

Attention-deficit/hyperactivity disorder (ADHD): from randomised controlled trials to evidence-based clinical services

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Due to its high prevalence, significant impact on quality of life, and associated economic burden (Faraone *et al.* 2015), attention-deficit/hyperactivity disorder (ADHD) is one of the most investigated conditions in child psychiatry and is of increasing interest to adult mental health professionals as well (De Crescenzo *et al.* 2016). A large number of efficacy randomised controlled trials (RCTs) have been published on the pharmacological (Banaschewski *et al.* 2016) and non-pharmacological treatments of ADHD (Sonuga-Barke *et al.* 2013; Daley *et al.* 2014; Cortese *et al.* 2015, 2016a). A quick and approximate Pubmed search, using the following syntax: (ADHD [tiab] OR Attention Deficit [tiab] OR Hyperkinetic Syndrome [tiab]) and (randomized [tiab] OR randomised [tiab] OR RCT [tiab]), generated 1433 hits (search performed on 10.12.16). Has this large body of evidence been fully translated in the daily clinical practice to shape clinical services for individuals suffering from ADHD? The short answer is probably no. In fact, the evidence base for the implementation of clinical pathways and services for ADHD remains largely unexplored.

In this issue of the *Journal*, Professors Jan Buitelaar and David Coghill, two world class experts in ADHD, with an extensive research background and solid clinical experience, help us understand the main aspects and priorities in terms of implementation of evidence-based services for individuals with ADHD.

Professor Coghill (2016) sets the scene providing a very comprehensive and thoughtful overview of the main issues that pertain to the implementation of clinical services for individuals who suffer from ADHD. He first reminds us that, whilst the provision of

services, as well as the detection and treatment of the disorder, perhaps not surprisingly, vary across countries, there are some general principles that probably apply to the majority of countries in which care for ADHD is delivered. One of the main controversial aspects, when it comes to considering the practicalities of services for ADHD, relates to whom (child psychiatrists, psychiatrists, paediatricians, general practitioners, mental health professional, etc.) should provide the care to individuals with ADHD. Professor Coghill very pragmatically concludes that training, experience and availability of professionals are more relevant than their qualification. Few colleagues, we believe, might disagree on this. Importantly, he points to the need of implementing multidisciplinary services, offering a large range of clinical skills. Additionally, Professor Coghill highlights that, whilst ADHD symptoms in less complex cases could be treated in primary care, due to time constraints and lack of comprehensive training in psychopathology, general practitioners may easily miss important psychiatric comorbidities, which need to be taken into account to improve the overall quality of life of patients with ADHD. Another aspect to consider for the implementation of ADHD services relates to the type of outcomes that should be the focus of the treatment, as well as to the practical aspects of the clinical management, such intensity (number of contacts with clients) and type of management approach (unstructured *v.* standardised). The sentence 'ADHD: a condition that is easy to treat but not easy to treat well' very effectively summarises the issue. Recent empirical work by Coghill & Seth (2015) has been instrumental in showing that a careful, standardised titration of medication, including guideline-based management of adverse effects, can make a significant difference in terms of sustained improvement of measured ADHD outcomes when compared to a less structured approach. Additionally, evidence points to a dissociation between

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ADHD core symptoms, namely, inattention, hyperactivity and impulsivity, and other aspects, such as executive dysfunction, that may add further challenges to individuals with ADHD. Additionally, I believe it is important to highlight here that mounting evidence is showing a significant association between ADHD and somatic conditions, such as obesity (Cortese *et al.* 2016b) or asthma (Instanes *et al.* 2016). This means that focusing the care of ADHD on core symptoms only is less unlikely to improve the overall quality of life of patients with ADHD. Inevitably, targeting in an accurate and standardised way a number of ADHD-related outcomes requires not only commitment but also time. Whilst this is certainly challenging in many clinical services across countries, it should be matter of reflection for commissioners when allocating resources for ADHD services.

Arguably, one of the most urgent needs in terms of provision of care to individuals with ADHD relates to the management of youngsters in transition from child to adult health care system, as well as of adults with ADHD. The challenges related to the transition process include, among others, paucity of resources for adult services, lack of training or even scepticism around adult ADHD. In his editorial, Professor Buitelaar cleverly proposes that the key to facilitate the transition from child to adult services is to optimise the treatment of ADHD in adolescence. In fact, one of the main issues in the management of adolescents with ADHD relates to fluctuations in adherence to pharmacological treatment, due to a series of factors related to the medication (such as tolerability and formulation, with better adherence with extended release formulations), working relationship between patient/carers and clinician, and perception of stigma. Professor Buitelaar points to a series of strategies to enhance adherence to treatment in adolescents with ADHD. Three are particularly worthwhile: (1) Motivational interviewing (as opposed to direct persuasion from the clinician) to foster motivation to change elicited from the patient; (2) use of relatively novel technologies, such as smartphone apps for ecological momentary assessment, to allow for assessment of ADHD symptoms variability and feedback (ecological momentary intervention) to monitor and enhance adherence; and (3) mindfulness based training, to foster independent self-management.

At this stage, the suggestions provided in the two editorials remain largely untested from an empirical standpoint. In fact, very few randomised pragmatic trials have been carried out to gain insight into the most effective ways to deliver care to individuals with ADHD. Among these, it is worthy to cite here a community-based trial showing the effectiveness of a telehealth service model to manage ADHD in communities with limited access to specialised mental health

care provision (Myers *et al.* 2015) and a cluster randomised trial showing that collaborative consultative services, based on the promotion of collaboration between community-based practitioners and mental health professionals, are effective to improve clinical outcomes related to ADHD (Epstein *et al.* 2007).

We hope that the editorials by Professors Buitelaar and Coghill will inspire not only future pragmatic randomised controlled trials, but also stakeholders, commissioners and practitioners when considering how best to design evidence-based clinical services and pathways for individuals with ADHD across the lifespan.

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Conflict of Interest

None.

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