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Mental Health

THE BRIDGE

ADHD Special Issue

Interview with
Prof. Eric Taylor

Review of
CAMH &
JCPP Papers

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A literature review of language problems in ADHD has confirmed large deficits in multiple areas of language functioning among young people with the disorder.

Jan 2018
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Foreword from the Editor

Welcome to this ADHD themed issue of The Bridge. Our science journalist Ben Upton has pulled together a summary of recent research from the JCCP/CAMH in this area for you. There is good evidence that there are language deficits in children with ADHD and the authors suggest that language assessment be included in the diagnostic process. This is important as language deficits need to be identified, but screening can have major resource implications. We also have an interview with Professor Eric Taylor. Eric has been a friend to ACAMH for many years and has seen many, many children with ADHD over his long career and engaged in much research in this area. It is an honour to hear his insights. We also hear from parents who have children with ADHD and one parent who also has a diagnosis. It is a highly heritable condition, so meeting family members who share the diagnosis of ADHD or who have traits, is common in clinical practice. As a clinician, I have always found that the best way to really understand a condition, is to listen in detail to the concerns of those who experience it. I do hope you find this edition a helpful update.

ADHD traits linked to tantrums in preschool children

A survey of 154 parents of French preschool children found that the children who were rated as being more emotionally labile were also prone to ADHD symptoms.

Jenna Maire and colleagues at the French National Institute of Health and Medical Research used both online and paper surveys to explore the association between emotional lability and anxiety, aggression and hyperactivity-impulsivity.

The authors took into account a number of confounding factors, including the child's age and sex and the parent's occupation and marital status. After adjusting for these, only anxiety and hyperactivity-impulsivity were significantly associated with emotional lability.

However, they acknowledge that a tendency to have temper tantrums is not in itself diagnostic for any single disorder. They also note that only 18% of parents responded to the survey and those that did tended to be educated, professional, two-parent families.

The authors suggest that preschoolers' emotional lability could be used as part of a baseline for longitudinal studies and the trait could one day prompt targeting for early intervention.

Maire, J., Galéra, C., Meyer, E., Salla, J. and Michel, G. (2017), Is emotional lability a marker for attention deficit hyperactivity disorder, anxiety and aggression symptoms in preschoolers?. Child Adolesc Ment Health, 22: 77–83. doi:10.1111/camh.12168

Q&A with Professor Eric Taylor



Please introduce yourself.

I'm Eric Taylor, Emeritus Professor of Child and Adolescent Psychiatry here at The Institute of Psychiatry at King's College Hospital, and I think still an honorary consultant at the Maudsley Hospital, though not seeing patients currently. I am in my eighth decade.

How did you become interested in children with attentional difficulties?

I'd always wanted, for a long time, to get into the practice and science of mental health. As an undergraduate I had the great opportunity to be supervised by the great Lawrence Weiskrantz who was working on attention.

At the time, failures of attention were thought of as a major cause of problems – including schizophrenia. I won a travelling scholarship to Harvard and went over there to work with Leon Eisenberg and Keith Connors. At that time they were exploring what were the interesting growing points: how neuropsychology, and changes to it, creates mental health changes. So I had a very happy couple of years there and returned to the Maudsley to train.

How has your personal definition of ADHD shifted since then?

Probably not enough, I still think of it as a set of neuropsychological changes with multiple causes, which was the way I thought of it then. At the time, at Harvard, I certainly thought of it as a fairly easy problem to crack – that we'd work out what sort of problem it was,

that we'd find ways of training it – end of story. But in practice that's proved extraordinarily difficult because it's a much harder problem than it seems.

And of course, things have appeared that I would never have dreamed of. The idea that you can measure genes would've seemed like science fiction and the idea that you could look at the workings of the brain with the techniques we have now – that would have seemed visionary.

Do you think perceptions of ADHD research have changed over your career?

In this country, greatly. When I was starting nobody wanted to know, it was anathema. It was a sign that you were a brutal, heartless scientist without an interest in people. I remember being shouted down at meetings of the Royal College of Psychiatrists. Now, of course, it's an entirely different story.

Why would you be shouted down?

Medication. It's not a core part but it's an important part of it. If you look at the history of ADHD, it's partly grown up in this form because it's what Ritalin treats. We never spoke about attentional problems in the profession until the 1930s. It was then that the man who discovered the effect of Bzedrine on children found that it altered learning and behaviour and made children more relaxed. Then as the years went on and measurement improved people realised that the core of it was attention and impulsivity.

Have you met people with ADHD who're grateful for the traits of the disorder?

Yes, I think so, usually with fairly mild ADHD. I think the classic instance is probably Rory Bremner. His film with the BBC sees him taking medication for a while and then his comedy gigs before and after – because he's worried that if he did take it, he'd lose some of the spontaneity. I don't think he would, personally. But he'd be a person who's happy with the disorder.

Then there are some very adventurous people: stuntmen, daredevils, gamblers – who're glad they've got the kind of personality and temperament that thrives on excitement and interest.

But it's a minority. What most adults with ADHD say is 'I'm always in trouble and I don't know why', 'I'm isolated socially' or 'I've never met my potential in life'.

What are your hopes for the future of ADHD and those affected by it?

I'd say what the children say, which is that they want better understanding. I'd want the understanding to spread: that it's not their fault; that it's a difference, not a defect; that there can be positive things about it; and that if parents and schools understand it really well they can help the children to find their niche in life.

For the full
interview visit

<http://bit.ly/2hM1Veq>



Brain firing, but not wiring, is different in children with ADHD

When in a relaxed state, the brains of children and adolescents with ADHD tend to fire differently to those without the disorder, although there don't seem to be changes in the physical connections or 'wiring' of their brains.

ADHD symptoms are thought to be underpinned by changes in brain connectivity, but the details of these remain uncertain. To address this, researchers in the Netherlands based in Utrecht and Leiden used MRI brain scanning to examine two forms of brain connectivity.

They investigated both the structural connectivity – the physical connections between brain areas, and functional connectivity – seeing if brain areas fire at the same time and are therefore likely to be communicating.

Previous behavioural and brain scanning studies have found some evidence that the brains of those with ADHD mature differently – this has led to the development of the 'maturational delay hypothesis' of ADHD.

"Brain development literally lags behind a few years," said Dr Dienne Bos of University Medical Centre Utrecht, one of the authors of the study. She said other evidence has shown a delay in those with ADHD of two to five years in the frontal cortex – a brain region associated with abstract thought, decision-making and short term memory.

But the situation is complex; the hypothesis doesn't explain why some children's ADHD continues into adulthood. "In many children this delay seems to go away after adolescence" she said.

"The maturational delay hypothesis is one of the prevailing hypotheses of brain development in ADHD," she said "It's not perfect, but it's the best we have at the moment."

The researchers focussed their investigations into the firing patterns of a well-established grouping of brain areas that tend to become active when we are resting our attention, known as the default mode network (DMN).

"The DMN is something we should only see when you're doing nothing," said Dienne.

"In children with ADHD we see it pop up when we ask them to do something, which is probably associated with inattention," she said.

The researchers scanned the brains of 35 children and adolescents with ADHD and 36 without. They used both functional magnetic resonance imaging (fMRI) – which measures brain activity through blood flow, and diffusion-weighted imaging (DWI) – which measures brain cell connections through the flow of water.

The researchers found differences in the functional connectivity of the ADHD children, but not in their structural connectivity.

"That was definitely surprising, as we did find some fairly clear functional differences," said Dienne.

She reflected that scanning the brains of children is not without its problems, particularly if they have ADHD.

"It's really tough," said Dienne. "I think we lost about thirty to forty percent of our data in the resting state study," she said, speaking about the functional brain scans.

The researchers used a movie to distract the children during the structural scans, but they had to rest their attention for the functional scans, meaning they could only stare at a white cross on a black background.

“Right now we have to include a lot of children and hope for the best,” she said.

Having a brain that’s slow to grow up isn’t enough to explain all aspects of ADHD. “It’s not the full story,” said Dienke. “There are functional and structural changes that appear throughout development” she said.

The researchers suggest such functional differences, which may be associated with the disruption of brain networks, could come before more permanent changes in wiring.

Further work will be required to make a direct link between the functional and structural changes.

“One of the interesting things for us would be to follow up on these children, and see if there are still no differences, or if differences appear later,” said Dienke.

This kind of follow up research – known as a longitudinal study – could also explore possible links between changes in brain function and structure and ADHD symptom severity.

“We actually have longitudinal data that we’re analysing right now,” said Dienke.

Hopefully further work looking at the brains of children with ADHD as they grow up will teach us more about the subtle changes that underlie this common, but varied, disorder.

Bos, D. J., Oranje, B., Achterberg, M., Vlaskamp, C., Ambrosino, S., de Reus, M. A., van den Heuvel, M. P., Rombouts, S. A.R.B. and Durston, S. (2017), Structural and functional connectivity in children and adolescents with and without attention deficit/hyperactivity disorder. J Child Psychol Psychiatr, 58: 810–818. doi:10.1111/jcpp.12712

Default mode network: A specific group of brain regions, which are usually active when an individual is resting, or not completing any sort of task.

Structural connectivity: The amount of physical connections a brain area has with other areas. These are also known as white matter, or axons, and carry electrical signals.

Functional connectivity: The amount two brain areas actually communicate, based on the fact they are active at the same time, such synchronised firing generally results in stronger physical connections over time.

Mental health workers have more empathy

Mental health workers have greater empathy than physicians or other professionals, according to an online survey.

Hernando Santamaría-García at Favaloro University, Buenos Aires, and colleagues received 1,109 responses to a survey hosted on Intramed, a commercial Spanish-language healthcare information service.

Psychiatrists and psychologists from nine Latin American countries participated. The non-medical workers were all employed in professional roles.

Participants’ empathy for pain was tested using cartoons of accidental, natural and intentional harm. Participants also responded to two moral dilemmas.

The authors found mental health workers had significantly higher empathetic concern than the other groups for intentional harm, but not for harm caused by accident or natural situations.

Mental health workers and physicians with more than a decade’s experience showed less empathetic concern for intentional harm than less experienced clinicians, confirming earlier findings.

The authors suggest differences in training, exposure to suffering, or an aptitude for empathy in mental health workers could all explain the differences.

Santamaría-García, H., Baez, S., García, A.M., Flichtentrei, D., Prats, M., Mastandueno, R., Sigman, M., Matallana, D., Cetkovich, M. & Ibáñez, M (2017) Empathy for others’ suffering and its mediators in mental health professionals. Scientific Reports 7, Article number: 6391 doi:10.1038/s41598-017-06775-y

Fighting for attention

To present a more complete picture of a highly heritable disorder, The Bridge has spoken to two parents of children with ADHD about the challenges and concerns that it can present.

Gretta Schifano's 14-year-old son was diagnosed with ADHD in June 2017 after years of struggling at school.

She had fought for many years to have him assessed by an educational psychologist, but said that her concerns were dismissed by the school.

"I was quite upset when he got the diagnosis" said Gretta. "To find out what it was and to think why did nobody ever mention this before or refer him?" she said.

"One thing that's muddied the water a little is that he's adopted, he came to live with us when he was two."

"From when he was first adopted I've been reading a lot about attachment," said Gretta. She said she understands the majority of young people seeking adoption in the UK are victims of abuse or neglect, and this led her to believe her son may have had attachment issues.

"The reason he actually got diagnosed was through adoption support" she said, explaining that a local education authority adoption support psychotherapist referred him to Great Ormond Street Hospital, where the trauma team diagnosed him, not with PTSD, but ADHD.

"I think things were easier at primary school because it's more nurturing and they're a bit more forgiving" said Gretta "but when you get to secondary school and you have to remember your green pen for maths and tuck your shirt in he finds it really hard to organise himself."

Gretta thinks teachers are in the best position to raise concerns and that educational psychologists should be empowered to intervene earlier, before their statutory threshold is met and without first having had to create an Education, Health and Care Plan.

"People are going through life with ADHD and having loads of problems, causing loads of problems, ending up in prison – so much of it could be avoided," she said.

At first Fabian Fry was unhappy when his eldest son was diagnosed with ADHD, but after realising how much it explained his behaviour, his feelings changed.

He himself was diagnosed with dyslexia at a young age and had always struggled in school, following his son's diagnosis with ADHD, he decided to seek assessment himself.

He has since been diagnosed with both Adult ADHD and autism.

Although he empathises with both his sons' difficulties at school, his eldest son's decision to stop taking his medication and self-medicate with illegal drugs has left him at a loss.

"I've reported him to the police, social services, the lot," he said "no one seems to take any responsibility."

Fabian said he was told his youngest son would be referred for further assessment, but due to the closure of his local paediatrics department, his youngest has now been discharged from the service.

The family situation is also complicated by the side effects of Fabian's own medication.

"When I take the medication for one thing it counteracts the other, so when I take my medication for ADHD it makes my autism worse and vice versa," he said.

"I've got the choice of being able to write an email or go out in public," he said.

"If I take the ADHD medication today I can respond to emails, read and write. But if I go out to a shop I can't cope, I get panic attacks."

"Even getting my medication balance is hard work for me, so following a complaints procedure is an absolute nightmare," said Fabian.

Fabian's Poem

When a child hasn't a clue,
gets distracted by movement
& lost in noise too,

Overwhelmed by signals that
constantly attack, distraction
is my battle that holds
confidence back,

I'm not shy or lazy, not stupid
nor crazy, feel attacked by a
system too underfunded to
see, the distress it causes -
disconnection indeed.

Bullied by society and
professionals too, why
make me conform and jump
through a hoop?

No room for investigation,
no time to persist, can't you
leave me alone or truly help
me exist?

Now as an adult I still try my
best, but then comes kids
and guess what comes next?

I've passed on my power, it's
not all bad though, just the
system is the failing and that
prevents growth.

ADHD screens: look into language



A literature review of language problems in ADHD has confirmed large deficits in multiple areas of language functioning among young people with the disorder.

Hannah Korrel at the University of Melbourne and colleagues conducted a systematic review of the academic literature relating to language problems in ADHD, they then carried out a meta-analysis of the pooled data from these studies.

They combined the results of 21 studies which compared the language abilities of under-18s with ADHD to those without the disorder. This totalled 1,209 ADHD cases and 1,101 controls. Across the studies, 17 different tests of language ability were used.

The authors state that all the language tests used in the studies were validated and standardised. The most popular tests, used by 10 studies, were variants of a questionnaire called the Clinical Evaluation of Language Fundamentals (CELF).

All of the studies were cross-sectional, meaning the data were collected at a single time point, they can therefore only be used to make an association between ADHD and language difficulties, not to show that one caused the other.

As well as looking at the results of individual studies, the authors combined data when the same test was used by multiple studies, they then used this pooled data for further analyses.

These analyses explored different language skills, including the children's expressive, receptive, pragmatic and overall language abilities. The authors found the children with ADHD performed worse than controls in all of these areas.

Overall language

As the name suggests, overall language tests incorporate multiple areas and can include reading, listening, grammar and vocabulary. Taking each test individually, 11 out of 12 found significantly poorer performance in the ADHD group. This was confirmed when data from these tests was combined and analysed.

Although the authors' analysis did find a publication bias in favour of this association, the effect was strong enough (mean effect size: 1.04) that the association between overall language deficit and ADHD is likely to be true.

Expressive language

Expressive language defines a child's capacity to put their thoughts into words and sentences in an intelligible way – it can apply to written or spoken language. The analysis of the combined results found a very strong association (ES: 1.23) between expressive language deficits and ADHD, the strongest of any of the different language abilities tested.

Receptive language

This is a child's ability to understand words, sentences and the overall meaning of what they read or hear. Again, the children with ADHD performed worse on 12 of the 14 tests analysed. Although the strength of this association was mixed across the studies, there was still a strong effect (ES: 0.97) when the results were combined.

Pragmatic language

Fewer test results were available for pragmatic language. This is a measure of how well a child can apply and interpret language in different social situations. In spite of the weaker evidence base, the meta-analysis of available data found a strong association (ES: 0.98) between pragmatic language deficits and ADHD.

The authors therefore conclude that there is strong evidence for language deficits in ADHD, and that these could be added to future diagnostic screens for the disorder.

However, they also acknowledge such problems could arise from psychiatric or societal issues separate to ADHD, and the deficits detected by the tests may also be the result of brain-wide issues, rather than language-specific ones.

Korrel, H., Mueller, K. L., Silk, T., Anderson, V. and Sciberras, E. (2017), Research Review: Language problems in children with Attention-Deficit Hyperactivity Disorder – a systematic meta-analytic review. J Child Psychol Psychiatr, 58: 640–654. doi:10.1111/jcpp.12688

Telephone support for parents in ADHD

Due to its high prevalence, treating ADHD can place a burden on services. Self-help and remote interventions could offer a way to deliver treatment at scale, if they're effective.

Christina Dose and colleagues at the University of Cologne provided telephone counselling to 51 parents of ADHD children who were being treated with the stimulant methylphenidate.

The researchers supplied parents with a series of eight self-help booklets on disruptive behaviour disorder, which often co-occurs with ADHD. Parents were given help applying advice from the booklets during fourteen 30-minute telephone consultations over the course of the programme.

After completing the 12-month programme, the treatment families were compared with 52 control families, who had received only routine clinical care.

Although the researchers found no significant difference in ADHD symptoms or functional impairment between the groups, they found a moderate improvement in oppositional defiant disorder symptoms and negative parenting behaviour in the treated families.

Dose, C., Hautmann, C., Buerger, M., Schuermann, S., Woitecki, K. and Doepfner, M. (2017), Telephone-assisted self-help for parents of children with attention-deficit/hyperactivity disorder who have residual functional impairment despite methylphenidate treatment: a randomized controlled trial. J Child Psychol Psychiatr, 58: 682–690. doi:10.1111/jcpp.12661

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Research

Mental health workers have more empathy

Mental health workers have greater empathy than physicians or other professionals, according to an online survey.

Unpicking assessment for Adult ADHD

Variability in assessment methods could be behind the vast range of rates given for the persistence of ADHD into adulthood – from 5% up to 75%.

Policy

Implementing iThrive? Pick priorities and prepare, says commissioner

iThrive is a care framework that aims to replace the four tiered system of CAMHS provision, by grouping children and young people based on their needs.

Initially launched at 10 sites across the UK in October 2015, by April 2017 it had expanded to 44 CCGs. iThrive state that, 30% of young people in England are now served by a trust or CCG implementing the programme.

In the spotlight

“My understanding of ADHD is this: you’ve got an endoskeleton and an exoskeleton. The intact, functioning frontal cortex and all its connections in the brain are like an endoskeleton, they enable us to organise our lives.”

ADHD specialist, Paul McArdle, CAMHS Consultant in Northumberland and an Honorary Senior Lecturer at Newcastle University, spoke to The Bridge about the societal context of ADHD and a pilot programme he ran to try and reach children leaving care, many of whom suffered from the disorder.

Plus we look at different career paths in CAMHS – scooping up pearls of wisdom from professionals across disciplines and at all stages of their careers. We kick off with Laura Baker, CAMHS Strategic Lead for Cygnet Healthcare.

Emanuel Miller Memorial Lecture and Conference 2018 – Focusing on Adolescent Mental Health Friday 16 March

Professor Sir Robin Murray will deliver the Emanuel Miller Memorial lecture on the topic of adolescent drug use and its link to psychosis.

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