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# A Pilot Study of Web Based Clinical Supervision for Clinicians Working with Adults with Autism Spectrum Disorders and Attention Deficit Hyperactive Disorders

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## Authors' contributions

*This work was carried out in collaboration between all authors. Authors JM and EC led the design of the study and this process was supported by the other contributors and overseen by author DM the Chief Investigator. Analyses were completed by authors SW and LU performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Author PA researched the technology used for the study. All authors read and approved the final manuscript.*

**Original Research Article**

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## ABSTRACT

**Introduction:** Currently there is little understanding of the factors that contribute to the successful implementation of clinical supervision in the development of new competencies for senior practitioners. The two linked studies reported are part of a wider inquiry to improve diagnostic services, interventions and outcomes for people with attention deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD).

**Methodology:** This study aimed to explore the feasibility of implementing web-based learning to deliver clinical supervision relating to the recognition, diagnosis and management of ADHD and ASD. Two series of three web-based supervision seminars,

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facilitated by clinical and academic experts, were held for two sets of practitioners. Prior to the start of the supervision process (time 1) each participant underwent an assessment of knowledge, skills and attitudes, which was repeated at the end of the study (time 2).

Participants who completed pre-study assessments were allocated to take part in either the web-based supervision or the control groups. In total, 31 participants took part: 13 in the ADHD study (seven received online supervision) and 18 in the ADHD study (seven received online supervision).

**Results:** Although the study sample sizes were too small to carry out any meaningful statistical analyses there were modest increases in clinical skills scores recorded by both studies for three of the four groups with no change in knowledge scores for the ASD supervision group.

**Conclusion:** Web Based Learning (WBL) encompasses any educational activity undertaken over the internet and is now considered part of the mainstream in medical education. The issues of accessibility to technology required for WBL may be a barrier to widespread implementation and may be a contributory factor to the lack of published evidence for the effectiveness of this approach.

*Keywords: Comparative effectiveness research; continuing education; continuing professional development; decision support; clinical; evidence-based medicine; health policy.*

## 1. INTRODUCTION

The inability to define supervision [1] has led to its use and effectiveness being questioned [2]. In terms of the delivery of supervision there has been a growth in the use of web based technologies used in healthcare e.g., telesupervision for rural communities [3], web based assessment [4] and web based interventions [5]. It is estimated that even in high income countries there is a geographic disparity between the provision of healthcare in urban and rural communities. In the United States of America (USA), 20% of the population lives in rural areas compared to 24% in Canada, in both countries under ten per cent of medical staff work in these areas [6]. To address the needs of clinicians working in rural communities and in highly specialised areas there are a number of studies that have reported on supervision via video conferencing [7-13] and report that supervision can be satisfactorily delivered and maintained using this medium [9], without a deterioration in skills [10].

This study examines web based learning (WBL) through supervision in the two emerging areas of attention deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD). Within the UK a number of policy and strategy documents [14,15] have highlighted limited awareness of these conditions and a lack of practitioners with the necessary clinical skills needed to assess and diagnose these groups. An essential component in delivering effective treatments (and needs-led services) is that clinical teams can both accurately identify individuals with ASD/ADHD – and diagnose their associated mental health symptoms. Given a number of inquiries [16] the need to improve patient care and increase standards particularly for more vulnerable groups is a high priority for health providers given that clinical services frequently report problems recognising and treating individuals with ASD/ADHD. Over the last 10 years, there has been an increase in education programmes to train health professionals [17], however, these have not always translated to highly specialist areas including the care of people with ADHD and ASD.

Currently in medicine, there is very little empirical data to inform the structure and approaches to be used in supporting the implementation of clinical supervision in keeping with national guidelines. Also there is little understanding of the factors that are key to the successful implementation of clinical supervision in the development of new competencies for senior practitioners responsible for implementing national guidelines [18]. For instance the National Strategy for Adults with Autism titled 'Fulfilling and Rewarding lives' [14] is committed to increasing understanding and awareness across all public sector services. Teaching resources such as e-learning modules were developed with the Royal College of Psychiatrists and British Psychological Society to increase knowledge and diagnostic skills in ASD and to improve care for people with ASD with complex presentations such as those requiring mental health care. However, to support professionals across different types of health care settings in their development of local ASD services, a need to access established experts in regional or tertiary services is required. Similarly, the National Institute of Health and Clinical Excellence produced guidelines in 2008 on the diagnosis and management of ADHD in children, young people and adults which again required opportunities for professionals to develop skills and expertise overtime in the development of services for adults with ADHD. The importance of supervision in developing skills following on from these national strategies and guidelines is essential for the ongoing development of services for adults with ASD or ADHD. Prior to those national initiatives there were a small number of experts working in national services and so the task of offering supervision across the UK can only be achieved on a scale through the use of technology near to the professional's place of work and practice.

Hence the aims of this study were to:

1. Examine recruitment and practical implementation of group supervision using web based technologies
2. Carry out a scoping exercise and to explore whether clinical supervision using web based learning technology can bring about an improvement in participant's knowledge and clinical assessment, management and diagnosis of ASD and ADHD.
3. Evaluate participants' experience of web-based learning to deliver clinical supervision for the ADHD and ASD.

## **2. METHODOLOGY**

The feasibility of providing high-quality supervision with leading experts in ADHD and ASD limited the design of the study in terms of the number of participants in the supervision groups. The aim was to provide optimum levels of supervision, such that all of the participants would be able to present a case study and take part in useful discussion on the points raised with other clinicians in the group and the expert supervisors.

The study was divided into two parts with both the ADHD and ASD studies incorporating a separate series of three web based supervision seminars facilitated by clinical and academic experts. To test recruitment and the practical implementation of web based supervision the intention was to recruit 30 participants for each of the ADHD and ASD studies to be split into two groups of 15. Participants were recruited through a series of one day training workshops organised across England. These covered either the assessment or management of ASD and or ADHD in adults.

In the ADHD study, 13 participants completed pre-study assessments and were allocated to web-based online supervision (N=7) or a control group (N=6). Eighteen participants completed pre-study assessments in the ASD study; nine were allocated to receive online

supervision and nine to the control group. Two of those allocated to the ASD online supervision group immediately stated that they could not take part in any of the sessions and were transferred into the control group giving final sample sizes of seven in the supervision group and 11 in the control group.

Participants for the ADHD web-based seminars were all psychiatrists with the majority working in general adult psychiatry and seeing between 11 to 50 ADHD cases per year. Whereas participants for the ASD web-based seminars were from a number of clinical disciplines and included psychiatrists, psychologists and others such as speech and language therapists. Forty per cent worked in adult mental health services, 33% worked in intellectual disability (ID) services and 20% worked in designated ASD services with 20% working in forensic services. Over two thirds of the group had undertaken at least 1 to 10 diagnostic assessments with a remaining third completing 11 or more assessments.

The study compared online supervision with no online supervision, to evaluate the effectiveness of WBL and to deliver clinical supervision relating to the recognition, diagnosis and management of ADHD and ASD. Prior to the start of the supervision process (time 1) each participant underwent an assessment of knowledge, skills and attitudes, which was repeated at the end of the study (time 2). Both the ADHD and ASD studies used the same outcome measures which were developed specifically for this study. A brief descriptive analysis of mean scores was conducted for information and to highlight any potential issues relating to data entry and analysis at this stage rather than to draw any conclusion of the effectiveness of the intervention. The need to record attitudes was felt necessary to see how participants viewed individuals with ADHD and ASD. The screening of attitudes was primarily to see if there were any personally held beliefs of participants that could be detrimental or an issue for clinical working given the lack of awareness of these groups.

The measures consisted of multiple choice questions (MCQs) to test knowledge, an attitude questionnaire and a clinical skills assessment using a series of videoed case studies. The clinical skills assessment for both the ADHD and ASD studies followed three people who had traits of the disorders, but where it was unclear as to whether they met diagnostic criteria. Background information was given to accompany a series of video clips for each case. Participants were asked a number of questions to elicit their clinical opinion based on their observation of the video and background information. The vignettes portrayed situations of increasing complexity relating to the assessment, diagnosis and management of ADHD and ASD.

## **2.1 Web-based Clinical Supervision**

The three web-based supervision workshops on ADHD and ASD were hosted on the WebEx System ([www.webex.co.uk](http://www.webex.co.uk)). To access these, each participant in the intervention arm logged into a secure online site through the Kings College London server. The workshops piloted three group supervision sessions for both the ADHD and ASD groups, which are described below.

## **2.2 Description of ADHD Web-based Supervision**

The three ADHD supervision sessions were held over a four week period in July 2012. Seven participants were invited to attend and all completed at least two out of the three sessions, with four completing all sessions. Each session was attended by two experts

(senior clinicians with experience of running a specialist adult ADHD service) in addition to a chairperson. The participants were invited to submit anonymised clinical cases and vignettes for discussion prior to supervision and over the course of the three sessions a total of 13 cases and clinical scenarios were discussed, with six out of the seven participants presenting cases for discussion. The cases were checked prior to distribution to supervisees to ensure all potential identifiable information was replaced and consent was not required e.g., name, locations, hospital. A précis of the ADHD cases is provided in Fig. 1 below). The sessions lasted from 1 hour to 1hour 20 minutes, although two hours were allocated. The WebEx system allowed experts and participants to attend via a video link or telephone connection. For the three sessions, the two experts and chairperson attended by video link so participants were able to see and hear them. The participants (who also had this option) largely attended via a telephone connection. A wide variety of clinical cases were brought for discussion, reflecting the range of clinical environments that participants worked in. The experience of the participants ranged from clinicians just starting to see adults with ADHD presenting to their service and had not yet undertaken assessments for ADHD, to clinicians experienced in the management of ADHD in adults. In addition, there were clinicians with expertise in subspecialties such as addictions and ID. There were a number of cases relating to the difficulty in diagnosing ADHD in the presence of co morbidity including mood disorder, personality disorder and ID as well as discussion involving the role of rating scales in assessment and monitoring of progress and the use of neuropsychological assessment. Questions about the management of ADHD included how to treatment refractory initial insomnia, how to manage comorbid anxiety and the use of venlafaxine and antipsychotics in ADHD.

**Summary of case discussed during Web Based Clinical Supervision on ADHD**

**Session 1:**

Case 1: Mr A is a 23 year old, male with a history of depression and contact with mental health services. His score on Adult ADHD Self-Report Scale (ASRS-v1.1) suggested ADHD. This was the first assessment the participant planned to undertake regarding ADHD and advice was requested about how to identify ADHD as being distinct from symptoms which may be associated with other mental illness.

Case 2: Mr B is a 28 year old male with inattention, obsessionality, anger and regular cannabis use. He has a history of Low self-esteem and depression since early teens. He was diagnosed with ADHD as a child and treated with methylphenidate until age 15. He has a family history of ADHD. His score on the Wender-Reimherr Adult ADHD Scale (WRAADS) self report questionnaire was suggestive of adult ADHD. He was unable to tolerate Concerta XL and treatment was changed to atomoxetine which he was tolerating well. The question was whether the group agreed with the current management of this case.

Case 3: Ms A 18 year old girl with borderline ID and a background of childhood adversity including neglect presenting with impulsivity, sexually inappropriate behaviour, social difficulties and inattention. Screening on Brown Attention Deficit Disorder Scales were highly suggestive of ADHD and 8 / 9 symptoms of inattention according to DSM-IV criteria. The question presented for supervision was the overlap between global ID and specific inattention secondary to ADHD and whether it is appropriate to consider treatment for this patient.

**Session 2:**

Case 1: Ms B is a 34 year old woman, presented with a diagnosis of Bipolar Affective Disorder with a suggestion of borderline personality traits presenting with recurrent self harm and with a background of childhood abuse. Use of antidepressant medication precipitated elevated mood

enhancing impulsivity and substance misuse. Previous treatment to manage mood symptoms was of limited value. Assessment for adult ADHD met the criteria for Inattentive subtype. The challenge was to separate whether this was just ADHD, or co morbid Bipolar Affective Disorder and personality aspects and how to manage case.

Case 2: Mr C is a 22 year old man with predominantly attentive problems from childhood which appeared to be masked by high intelligence. The case was complicated by an extensive psychiatric history with a diagnosis of personality disorder, the possibility of Asperger's syndrome and possible paranoid personality disorder. The question was whether antipsychotics had a place in ADHD treatment.

Case 3: Ms C is a 32 year old woman, living with her son, diagnosed with ADHD on the basis of her clinic presentation and her high score on the Wender Utah Rating scale. She rejected the diagnosis and asked to be treated for anxiety and depression. She was struggling to cope day to day, particularly with marked emotional dysregulation. There was a personal history and strong family history of alcohol dependence and substance misuse, marked anxiety at presentation. The participants wanted to discuss the treatment of ADHD in the presence of marked anxiety.

Case 4: presented the scenario of an assessment for an adult with suspected ADHD, and asked what is the role of neuropsychological testing?

Case 5: presented the scenario of a young man with marked sleep problems in the context of ADHD and asked what sleep management treatment options are available?

### **Session 3:**

Case 1: presented the scenario of an assessment and follow up for an adult with suspected ADHD, and asked what is the role of rating scales?

Case 2: Mr D is a 31 year old male seeking assessment for potential adult ADHD. On DIVA diagnostic assessment he met criteria for ADHD combined subtype. Presentation complicated by co morbid Huntington's Disease. He commenced a trial of treatment with non-stimulant ADHD medication, Atomoxetine due to concerns about the effect of stimulants in co morbid Huntington's Disease and he appears to be improving. The question was whether the group agreed with the current clinical management of this case.

Case 3: presented the scenario of treating an adult with ADHD, and asked what are the types of social interventions (including skills training) for which there is an evidence base for to use in adult ADHD?

Case 4: presented the scenario of treating an adult with ADHD, and asked can patients when diagnosed with ADHD take medication on a PRN basis as needed?

Case 5: Ms D is a 40 year old woman referred for assessment by her employer's occupational health team after presenting with severe anxiety, obsessionality and depression over the last six months. Following continuing psychological therapy these symptoms improved. As she got better, other aspects of her presentation emerged suggesting a diagnosis of ADHD. She was prescribed stimulant treatment, which she was unable to tolerate due to side effects and refused further treatment for ADHD. In light of on-going anxiety and depression, venlafaxine was prescribed and a marked improvement in ADHD symptoms noted. The participant was interested to know if others have had similar experience using the Serotonin-norepinephrine reuptake inhibitors (SNRIs).

**Fig. 1. A précis of ADHD cases discussed during supervision**

The experts tended to lead discussion with factual information related to their practice as well as from current guidance such as NICE guidelines, for example, the use of antipsychotics is not recommended as an effective treatment of ADHD. However the group interaction was made richer by discussion between the participants who had specific expertise, (e.g., addictions) and were able to comment on variation in clinical experience in different parts of the UK for example the availability of Cognitive Behavioural Therapy (CBT) for ADHD, and the ability to make use of second- and third-line treatment options for ADHD.

### 2.3 Description of ASD Web Based Supervision

The three ASD supervision sessions were held over a three week period in September 2012. Seven participants were invited to attend and six completed at least two out of the three sessions, with five completing all sessions. Each session was attended by two experts (senior clinicians with experience of running specialist adult ASD services). In addition a chairperson with similar experience was present. It was agreed with participants that each of them would submit anonymised clinical cases. Summaries were distributed prior to the supervision sessions so participants could familiarise themselves with the cases. This left an hour discussion for each case and the opportunity for peer review (a précis of ASD cases is provided in Fig. 2 below). The sessions lasted from 1 hour 40 minutes to 2 hours 10 minutes. The mode of attendance was the same as the ADHD study. The six cases presented over the course of the three sessions were a mixture of people with ASD with complex cases histories that included comorbid mental health problems and offending and/or challenging behaviours from a variety of community and inpatient services. Unlike the ADHD study, all participants had significant experience in the management of adults with ASD. In addition, many had expertise in subspecialties such as ID, general psychiatry and offender health. There were a number of cases presented relating to assessment strategies in forensic settings, in particular corroborating evidence and what to consider when making recommendations to courts. Discussion during the supervision sessions was framed from the presented case studies with the peer and expert opinion offered being greatly enhanced by the wide range and extensive experience of the supervision group. The format of supervision (for both the ADHD and ASD) allowed participants to present cases in a safe environment and receive peer support through suggestion and interrogation of the information provided.

Summary of case discussed during Web Based Clinical Supervision on ASD
<p><b>Session 1:</b></p> <p><u>Case study 1:</u> Mr 'A' is a 35 year old white British male referred by his probation officer for a psychological risk assessment. He has pleaded guilty to one count of causing or inciting a minor to engage in sexual activity, and ten counts of possessing and distributing indecent images. To date, Mr A had been interviewed on one occasion with the plan to offer him one further appointment.</p> <p><i>Questions:</i></p> <p>Can Mr A's difficulties be understood within the context of Asperger Syndrome (AS)? Attachment Disorder? If AS is a possibility, how is it best to assess/measure this when time is limited?</p> <p>If AS is contributing to MR A's difficulties, how might this guide sentencing, e.g. custody, response to treatment.</p> <p>In this case can excessive viewing of online indecent images be an example of preoccupation with one or more stereotyped and restricted patterns of interest that is</p>

abnormal either in intensity or focus'?

Case study 2: Mr P is a 41 year old white British male who has had no involvement with services in childhood and adolescence. He initially came to the attention of services when he was referred to a community mental health team with depression. His history is characterised by a number of brief contacts with services and although there were concerns from a number of agencies over his lifestyle and maladaptive coping he often failed to meet the eligibility criteria to mental health services. This was in spite of major concerns over his vulnerability which included living in a relative's shed. Other concerns noted included his lack of willingness to engagement whilst not thriving in his current environment has led to concerns over his physical health. Mr P also has a number of rituals interfering with activities of daily living.

*Questions:*

Where next? – We have been trying to support Mr P in the community and allow him to develop. However, he does not appear to be doing well. His physical health remains poor and he only really engages with services as they bring his money.

What other input might be useful to this man?

What other approaches may work to engage Mr P? We have found no way of engaging him which works consistently.

**Session 2:**

Case study 3: Ms X is a 25 year old woman with a long standing diagnosis of emotionally unstable Personality Disorder (PD), who was transferred from prison to a medium secure unit on section 47 / 49 of the Mental Health Act (MHA). This followed a conviction for simple arson. Ms X was noted to be significantly different from her peers and did not respond to the unit's treatment programme. Her Responsible Clinician was of the opinion that she could have a co morbid diagnosis of ASD and asked for a second opinion.

*Questions:*

What is the inter-relationship between trauma and ASD and what approaches are used in formulating and managing in this type of situation.

Case study 4: A 41 year old white British man with ID was referred for assessment and treatment under section. 37 of the MHA, following a guilty plea to a charge of indecent assault of a 2-year-old daughter at a social event held by a neighbour.

*Questions:*

How can Mr. P's difficulties best be understood? In particular, his 'healing': circumscribed interest or means to gain access to vulnerable women?

What assessments should we be carrying out, given P's limited intellectual ability?

**Session 3:**

Case study 5: Mr G is a 20 year old male with a diagnosis of ASD and mild/moderate ID. Given his family history – genetic testing (Fragile X testing was completed and negative)

*Questions:*

is there a strong argument for array CGH (comparative genomic hybridization)?

What is the current understanding regarding different genetic associations with ASD?

What are the most effective psychological and pharmacological approaches to agitation and anxiety?



Given the suspicion that the father has ASD, how would they approach the difficulties that this presents? Should he be made aware of it?  
 Given Mr G's dislike and suspicion of authority how best to motivate him to engage with the service and occupational/leisure recommendations?  
 Given the overlapping nature of psychology and Speech and Language Therapy interventions, how can the delivery of these be best organized?

Case study 6: Mr Z is a 24-year-old current inpatient who has moderate ID, ASD and Bi Polar Affective Disorder. He was born by caesarean section for foetal distress. He has limited vocabulary and is echolalic, using the Treatment and Education of Autistic and related Communication Handicapped Children (TEACCH) system to communicate through single words. He was raised in London and went to a special school and respite care in a residential placement. At both his school and respite centre, he displayed sexualized behaviour and used the toilet inappropriately; often refusing to go or relieving himself in inappropriately places.

*Questions:*  
 Are there any other diagnoses that can better explain Mr Z's history and presentation?  
 If admitted to your unit, what investigations (if any) and management strategies would you employ?

**Fig. 2. A précis of ASD cases discussed in supervision**

### 3. RESULTS AND DISCUSSION

In total, 25 out of 31 participants completed the post-study assessments (N=10 in the ADHD study and N=15 in the ASD study). The study sample sizes were too small to carry out any meaningful statistical analyses and therefore only descriptive results are reported below. The results presented here describe the mean scores for the groups at time 1 and time 2 and are for information to illustrate the process rather than to make any inference from. Table 1 shows mean knowledge and clinical skills at time 1 and time 2 for both the ADHD and ASD groups. The knowledge scores apply to the multiple choice questions whereas the clinical skills scores refer to answers given by participants following scrutiny of three video vignettes. All but one group demonstrated a modest increase with no change in knowledge scores for the participants of the ASD supervision group.

**Table 1. ADHD and ASD clinical and knowledge skills pre and post group**

	Pre knowledge scores (time 1) Mean, <i>sd</i>	Post knowledge scores (time 2) Mean, <i>sd</i>	Pre clinical skills scores (time 1) Mean, <i>sd</i>	Post clinical skills scores (time 2) Mean, <i>sd</i> (n=6)
ADHD Control (n=6)	10.7 <i>sd</i> 1.4	10.8 <i>s.d</i> 1.5	12.3 <i>sd</i> 6.8	13.5 <i>sd</i> 5.3
ADHD Supervision (n=7)	10.4 <i>s.d</i> 1.9	10.7 <i>sd</i> 2.0	11.9 <i>sd</i> 4.5	13.3 <i>sd</i> 3.2
ASD Control (n=11)	21.6 <i>sd</i> 2.6	21.9 <i>sd</i> 1.7	67.8 <i>sd</i> 12.8	71.9 <i>sd</i> 9.3
ASD Supervision (n=7)	22.8 <i>sd</i> 2.1	22.8 <i>sd</i> 1.9	70.8 <i>sd</i> 7.1	75.8 <i>sd</i> 11.6

#### 3.1 Attitude Questionnaire Scores

The ADHD control group scored 41.8 at time 1 compared with 42.5, at time 2, the intervention group scored 38.9 at time 1 compared with 41.8 at time 2. In the ASD study, the

control group scored 39.1 at both times 1 and 2. Whilst the intervention group scored 42.2 at time 1 and 44.5 at time 2. Following the study, participants in the control group were more likely to say they did not have enough support from colleagues to manage adults with ADHD and ASD than those in the supervision group.

### **3.2 Evaluation of Participants' Experience of Web-based Learning to Deliver Clinical Supervision for the ADHD and ASD**

**ADHD:** The feedback from participants during the supervision was generally positive regarding the content of discussion and the opportunity to discuss cases with experts and with colleagues working in different clinical areas. There was some frustration with the technology because at times it was difficult to hear other participants. This was due to background noise on the phone connection and more than one participant talking at once.

Five out of the seven participants completed written feedback at the end of the three sessions; none of whom had used e-supervision before. All the respondents reported that online supervision was more convenient than face-to-face supervision. The majority (four out of five) rated the experience of e-supervision the same or better than face-to-face supervision with respect to skills learning and the ability to improve clinical practice. However participants were divided as to whether face-to-face supervision or e-supervision allowed better connection with peers and supervisors (one reported that online offered better connection to supervisors, two felt that face to face was better for connection to peers and supervisors and three felt that there was no difference between the mediums). With respect to the practicality of receiving online supervision, all respondents were satisfied with their ability to access and participate in the sessions.

With regard to the quality of supervision offered, the respondents agreed that the supervision met their expectations and that the approach was relevant, the time allocated was appropriate and their clinical practice was supported. Only one respondent felt that the supervision was not suited to their level of knowledge and expertise. All the respondents were satisfied with the expertise of the supervisors.

The particular strengths of the online supervision were described as "easy access [and] able to relate to others", "access to a panel of approachable clinicians, who maintained focus and application", "not having to travel to London [for supervision]" and being "able to communicate with experts and colleagues from a distance". One respondent commented on the mix of participants, suggesting that separating supervision for doctors and psychologists would help clinical applicability of advice and for this reason they felt they were not sure they had learnt much from the sessions. Other participants reported that the sessions improved their confidence in managing more complex clinical presentation and clarified a number of assessment issues. All respondents reported that they would recommend this supervision to a colleague.

**ASD:** Again there were concerns about the quality of the technology used by participants to utilise the chosen web-based system to its full potential, including difficulty in consistently hearing each other. The majority of participants relied on a phone connection as they could either not access the Internet adequately or did not have access to web cameras. The ASD supervision group benefited from a high level of expertise within the supervision group who found it very useful to be able to communicate with experts and fellow participants from a distance. The online assessments were also well received and a number of participants

commented on the need for similar future initiatives such as e-groups where clinicians could post questions and answers in their own time and focus on material which is relevant to them.

#### **4. DISCUSSION**

This study piloted an innovative approach to supervision and training groups using the Internet. The original intention was to offer training to junior and/or inexperienced staff in the two subject areas. However those who put themselves forward consisted of predominantly senior experienced staff; which may be an indication of the dearth of forums and peer support networks available for experienced clinicians working on complex atypical presentations of ADHD and/or ASD.

Recruitment to this study was via a series of six conference workshops across England (three on ADHD and three on ASD) and although those attending the conferences were representative of a range of clinicians in terms of experience and expertise, those who joined the study were predominantly senior and/or experienced staff. The failure to meet recruitment targets has placed doubt on the use of conferences to generate recruitment. The delivery of expert training at these events may have generated a temporary enthusiasm or perhaps a feeling of obligation to sign up. The sampling strategy used would need to be reviewed in any future protocol as the profile of those targeted to participate (young and/or inexperienced) were not represented in the final group of participants (senior and/or experienced). Although groups of mixed ability are possible, the worry is that to accommodate those with lesser experience the group would not reach its full potential. It is believed that the presence of senior clinicians during the sessions enhanced the quality of the supervision content and process. Academically the opportunity for senior clinicians to engage with peers, not usually possible because of organisational and team boundaries, offers a chance to improve networks and pool knowledge to increase the evidence base. This uncertainty surrounding demand for this type of supervision suggests that a more sophisticated sampling method is indicated in any future study that matches for experience and exposure to these groups of patients.

Although we cannot infer from the statistics used, a larger increase in scores at time 1 and time 2 might have been expected. Although both studies comprised mostly of senior clinicians, a number came from highly specialist settings which may suggest that participants had different levels of training. The expected increase in skills and knowledge which was anticipated did not materialise probably due to the entry level in terms of experience of the participants, but each found it valuable and thought a similar type forum would be beneficial. For future studies, appropriate outcomes of effectiveness will need consideration. These may include measures of improvement in problem solving and/or developing formulation of complex cases. The scales used to measure progress were devised specifically for the study and were developed in two stages. The first stage consisted of clinical experts examining the literature for existing scales and/or questionnaires. From this a prototype of the assessment questionnaires was developed for final review by the authors. On reflection the knowledge and attitude questionnaires used would benefit from future amendment by integrating them within the skills based assessment. This could be adapted to provide a common assessment and diagnostic skills template, that could be transferred to other areas of medicine and provide a common approach to implementing WBL. In terms of the future development of WBL there have been recent calls to scale up the use of telemedicine in psychiatry and specifically in the area of ADHD in order to disseminate good practice and allow training and consultation. Our findings suggest, that issues such as accessibility to technology required

for WBL are a barrier to widespread implementation. This may also be contributory to the lack of published evidence for the effectiveness of 'telehealth' for ADHD [19], despite calls for its use and implementation in some services. There is currently a gulf between information communication and technology (ICT) systems available within and across health service and academic centres, with what is considered basic computer equipment such as soundcards and web cameras not available to a number of participants. This means that currently the delivery of web based supervision is only possible between people in services with the necessary equipment. The alternative, (which happened in this study) is using a telephone to join sessions. Although this appears a reasonable compromise, the sporadic dips in audio quality experienced in this study did at times detract from the conversation. Without access to the necessary ICT equipment, the availability of WBL and supervision will be limited.

## **5. CONCLUSION**

This study has highlighted the need for professional support for those who are working to develop services in relative professional and/or rural isolation. The use of WBL to support clinicians tasked with the assessment, diagnosis and management in specialist areas is still in its infancy in many clinical areas, which includes ASD and ADHD. A lack of access to supervision and training either through experts at tertiary centres or through peer to peer supervision has been an issue in developing clinical expertise in ASD and ADHD across non specialist areas. The majority of study participants in the ASD study had a high degree of expertise in the area and reported that currently outside of local clinical teams there is little opportunity to reflect on practice, in particular complex cases with others. The use of group supervision by WBL can address this need and is versatile so that it can accommodate clinicians with different level of experiences. However, although the study has shown the need for the development of a peer to peer support structure, there is some way to go before supervision through WBL becomes an integral part of our clinical practice. The main limiting factor at the present time is accessibility to adequate and user friendly forms of technology being widely available across healthcare and academic institutions.

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## **CONSENT**

The Ethics Committee were satisfied that consent was not required for the case studies given the two stage anonymisation process and limited details contained in the vignettes.

## **ETHICAL APPROVAL**

Ethical approval was granted in November 2010 by Kings College London (CREC) for this study: PNM/10/11-13 Interventions for people with neurodevelopmental disorders: Effectiveness of on-line training for clinicians.

## **COMPETING INTERESTS**

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