



The Association
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THE BRIDGE

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OCD & ASD Edition

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experience of Obsessive
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Editorial

Guest Editor, Dr. Mark Lovell

This edition of 'The Bridge' focusses on Autism Spectrum Disorders and Obsessive Compulsive Disorder. Both of these can resemble each other with the over-focus, special interests and anxieties seen in ASD resembling the obsessions of OCD, and the routines, rituals and need for order and sameness that can be seen in ASD resembling the compulsions in OCD. To complicate matters further, they can often also co-occur. However, they are distinct disorders/conditions and should not be confused since treatments and management strategies differ.

Please read further for summaries of original articles from the Journal of Child Psychology and Psychiatry, and Child and Adolescent Mental Health, ACAMH's two journals. Some of these are by the original authors and other by ACAMH's in-house science writer covering a range of scientific developments in these areas.

If you have any ideas for future 'The Bridge' themes, feedback or wish to contribute please contact: prabha.choubina@acamh.org

Dr. Mark Lovell

Acting Editor



Research highlights in this edition are prepared by Dr. Jessica K Edwards. Jessica is a freelance editor and science writer, and started writing for 'The Bridge' in December 2017.



Cognitive flexibility in OCD: challenging the paradigm

By Dr. Jessica K. Edwards

Data from a new study by Nicole Wolff and colleagues suggest that cognitive flexibility can be better in children with obsessive-compulsive disorder (OCD) than typically developing controls. The researchers examined cognitive flexibility in 20 adolescents with OCD and 22 controls using a backward inhibition (BI) paradigm.¹

This paradigm is based on task switching, whereby efficient activation of a new task and concurrent inhibition of a redundant task is required for cognitive flexibility. BI thus describes the cost of overcoming the inhibition of a recently abandoned mental set when it becomes relevant again; therefore, those with a strong BI effect exhibit low cognitive flexibility. The researchers estimated this BI effect by EEG, recording the source and magnitude of event-related potentials in the brain known to reflect processes that inhibit task-irrelevant mental representations.²

They found that patients with OCD had a smaller BI effect than controls, with neural activation differences found in the inferior frontal gyrus (BA47). Interestingly, this brain region is associated with the core characteristics of OCD, namely repetition, control and obsessive thoughts. These data support the counterintuitive view that patients with OCD show increased cognitive flexibility when there is a need to reuse recently abandoned, repeating mental sets.

Referring to:

Wolff, N., Giller, F., Buse, J., Roessner, V. and Beste, C. (2018), When repetitive mental sets increase cognitive flexibility in adolescent obsessive-compulsive disorder. *J. Child Psychol. Psychiatr.* 59: 1024-1032. doi: 10.1111/jcpp.12901.

Further reading:

¹Koch, I. et al. (2004), Inhibition of response mode in task switching. *Exp. Psychol.* 51:52-58. doi: 10.1027/1618-3169.51.1.52.

²Klimesch, W. (2011), Evoked alpha and early access to the knowledge system: The P1 inhibition timing hypothesis. *Brain Res.* 1408: 52-71. doi: 10.1016/j.brainres.2011.06.003.

Glossary:

Backward inhibition (BI): an inhibitory mechanism whereby an executed task must be inhibited or suppressed to permit a new task to be completed. This mechanism is required for effective task switching.

Event-related potentials (ERPs): the measured electrophysiological response to a stimulus; the ERP waveform is measured by electroencephalography and consists of a series of positive and negative voltage deflections.



Children with ASD at heightened risk for maltreatment

By Dr. Jessica K. Edwards

A study conducted by researchers at the University of South Carolina is the first to provide empirical evidence from population-level data that maltreatment is elevated in children with autism spectrum disorder (ASD) relative to the general population. The researchers correlated data obtained from the Department of Social Services (DSS) and the Autism and Developmental Disabilities Monitoring (ADDM) network and found that children with ASD, intellectual disability (ID) or both had a significantly higher likelihood (~2.5 times) of reported and substantiated maltreatment compared to typically developing controls. Regarding the characteristics of maltreatment, children in all learning difficulty groups experienced physical neglect. Children with ASD and co-morbid ID, or ID alone were more likely to experience all forms of abuse compared to those with ASD alone and

typically developing controls, whereas those with ASD alone were more likely to experience physical abuse.

Finally, the researchers found that maltreated children with ASD were more likely to exhibit aggression, hyperactivity and tantrums than non-maltreated children. Going forward, the researchers explain that empirically supported assessment and intervention approaches are urgently needed to identify maltreatment in children with ASD and ID.

Referring to:

McDonnell, C.G., Boan, A.D., Bradley, C.C., Seay, K.D., Charles, J.M. and Carpenter, L.A. (2018), Child maltreatment in autism spectrum disorder. *J. Child Psychol. Psychiatr.* doi: 10.1111/jcpp.12993.

Connecting the senses: an area of difficulty in infants later diagnosed with autism?

By Dr. Terje Falck-Ytter



Dr. Falck-Ytter did his Ph.D. in Developmental Psychology at Uppsala University, Sweden. Subsequently, he has worked in parallel at Karolinska Institutet and Uppsala University. Falck-Ytter's main research project, Early Autism Sweden (EASE) aims to characterise and understand the development of infants who are later diagnosed with neurodevelopmental conditions, such as autism and ADHD. He is also leading longitudinal twin studies of children and young infants, aiming to establish the contribution of genetic and environmental factors to various developmentally informative measures early in life. Falck-Ytter is a licensed psychologist, and has worked clinically with young children with autism. He is currently a visiting fellow at the Swedish Collegium for Advanced Study (SCAS) in Uppsala.

This article is a summary of the paper published in JCPP – Falck-Ytter T, Nyström P, Gredebäck G, Gliga T, Bölte S, the EASE team. (2018). Reduced orienting to audiovisual synchrony in infancy predicts autism diagnosis at 3 years of age. *Journal of Child Psychology and Psychiatry*, 59(8), 872-880. doi: 10.1111/jcpp.12863.

Autism Spectrum Disorder, or autism for short, can be diagnosed from around 2-3 years in most cases (although in practice, it is often done much later - for various reasons). It is a neurodevelopmental condition, meaning that in order to understand it we need to understand the underlying developmental processes, in both brain and behaviour. Although this has been acknowledged for a long time, it is only in the last 15 years that the autism field as a whole has taken development seriously, which is reflected in a sharp increase in so-called “sib studies”. In sib studies, infant siblings of children with autism are followed from infancy to toddlerhood, allowing the investigator to better understand the developmental events that precede the emergence of symptoms. Although this design is not without limitations, it is probably the most efficient approach available to shine light on the early development in autism, since about 10-20% of siblings will develop ASD themselves.

Popular methods included in these studies are magnetic resonance imaging, electroencephalography, eye tracking, as well as more traditional measures of behaviour. In our infant sibling study in Sweden (Early Autism Sweden; EASE) we capitalise on eye tracking. Modern eye trackers use infra-red light to non-invasively measure what attracts infants attention while they watch still images or video clips, without anything needing to be attached to the participants – just like watching TV at home.

Recently, we used eye tracking to test a particular hypothesis about early development in autism. Earlier we had found that children with autism seemed to orient less to coinciding audio-visual events (in this case when change in audio coincided with a change in visual movement on the screen). The ability to pick up such audiovisual synchrony is believed to contribute to the perception of a unified multimodal world.

Think of how important it is to be able to anticipate an approaching car when you hear an engine noise. Also, when listening to someone speak in a noisy environment, we are helped by looking at the person's mouth, since speech and mouth movements co-occur in time. Conversely, not attending to audiovisual synchrony could be a sign that one perceives the world in a more piecemeal, less integrated fashion.

In order to quantify preference for audiovisual synchrony, we compared two stimuli that were visually identical but which differed in terms of which side of the screen audiovisual synchrony was expressed. That is, in one of the stimuli, the movement on the right side was in synchrony with the audio, and in the other stimulus the movement on the left side was in synchrony with the audio. The audio came from a centralized speaker and gave no clues as to which side one should look. The logic was that, since the stimuli were visually identical and the sound was spatially uninformative, any shift in looking preference from the left to the right side of the screen must reflect that the participant could relate the two types of sensory information, and perceive the audiovisual synchrony.

The results showed that the typically developing infants markedly changed their viewing patterns – following the audiovisual synchrony “with their eyes”. The same was true for infants at familial risk for autism, but who did not fulfill criteria for autism at follow up (diagnostic assessments were done at 3 years in our study). However, the infants at familial risk who did fulfill autism criteria according to the DSM5, did not change their looking preference at all, suggesting that they may have problems perceiving this type of multisensory information.

Although our study suffered from small sample size (only 13 infants were later diagnosed with autism), the results are important because they are the first to support the hypothesis of atypical multisensory processing in the early development of autism. More broadly, the results are in line with the recognition that rather basic sensory processes may be key to an understanding of the condition. It should be emphasized that our finding is a “group level significance result”, and it is unlikely that our experimental paradigm could work in a clinically meaningful sense in its current form. At the same time, we hope that the knowledge we generate will contribute to earlier qualified support and guidance for families and to new ideas for early intervention. Regarding the latter, it is interesting to note that studies of typically developing individuals has shown that it is possible to improve performance on laboratory tasks of multisensory processing via training.

I would like to end with a more general note about communicating results about the early development of autism to the broader audience, and to parents in particular. In my experience, most parents (at least in Sweden) know that autism has a strong genetic basis. However, this knowledge, for some, can be seen as in conflict with expressions such as “the development of autism”, which are frequently used when reporting results from sibling studies (see above!). “How can a genetic condition develop?” – they may ask. “Does this imply that it is not the genes after all?”. Given the historical context, with autism long being blamed on “refrigerator mothers”, this discourse can quickly get emotional. Thus, a challenge for researchers and clinicians alike is to convey the more nuanced story that a genetic predisposition does not need to be physiologically or behaviorally expressed from the start, and that there is no opposition between “being (largely) genetic” and “being a developmental condition”. And just to be clear: even if genetic factors are important for explaining individual differences in nearly all complex traits (such as autism), environments do play a role too, and understanding their effects is key for developing new interventions.

Key points:

- This new study suggests that infants later diagnosed with autism may have difficulties relating sensory information across modalities – e.g. sound and visual movement
- The study points to early atypicalities in basic sensory functions in autism
- Future research should address this and other sensory functions, which may be more important in autism than previously thought
- Research on the early development of autism may provide clues for future early intervention





Dysregulation profile risk may be identified in infancy

By Dr. Jessica K. Edwards

The “dysregulation profile” (DP) describes a child psychopathology construct that measures broad-based, generalised emotional and behavioural dysregulation using the Child Behaviour Checklist.¹ As the DP is highly heritable,² siblings of children with autism spectrum disorder (ASD) may be at an increased risk of a broad range of atypical developmental outcomes. However, the preschool manifestations of non-ASD psychopathology in at-risk children are unclear.

Now, researchers at the University of California and Purdue University have started to address this issue by examining the factor structure and predictors of the DP in 36-month-old typically developing infants, with (n=253) or without (n=162) an older sibling with ASD. They found that a bi-factor model best described the DP in preschool children, whereby the DP consists of a general syndrome of dysregulation and individual (specific) syndromes characterised by affective (Anxious/Depressed Behaviour), behavioural (Aggressive Behaviour) and cognitive (Attention Problems) symptoms.

They also identified that a family history of ASD was associated with broad dysregulation problems, particularly in the Anxious/Depressed dimension, from as early as 3 years of age. As examiner ratings — particularly over-activity at 18 months-of-age — were longitudinally associated with the DP at 36 months-of-age, the researchers suggest that examiner observations made as early as 18 months old might help identify risk for later DP.

Referring to:

Miller, M., Iosif, A-M., Young, G.S., Bell, L.J., Schwichtenberg, A.J., Hutman, T. and Ozonoff, S. (2018), The dysregulation profile in preschoolers with and without a family history of autism spectrum disorder. *J. Child Psychol. Psychiatr.* doi: 10.1111/jcpp.13003.

Further reading:

¹Bellani, M. et al. (2012), The dysregulation profile in children and adolescents: A potential index for major psychopathology? *Epidemiol. Psychiatr. Sci.* 21: 155-159. doi: 10.1017/S2045796011000849.

²Althoff, R.R. et al. (2006), Latent class analysis shows strong heritability of the Child Behavior Checklist - juvenile bipolar phenotype. *Biol. Psychiatry* 60: 903-911. doi: 10.1016/j.biopsych.2006.02.025.

Glossary:

Dysregulation profile (DP): a broad indicator of concurrent affective, behavioural, and cognitive dysregulation, often measured with the anxious/depressed, aggressive behaviour, and attention problems syndrome scales of the Child Behaviour Checklist (as defined by Deutz, M.H.F. (2018) in doi: 10.1017/S0954579417000955).

Young people's lived experience of Obsessive Compulsive Disorder

By Dr. Carly Keyes



Dr. Carly Keyes is a senior Chartered Clinical Psychologist and fully BABCP accredited CBT psychotherapist. She has worked in the NHS for over ten years, working with clients across the lifespan. She has specialised in working with children and adolescents and is currently working in a child and adolescent mental health service. Dr. Keyes is also a Visiting Lecturer on the Doctorate in Clinical Psychology at University of Hertfordshire.

This article is a summary of the paper published in CAMH - Keyes C, Nolte L, Williams TI. (2018). The battle of living with obsessive compulsive disorder: a qualitative study of young people's experiences. Child and Adolescent Mental Health, 23(3), 177-184. doi: 10.1111/camh.12216.

How do young people really experience living with Obsessive Compulsive Disorder (OCD)? What are young people's understanding of their development of OCD and is there a link to trauma? How do other people's reactions to the OCD affect the young people? How do young people really feel about the help for OCD in the United Kingdom? This was one of the first pieces of research to focus on the voice of young people who experience OCD instead of focusing on perspectives of adults with OCD, brain changes, parent and professionals' perspectives, or randomised controlled trials. This was also one of the first pieces of research to use a qualitative approach, thematic analysis, in the hope to gain a richer understanding of young people's battle of living with OCD.

A semi-structured interview design was used to address this gap in research. Ten young people, aged 14–17 years old, were recruited from Child and Adolescent Mental Health Services (CAMHS) in the United Kingdom. Inclusion criteria were that participants had a formal diagnosis of OCD as per the DSM-5 criteria. In order to ensure the sample was representative, participants with a comorbid secondary presenting problem were included. Participants were excluded if they had a learning disability. Five were male and five female with ages ranging between 13 and 18 years of age (mean age 15 years 7 months). Nine participants were White British and one was South American, living in the United Kingdom. Nine of the participants were students, attending school, sixth form or college. One participant had left school and was unemployed at the time of the interview, due to their mental health difficulties. The participants were at different stages of therapy or had been discharged.

The first theme 'Traumatic and stressful life events' were explicitly linked to the start of OCD by the participants and were part of their understanding of developing their difficulties. Nine of the 10 participants experienced at least one of the following three life events just prior to or within a couple of months before the development of obsessive and compulsive behaviour: 'Hostility in the family', 'Illness and death' or 'Bullying and friendlessness'. The most common stressful life event was bullying and difficulties in making friends, which was reported by six of the ten participants. Most participants described having an inflated sense of responsibility after experiencing the stressful life event.

The second theme 'Responses to signs of OCD' led to a sub theme of 'lack of understanding of their behaviour' where most participants described how when they did seek help most participants described how there was a lack of understanding from GPs, schools who misinterpreted it as misbehaving, or from the general public who assumed their OCD comprised of the stereotypical picture of what OCD 'should' be

like, which somehow dismissed the seriousness of it. This lack of understanding may have contributed to the young people in delaying seeking help further and 'being secretive', whereby the latter comprised another sub theme. Stigma, shame, and worries that they were turning 'crazy' were reported by most participants, which may have also contributed to them delaying their help-seeking. Therefore, "I thought I was going crazy" comprised another sub theme. All participants also described 'feeling different' which comprised another sub theme. There was a sense in the data of the young people feeling alone with their experiences and longing to share their experiences with someone who really knows what it is like from the inside. This led the young people to appreciate any intervention (e.g. support groups) that connected them with others with similar experiences.

The third theme 'The battle of living with OCD' involved all participants to describe the battle of 'feeling 'right'', which comprised a sub theme. Most of the participants withdrew from loved ones and their everyday activities and therefore another two sub themes emerged: 'Everyday life is now in my bedroom' and 'it's ruined everything'. There was a powerful narrative of the compelling, all-encompassing and time-consuming nature of the OCD, which was formed when most participants used language of war when describing their experiences.



The final theme was 'Ambivalent relationship to help'. Despite this significant impact of their difficulties on their quality of life, most young people described an ambivalent relationship with help, finding interventions not always timely due to the 'frustrations of long waiting lists', which comprised a sub theme. Another factor that contributed to the ambivalent relationship to help was 'conflicts around exposure therapy (ERP)', which comprised another sub theme. Most participants experienced a conflict between wanting to resist undergoing ERP, but sensing that it would be unhelpful to do this in the long term. They wanted their psychologists or members of their systems to guide them through the ERP in a gradual way, outside of the therapy room. A further therapy-related conflict described by participants related to family accommodation, which led to another sub theme of 'conflicts about accommodation of the OCD'. Young people wanted those in their systems to accommodate their OCD behaviours, but acknowledged in the long-term that this was unhelpful.

These findings hold the following important clinical implications for the system that young people rely on such as our fellow mental health professionals, colleagues in schools, GPs and the general public as a whole:

- Where young people are given a diagnosis of OCD, formulations of their difficulties should attend to previous traumatic or stressful life events and addressing these should form a central part of therapy.
- Offering interventions that target the psychosocial risk factors to OCD as opposed to only the maintenance factors could enable more long-term recovery and potentially be a preventative approach.
- Interventions that help young people with OCD to connect with other young people with similar difficulties should be given priority. This could include support groups, and also leaflets, booklets and videos developed by or in collaboration with experts.
- A family-based approach to therapy should be offered where clinicians and family members can help guide exposure therapy in a graded and supportive manner in the young person's everyday settings outside of the therapy room. Intervention should also include psycho-education for family members.
- Training sessions for school staff of a young person with OCD should be delivered as part of a therapy plan. This could help teachers understand the young person's difficulties and how to respond to it and best support the young person. Clinicians could also contribute to awareness-raising in schools to combat stigma and bullying.

It is understood that services are stretched but we and the system surrounding young people need to work creatively to address these key practitioner messages. This would help to alleviate the pressures for child and adult services in the long-term and most importantly it will help to alleviate our young people of today's battle with OCD.

Working memory deficits may compromise cognitive flexibility in OCD

By Dr. Jessica K Edwards

Obsessive compulsive disorder (OCD) is characterised by recurrent intrusive thoughts and/or behaviours. These traits imply deficits in cognitive flexibility in affected patients, but it is unclear at what stage of information processing these deficits might emerge. To address this question, Nicole Wolff and colleagues asked 25 adolescents with OCD and 25 matched healthy controls to complete a computer-based task switching paradigm.¹

Here, the task switches were either signalled by a visual stimulus or had to be triggered by working memory processes. During the task, the participants were monitored by EEG to measure the profile and source of event-related potentials (ERPs) — voltages generated in brain structures that can distinguish different stages of information processing. The positive and negative deflections in the ERP waveforms include deflections that are associated with response-associated processes (known as N2 and P3) and a deflection that reflects inhibitory control during sensory categorisation processes (known as P1). At the behavioural level, the researchers found that switching performance was only compromised in patients with OCD when the working memory was involved.

Conversely, working memory processes were irrelevant for switching performance in healthy controls. This difference was underscored by a dampened P1 amplitude during memory-based switching conditions in patients with OCD compared to controls and altered ERP activation in the right inferior frontal gyrus and superior temporal gyrus. These findings suggest that inhibitory control mechanisms during early stimulus categorisation processes underlie cognitive inflexibility in OCD.

Referring to:

Wolff, N., Buse, J., Tost, J., Roessner, V. and Beste, C. (2017), Modulations of cognitive flexibility in obsessive compulsive disorder reflect dysfunctions of perceptual categorization. *J. Child Psychol. Psychiatr.* 58: 939-949. doi: 10.1111/jcpp.12733.

Further reading:

¹Gajewski, P.D. et al. (2011), The Met-allele of the BDNF Val66Met polymorphism enhances task switching in elderly. *Neurobiol. Aging* 32: 2327.e7-2327.e19. doi: 10.1016/j.neurobiolaging.2011.06.010.

Glossary:

Inhibitory control: the voluntary capacity to inhibit or regulate prepotent attentional or behavioural responses. Inhibitory control requires the ability to focus on relevant stimuli in the presence of irrelevant stimuli, and to override strong but inappropriate behavioural tendencies.

Event-related potentials (ERPs): the measured electrophysiological response to a stimulus; the ERP waveform is measured by electroencephalography and consists of a series of positive and negative voltage deflections.

