

There has been a substantial increase in clinical activity related to the identification and treatment of children with attention deficit hyperactivity disorder (ADHD) in the United Kingdom. The accurate diagnosis and successful management of children with ADHD requires a multifaceted evaluation and treatment package provided by a team of medical, psychological, educational and therapy professionals. Occupational therapists can make distinctive contributions in the processes of evaluation, diagnosis and multifaceted intervention.

A national survey was carried out to investigate the level and nature of involvement of paediatric occupational therapists in services for children with ADHD in the United Kingdom. The learning needs of the therapists were also explored in this survey. A questionnaire was sent to all 941 members of the National Association of Paediatric Occupational Therapists.

The response rate of this survey was 30%, that is, 282 completed questionnaires were returned. The results showed that only 8.5% of the therapists who responded had involvement in a designated service for children with ADHD. Twenty-seven per cent of the therapists indicated that they did not see children with ADHD. The 63.8% of therapists who did see children with ADHD as part of their overall caseload in a community service did so mainly because of the children's associated problems in different sensory, perceptual, motor and functional performance areas. The reasons for non-involvement are explored and discussed and the learning needs of the therapists and their preferred modes of training are identified.

# Occupational Therapy for Children with Attention Deficit Hyperactivity Disorder: a Survey on the Level of Involvement and Training Needs of Therapists

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## Introduction

The category of attention deficit hyperactivity disorder (ADHD) originated in the United States of America (USA). The features of inattentive, hyperactive and impulsive behaviour in children are recognised as a disorder when the combinations of these behaviours are severe, are developmentally inappropriate and impair function at home and school. ADHD is the most common neuropsychiatric disorder in childhood (Voeller 2001) and affects 5% of the general childhood population in the United Kingdom (UK) (National Institute for Clinical Excellence [NICE] 2000). Over the past 25 years, theories about the biological basis of ADHD have suggested that the neuroanatomical location of deficits is in the frontal-basal ganglia and that neurochemical disorder involves dopamine pathways (Castellanos 1997, Pliszka 2002). This results in impaired neuropsychological function, for example, in

attention control and executive functions and behavioural inhibition.

Most theorists believe that ADHD is a paradigm for a true biopsychosocial disorder concerning the relations between genetic, biological and environmental factors (Tannock 1998). As a result, it has captured the interest of clinicians and researchers from many different disciplines (Weiss 1996). The successful treatment and management of children with ADHD requires a multifaceted treatment package provided by a team of medical, psychological, educational and therapy professionals. Occupational therapists can make distinctive contributions in the processes of evaluation and diagnosis and in the different components of the multifaceted intervention. This article reports the results of a national survey on the level and nature of involvement, and also on the learning needs of occupational therapists, in the evaluation, diagnosis and management of children with ADHD.

## Literature review

Attention deficit hyperactivity disorder refers to 'children and young persons whose behaviour appears impulsive, overactive and/or inattentive to an extent that is unwarranted for their developmental age and is a significant hindrance to their social and educational success' (British Psychological Society 1996, p8). It is a hidden disability and may be seen as an externalising disorder (Diamond and Mattsson 1996). The child's behaviour is ill-organised and unproductive. It is important to highlight the pervasive, persistent and impairing pattern of hyperactive, inattentive and impulsive behaviour in this disorder (Barkley 1998). Because there are no specific physical characteristics associated with the condition, it is identified through behavioural manifestations (Dowdy et al 1998).

It is important to note that many other conditions have coexisted with ADHD (that is, comorbidity). Many studies have found that over 50% of individuals diagnosed with ADHD also meet the diagnostic criteria for one or more additional psychiatric and developmental disorders (Brown 2000). For example, the prevalence of comorbid ADHD and developmental coordination disorder (DCD) is as high as 50% (Gillberg and Kadesjo 2000). Kadesjo and Gillberg (2001) indicated that pure ADHD was rare even in a general population sample.

Currently, there are two classification systems being used in different parts of the world. *The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) (American Psychiatric Association 1994) delineated three subtypes of ADHD: predominantly inattentive type, predominantly hyperactive-impulsive type and combined type. *The International Classification of Diseases and Related Health Problems, Tenth Revision* (ICD-10) (World Health Organisation 1993) used the category of hyperkinetic disorder. Swanson et al (1998) suggested that hyperkinetic disorder, as a more severe disorder, was a subtype of ADHD, that is, it equated with the ADHD combined type. In the UK, both classification systems have been adopted by different professionals. In recent years, the category of ADHD has been used more widely in the field.

The estimated prevalence in the UK when using the category of hyperkinetic disorder is 1.5% in 7-year-old boys in inner cities (Taylor et al 1991), 0.5% to 1% of the child population (Taylor and Hemsley 1995) and 1% of school-aged children (NICE 2000). When using the category of ADHD, the prevalence is around 5% of school-aged children (NICE 2000). Follow-up studies in the USA have confirmed a poor prognosis for children with ADHD (Mannuzza et al 1993). The prognosis is influenced by the severity of symptoms, comorbidity, IQ, family situation, parental pathology, family adversity, socioeconomic status and treatment received (Ingram et al 1999). A 10-year follow-up study of 6 and 7 year old boys in a London community survey found that hyperactive behaviour was a strong risk factor for later psychiatric diagnosis, antisocial behaviour and social and peer problems (Taylor et al 1996). These studies provide a strong argument for the recognition and

treatment of ADHD in childhood. Bramble (1997) reported that there had been a substantial increase in ADHD-related clinical activity in the UK.

There are many clinical guidelines for ADHD published in different parts of the world. In Europe, a clinical guideline was published for hyperkinetic disorder (Taylor et al 1998). In the UK, the British Psychological Society (1996) proposed a multidimensional formulation, which included the assessment and analysis of environmental factors, neurobiological factors, individual psychological differences, the influence of toxins and diet and the instrument used. In the USA, the American Academy of Child and Adolescent Psychiatry (1997a, 1997b), the National Institutes of Health (2000) and the American Academy of Pediatrics (2000, 2001) have developed practice parameters and a consensus statement for the assessment and treatment of children, adolescents and adults with ADHD. In 1997, the American Occupational Therapy Association published a practice guideline on occupational therapy services for children with ADHD (Hanft 1997). This practice guideline is useful for therapists who work in the USA; the contents are not directly applicable to the unique health care systems in the UK.

In reviewing the occupational therapy literature, most of the published papers were found to describe occupational therapy practice in North America. Within this volume of papers, the sensory integrative approach is particularly documented in the understanding, assessment and treatment of ADHD (Ayres 1964, Kimball 1986, Oetter 1986a, 1986b, Cermak 1988a, 1988b, Lightsey 1993, Mulligan 1996, Parush et al 1997, Dunn 1999, Mangeot et al 2001). In addition, some therapists have applied different frameworks in their work with children with ADHD. For example, Woodrum (1992, 1993) adopted the Model of Human Occupation (Kielhofner 1985) and Peterson (1993) applied Levine's Nine Control Systems (Levine 1987) to guide their practice in the evaluation of and intervention with children with ADHD.

Several treatment programmes that could be used by occupational therapists have also been developed. For example, the Alert Program, developed by Williams and Shellenberger (1992, 1994), assists parents and children in monitoring, maintaining and changing the level of alertness by using a cognitive approach. The Alert Program uses the analogy of a car engine to explain level of arousal and 'engine tuning' as a means to regulate an arousal level that is appropriate to the situation or task. Another example is the Interactive Metronome (Cassily 1996), a computer-based interactive programme, which aims to facilitate a number of underlying central nervous system processing capacities hypothesised to be involved in motor regulation, for example, motor planning, sequencing, timing and rhythmicity. This programme demonstrated significant improvement in a group of ADHD boys compared with the control groups (Shaffer et al 2001). It proved to be a valuable treatment tool for occupational therapists in the treatment of children with ADHD (Koomar et al 2001).

In Israel, Rappaport et al (1998) found that early intervention by non-pharmacological means (occupational therapy and speech therapy) could decrease the incidence of ADHD in a group of preschool children at high risk of developing this syndrome. In their study, 51 children of 2-4.5 years of age, who were at risk of ADHD, received early intervention from occupational therapy and speech therapy services. They were re-examined at the age of 8-10 years. Of the 51 children, 20 (39%) had ADHD. Of these 20 children, 8 had a history of ADHD in other siblings. The authors of this study concluded that in children with a family history of ADHD, early intervention reduced the incidence at school age.

In the UK, occupational therapy for children with ADHD is a developing field. No paper or report on the role of occupational therapy for children with ADHD was found in peer-reviewed journals. There was also no published clinical guideline on the processes of occupational therapy evaluation and intervention with children with ADHD. In the literature review of occupational therapy practice, there was clear evidence that occupational therapists had an important role to play in the evaluation of and intervention with children with ADHD. In order to establish a picture of current practice in the UK, it was essential to conduct a national survey to investigate the level and nature of involvement of occupational therapists in the management of children with ADHD. As training on the management of children with ADHD was not within the curriculum of occupational therapy undergraduate education, it would be useful to investigate the mechanisms by which therapists acquired their knowledge, their perceived gaps in knowledge and also their preferred modes of training. The data gathered in the national survey would be useful to the development of occupational therapy services for children with ADHD within the UK.

## Purpose of the study

The purpose of the national survey was to explore the existing practice of occupational therapists for children with ADHD in the UK. The three primary aims were:

1. To investigate the level of involvement of paediatric occupational therapists in the management of children with ADHD
2. To gather information on the nature of involvement in the processes of assessment and treatment of children with ADHD within different service settings
3. To identify therapists' existing level of and gaps in knowledge and the preferred modes of postgraduate training.

## Method

### Research design

The methodology used in this study was a cross-sectional survey research method. Survey research is a specialised

type of quantitatively based descriptive research. It is directed towards finding out about the characteristics of a well defined group of people (population) by investigating a subgroup (sample) of that population (Royeen 1997). It exposes the sample to a predetermined set of questions, the answers to which can be quantified with descriptive statistics (Payton 1994). Surveys that sample subjects at one point in time but across the variety of subjects within the defined population are called cross-sectional (Mann 1985). The Ethics Committee of the Department of Health and Social Care, Brunel University, approved this survey research project.

### Sample

In this national survey, the sample comprised therapists who were members of the National Association of Paediatric Occupational Therapists (NAPOT), which is a specialist section of the College of Occupational Therapists in the UK.

### Data collection instrument

The questionnaire used in this survey was pilot tested with 24 paediatric occupational therapists working in different service settings in different parts of the country. The questions had been selected by the researcher in order to gather quantitative data to explore the areas being investigated and were based on the three primary aims of this survey research. Following on the feedback received, some questions were changed, deleted or added. The questions were styled by using boxes of choices, likert scales and space for further comments.

### Data collection procedures

The questionnaire was sent with a covering letter stating the aims of the survey through the *NAPOT Journal* circulation. The letter also highlighted that participation in the survey was completely voluntary, information received would be kept strictly confidential and the therapist's name would not be identified. Therapists were requested to return the completed questionnaire to the author within 2 months, using the self-addressed envelope.

### Data analysis

The data collected were analysed by using the Statistical Package for Social Sciences (SPSS), Version 10 (Norussis 2000). Descriptive statistical techniques were used in order to quantify the responses, such as measures of central tendency, measures of dispersion and frequency distribution. These descriptive statistical techniques were useful to analyse and describe the data. The data analysed were organised into different tables, as reported below.

## Results

### Response rate

In total, 941 questionnaires were sent out through the *NAPOT Journal* circulation. Of those, 291 questionnaires were returned. Nine of the returned questionnaires had not been completed because they were either retired members,

student members, organisational members or members not currently working or working with adults. Therefore, 282 completed questionnaires were used in the data analysis of this survey, giving a 30% response rate.

## Characteristics of participants

Table 1 outlines the demographic data of the therapists who participated in the survey. Of these, 98.6% were female. Most of them had completed a full-time diploma course through

**Table 1. Demographic data of therapists participating in the survey**

Areas	Frequency	Percentage
<b>Gender</b>		
Female .....	278	98.6
Male .....	4	1.4
	282	100.0
<b>Occupational therapy education</b>		
Full-time education .....	277	98.2
Part-time education .....	5	1.8
	282	100.0
Diploma course .....	172	61.0
3-year degree course .....	68	24.1
4-year degree course .....	34	12.1
2-year acceleration course .....	7	2.5
Missing data .....	1	0.3
	282	100.0
UK occupational therapy schools .....	254	90.1
Overseas occupational therapy schools .....	28	9.9
	282	100.0
<b>Current grade/position</b>		
Basic grade .....	4	1.4
Senior II .....	31	11.0
Senior I .....	175	62.1
Head IV .....	6	2.1
Head III .....	30	10.6
Clinical specialist .....	9	3.2
Head II .....	1	0.4
Head I .....	0	0.0
Others .....	26	9.2
	282	100.0
<b>Areas/settings of work</b>		
Community child health services .....	153	54.3
Child and adolescent mental health services .....	19	6.7
Acute hospital and community child health services .....	28	9.9
Acute hospital, primarily inpatient services .....	7	2.5
Social services .....	24	8.5
Specific services, eg learning disabilities .....	7	2.5
Others .....	43	15.2
Missing data .....	1	0.4
	282	100.0
<b>Number of full-time and part-time therapists</b>		
Full-time .....	150	53.2
Part-time .....	131	46.5
Missing data .....	1	0.3
	282	100.0

an occupational therapy school within the UK. The highest proportion (62.1%) of the therapists were at Senior I grade, which is perceived to be the main clinical grade in the field of paediatric occupational therapy. The main management grade for paediatric occupational therapists was Head III, that is 30 respondents (10.6%). The section 'Others' was selected by 9.2% of the therapists for their grades and positions; it included therapists who worked in social services, therapists who were at senior management grade, occupational therapy lecturers and therapists in private practice.

Just over half (54.3%) of the therapists worked in community child health services. Only 6.7% worked in a child and adolescent mental health service (CAMHS) which is usually the main service provider for children with ADHD. The section 'Others' was selected by 15.2% of the therapists for their areas/settings of work; it included therapists who worked privately, in voluntary agencies, in independent special schools, in occupational therapy schools and also in a research capacity. There were nearly equal percentages of therapists working in a full-time or part-time capacity (that is, 53.2% versus 46.5%).

## Participants' clinical experience and current caseload

Table 2 indicates the therapists' clinical experience and the nature of their current clinical work. The average number of years of experience in all the occupational therapy clinical areas was 13.1 years and that in paediatric occupational therapy was 8.4 years. With standard deviations of 8.0 and 6.4 respectively, the indication is that the respondents to the survey were a very mixed group, that is, some with years of experience as high as 40 and some newly qualified.

**Table 2. Description of clinical experience and current caseload**

Areas	Min	Max	Mean	SD
<b>Years of clinical experience (n = 282)</b>				
In all occupational therapy clinical areas .....	0.5	40.0	13.1	8.0
In paediatric occupational therapy only .....	0.0	36.0	8.4	6.4
<b>Current caseload (conditions in percentage, n = 277)*</b>				
Specific developmental disorders, eg DCD .....	0.0	100.0	27.7	26.8
Physical disabilities, eg cerebral palsy .....	0.0	100.0	25.5	24.1
Learning disabilities, eg mild, moderate, severe .....	0.0	100.0	14.3	21.3
General developmental delay .....	0.0	80.0	8.0	11.6
Childhood mental health problems, eg ADHD .....	0.0	100.0	7.7	21.4
Autistic spectrum disorder/Asperger's syndrome .....	0.0	60.0	6.9	8.6
Acquired neurological conditions, eg head injury .....	0.0	100.0	4.2	10.1
Orthopaedic conditions .....	0.0	45.0	1.7	5.3
Neonatalogical problems, eg preterm babies .....	0.0	80.0	1.3	6.3
Others .....	0.0	100.0	2.5	12.3

Key: N = Number of respondents, Min = Minimum, Max = Maximum, SD = Standard deviation, DCD = Developmental coordination disorder.

\*Not all 282 respondents answered all questions, hence the lower value of n.

The most common caseloads were children with specific developmental disorders (27.7%), physical disabilities (25.5%), learning disabilities (14.3%) and general developmental delay (8%). Only a small number of therapists indicated that they had a caseload of children with childhood mental health problems (7.7%). This small percentage was most likely to be related to the small number of therapists who worked in the CAMHS settings.

### Level and nature of involvement in the assessment and treatment of ADHD

There were only 24 therapists (8.5%) who indicated that they were working in a multidisciplinary team/service designated for children with ADHD. Most of the respondents (63.8%) were not involved in a designated service but did see children with ADHD as part of their overall caseload. Twenty-seven per cent of the therapists indicated that they did not see children with ADHD because of various reasons, such as not being within the scope and referral criteria of the services and lack of knowledge and skills (see Table 3).

**Table 3. Level and nature of involvement in the assessment and treatment of children with ADHD**

Areas	Frequency	Percentage
<b>Level of involvement (n = 282)</b>		
Involved in a multidisciplinary team/service designated for children with ADHD	24	8.5
Not involved in a designated service; children with ADHD are being seen as part of overall caseload	180	63.8
Not involved in service for children with ADHD	76	27.0
Missing data	2	0.7
	282	100.0
<b>Nature of involvement in different areas (n = 24)</b>		
<i>For the 24 therapists working in a designated team or service, the number of therapists involved in:</i>		
Initial screening	13	54.2
Process of diagnosis	22	91.7
Multifaceted intervention	14	58.3
Education and training	4	16.7
Research	1	4.2
<b>Reasons for non-involvement (n = 256)</b>		
Children with ADHD are not within the scope of the service	80	31.3
Children with ADHD do not fulfil the criteria of referral of the service	46	17.0
Resource of the service is mainly for children with other condition, eg physical disability. Unable to extend the service to children with ADHD	73	28.5
Therapists do not have the necessary knowledge and skills in the field of ADHD	53	20.7
Occupational therapists do not have a recognised role for children with ADHD	11	4.3
Children with features of ADHD are generally referred as part of overall caseload because they present different sensory, perceptual, motor and functional difficulties	177	69.1

For the 24 therapists who were working in a designated service, 13 (54.2%) were involved in initial screening, 22 (91.7%) were involved in the process of diagnosis, 14 (58.3%) were involved in aspects of the multifaceted intervention and 4 (16.7%) were involved in education and training. Only one therapist (4.2%) indicated an involvement in research in ADHD. Table 4 outlines the background of these 24 therapists in terms of years of experience, current grade/position and areas/settings of work, as well as the therapists' ratings on their level of knowledge and skills.

**Table 4. Background of the 24 therapists who were involved in a designated team/service for children with ADHD**

(n = 24)	Min	Max	Mean	SD
Years of experience				
in paediatric occupational therapy	1.00	28.00	10.52	7.09
<b>Areas</b>		<b>Frequency</b>	<b>Percentage</b>	
<b>Current grade/position</b>				
Basic grade	0	0.0		
Senior II	1	4.2		
Senior I	18	75.0		
Head IV	0	0.0		
Head III	1	4.2		
Clinical specialist	3	12.4		
Head II	1	4.2		
Head I	0	0.0		
Others	0	0.0		
	24	100.0		
<b>Areas/settings of work</b>				
Community child health services	7	29.2		
Child and adolescent mental health services	11	45.8		
Acute hospital and community child health services	3	12.5		
Acute hospital, primarily inpatient services	1	4.2		
Social services	0	0.0		
Specific services, eg learning disabilities	0	0.0		
Others	2	8.3		
Missing data	0	0.0		
	24	100.0		
<b>Therapists' ratings on their level of knowledge and skills</b>				
High level	2	8.3		
Good level	8	33.3		
Average level	12	50.0		
Basic level	1	4.2		
Poor level	0	0.0		
Missing data	1	4.2		
	24	100.0		

Key: N = Number of respondents, Min = Minimum, Max = Maximum, SD = Standard deviation

For the reasons for non-involvement in a designated service, 69.1% of the respondents said that they saw children with ADHD as part of their overall caseload. The children were being seen because they presented different sensory, perceptual, motor and functional difficulties; it was not specifically related to their features of ADHD. Other reasons were related to the scope of the service (31.3%),

criteria of referral (17.0%), resource of the service (28.5%) and lack of knowledge and skills (20.7%). Only 4.3% of the respondents indicated that children with ADHD were not referred to their services because occupational therapists were not perceived to have a recognised role for children with ADHD.

### Therapists' knowledge in the assessment and treatment of ADHD

As shown in Table 5, the majority of the therapists rated their level of knowledge and skills in ADHD to be at a poor level (10.3%), a basic level (36.5%) or an average level

**Table 5. Therapists' knowledge in the assessment and treatment of ADHD**

Areas	Frequency	Percentage
<b>Therapists' ratings on their level of knowledge and skills (n = 282)</b>		
High level .....	7	2.5
Good level.....	41	14.5
Average level.....	100	35.5
Basic level .....	103	36.5
Poor level .....	29	10.3
Missing data.....	2	0.7
	282	100.0

#### Factors that contribute to their existing knowledge

(n = 281)  
(1 missing data)

*Knowledge acquired from:*

Self-study .....	227	80.8
Occupational therapy colleagues.....	168	59.8
Study day .....	127	45.2
Other colleagues in the multidisciplinary team.....	123	43.8
Conference.....	68	24.2
Occupational therapy workshop on ADHD .....	51	18.1
Other contributions, eg direct clinical experience, TV ...	35	12.5
Occupational therapy undergraduate education.....	28	10.0
Other postgraduate education .....	12	4.3
Occupational therapy postgraduate education.....	11	3.9

#### Gaps in their knowledge and skills

(n = 272)  
(10 missing data)

Clinical features and diagnostic criteria of ADHD .....	87	32.0
Evaluation of ADHD through a team approach.....	137	50.4
Specific occupational therapy assessment procedures .....	178	65.4
Knowledge of the multifaceted intervention method .....	180	66.2
Specific occupational therapy treatment strategies .....	159	58.5
Information on evidence-based practice and clinical guidelines .....	221	81.3
Goal setting and documentation pertaining to the specific needs of children with ADHD .....	211	77.6

(35.5%). Only 14.5% and 2.5% of the therapists rated themselves to have a good level or a high level of knowledge and skills. There were many different learning methods for the therapists to acquire their existing knowledge. The most common methods were self-study (80.8%), from occupational therapy colleagues (59.8%), through study days (45.2%) and from other colleagues in the multidisciplinary team (43.8%). Most of the therapists did not think that either their occupational therapy undergraduate education or their postgraduate education had provided them with an adequate knowledge base in ADHD.

For their perceived gaps in knowledge and skills in ADHD, more than half of the therapists had selected nearly all the areas except the one on the clinical features and diagnostic criteria of ADHD (32.0%). The highest rated gaps were on information on evidence-based practice and clinical guidelines (81.3%) and on goal setting and documentation pertaining to the specific needs of children with ADHD (77.6%).

### Preferred modes of training or acquiring information

The therapists were asked to rate five modes of training from the first (most preferred) to the fifth (least preferred) choice. In this, 60.1% of the therapists rated a specific occupational therapy clinical workshop to be the first choice, 33.5% rated a multidisciplinary seminar/study day to be the second choice and 37.4% chose study through journal articles, books and other publications to be the third choice (see Table 6). For the fourth and fifth choices, there are confusions in the figures because some therapists used the same rating more than once.

## Discussion

### Response rate

The response rate of 30% is considered to be reasonable and acceptable for survey research (Bailey 1991). This not very high response rate could be related to the fact that not many occupational therapists actually work with children with ADHD. As a result, they may not see the significance of completing and returning the questionnaires. Other factors could be related to their busy workload or because a stamp had not been provided on the self-addressed envelope. The timing of the survey may also have contributed to the low return rate because it was just after the Christmas and New Year holidays.

### Sampling of participants

Of the therapists who responded to the survey, 6.7% worked in a CAMHS setting. This low figure could be related to the situation that not all the occupational therapists working in CAMHS are members of NAPOT. As a result, the data collected in this survey may not fully represent the therapists who work in CAMHS settings.

**Table 6. Preferred modes of training or acquiring information**

Preferred modes	First choice		Second choice		Third choice		Fourth choice		Fifth choice		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	T No.*	T %
Specific occupational therapy clinical workshop.....	155	<b>60.1</b>	60	23.3	20	7.8	15	5.8	8	3.1	258	100.0
Multidisciplinary seminar/study day.....	39	15.2	86	<b>33.5</b>	74	28.8	43	16.7	15	5.8	257	100.0
Through journal articles, books and other publications on ADHD, especially those written by occupational therapists.....	21	8.2	43	16.7	96	<b>37.4</b>	65	25.3	32	12.5	257	100.0
Structured mentoring programme through clinical placement in a specific service setting.....	42	16.4	44	17.2	44	17.2	56	21.9	70	<b>27.3</b>	256	100.0
Attend national/international conference on ADHD.....	7	2.7	24	9.4	26	10.2	73	<b>28.5</b>	126	<b>49.2</b>	256	100.0

\* T No. indicates the total number of therapists who completed these questions. It is less than 282 because some therapists did not respond to these questions. In addition, a small number of therapists used the ratings of choices more than once, especially in relation to the last two options of preferred modes.

**Bold figures** indicate highest frequency of responses for a particular mode of training in relationship to the order of choices.

### Level and nature of involvement in the assessment and treatment of ADHD

The results of this national survey indicated that only 24 (8.5%) therapists had involvement in a designated service for children with ADHD. They were mainly involved in initial screening, the process of diagnosis and aspects of the multifaceted intervention for children with ADHD (see Table 3). In comparing the data in Tables 1 and 4, the mean years of experience in paediatric occupational therapy among these 24 therapists was higher than the mean for the whole sample, that is, 10.52 years versus 8.4 years. Similarly to the figure for the whole sample, most therapists were at Senior I grade. There was a higher percentage of clinical specialists in this group of therapists than in the whole sample, that is, 12.4% versus 3.2%, which could be related to the nature of specialisation in this field. For the areas/settings of work, 11 out of 24 therapists were working in a CAMHS, that is, 45.8%; this was much higher than the proportion (6.7%) in the whole sample. They also rated themselves higher in terms of level of knowledge and skills in ADHD (compare Tables 4 and 5). Among all these factors, it seems that the most contributing factor for their involvement was related to the fact that 45.8% were working in a CAMHS, which is usually the primary service setting for children with ADHD in the UK.

The majority of the therapists did not have involvement in a designated service although 63.8% of them did see children with ADHD as part of their caseload. The children who presented with the features of ADHD were mostly being seen by occupational therapists in community settings as children with a specific developmental disorder, that is, having deficits in different sensory, perceptual, motor and functional performance areas. They were not being referred because of their ADHD features. This is most likely to be related to the high incidence of the comorbidity of ADHD with other conditions, as described in the literature review. In a recent longitudinal study, Rasmussen and Gillberg (2000) found that the combination of ADHD and DCD

appeared to carry a particularly gloomy outlook. In considering this research evidence, it is important for occupational therapists who work with children with DCD to have a good level of knowledge of ADHD. With regard to other reasons for non-involvement, about 17% to 31% of the therapists (see Table 3) stated that it was related to the criteria of referral, resource and scope of the service. This was also reflected in their percentages of caseloads that were predominately children with specific developmental disorders and physical and learning disabilities in the community. These data indicate that the commissioning of paediatric occupational therapy services within the health services does have an effect on the provision of services to children with different conditions.

### Therapists' knowledge in the assessment and treatment of ADHD

It was indicated by 20.7% of the therapists that lack of knowledge and skills could also contribute to non-involvement. A total of 46.8% (36.5% plus 10.3%, see Table 5) stated that their levels of knowledge and skills were at basic and poor levels. At least over half of the total sample highlighted gaps in their knowledge in the areas of evaluation, specific assessment and treatment procedures, evidence-based practice, goal setting and documentation. Without adequate working knowledge, it will be impossible for therapists to be involved in the assessment and treatment of children with ADHD. It raises the question: should knowledge on the management of children with ADHD be covered in occupational therapy education? If it is not covered in undergraduate education, should it be covered in a form of postgraduate training?

### Preferred modes of training or acquiring information

The above discussion highlights the need for occupational therapists to acquire knowledge through different modes. A

specific occupational therapy clinical workshop was chosen by 60.1% of the therapists as the first preferred mode of training. When developing a specific clinical workshop, it is important to draw on the experience of the therapists who work in child health and CAMHS settings. Funding and study leave for attending such a workshop should form part of a personal development plan. It should also be an essential component of the continuing professional development of paediatric occupational therapists. Some therapists commented that the structured mentoring programme was a very good choice but that there were always problems in funding and also in staff time. In terms of self-study, therapists may need to be aware of the different clinical guidelines outlined in the literature review because 81.3% of the respondents indicated a gap in this aspect of knowledge.

## Limitations of the study

Owing to the low, although acceptable, response rate, caution should be taken in generalising the results to the whole profession. The sampling of participants through the NAPOT membership may have missed out many therapists who were not members, especially the therapists who worked within a CAMHS setting which is usually the primary service provider for children with ADHD. It is also important to acknowledge the fact that different ways of constructing a questionnaire will have an effect on the data collected. For example, the researcher chose three statements in defining the level of involvement. The clinical work of some therapists may not fall neatly into these three levels, such as for those therapists who work in multiple settings. As the questions were designed to gather information in a quantitative manner, the questionnaire may not be able to capture therapists' ideas and opinions not covered by the questions. The use of a semi-structured interview should be considered in a future study.

## Conclusion

The results of this national survey provide basic information on the level and nature of involvement of paediatric occupational therapists in the assessment and treatment of children with ADHD. Only a small percentage of the therapists who responded to the survey indicated that they had involvement in a designated service for children with ADHD. Although some therapists do see children with ADHD as part of their overall caseload, they are referred mainly because of their presenting sensory, perceptual, motor and functional difficulties and not because of the features of ADHD. Other reasons for non-involvement are limitations in the criteria of referral, resource and scope of the services and a lack of knowledge and skills. The results indicate that occupational therapy for children with ADHD is a developing field in the UK; the lack of published literature in the UK also reflects the findings.

The survey also highlighted the learning needs of occupational therapists if they are going to be involved in the services for children with ADHD. Therapists need to

acquire up-to-date knowledge on the clinical features, diagnostic criteria, aetiology and contemporary theories of ADHD in order to make significant contributions in the processes of evaluation and intervention. The top two preferred modes of training are through a specific occupational therapy clinical workshop and a multidisciplinary seminar or study day.

The limitations of this study have been discussed. In order to obtain a fuller picture with valid, reliable and generalisable data, a larger-scale study could be carried out to include CAMHS therapists and other practising therapists who are not members of NAPOT. It is also important to improve the construction of the questionnaire, add questions to explore therapists' involvement in the multifaceted intervention and use semi-structured interview techniques to capture ideas and opinions generated by therapists. Occupational therapists who work with children and adolescents should work together to carry out research to develop and validate the specific role of occupational therapy for children with ADHD.

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