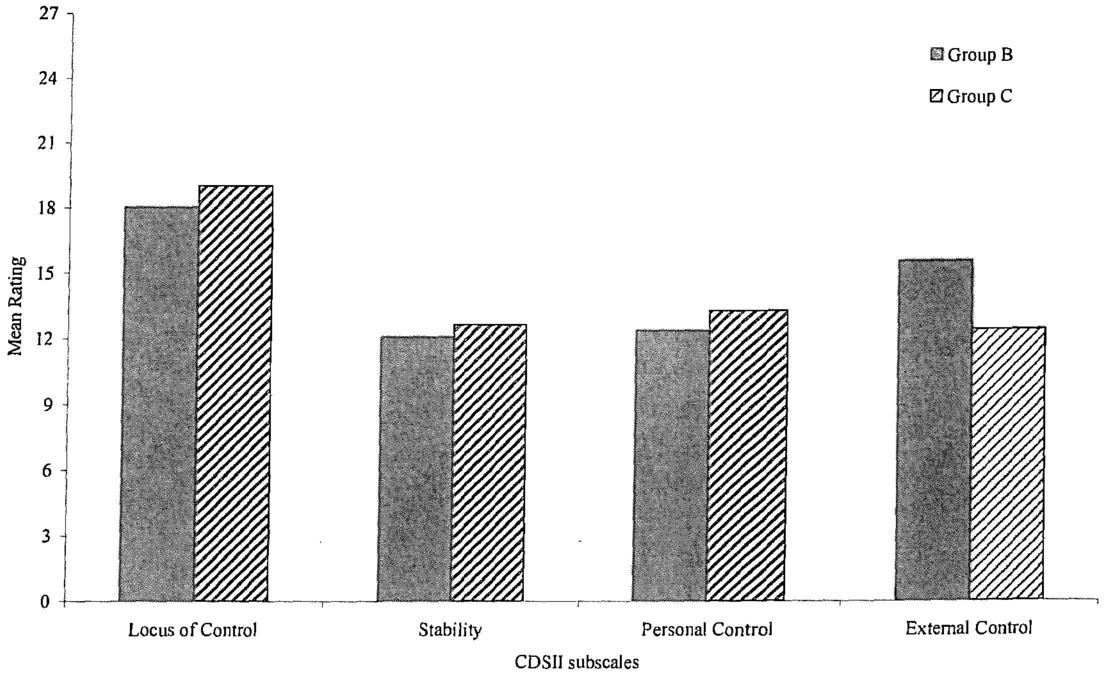

Figure 4. Mean ratings on Revised Causal Dimension Scale subscales for Group B ($n = 66$) and Group C ($n = 53$).

Table 8.

Descriptive and Inferential Statistics for Responses to Revised Causal Dimension Scale Subscales for Groups B and C

	Group					
	B		C			
Causal Attribution	Mean	(*SD*)	Mean	(*SD*)	*t*	*p*
Locus of Control	18.03	(4.54)	19.02	(3.33)	-1.367	*ns*
Stability	12.08	(4.88)	12.64	(4.05)	-.677	*ns*
Personal Control	12.38	(5.19)	13.28	(4.89)	-.969	*ns*
External Control	15.55	(6.36)	12.42	(4.47)	3.146	< .01

Note: Revised Causal Dimension Scale subscales range from 3 – 27.

Control' ($t\,(115.07) = 3.146, p < .01$); nurses were more likely than control participants to rate the characteristics displayed as being under the control of people other than the index patient.

Differences within groups' CDSII ratings were explored separately, given the significant difference found between groups. Levene's tests were significant; therefore non-parametric statistics were used. Kruskal-Wallis tests indicated significant differences existed within both groups' ratings (Group B: $H\,(3, n = 66) = 47.74, p < .001$; Group C: $H\,(3, n = 53) = 62.04, p < .001$). Post-hoc Mann-Whitney test statistics for both groups are presented in Tables 9 and 10. Participants in both groups were significantly more likely to make a high rating on the 'Locus of Control' subscale than on other subscales, suggesting they considered the index patients' behaviour to reflect an aspect of that individual rather than the situation.

Table 9.

Post-Hoc Mann-Whitney U Statistics for Group B Responses to Revised Causal Dimension Scale Subscales

	1.	2.	3.
1. Locus of Control			
2. Stability	828.0*		
3. Personal Control	917.5*	2089.5	
4. External Control	1670.0*	1466.0*	1542.5*

* $p < .05$

Table 10.

Post-Hoc Mann-Whitney U Statistics for Group C Responses to Revised Causal Dimension Scale Subscales

	1.	2.	3.
1. Locus of Control			
2. Stability	333.5*		
3. Personal Control	502.5*	1305.5	
4. External Control	365.5*	1325.0	1230.0

* $p < .05$

Discussion

The aim of the present research was to investigate nurses' perceptions, attributions, and responses toward adults with AS presenting in general hospital settings. The first part of this research explored these aspects within the context of provision of a formal diagnosis of AS. Results suggested provision of diagnostic information regarding AS increased the likelihood nurses would perceive the index patient as having an autism spectrum disorder. This finding suggests specific diagnostic information may be important in facilitating nurses' identification of AS in adults presenting in general hospital settings. Without such information, nurses may struggle to recognise the nature of the behaviour of adults with AS. To some extent this supports the notion of AS as a 'hidden disability' (Aylott, 2004), highlighting the difficulties health professionals may have identifying adults with AS in the absence of relevant knowledge of such conditions (Morton-Cooper, 2004). Given many adults with AS lack a formal diagnosis (Aylott, 2001), a tentative prediction might suggest the absence of diagnostic information may have repercussions for subsequent clinical care.

Additionally, nurses were likely to consider the adult with AS to have an anxiety disorder or specific obsessive-compulsive disorder (OCD). This finding might be expected given the increased prevalence of generalised anxiety disorder in those with pervasive developmental disorders (APA, 2000). While adults with AS can develop co-morbid OCD, it is important to consider whether the frequency or severity of non-functional repetitive behaviours increase over what would typically be observed in that individual (Ghaziuddin, 2005). Compulsive or ritualistic behaviours may appear phenomenologically similar across groups, but those presenting in adults with AS are usually less sophisticated and more egosyntonic than those associated with OCD in typically developing adults (Lainhart, 1999; Russell, Mataix-Cols, Anson, & Murphy, 2005). Resistance to change and repetitive object arrangement are likely to be observed in intellectually able individuals with pervasive developmental disorders (Carcani-Rathwell, Rabe-Hasketh, & Santosh, 2006); repeating and checking compulsions are more likely in those with OCD (Russell et al., 2005). While nurses considered observed behaviour in the clinical-vignette to be representative of OCD, this may be based on a general stereotype rather than specific knowledge. It is interesting to note provision of diagnostic information regarding AS did not influence nurses' perceptions of the likelihood of other conditions accounting for observed behaviour. Nurses may be more confident in their perceptions of behaviour associated with anxiety, OCD, depression, or intellectual disability, for example, than that associated with AS. This may further exacerbate difficulties identifying the needs of adults with AS.

Diagnostic information did not influence nurses' causal attributions regarding an adult with AS. Additionally, nurses were more likely to consider the adult with AS shown in the vignette to be responsible for their behaviour, regardless of diagnostic information. It is possible nurses are making a 'fundamental attribution error' regarding the observed behaviour of adults with AS, overestimating the targets' personal responsibility for their actions (cf. Heider, 1958). Similar findings have been reported in the literature regarding residential and day centre staffs' perceptions of challenging behaviour displayed by adults with intellectual disabilities (e.g. Weigel, Langdon, Collins, & O'Brien, 2006). The fundamental attribution error may contribute to less than optimal delivery of interventions (Dagnan, Trower, & Smith, 1998), and in the present context may have implications for nurses' emotional and behavioural reactions, potentially reducing the quality of care adults with AS receive. In contrast to nurses' attributions, it has been suggested the environment has a substantial impact on the behaviour of individuals with autism spectrum disorders; environmental alterations can significantly reduce challenging behaviours and improve adaptive functioning (Lovaas, 2003). While statistically significant, the clinical significance of an attributional error in the present research may be limited given the data. Future research may confirm the reliability of these findings.

Diagnostic information did not influence nurses' perceived management capacity or personal responses toward the adult with AS. The present data suggest nurses' have no strong feelings either way regarding their perceived management capacity, possibly reflecting uncertainty regarding the situation and a lack of appropriate strategies regarding the behaviour of adults with AS. Given the importance of beliefs regarding personal ability to overcome challenging situations (i.e. perceived self-efficacy; Bandura, 1997) it will be important to consider the extent to which nurses' beliefs translate into practice, and if training can increase perceived management capacity.

Nurses proposed a variety of responses to the clinical-vignette, including reassuring the adult with AS through conversation, gaining information from the patient regarding observed behaviour, or explaining potential consequences with respect to the planned surgical procedure. Responses were not specific enough to determine how nurses would achieve these outcomes. It is common for health professionals to assume strategies suitable for people with intellectual disabilities will be suitable for those with autism spectrum disorders, but subtle social-communication difficulties can challenge effective interaction even with those without cognitive impairment (Morton-Cooper, 2004). Limited time and busy clinical environments may also preclude full understanding of idiosyncratic behaviour. A substantial proportion of nurses also suggested facilitating ritualistic behaviour. This person-centred approach is encouraging and accepting of individual difference, but may be difficult to achieve in practice without disrupting other patients in general hospital settings. Given the range of restricted and repetitive behaviours displayed in adult with AS, however, future research may reveal that nurses respond differentially relative to disruption caused in the clinical environment.

The second part of this research explored the impact of nurse training on perceptions and attributions regarding an adult presenting with AS. Results suggested nurse training decreased the likelihood nurses would perceive the index patient as having attention deficit/hyperactivity disorder (AD/HD). Thus, those not receiving nurse training were more likely to perceive the behaviour of an adult with AS to relate to AD/HD. This is an unexpected finding, given all other perceptions were the same between groups; replication would be useful to explore this further.

Additionally, participants were likely to consider the adult with AS to have an anxiety disorder or OCD, irrespective of nurse training. It is interesting nurse training seemed to have little effect on perceptions of behaviour displayed by adults with AS, other than relating to AD/HD. This suggests nurses' attitudes toward adults with AS may be similar to those without nurse training. Lack of education regarding AS and general mental health issues during adult nurse training may be expected to contribute to such a finding (cf. Shanley & Guest, 1995). As discussed above, ritualistic behaviour displayed by adults with AS may be perceived as relating to OCD, despite phenomenological differences. The incidence of OCD is much higher than autism in the general population, and increasing media attention paid to OCD and anxiety-related disorders may explain why the behaviours of adults with AS were perceived in this way (Furnham & Buck, 2003).

The present findings suggest nurse training influenced causal attributions; those receiving nurse training were more likely to rate the behaviour of an adult with AS as reflecting characteristics over which others had control. This may, in part, be explained by the professional ethos of nursing, whereby maintaining patient safety and well-being are extremely important (Meurier, Vincent, & Parmar, 1998). Thus, nurses' contributions to situations involving adults with AS are likely viewed from a professional stance, whereas those without nurse training may relinquish personal responsibility. Additionally, participants were more likely to consider adults with AS to be responsible for their behaviour, regardless of nurse training. This may be considered in the context that participants generally perceived observed behaviour to be more indicative of anxiety or OCD. Lay theories of OCD in particular suggest compulsive behaviours are extreme variations on typical behaviours; biological causes less likely to be endorsed (Furnham & Buck, 2003). This may increase the likelihood of a 'fundamental attribution error' regarding personal responsibility in observed behaviour of adults with AS, and influence subsequent emotional and behavioural reactions toward such individuals.

Methodological Issues

Methodological issues associated with this study should be considered. It is important to remember the present study reports data regarding a representative sample of final-year adult-branch undergraduate nursing students. This limits possible interpretations of findings, but provides an indication of nurses' perceptions, attributions and responses to adults with AS at the beginning of their professional career. Future research may recruit nurses with different levels of experience to explore the applicability of present findings beyond this sample. Issues regarding internal validity should also be addressed, including demographic differences between groups in Part 2 of the present research. Nurses were likely to be older, female, to have a degree or diploma, and to have prior occupational experience with people with mental health problems. Although these are potential threats to internal validity, they are to be expected when comparing a group of nursing students with a group who have not received nurse training. Recruiting a comparison group of final-year undergraduate students reading a degree unrelated to health-services allowed the effects of nurse training to be explored while likely controlling for level of education and socio-economic status, for example. Partial-replication recruiting a comparison group with a narrower demographic may demonstrate more robust internal validity, whereas recruiting from a wider demographic may increase the external validity of findings; a balance between these was achieved in the present research.

Given written vignettes are considered less 'powerful' than visual vignettes, the use of a visual clinical-vignette in the present research is a strength (Lewendon, 2004). Findings in vignette-based studies can be limited to the situation portrayed; it is important to note independent experts considered the clinical settings and behaviours of adults with AS portrayed in the clinical-vignette to be representative. Nurses' differing perceptions of the clinical-vignette, dependent on diagnostic information, suggested experimental variance was adequately manipulated (cf. Graziano & Raulin, 2004). It would be interesting, however, to replicate the research using clinical-vignettes depicting an adult with more severe characteristics of autism spectrum disorders, or providing further reference to the available diagnostic information.

The measures used in the present research were appropriate and most have been used previously (cf. Lewendon, 2004). The collection of quantitative and qualitative data was a strength, allowing for detailed exploration of participants' responses. It should be noted, however, that internal-reliability coefficients regarding 'Locus of Control' and 'Stability' subscales of the third-person CDSII were lower than reported in past research (Jones & Hastings, 2003); interpretation of findings using these subscales should be made with caution. Additionally, future research may consider counterbalancing presentation of questionnaire measures to minimise order-effects.

Future Research and Clinical Practice

Research based on Weiner's (1980, 1993) model has explored participants' causal attributions and their association with emotional and behavioural responses; this would be useful to explore in this area. Measures of nurses' emotional responses similar to those used in the intellectual disability research could be used (e.g., Dagnan & Weston, 2006). Inclusion of behavioural response measures could also be considered. Weiner's model focuses on helping behaviour, but criticism identifies this has been conceptualised as 'willingness to expend extra effort in helping' rather than detailing staff actions (Jones & Hastings, 2003). Qualitative data collected in the present study could be useful in developing a measure specific to this area, providing further insight into nurses responses to adults with AS.

In addition to replicating the methods described here, future studies could explore nurses' responses in focus groups, rather than on an individual basis. Given nurses working on general hospital wards are likely to have the opportunity for discussion with other staff, it may be important to explore this effect on attitudes and responses. The present research focused on nurses as one of the largest groups of healthcare professionals; future research could replicate these methods across different health professions to broaden our understanding of the experiences of adults with AS in health settings.

While participants in the present research were students, there may be wider implications for clinical practice. The consequences of nurses' perceptions and attributions on emotional and behavioural reactions may impact on the care of adults with AS, raising potentially dangerous clinical risks. While this needs to be confirmed in future research, it is worth considering the repercussions of this. In the present research, diagnostic information regarding AS increased the likelihood nurses would perceive observed behaviour to be associated with autism spectrum disorders. Diagnostic information had no effect on nurses' causal attributions, however, suggesting diagnostic information alone may promote a superficial understanding of AS that has minimal effect on nurses' responses. Lack of understanding regarding AS can increase risk, as individuals may be placed in situations that escalate anxiety, distress, or cause harm (Aylott, 2001). The legal implications of this are important to consider. The Disability Discrimination Act stipulates 'reasonable adjustments' must be made to facilitate access to services, and 'less favourable treatment' should not be provided to those with disabilities (Disability Rights Commission, 2002). According to the Disability Discrimination Act, lack of awareness of 'hidden impairments', including AS, is no justification for not responding appropriately (Aylott, 2004). Nurses may be acting unlawfully if they fail to respond to adults with AS and accommodate their specific needs.

The potential consequences of perceptions, causal attributions, and responses suggest nurses may benefit from specific training regarding adults with AS, thus improving clinical care by increasing the likelihood nurses will make informed decisions based on diagnostic information. Recently published good-practice guidelines relating to services for adults with AS suggest training for health and social service professionals should include content on autism spectrum disorders (Powell, 2002). A model for increasing awareness of intellectual disability among hospital staff working within the National Health Service in the UK has recently been published, encouraging service-user involvement in developing and delivering training (McMurray & Beebee, 2007). Pre- and post-qualification nurse education programmes need to provide nurses with knowledge and skills to meet the health needs of all individuals in the wider population (Sowney & Barr, 2006); training regarding AS should be no exception.

While AS-specific training may be important, significant barriers exist. It has been suggested specialists in autism spectrum diagnostic and intervention services may have a role in providing training and support for health professionals who lack understanding of such conditions (Mesibov, 2005). Limited specialist provision may preclude widespread dissemination of relevant training, however, although existing services may develop models to be used across settings. Evaluation of the content and effectiveness of any training provision will be an essential part of this exercise (Brown & MacArthur, 2006). The present research has provided a basis for exploring nurses' level of understanding to improve the experiences of adults with AS receiving general healthcare. Future work may clarify this further and help develop awareness of AS among health professionals.

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APPENDIX A

Journal of Autism and Developmental Disorders:

Checklist for Manuscript Submissions

Journal of Autism and Developmental Disorders:

Checklist for Manuscript Submissions

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http://www.springer.com/east/home/psychology/child+%26+school+psychology?SGWID=5-40672-70-35543417-0&detailsPage=contentItemPage&contentItemId=143047&CIPageCounter=CI_FOR_AUTHORS_AND_EDITORS_PAGE1#anchor2

[Where appropriate, page numbers in the Publication Manual of the APA (5th Ed.) are noted. A more detailed review of requirements is found in the Manual, and a summary of some of these requirements can be found at http\\www.apastyle.org.]

JADD will accept submission of Articles, Brief Reports, Letters to the Editor, and Commentaries.

The preferred article length is 20 - 23 manuscript pages (or 4500 words). Manuscripts of 40 pages (references, tables and figures counted as pages) have been published. The reviewers or the editor for your review will advise you if a longer submission must be shortened.

Special Issue Article The Guest Editor may dictate the article length; maximum pages allowed will be based on the issue's page allotment.

A Brief Report or Case Report* (about 8 double-spaced pages or 2000 words with shorter references and fewer tables/figures). May not meet the demands of scientific rigor required of a JADD article – can be preliminary findings.

A Letter to the Editor** is 500 words or about 2 double spaced pages.

A Commentary*** is a form of letter to the editor which is often invited by the editor to express an opposing view to the article being published.

Review your manuscript for these elements

1. Order of manuscript pages [pgs 287, 296-303]
    - Title Page (separate page, numbered page 1
    - Abstract (separate page, numbered page 2) with 6 or fewer key words following
    - Text (start on separate page, numbered page 3.)
    - Reference List (start on separate page)
    - Appendix (if included)
    - Author Note (separate page with centered title)
    - Footnotes (if needed; list together and start on separate page)
    - Tables (start each on separate page)
    - Figure Caption Sheet (list together, starting the list on separate page)
    - Figures (start each on separate page)

2. Typing Format: Double-spaced, 12 point font, pages numbered consecutively (except for figures). Two words from the Running Head may appear in the header of each page.
   - The manuscript must contain no markups. This means that authors who have used a change-tracking tool in writing and editing their manuscript must "accept" the tracked changes to make them a permanent part of the manuscript before sending it on to the JADD. Do not merely hide the changes.
   - If bibliographic software is used to create references, please remove the links. This will make the references free-standing, independent text within the manuscript rather than variable, contingent text that is subject to change via the link to the bibliographic software program. If the footnote or endnote function of your software was used, format the footnote text to begin on a new page following the Author Note page, and replace footnote references with superscript numbers.
   - *For a brief report, the words "Brief Report:..." appear in the title line just before your title. For a case report, the words "Case Report:..."appear n the title line just before your title. Follow general directions for an article. An Author Note follows the References.
   - **For a letter, the words, "Letter to the Editor" appear in Line 1. A title may be inserted on Line 2. "Dear Editor:" appears in line 4. The text begins on line 6. The names of all authors and institutions appear at the end of the text. A list of References follows the authors' names (instructions found in point #8). There may be an Author Note at the end of the document (instructions found in point #9).
   - ***For a commentary, the word "Commentary" appears in line 1 just before the title and text. The names of all authors and institutions appear at the end of the text or references. There is an Author Note at the end of the document.

3. Title Page [pages 10-12]
   - The Title Page is page 1 and should contain: 1. a full title, 2. the authors' full names and institutional affiliations, and 3. a running head for publication. (see below). The preferred form for author's name is first name, middle initial (s), and last name. Omit titles and degrees. The institutional affiliation is the location where the study was conducted. Full address for the corresponding author, location of the institutions and current affiliations (if changed since the time of the study) belong in the Author Note. JADD has an open review system (not a blind review) and the title page is required for submission—the data cover sheet created by the EM does not substitute for your title page.

4. Running Head
   - The running head is an abbreviated title that is printed at the top of the pages of a published article to identify the article for readers. The head should be a maximum of 50 characters, counting letters, punctuation, and spaces between words. Designation of the running head should be placed on the title page as "Running head:". Two

words of this running head for publication can be added to the header of the typed manuscript.

5. Abstract [pages 12 -15]
    - "The abstract should be concise and specific, "Make each sentence maximally informative especially the lead sentence. Be as brief as possible. Abstracts should not exceed 120 words. Begin the abstract with the most important information (but do not waste space by repeating the title). This may be the purpose or thesis or perhaps the results and conclusions. Include in the abstract only the four or five most important concepts, findings, or implications." The abstract is found on page 2. Six or fewer key words should appear one line below the abstract ("Key Words:...:"). Please note: An abstract is needed for all submissions. Failure to provide an abstract, or providing one that is too long, will delay the publication of your manuscript.

6. Body
    - The body of the manuscript should begin on a separate page. The manuscript page header (if used) and page number 3 should appear in the upper right corner. Type the title of the paper centered at the top of the page, add a hard return, and then type the text using the format noted above. The body should contain:
        - Introduction (APA pgs 15-17) (The introduction has no label.)
        - Methods (APA pgs 17-20) (Center the heading. Use uncentered subheadings such as: Participants, Materials, Procedure.)
        - Results (APA pgs 20-26) (Center the heading.)
        - Discussion (APA pgs 26-27) (Center the heading).

7. Reference citations [pgs 207-214]
    - Citations within the text guide the reader to the correct location on the reference list. Correct citation form is the surname of the authors and the year of publication, which are inserted in the text. For publications with one or two authors, cite one or two names. If there are multiple authors, cite all at first mention and only the first author at subsequent mentions. Separate multiple citations within parentheses with a semicolon.

      Basic style:
      "Dickens (2003) suggested that cognitive impairments...."
      "In a recent study of cognitive impairments in autism (Dickens, 2003)...."

8. Reference List format [general forms page 223; 313]
    - The reference list begins on a separate page with the heading "References" centered at the top. The references should be in alphabetical order, double spaced, with a hanging indent paragraph format (no extra space between references). Each listed reference

should be cited in text, and each text citation should be listed in the reference list. Some general forms for references are found on page 223 or electronic references can be seen on «apastyle.org».

- periodical:

Author, A.A., Author, B.B, & Author, C.C. (1994). Title of article. Title of Periodical, xx, xxx-xxx.

- nonperiodical

Author, A.A. (1994). Title of work. Location: Publisher.

- part of a nonperiodical (e.g. book chapter)

Author, A.A., & Author, B.B. (1994). Title of Chapter. In A. Editor, B. Editor, & C. Editor (Eds.), Title of Book (ppxxx-xxx). Location: Publisher.

9. Author Note Page 204-205
    - The Author note is double spaced and follows the references or appendix. The first paragraph contains a separate phrase for each author's name and the affiliations of the authors at the time of the study (include region and country). The second paragraph identifies any changes in the author affiliation subsequent to the time of the study and includes region and country (wording: "authors name is now at affiliation".) The third paragraph is Acknowledgments. It identifies grants or other financial support and the source, if appropriate. It is also the place to acknowledge colleagues who assisted in the study and to mention any special circumstances such as the presentation of a version of the paper at a meeting, or its preparation from a doctoral dissertation, or the fact that it is based on an earlier study. The fourth paragraph states, "Correspondence concerning this article should be addressed to..." and includes the full address, telephone number and email address of the corresponding author. Fax may be included.

10. Footnotes [300 – 302]
    - Center the label "Footnotes" at the top of a separate page. Type all content footnotes and copyright permission footnotes together, double-spaced, and numbered consecutively in the order they appear in the article. Indent the first line of each footnote 5-7 spaces. The number of the footnote should correspond to the number in the text. Superscript arabic numerals are used to indicate the text material being footnoted.

11. Tables (pgs. 147 – 176)
    - Tables should be numbered sequentially in the order that they are first mentioned in the text and referred to by number in the text. Each table is identified with the word "Table" and an arabic numeral and a

descriptive title. Each table should be inserted on a separate page at the back of the manuscript in the order noted above. A call-out for the correct placement of each table should be included in brackets within the text immediately after the phrase in which it is first mentioned. Copyright permission footnotes for tables are typed as a table note.

12. Figure Caption Sheet [page 302]
    - The figure caption sheet should follow the tables and precede the figures. It contains a list of the captions for all figures used. Center the label "Figure Captions" in uppercase and lowercase letters at the top of the page. Begin each caption entry flush left, and type the word "Figure", followed by the appropriate number and a period, all in italics. In the text of the caption (not italicized), capitalize only the first word and any proper nouns. If the caption is more than one line, double-space between the lines, and type the second and subsequent lines flush left. Table notes [174-175]: Copyright permission footnotes for figures are typed as part of the figure caption.

13. Figures [pages 176 – 204]
    - Each figure should appear on a separate page. The page where the figure is found should have the figure number and the word "top" typed outside the field that will be copied for publication. Figures or illustrations (photographs, drawings, diagrams, and charts) are to be numbered in one consecutive series of arabic numerals. Figures may be embedded in the text of a Word or Wordperfect document. Electronic artwork submitted on disk may be in the TIFF, EPS or Powerpoint format (best is 1200 dpi for line and 300 dpi for half-tones and gray-scale art). Color art should be in the CYMK color space. Assistance will be provided by the system administrator if you do not have electronic files for figures; originals of artwork may be sent to the system administrator to be uploaded. *** After first mention in the body of the manuscript, a call-out for the correct placement of each figure should be included in brackets on a separate line within the text.

14. Callouts
    - After first mention in the body of the manuscript, a call out for the correct placement of each table and each figure should be included in brackets on a separate line within the text: [place Table 1 about here] or [place Figure 1 about here]. Center the callout and add a hard return before and after your bracketed call-out.

Review your manuscript for these requirements

15. Seriation [Pages 115-116]
    - A series within a sentence is identified with lowercase letters in parenthesis. A series in separate paragraphs is identified with arabic numerals and followed by a period (not enclosed in parentheses and not bulleted). These items may be considered sequential. They are

conceptually parallel (thus, the numbers mean the same as a bullet. Bullets are never used.).

16. Quotations [pages 292-293, 117-118]
    - Quotations of fewer than 40 words should be incorporated into the text and enclosed by double quotation marks ("…"). Quotations of 40 words or more should be displayed in a double spaced, indented block with no quotation marks. Indent the whole paragraph 5-7 spaces and omit the usual paragraph indent.

17. Abbreviations (pgs 103 -110)
    - Abbreviations used by psychologists may not be familiar to students or to readers from other disciplines or other countries. Therefore, they should be used sparingly. A term to be abbreviated must be written out completely on its first appearance and followed immediately by its abbreviation in parentheses. Thereafter, the abbreviation may be used in text without further explanation.
    - Abbreviations in Figures must be explained in the caption or legend.
    - Abbreviations in Tables must be explained in the table title or in the table note.
    - Some standard abbreviations do not need to be written out at first use (pgs 106-108).

18. Headings (pgs. 111 - 115).
    - This will guide the use of headings and subheadings ("outline" type letters and numbers are not used). Articles with two levels of headings require a level 1 and a level 3. For articles with 3 levels, use Level 1, Level, 3, Level 4. For 4 levels use Levels 1-4.

CENTERED UPPERCASE HEADING –Level 5
(only used if 4 other heading levels exist)

Centered Uppercase and Lowercase Heading – Level 1

Centered Italicized, Uppercase and Lowercase Heading – Level 2

Flush left, Italicized, Uppercase and Lowercase Side Heading – Level 3

Indented, Italicized, lowercase paragraph heading ending with a period. Level 4

- Only 3 levels of headings are allowed in the Springer print format.
- (Please note: If you would like to use additional heading levels during review, follow APA instructions. However, 4th or 5th levels of headings will be collapsed into the 3rd level when composed for proofs.)

19. Publication of photographs.
    - Permission requests are the responsibility of the author and guidance for writing a permission request letter is found in the Publication Manual of the APA (page 333). Permission must be granted for reproduction in both print and electronic form. Please label each permission with the corresponding figure number
    - Permissions must be attached to your Transfer of Copyright:
        - Informed consent, which has been obtained from individuals who have been photographed (391).
        - Letter of Permission from the copyright holder, if the photographs were obtained from another source (i.e. a photographer or primary investigator who prepared CD of faces).
    - If the photographs are not original, text should be added to your figure captions to acknowledge the author and the copyright holder. Often wording is supplied by the copyright holder. If not, you may add copyright information and the phrase "reprinted with permission." (page 175)

Example:
Note. From "Title of Article", by A.N. Author and C.O. Author, 2000, Title of Journal, 50, p. 22. Copyright 2000 by the Name of the Copyright Holder, Reprinted (or adapted) with permission.

APPENDIX B

Permission from University of Southampton School of Nursing and Midwifery

Date: Tue, 18 Jul 2006 14:01:06 +0100
From: "Bryant Sonia M." <S.Bryant@soton.ac.uk>
To: M.D.SYMES@soton.ac.uk
Subject: Permission granted for student survey
18 July 2006

Dear Matt

Permission has been granted from Professor Judith Lathlean, Director of Research and Ms Rosalynd Jowett, University Director of Education, for you to conduct your student survey (Health professional and public perspectives of, and reactions toward, adults with autism spectrum disorders).

All the best

Sonia

Sonia Bryant
Research Secretary
Research Support Office
School of Nursing and Midwifery
University of Southampton
Highfield
Southampton
SO17 1BJ
Tel: 023 8059 8307
Fax: 023 8059 8308
Email: sb13@soton.ac.uk

TO BE COMPLETED BY
THE DIRECTOR OF RESEARCH

UNIVERSITY OF SOUTHAMPTON
SCHOOL OF NURSING & MIDWIFERY

CONSENT FORM

For requests for students in the School to participate in a research Study

Title of Project	Health professional and public perspectives of, and reactions toward, adult with autism spectrum disorders
Type of project	Student project - Y/N If Yes - BSc/ MSc/ DClinP/ MPhil/PhD
Name of applicant **Contact address**	Matt Symes Mds4@soton.ac.uk
Project Leader **(or supervisor)** **Contact address**	Dr Tony Brown School of Psychology
Project outline	Acceptable [✓ Y]/N If No - why not?
Ethical committee approval required?	Y/N If yes, has it been received? Y/N What is the number of the LREC/MREC proposal?
Information sheet for students acceptable?	Acceptable [✓ Y]/N If No - why not?
Consent form for students acceptable?	Acceptable [✓ Y]/N If No - why not? Consent form exemption requested - Y/N Acceptable justification for exemption of consent form -Y/N If No - why not?

DECISION

[✓ Consent given] / Consent not given

Signature J. A. Lathlean

Name and position Director of Research

Date 30.6.06

X:Research/Official Documents/Student Surveys
05/06/06

TO BE COMPLETED BY THE DIRECTOR OR ASSOCIATE DIRECTOR OF LEARNING, TEACHING AND QUALITY ENHANCEMENT

[redacted]	
Acceptable given students' workload?	Acceptable - [✓ Y]/N If No - why not?
Plan to access students acceptable?	Acceptable - Y/N If No - why not?
Any other issues ?	

DECISION

[✓ Consent given] / Consent not given

Signature Rosalind Jarrett

Name and position University Director of Education

Date 11/7/06

FINAL DECISION

Consent given	
Consent not given	

X:Research/Official Documents/Student Surveys
05/06/06

APPENDIX C

Mental Health and Autism in Adult Branch Nurse Programmes

University of Southampton | School of Nursing and Midwifery | Report

Re: Mental Health & Autism in Adult Branch Nurse Programmes

PG Dip programme

Mental Health

Lectures

Psychosocial, spiritual & psychological care of a client with a MH background e.g. depression, schizophrenia, but are admitted with an 'adult' problem.

Autism

No

3 year Adult nursing programme

Mental Health

Related issues included in Public Health insights – as individual, families & populations.

Workbook activities

Definitions of abnormal
Mental Health Acts
Mental Health & Disorder – including Normality & abnormality, ICD 10 & DSM-iv categories, Causation, Syndrome, aetiology & treatment, Medical, psychodynamic, behavioural & cognitive models, Predisposing, precipitating & perpetuating factors, Self-actualisation
Labels
Three models of causation

Lectures

Overview of MH
Depression, suicide & self harm
Substance misuse
User discussing experience of MH

Autism

Mentioned only as an associated condition – will be more overt in new curriculum in MH & LD unit

APPENDIX D

Diagnostic Criteria for Asperger Syndrome

Diagnostic criteria for DSM-IV-TR Asperger's Disorder (APA, 2000)

A. Qualitative impairment in social interaction, as manifested by at least two of the following:

    1. marked impairment in the use of multiple non-verbal behaviours such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
    2. failure to develop peer relationships appropriate to developmental level
    3. a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by showing, bringing, or pointing out objects of interest to other people)
    4. lack of social or emotional reciprocity

B. Restricted repetitive and stereotyped patterns of behaviour, interests, and activities, as manifested by at least one of the following:

    1. encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
    2. apparently inflexible adherence to specific, non-functional routines or rituals
    3. stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
    4. persistent preoccupation with parts of objects

C. The disturbance causes clinically significant impairment in social, occupational, or other important areas of functioning.

D. There is no clinically significant general delay in language (e.g., single words used by age 2 years, communicative phrases used by age 3 years).

E. There is no clinically significant delay in cognitive development or in the development of age-appropriate self-help skills, adaptive behaviour (other than in social interaction), and curiosity about the environment in childhood.

F. Criteria are not met for another specific Pervasive Developmental Disorder or Schizophrenia.

Diagnostic criteria for ICD-10 Asperger's syndrome (WHO, 1993)

A. There is no clinically significant general delay in spoken or receptive language or cognitive development. Diagnosis requires that single words should have developed by 2 years of age or earlier and that communicative phrases be used by 3 years of age or earlier. Self-help skills, adaptive behaviour, and curiosity about the environment during the first 3 years should be at a level consistent with normal intellectual development. However, motor milestones may be somewhat delayed and motor clumsiness is usual (although not a necessary diagnostic feature). Isolated special skills, often related to abnormal preoccupations, are common, but are not required for a diagnosis.

B. There are qualitative abnormalities in reciprocal social interaction (criteria as for autism).

C. The individual exhibits an unusually intense, circumscribed interest or restricted, repetitive, and stereotyped patterns of behaviour, interests, and activities (criteria as for autism; however it would be less usual for these to include either motor mannerisms or preoccupations with part-objects or non-functional elements of play materials).

D. The disorder is not attributable to the other varieties of pervasive developmental disorder: simple schizophrenia; schizotypal disorder; obsessive-compulsive disorder; anankastic personality disorder; reactive and disinhibited attachment disorders of childhood.

APPENDIX E

Diagnostic Categories Questionnaire (DCQ)

How strongly do you feel that Dr. Collins' behaviours are specifically associated with each of the following? *(Please circle)*

Any mental disorder – irrespective of type?

Definitely associated 9 8 7 6 5 4 3 2 1 Not at all associated

Anxiety Disorder

Definitely associated 9 8 7 6 5 4 3 2 1 Not at all associated

Attention Deficit/Hyperactivity Disorder (AD/HD)

Definitely associated 9 8 7 6 5 4 3 2 1 Not at all associated

Autism Spectrum Disorder

Definitely associated 9 8 7 6 5 4 3 2 1 Not at all associated

Depression

Definitely associated 9 8 7 6 5 4 3 2 1 Not at all associated

Learning Disabilities

Definitely associated 9 8 7 6 5 4 3 2 1 Not at all associated

Obsessive Compulsive Disorder

Definitely associated 9 8 7 6 5 4 3 2 1 Not at all associated

Personality Disorder

Definitely associated 9 8 7 6 5 4 3 2 1 Not at all associated

Schizophrenia

Definitely associated 9 8 7 6 5 4 3 2 1 Not at all associated

APPENDIX F

Third-Person Revised Causal Dimension Scale (CDSII)

A. What do you think is the **single** most likely cause of Dr. Collins' behaviour, which you saw in the video? Write your answer in the space below (write only **one** cause – the one you think is the most important).

B. Think about the **cause** you have written above in A. The questions below concern **your** impressions or opinions of this cause you have given. Please rate this cause by circling **one** number for each of the question items. First, read the example below, which illustrates how to do this.

EXAMPLE

The question in the first item asks whether the **cause** you have written above is something that reflects an aspect of Dr. Collins (the person in the video) *or* something that reflects an aspect of the situation. If you think the cause reflects an aspect of Dr. Collins you would circle 9 or 8 or 7 depending on how strong your views are. If you think the cause reflects an aspect of the situation you would circle 3 or 2 or 1, again depending on how strong your views are. Alternatively, you may think that the cause you identified is somewhere between being an aspect of Dr. Collins and an aspect of the situation. In this case, you would circle a point somewhere in the middle of the scale as shown below (i.e. Point 6 or 5 or 4).

Is the CAUSE something.......

that reflects an aspect of Dr. Collins	9	[✓ 8]	7	6	5	4	3	2	1	that reflects an aspect of the situation

In this particular example, the person who watched the video thought that the cause they had determined was likely to reflect an aspect of Dr. Collins.

Now please begin and circle a number for each of the following questions:

Is the CAUSE that you wrote down in A. above something ...

that reflects an aspect of Dr. Collins	9	8	7	6	5	4	3	2	1	that reflects an aspect of the situation
manageable by Dr. Collins	9	8	7	6	5	4	3	2	1	not manageable by Dr. Collins
permanent	9	8	7	6	5	4	3	2	1	temporary
Dr. Collins can regulate	9	8	7	6	5	4	3	2	1	Dr. Collins cannot regulate
over which others have control	9	8	7	6	5	4	3	2	1	over which others have no control
inside of Dr. Collins	9	8	7	6	5	4	3	2	1	outside of Dr. Collins
stable over time	9	8	7	6	5	4	3	2	1	variable over time
under the power of other people	9	8	7	6	5	4	3	2	1	not under the power of other people
something about Dr. Collins	9	8	7	6	5	4	3	2	1	something about others
over which Dr. Collins has power	9	8	7	6	5	4	3	2	1	over which Dr. Collins has no power
unchangeable	9	8	7	6	5	4	3	2	1	changeable
other people can regulate	9	8	7	6	5	4	3	2	1	other people cannot regulate

APPENDIX G

Management Capacity and Response Questionnaire (MCRQ)

A. Based on what you have seen, do you think that you could manage Dr. Collins on first contact after the incident? *(Please circle)*

Could definitely be managed	9	8	7	6	5	4	3	2	1	Could not be managed

B. Based on what you have seen, what would be your personal response? Please write this down in as much detail as possible.

APPENDIX H

Demographic Questionnaire

The following questions ask for background information about you. Please circle the appropriate answer or write in the spaces provided.

Are you male or female? Male Female

What was your age in years on your last birthday? __________ years

What is the highest level of educational qualification you have completed?

No formal educational qualifications
GCSE, CSE, GCE O Levels or equivalent
GCE A Levels, HNC, GNVQ or equivalent
HND, other Diploma, or equivalent
University / Polytechnic degree
Masters or Doctoral degree

Have you any previous occupational experience or qualifications relevant to working with people with mental health problems?

Previous occupational experience

Previous qualifications

Please give details: -

____

____

____

Are there any comments you would like to make about this study?

____

____

____

____

____

MANY THANKS FOR YOUR HELP

APPENDIX I

School of Psychology Ethics Committee Approval

Date: Thu, 21 Sep 2006 12:57:12 +0100
From: "Smith K.M." <K.M.Smith@soton.ac.uk>
To: M.D.SYMES@soton.ac.uk
Subject: Ethics Application
Dear Matt

Re: Health professional and public perceptions of, and reactions toward, adults with autism spectrum disorders

The above titled application was approved by the School of Psychology Ethics Committee on 21 September 2006.

Should you require any further information, please do not hesitate in contacting me. Please quote reference CLIN/04/26.

Best wishes,

Kathryn

Miss Kathryn Smith
Secretary to the Ethics Committee
School of Psychology
University of Southampton
Highfield
Southampton SO17 1BJ
Tel: 023 8059 3995 Fax: 023 8059 2606
Email: kms@soton.ac.uk

APPENDIX J

University of Southampton Research Governance Approval

University of Southampton

Legal Services - Research Governance Office

University of Southampton
Highfield
Southampton
SO17 1BJ United Kingdom

Tel +44 (0)23 8059 8848/9
Fax +44 (0)23 8059 5781
Email mad4@soton.ac.uk
ld7@soton.ac.uk

RGO REF: 2631

Dr Tony Brown
School of Psychology
Building 44
University of Southampton
Bassett Crescent East
Southampton
SO16 7PX

08 January 2007

Dear Dr Brown

Project Title: Health professional and public perceptions of, and reactions toward, adults with autism spectrum disorders.

I am writing to confirm that the University of Southampton is prepared to act as sponsor for this study under the terms of the Department of Health Research Governance Framework for Health and Social Care (2001).

The University of Southampton fulfils the role of research sponsor in ensuring management, monitoring and reporting arrangements for research.

I understand that you will be acting as the Principal Investigator responsible for the daily management for this study, and that you will be providing regular reports on the progress of the study to the School on this basis.

I would like to take this opportunity to remind you of your responsibilities under the terms of the Research Governance Framework for researchers, principal investigators and research sponsors. These are included with this letter for your reference. In this regard if your project involves NHS patients or resources please send us a copy of your NHS REC and Trust approval letters when available.

Please do not hesitate to contact me should you require any additional information or support. May I also take this opportunity to wish you every success with your research.

Yours sincerely

Dale

Dr Martina Dorward
Research Governance Manager

cc: File
Research Secretary/Manager, School Office, School of Psychology
Researcher/s:

Dr Matt Symes
School of Psychology
Doctoral Programme in Clinical Psychology
University of Southampton
Bassett Crescent East
Southampton SO16 7PX

University of Southampton | **Finance Department**

Memorandum

From:	Ruth McFadyen	**To:**	Dr Matt Symes
Ext:	22417	**Dept:**	Psychology
E-mail:	hrm@soton.ac.uk	**Date:**	8 January 2007

Reference: HRM/GFT/2631

Professional Indemnity Insurance

Project No: **CLIN/04/26**

Health Professional and Public Perceptions of, and Reactions Toward, Adults with Autism Spectrum Disorders

Thank you for forwarding the completed questionnaire and attached papers.

Having taken note of the information provided, I can confirm that this project will be covered under the terms and conditions of the above policy, subject to written consent being obtained from the participating volunteers.

Ruth McFadyen
Insurance Services Manager

APPENDIX K

Information Sheet and Consent Form

Information Sheet and Consent Form

I am Matt Symes, a Trainee Clinical Psychologist based at the School of Psychology at the University of Southampton. I am requesting your participation in a study regarding health professional and public perceptions of people with mental health problems. This will involve watching a video and completing a questionnaire about what you have seen. Participation in this research should take no longer than 30 minutes.

Completion and return of this questionnaire will be taken as evidence of you giving informed consent to be included as a participant in this study, for your data to be used for the purposes of research, and that you understand that published results of this research project will maintain your confidentially. Your participation is voluntary and you may withdraw your participation at any time. If you choose not to participate there will be no consequences to your grade or to your treatment as a student. Personal information will not be released to or viewed by anyone other than the researchers involved in this project. Results of this study will not include your name or any other identifying characteristics.

If you have any questions about this research, or wish to request a project summary, please contact me at mds4@soton.ac.uk.

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, School of Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: (023) 8059 3995.

APPENDIX L

Debriefing Statement

Debriefing Statement

The aim of this research was to explore health professional and public perceptions of, and reactions toward, people with mental health problems. The research specifically focused on people with autism spectrum disorders. It is expected that health professional and public perceptions of, and reactions toward, people with autism spectrum disorders will differ. Your data will help our understanding of how people with autism spectrum disorders are perceived by others. Your data will also demonstrate how different groups of people may respond to those with autism spectrum disorders.

Once again, results of this study will not include your name or any other identifying characteristics. The research did not use deception. You may keep a copy of this summary.

If you have any further questions, or would like a summary of the research findings, please contact Matt Symes, Trainee Clinical Psychologist, at mds4@soton.ac.uk

Thank you for your participation in this research.

Matt Symes, Trainee Clinical Psychologist January 2007

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: (023) 8059 3995.

APPENDIX M

Codebook for Analysing Nurses' Responses to MCRQ

Codebook for Analysing Nurses Responses to MCRQ

Question: -

"Based on what you have seen, what would be your personal response? Please write this down in as much detail as possible."

Instructions: -

1. Read the nurses responses a sentence at a time.
2. Decide if the sentence is relevant to any of the categories (in *italics*) in this codebook.
3. If the sentence is relevant, place a tick in the box next to that category.

- ☐ *Talk to, reassure, and help the patient calm down*
    - ‘I would talk calmly to [patient] and try to relieve [the patient] of their anger and anxiety.’
    - ‘[The patent] is obviously very anxious about being in hospital… so reassurance is an aspect that really needs focussing on.’

- ☐ *Gain information from the patient regarding his ritualistic behaviour or restricted interests*
    - ‘[I would try to] understand his needs, for example regarding moving furniture.’
    - ‘I would engage in a conversation with [the patient] about his need to know about other operations in the morning.’

- ☐ *Help the patient to move hospital furniture*
    - ‘I would have been more likely to assist [the patient] in moving furniture (where possible) to 42° thus removing [the patients’] need to move furniture.’
    - ‘I would help [the patient] to move his bed and other furniture to the 42° angle that [the patient] wished if this did not affect other patients.’

- ☐ *Risk assessment and management strategies*
    - ‘Document the incident in his notes, and critical incident form.’
    - ‘[I] would have to protect both the patient, myself and other staff.’

- ☐ *Don’t touch the patient, invade patients’ personal space, or restrain patient*
    - ‘I would not use any physical contact as this would likely agitate [the patient] further.’
    - ‘I would not invade his personal space by going near him.’

- ☐ *Seek advice from other professional staff*
    - ‘I would have sought advice from Learning Disabilities if possible.’
    - ‘I would consider contacting the psychiatric team to get some advice and education about Asperger’s and key things to observe for.’

- ☐ *Let the patient continue to move hospital furniture*
    - ‘Just let the patient [move the hospital furniture] as he was determined to do it and he was aware of the risks.’
    - ‘If having the bed at 42° angle would help [the patient] to relax and stay in bed I would have let him.’

- ☐ *Manage the situation as an individual rather than in a group*
    - ‘I think it should have been handled my one member of staff acting calmer rather than two anxious members of staff potentially exacerbating his anxiety.’
    - ‘One calm person would have been abetter approach.’

- ☐ *Manage the situation with an awareness of Asperger syndrome*
  - ‘I would want to know how [the patients’] Asperger’s affected him and if there were any possible ways the distress could be avoided.’
  - ‘I would have taken on board that [the patient] had Asperger syndrome.’

- ☐ *Stop or advise the patient against discharging themselves from the ward or moving hospital furniture*
  - ‘I would want to stop [the patient] discharging himself from the ward.’
  - ‘I would have tried to stop [the patient] moving the bed.’

- ☐ *Provide the patient with further information regarding the planned surgical procedure, the risks of surgery, and possible consequences of his actions*
  - ‘I would have calmly explained his risks of walking and his need for rest.’
  - ‘I would also discuss his need for an operation in the morning and be sure he had all the information he needed.’

- ☐ *Recruit the help of a relative, carer, or 'familiar face'*
  - ‘I may also get a carer or familiar face to come in as this could reassure him.’
  - ‘If necessary, with his permission, maybe ringing or contacting a relative to speak to might calm and give him more assurance.’

- ☐ *Relocate the patient on the ward*
  - ‘Perhaps put him in a side room where he would feel safer.’
  - ‘I would perhaps move him to a different location.’

- ☐ *Gain further relevant information from patients' medical notes or handover information*
  - ‘Find out what will make the patient more comfortable by reading his notes.’
  - ‘Following information given at handover.’

- ☐ *Continue routine monitoring throughout the night*
  - ‘Check on him regularly to ensure he was okay.’
  - ‘Routine monitoring would be required overnight.’

- ☐ *Remind patient of the appropriate manner to behave whilst staying in hospital*
  - ‘I would have reminded him that violent behaviour isn’t acceptable.’
  - ‘Give [the patient] a chance to apologise to the staff nurse.’

- ☐ *Provide support to professional colleagues*
  - ‘I would also inform all other healthcare professionals involved in his care of his tendencies.’
  - I would also debrief the staff to ensure they are okay after the incident.’

☐ *Consider or offer patient sedative medication*
  - ‘Give patient sedation.’
  - ‘I would ask the patient if he would like some medication to relax him (some sort of sedative).’

APPENDIX N

Bivariate Correlations between DCQ Items

Table 1.

Spearman's Rho Bivariate Correlation Statistics Between DCQ Items for Group A (N = 61)

	1.	2.	3.	4.	5.	6.	7.	8.
1. Any Mental Disorder								
2. Anxiety Disorder	.38*							
3. Attention Deficit/ Hyperactivity Disorder	.17	.22						
4. Autism Spectrum Disorder	.02	-.06	.08					
5. Depression	.25	.51*	.46*	.00				
6. Learning Disabilities	.02	.17	.43*	.21	.40*			
7. Obsessive Compulsive Disorder	.21	.37*	.08	.00	.20	.14		
8. Personality Disorder	.34*	.31*	.43*	-.17	.47*	.44*	.44*	
9. Schizophrenia	.17	.37*	.44*	-.03	.53*	.46*	.31*	.49*

* $p < .05$

Table 2.

Spearman's Rho Bivariate Correlation Statistics Between DCQ Items for Group B (N = 66)

	1.	2.	3.	4.	5.	6.	7.	8.
1. Any Mental Disorder								
2. Anxiety Disorder	.04							
3. Attention Deficit/ Hyperactivity Disorder	.05	-.04						
4. Autism Spectrum Disorder	.20	.00	.15					
5. Depression	.15	.21	.18	.06				
6. Learning Disabilities	.18	-.03	.24	.35*	.44*			
7. Obsessive Compulsive Disorder	.09	.36	.08	.19	.03	.15		
8. Personality Disorder	.24	.17	.27*	.15	.33*	.29*	.28*	
9. Schizophrenia	.24*	.10	.31*	.28*	.35*	.41*	.21	.43*

* $p < .05$

Table 3.

Spearman's Rho Bivariate Correlation Statistics Between DCQ Items for Group C (N = 53)

	1.	2.	3.	4.	5.	6.	7.	8.
1. Any Mental Disorder								
2. Anxiety Disorder	.51*							
3. Attention Deficit/ Hyperactivity Disorder	.30*	.22						
4. Autism Spectrum Disorder	.22	.20	.25					
5. Depression	.09	.04	.39*	.30*				
6. Learning Disabilities	-.33*	-.36*	-.11	.00	.28*			
7. Obsessive Compulsive Disorder	.33*	.30*	.18	-.18	.07	-.37*		
8. Personality Disorder	.215	.28*	.31*	.12	.49*	.10	.36*	
9. Schizophrenia	.00	.03	.02	.21	.31*	.33*	-.08	.48*

* $p < .05$

APPENDIX O

Post-Hoc Wilcoxon Z Statistics for DCQ Items

Table 1.

Post-Hoc Wilcoxon Z Statistics for Group A Responses to Diagnostic Categories Questionnaire Items

	1.	2.	3.	4.	5.	6.	7.	8.
1. Any Mental Disorder								
2. Anxiety Disorder	-1.91							
3. Attention Deficit/ Hyperactivity Disorder	-5.55*	-6.11*						
4. Autism Spectrum Disorder	-.09	-1.33	-5.04*					
5. Depression	-5.82*	-6.59*	-.33	-5.22*				
6. Learning Disabilities	-5.85*	-6.25*	-1.58	-5.84*	-2.10			
7. Obsessive Compulsive Disorder	-2.75	-1.80	-6.34*	-2.27	-6.63*	-6.56*		
8. Personality Disorder	-5.10*	-5.81*	-1.83	-3.77*	-1.94	-3.34	-6.42*	
9. Schizophrenia	-5.91*	-6.49*	-.75	-5.40*	-1.34	-.86	-6.64*	-3.08

* $p < .001$

Table 2.

Post-Hoc Wilcoxon Z Statistics for Group B Responses to Diagnostic Categories Questionnaire Items

	1.	2.	3.	4.	5.	6.	7.	8.
1. Any Mental Disorder								
2. Anxiety Disorder	-2.84							
3. Attention Deficit/ Hyperactivity Disorder	-5.27*	-6.70*						
4. Autism Spectrum Disorder	-3.67*	-5.40*	-3.05					
5. Depression	-5.78*	-6.90*	-.87	-2.53				
6. Learning Disabilities	-6.29*	-6.81*	-1.54	-4.80*	-2.96			
7. Obsessive Compulsive Disorder	-4.29*	-2.60	-6.75*	-6.22*	-6.87*	-6.87*		
8. Personality Disorder	-3.64*	-5.94*	-3.98*	-.48	-3.78*	-5.34*	-6.48*	
9. Schizophrenia	-5.69*	-6.80*	-.73	-2.95	-.19	-2.40	-6.63*	-4.04*

* $p < .001$

Table 3.

Post-Hoc Wilcoxon Z Statistics for Group C Responses to Diagnostic Categories Questionnaire Items

	1.	2.	3.	4.	5.	6.	7.	8.
1. Any Mental Disorder								
2. Anxiety Disorder	-2.89							
3. Attention Deficit/ Hyperactivity Disorder	-5.00*	-5.84*						
4. Autism Spectrum Disorder	-4.27*	-5.45*	-.171					
5. Depression	-5.70*	-6.18*	-3.41	-3.45				
6. Learning Disabilities	-6.07*	-6.24*	-5.14*	-5.41*	-4.15*			
7. Obsessive Compulsive Disorder	-4.02*	-2.11	-6.16*	-5.49*	-6.18*	-6.24*		
8. Personality Disorder	-3.48*	-5.14*	-2.00	-1.33	-4.54*	-5.69*	-5.68*	
9. Schizophrenia	-5.32*	-6.11*	-2.24	-3.02	-.525	-4.08*	-6.19*	-4.52*

*$p < .001$

Author Note

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