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Abstract: Key health organisations in Western countries, such as the National Institute for Health and Clinical Excellence (2008) in the United Kingdom, and more recently, the American Academy of Paediatrics (2011) in the United States, have advocated multimodal and multidisciplinary approaches to the diagnosis and treatment of Attention-deficit hyperactivity disorder (ADHD). However, despite these clinical best practice guidelines, there is little evidence of a general adoption of interdisciplinary collaboration and practice. One impediment to the implementation of multidisciplinary practice may be the beliefs that different professionals (and professional bodies) hold about the causes and treatment of ADHD. This chapter reviews the results of research that examined the beliefs of professional groups engaged in the diagnosis and treatment of ADHD about (i) the causes of ADHD and (ii) the efficacy of general treatment approaches. Following the review, other possible impediments to the adoption of interdisciplinary collaboration and practice are also discussed.

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Chapter

DO PROFESSIONS DIFFER IN THEIR BELIEFS ABOUT THE CAUSES AND TREATMENT OF ATTENTION-DEFICIT HYPERACTIVITY DISORDER?

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ABSTRACT

Key health organisations in Western countries, such as the National Institute for Health and Clinical Excellence (2008) in the United Kingdom, and more recently, the American Academy of Paediatrics (2011) in the United States, have advocated multimodal and multidisciplinary approaches to the diagnosis and treatment of Attention-deficit hyperactivity disorder (ADHD). However, despite these clinical best practice guidelines, there is little evidence of a general adoption of interdisciplinary collaboration and practice. One impediment to the implementation of multidisciplinary practice may be the beliefs that different professionals (and professional bodies) hold about the causes and treatment of ADHD. This chapter reviews the results of research that examined the beliefs of professional groups engaged in the diagnosis and treatment of ADHD about (i) the causes of ADHD and (ii) the efficacy of general treatment approaches. Following the review, other possible impediments to the adoption of interdisciplinary collaboration and practice are also discussed.
Attention-deficit hyperactivity disorder (ADHD) is currently conceptualised as a neurobehavioral condition that is characterised by developmentally inappropriate levels of inattention, impulsivity and motor overactivity (American Psychiatric Association [APA], 2000). It is estimated to be present in 3% to 7% of the school-aged population and can result in significant impairment in academic, social and family functioning (APA, 2000, Barkley, 2006). While the symptoms of hyperactivity, impulsivity and inattention may decline with age, up to 90% of adolescents with ADHD continue to struggle with this condition and remain functionally impaired in early adulthood (Beiderman, Mick and Faraone, 2000). As adults, these individuals are more likely to be involved in teen pregnancy, sexually transmitted diseases, and motor-vehicle accidents and to experience depression (Barkley, 2002).

Given the prevalence and serious consequences of ADHD, an enormous body of research has been conducted into both its aetiology and treatment. However, these two key facets of ADHD remain controversial for both the families and professionals involved (Barkley, 2006; Golman, Genel, Bezman and Stanelz, 1998; Brimble, 2009; Jensen, 2000; Kewley, 2001; Thapar, Holmes, Poulton and Harrington, 1999). This controversy has led to organisations such as the ‘National Institute for Health and Clinical Excellence’ (NICE, 2008), and the American Academy of Paediatrics (AAP, 2011) to develop clinical practice guidelines for the identification and treatment or management of this condition. Both of these guidelines advocate a multidisciplinary approach to ADHD and recommend better integration of medical and mental health services for individuals with ADHD and their families. For example, the NICE guidelines recommend the formation of multidisciplinary specialist ADHD teams and/or clinics to provide diagnostic, treatment and consultation services. These specialist teams would also be involved in implementing systems of communication and protocols for information sharing among professionals within the paediatric, child and adolescent, forensic, and adult mental health services. The NICE guidelines further recommend the formation of multi-agency groups comprised of representatives from the multidisciplinary specialist ADHD team, paediatrics, mental health and learning disability services, forensic services, education and social services, and parent support groups. These multi-agency groups would, among other functions, oversee the implementation of the NICE guidelines, and the provision of ADHD education and training programs for both professionals and families involved. In recognition of the complex nature of ADHD and its co-morbidity with other conditions, the NICE guidelines state
that the diagnosis should be made on the basis of a comprehensive clinical and
psychosocial assessment, a comprehensive developmental and psychiatric
history and observer assessment of the person’s mental state. For children and
adolescents, an assessment of their parents’ or caregivers’ mental health
should also be undertaken. Consequently, the evaluation for a diagnosis of
ADHD can involve referrals to health, education and social care professionals
(e.g., general practitioners, child psychiatrists, paediatricians, child/school
psychologists, social workers and adult mental health professionals). Further-
more, unlike previous NICE guidelines, the current guidelines state that
behavioural therapies, rather than medication, should be the first-line treat-
ment for pre-school and school-aged children and adolescents. These behav-
ioral therapies include parent-training/education programs, behavioural
interventions in the classroom, cognitive behavioural therapy (CBT) and/or
social skills training (NICE, 2008). These therapeutic approaches are usually
implemented in the home and school settings by parents and teachers
respectively. However, the implementation of these interventions can also
involve other professionals such as child/school psychologists and social
workers who deliver the guidance and training in specific behaviour
modification principles and techniques. Consequently, successful
implementation of these first-line treatment/management approaches requires
greater consultation and collaboration across the different disciplines involved
in the care of the child diagnosed with ADHD.

Similar to the NICE guidelines, the current AAP clinical practice
guidelines (2011) promote the development of alliances between medical and
non-medical professionals in assisting children with ADHD and their families.
As in the previous 2000 guidelines, the current AAP guidelines recommend
that during the process of diagnosing ADHD, the paediatrician should consult
the Diagnostic and Statistical Manual of Mental Disorders (currently the
DSM-IV-TR [Text Revision]). This recommendation is made partly on the
basis that the DSM-IV-TR is used by professionals in psychiatry, psychology,
health care systems, and primary care and would therefore assist in facilitating
better communication between the different professions involved. In contrast
to the previous guidelines, the current guidelines now specifically recommend
obtaining additional information from parents/caregivers, teachers, and other
school and mental health clinicians during the diagnostic process. In
diagnosing ADHD, the current guidelines further recommend that an
assessment be conducted by other specialists (e.g., child psychiatrists,
developmental-behavioural paediatricians, neurodevelopmental disability
physicians, child neurologists and child or school psychologists) to identify or
exclude co-existing conditions. The guidelines’ promotion of multidisciplinary collaboration can further be found in their recommendation for treatment and management. In order to effectively deliver the required on-going care for children with ADHD, the guidelines recommend the establishment of bidirectional communication with teachers and other school and mental health clinicians involved in the child’s care. Consistent with the NICE guidelines, the current AAP guidelines recommend the application of evidence-based behaviour therapy as the first-line treatment, but only for preschool-aged children. In contrast to the NICE guidelines, pharmacotherapy is the recommended first-line treatment for school-aged children and adolescents, with behavioural therapies recommended only as a concurrent treatment for these age-groups. Despite these differences in treatment recommendations, both sets of clinical guidelines require greater involvement of non-medical professionals (e.g., education and mental health services) in the diagnosis and treatment of ADHD.

The NICE and AAP clinical practice guidelines recognise the essential contribution of professionals from discipline groups other than the medical profession in addressing ADHD. However, the available data suggest that there is little interaction between the various professions, especially between medical practitioners and other mental health professionals, when diagnosing and treating ADHD. For example, Kwasman, Tinsley and Lepper (1995) surveyed 380 paediatricians in the US, and reported that only 39.1% had obtained information from the school attended by the child diagnosed with ADHD; only 18.7% were likely to refer children with ADHD to other professionals such as psychologists, special educators, social workers, or some other professional in a related discipline; and only 14.6% reported that their patients consulted a psychologist before beginning treatment on stimulant medication. This low level of interdisciplinary interaction reported by Kwasman, et al may, in part, be due to the study being conducted prior to the 2001 publication of the first edition of the AAP ADHD guidelines.

The impact of the AAP clinical practice guidelines, particularly on interdisciplinary interaction and collaboration in the diagnosis of ADHD was examined by Rushton, Fant and Clark (2004) who surveyed 723 primary care medical practitioners in the US about their adherence to these guidelines. They reported that many of the respondents were familiar with the AAP guidelines and had adopted many aspects of the guidelines’ recommendations into their practice. Specifically, in comparison to Kwasman et al. (1995), Rushton et al. found an increase in the level of interaction between medical practitioners and teachers such that approximately 78% of the medical practitioners obtained
information from schools using teacher rating scales to assist them in the diagnosis of ADHD. However, only 17.3% of respondents indicated that they routinely referred their patients to other professionals (e.g., psychologists, social workers, or psychiatrist) for initial ADHD evaluation and diagnosis.

The impact of the 2001 AAP guidelines along with other AAP initiatives (e.g., ADHD toolkits, online CME module [www.eqipp.org]) on attitudes and practices of paediatricians was also evaluated by Wolraich, Bard, Stein, Rushton and O’Connor (2010) who surveyed AAP members in 1999 ($N = 452$) and again in 2005 ($N = 551$). They reported an increase in the routine use of parent and teacher behaviour rating scales in the assessment for ADHD over time, but also reported a significant decline from 27% to 21% in the frequency of use of psychoeducational testing in the diagnostic process. Less than 14 percent of respondents in either survey indicated that they routinely used neuropsychological testing in their evaluation for ADHD. With regards to treatment practices, three quarters of the respondents in both surveys indicated that they frequently or always recommended classroom evaluation and modification. Interestingly, while more paediatricians in the 2005 survey compared to the 1999 survey indicated that they provided parents with information about appropriate parenting skills, only a very small proportion (approximately 10%) indicated that they referred parents to a formal parent training group outside of their practice. In addition, less than 10% of those who completed the 2005 survey indicated that they would frequently or always refer their patients to alternative (complementary) therapies. These results suggest that while there has been an increase in the level of interaction between medical practitioners and teachers as a result of the AAP guidelines (2000, 2001), the level of interaction between medical practitioners and other professionals (especially mental health clinicians) remain very limited.

Adherence to the multidisciplinary approach recommended by the NICE and AAP clinical practice guidelines assumes that the professionals involved in the assessment and treatment of ADHD have common beliefs about the condition. The low level of inter-disciplinary interaction reported in the literature may, in part, be due to differences in beliefs about the aetiology and treatment of ADHD held by the various professional groups. Personal beliefs about the causes of a problem, its expected course and prognosis are sometimes referred to as an implicit theory or explanatory model and they evolve from the individual’s personal experiences and their social and cultural environment (Furnham, 1988). For professional groups, beliefs about disorders/conditions would also be mediated by their professional training and the views promoted by their relevant professional associations (e.g., AAP,
American Psychiatric Association, American Psychological Association). These personal beliefs serve as a guide to interpersonal behaviour and would influence the holder’s responses to individuals with that problem/condition. The study of implicit theories has been used to understand how various sections of the population understand behaviours and conditions such as bulimia nervosa (Dryer, Tyson and Kiernan, in press), juvenile delinquency (Tyson and Hubert, 2000), depression (Furnham and Kuyken, 1991) and schizophrenia (Furnham and Bower, 1992). Furthermore, members of different professional groups can hold implicit theories that vary according to their professional background and training (Kuyken, Brewin, Power and Furnham, 1992; Masse, Couture and Anciaux, 2010; Roskin, Carsen, Rabiner and Marel, 1988).

There has been limited examination of the implicit theories of ADHD held by professionals engaged in the diagnosis and treatment of ADHD. Most of the studies that have explored professional beliefs and attitudes of ADHD have focused on single disciplines. For example, Shaw, Wagner, Eastwood and Mitchell (2003) conducted a qualitative study on the attitudes and practices of 28 Australian general medical practitioners with regards to the diagnosis and management of this condition. Many of the medical practitioners surveyed attribute ADHD to external factors such as parenting style/management, and social and environmental stressors (e.g., family dysfunction). Most also believed that ADHD was over-diagnosed as a result of medical labels being applied to variations in normal behaviour or medicalising a social problem caused by ineffective parenting. Other causal factors such as being exposed to violence on television and dietary hypersensitivity were not regarded as being as important to causes related to the family unit and parenting style. Despite many of the general medical practitioners attributing ADHD to normative social factors, the majority of these practitioners did not refer clients to non-medical professionals (e.g., psychologists, social workers). Instead the majority referred their clients to medical specialists such as paediatricians and psychiatrists. This low rate of referrals to non-medical professionals is consistent with the low interdisciplinary interaction between medical and non-medical practitioners reported in the literature. While Eastwood and Mitchell study does provide some insights into the beliefs and attitudes of medical practitioners, it is limited by its small sample size.

Relatively more research has been conducted exploring teachers’ beliefs regarding the cause and treatment for ADHD. For example, DiBattista and Shepherd (1993) surveyed 389 teachers in Canada with regards to their beliefs concerning the effects of sugar and other commonly consumed food items on
the behaviour of both hyperactive and normal (i.e., nonhyperactive) children. They found that more than 80% of the teachers believed that sugar consumption adversely affected the behaviour of normal and hyperactive children. Furthermore, more than 65% of these teachers reported making recommendations to parents to reduce their child’s sugar intake as a way of controlling their child’s activity levels. Jerome, Gordon and Hustler (1995) examined the knowledge and attitudes of 439 American and 850 Canadian teachers regarding this condition and found that these teachers regarded ADHD as a valid clinical syndrome. However, despite having a good knowledge base regarding the aetiology and educational implications of this condition, many endorsed the effectiveness of strategies involving dietary changes as an effective way of addressing this condition. Furthermore, only 14% of these teachers had been involved in the diagnosis and management of this condition by outside professionals. More recently, Weyandt, Fulton, Schepman, Verdi and Wilson (2009) examined teacher and school psychologist knowledge of ADHD using the ‘ADHD Beliefs Scale’ (Johnston and Freeman, 2002). This scale consisted of 24 statements regarding the possible causes of ADHD and appropriate treatment options, for which respondents were required to indicate their level of endorsement for each statement. Respondents comprised 42 general classroom teachers, 36 special education teachers and 54 school psychologists. Responses to the ‘ADHD Beliefs Scale’ were scored using two subscales labelled as ‘reasonable beliefs’ and ‘false belief’. The ‘reasonable beliefs’ subscale was comprised of beliefs that have been supported by the scientific literature whereas; the ‘false belief’ subscale was comprised of beliefs that had not been validated in the literature. Weyandt et al., reported that in both groups of teachers, knowledge of ADHD appeared to be limited. While the special education teachers provided stronger endorsement for items on the ‘reasonable beliefs’ subscale than on the ‘false belief’ subscale, general classroom teachers showed the opposite pattern of endorsement. Furthermore, both groups of teachers provided strong endorsement for the statement, “Special diets are effective treatments for ADHD” and 28% of general classroom teachers also endorsed the item of “Vitamin therapy may effectively treat the symptoms of ADHD”. These findings are consistent with those reported in previous studies indicating that teachers generally believe in the effectiveness of dietary treatment approaches for this condition. In contrast, school psychologists compared to teachers, scored significantly higher on the ‘reasonable beliefs’ subscale and significantly lower on the ‘false belief’ subscale. However, examination of individual items suggested a lack of certainty in endorsing statements such as
“Individual child therapy is an effective treatment for ADHD” and “Children with ADHD inherit the disorder from someone in the family” which Weyandt et al., identify as reasonable belief options for ADHD.

While the studies described above give some idea of the implicit theories of ADHD held by those in specific professions, none of them address the issue of possible differences between professions. One of the few studies that have explored this issue across multiple disciplines is Hughes (1999) who questioned nine health professionals from the disciplines of paediatrics, neuropsychiatry, psychiatry and educational psychology regarding their beliefs of the cause and treatment of ADHD. Eight of the nine participants attributed this condition to a biological cause while seven identified the home environment as an additional causal factor. Three of the participants were sceptical of ADHD existing as a valid clinical syndrome. All of the participants endorsed the use of medication in addressing ADHD, while four of the participants also advocated the need for behaviour management in the school setting. Only one participant identified making dietary changes an important strategy for addressing this condition. While Hughes’ study provides some interesting insights, the methodology and small sample size make it difficult to generalise the results. In an effort to more systematically examine the implicit theories of professional groups engaged in the diagnosis and treatment of ADHD, we carried out two studies. The first study reported the results of a survey of 494 medical and nonmedical professionals about their beliefs about the causes of ADHD (Dryer, Kiernan and Tyson, 2006a) and the efficacy of various treatment strategies for this condition (Dryer, Kiernan and Tyson, 2012). The medical practitioners comprised general medical practitioners (N = 82) and paediatricians (N = 22), while the nonmedical professionals were comprised of psychologists (N = 101), occupational therapists (N = 63), social workers (N = 71), dieticians (N = 20), and primary school teachers (N = 135). These professional groups were selected because within the Australian health system they are potentially able to be consulted about ADHD, or referred clients with this condition. The survey questionnaire required participants to rate 46 causal explanations and 23 treatment/management strategies for this condition. These questionnaire items were generated from a pilot study involving 25 participants in the targeted professions. Participants’ beliefs were assessed on a 5-point rating scale (causal factors, 0 = unimportant, 4 = extremely important; treatment/management, 0 = not at all effective, 4 = extremely effective). Further details of the questionnaire and its construction can be found in Dryer, Kiernan and Tyson (2006a).
Principle component analyses, conducted on obtained ratings for the items, identified six causal factors. The six causal factors were labelled *Home Environment* (i.e., items loading on this factor related to an unstable home environment and poor parenting style), *School Environment* (i.e., child’s difficulty adjusting to school work and the school environment), *Toxins* (i.e., chemical exposure in utero or through diet), *Brain Damage* (i.e., brain damage, birth complications and developmental delay), *Brain Function* (i.e., chemical imbalance in the brain, brain dysfunction, genetic predisposition), and *Psychological Problems* (i.e., anxiety and depression). Both parental and professional groups provided the strongest endorsement for the *Brain Function* factor, suggesting that all the groups regarded ADHD as having neurological and genetic causes. For the group as a whole, there were no significant differences in the endorsement of the *Home Environment*, *School Environment*, *Brain Damage* and *Psychological Problems* factors. However, endorsement for the *Toxins* factor was found to be significantly lower compared to the level of endorsement for the factors of *School Environment*, *Brain Damage* and *Psychological Problems*.

Interestingly, the medical and non-medical professionals were found to hold relatively similar beliefs about the causal factors of ADHD. The professional groups did not significantly differ in their endorsement of the *School Environment*, *Brain Function*, *Brain Damage* and *Psychological Problems* factors as potential causes. The only difference observed between the professions was on the *Toxins* factor, where primary school teachers were found to attribute more importance to causes related to teratogens and toxins as a cause of ADHD compared to paediatricians and general practitioners. This finding is consistent with results of previous studies that have reported that teachers believe that ADHD can be caused by changes in the diet or excessive consumption of sugar (e.g., Barbaresi and Olsen, 1998; DiBattista and Sheperd, 1993; Ghanizadeh, Bahredar and Moeini, 2006; Jerome, Gordon and Hustler, 1994).

With regards to beliefs about the efficacy of various treatment strategies for ADHD, the four treatment factors identified using principle component analysis, were labelled *Non-traditional Interventions* (i.e., dietary changes, sound therapy, biofeedback, kinesiology and chiropractic manipulations), *Parent Interventions* (i.e., parent training and input), *School-based Interventions* (i.e., changes to the educational structure, increased teacher support and input), and *Medical and Allied Health Interventions* (i.e., medication, occupational therapy, speech therapy and providing a structured environment). The strategies contained within the *School-based Interventions*
factor were clearly regarded by both parents and professionals to be the most effective treatment approach to ADHD. The next groups of strategies to be considered to be effective were those contained within the factors of Parent Interventions and the Medical and Allied Health Interventions. The strategies regarded to be least effective were those contained within the Non-traditional Interventions factor. This factor received a significantly lower level of endorsement compared to the other three treatment factors, with a mean factor score reflecting a “not at all effective” response.

As indicated above, there was a high degree of agreement between the professional groups with regard to their endorsement of the treatment/management factors. The only exception to this general concordance was in the primary school teacher’s endorsement of the Parent Interventions factor. Primary school teachers, compared to the other groups in this study, were found to provide stronger endorsement for strategies involving parents. One possible explanation for this difference is that primary school teachers are likely to be involved in daily interactions with children with ADHD and their families. They would also have first-hand experience of the difficulties associated with implementing treatment strategies in the school setting and may be more aware of the limitations of such approaches, compared to the other professionals. Consequently, they may have a better appreciation of the need to implement treatment strategies in both the home and school settings.

Teachers did not endorse the Non-traditional Interventions factor higher than the other professional groups. This was unexpected as some previous studies (e.g., DiBattista and Shepherd, 1993; Weyandt, et al., 2009) have shown that teachers indicated strong support for the use of health food supplements (e.g., vitamins and fatty acids) and dietary changes involving elimination of food additives or those that cause allergies. One explanation for the lack of difference between the groups is that the belief factor contained both non-dietary (e.g., sound therapy and biofeedback) and dietary treatment strategies for ADHD. Thus to explore whether teachers, relative to other professionals, provided stronger endorsement for strategies involving dietary changes, the mean level of endorsement for the three diet related items within this factor was examined. This analysis did reveal a significant difference between teachers and the professional groups of medical practitioners and psychologists, with teachers providing stronger endorsement for treatment strategies involving dietary changes.

Interestingly, the Dryer, Kiernan and Tyson (2012) study found relatively strong endorsement by both medical and nonmedical professionals for the use of medication in the treatment of ADHD. The level of endorsement for this
single item indicated that the respondents on average considered medication to be effective (i.e., mean rating = 3.00, SD = 1.01). The medication item was one of the ten most endorsed treatment strategies. This suggests that the low levels of interdisciplinary interaction reported in the literature are unlikely to be due to differences amongst medical and non-medical professionals in their beliefs about the use of psycho-stimulant medication and other pharmacotherapy.

A limitation in the Dryer, Kiernan and Tyson (2006a; 2012) study was that it did not examine whether the respondents accepted ADHD as a valid clinical syndrome. One could argue that the presence or absence of a diagnostic label can influence beliefs about the causes of the observed behaviours and may have follow-on consequences with regards to decisions made about treatment. To address this issue, we examined the impact of diagnostic labelling on professional’s causal explanations and decisions regarding treatment in a vignette study that manipulated the presence versus absence of the label ‘ADHD’ (Dryer, Kiernan and Tyson, 2006b). One of two versions of a vignette was presented to 487 nonmedical professionals (i.e., psychologists, primary school teachers, dieticians and occupational therapists). The vignette described a child exhibiting the symptoms associated with ADHD, with one version including the phrase ‘recently diagnosed with ADHD’ while the other contained no reference to ADHD. After reading the vignette, the professionals completed a questionnaire examining their beliefs about the causes of ADHD and its treatment and management. This questionnaire was developed based on the results obtained from the Dryer, Kiernan and Tyson, (2006a; 2012) study. The professionals were required to indicate their level of endorsement for each item using a 5-point rating scale (causes: 0 = unimportant, 4 = extremely important; treatment: 0 = not at all effective, 4 = extremely effective). The questionnaire responses were scored according to the factor groupings (i.e., six causal factors, four treatment factors) identified previously. This study found that the inclusion of the ADHD label changed the causal explanations for the behaviours described in the vignette but not their beliefs about the efficacy of treatment approaches for this condition. The presence of the ADHD diagnostic label resulted in professionals providing stronger endorsement for neurological or genetic causes for this condition (i.e., the Brain Function factor). In contrast, absence of the diagnostic label resulted in stronger endorsement of causes associated with parenting style and the home environment (i.e., the Home Environment factor). This finding indicates that when the same behaviours of inattention, impulsivity and hyperactivity are presented to professionals with the
diagnostic label of ‘ADHD’, they are more likely to assume the existence of an underlying physical or biological condition. Consequently, these professionals may be less inclined to look for social, environmental or psychological causes for the observed behaviours. Despite this, however, the presence of a diagnostic label did not change the professionals’ beliefs about how best to treat the behaviours of inattention, impulsivity and hyperactivity associated with this condition. The inclusion of the ADHD label did not lead to a greater endorsement of medical and allied health treatment strategies. Instead, intervention strategies involving teachers and schools (i.e., School-based Intervention factor) were the preferred approach by the professionals regardless of whether the behaviours were described as ADHD or not.

The results of our studies indicate a high degree of agreement between the professional groups with regard to their causal explanations for ADHD and their beliefs about the effectiveness of various treatment strategies for this condition. Furthermore, the professional beliefs about treatment strategies are relatively consistent with the recommendations outlined in the NICE (2008) and AAP (2011) clinical practice guidelines (i.e., the combined use of medication as well as strategies that involve parent-training/education and interventions implemented by teachers in the classroom). Therefore, the low level of interdisciplinary interaction and collaboration that has been reported in the literature is unlikely to be due to differences in beliefs held by the various professionals. However, the question of why there is an underutilisation of multidisciplinary approaches remains. One possible contributing factor to the low interdisciplinary interaction and collaboration is the cost effectiveness of these treatment approaches. The landmark Multimodal Treatment Study for Children with ADHD (MTA) (MTA Cooperative Group, 1999; 2004) found that children diagnosed with ADHD who received a combined (multimodal) treatment program involving medication and behavioural interventions (parent training, behavioural support for teachers, social skills training) showed greater symptom alleviation at both 14 months and 24 months of treatment than those treated with other approaches. However, the combined treatment was not significantly better than medication alone on most treatment indices. Both the combined and medication alone treatments were superior to the behavioural interventions alone, and all interventions were found to be better than a community treatment control condition, although even here improvements were reported. Thus, while the combined (multi-modal) treatment were shown to be the most efficacious treatment, it can be argued that the small additional gains observed for this relatively more expensive
treatment approach need to be weighed against alternative, less expensive, approaches.

The full cost of untreated ADHD for the individual, families, schools and for the wider community is difficult to assess. However, the costs associated with ADHD are likely to be as high, if not higher, than that of medical conditions (e.g., asthma) and childhood mental health problems (Pelham, Foster and Robb, 2007). Studies examining the cost-effectiveness of ADHD interventions, therefore, need to examine variables such as the effectiveness of interventions in alleviating the long-term cost to the community, the long-term effectiveness of treatment given the unit (i.e., session) costs and treatment duration, and the estimated gains obtained by one approach over and above others (such as the MTA combined treatment over medication alone). In the light of these considerations, Foster et al. (2007) re-analysed the MTA data in relation to the cost of the treatment conditions relative to the reported treatment gains. They concluded that the combined treatment approach was more cost-effective only when comorbid conditions were an issue for the client; otherwise, the most cost-effective intervention for the core ADHD symptoms was medication alone. In the light of these results, and given the difficulty in estimating the actual long-term personal and community cost of more complex presentations of ADHD it could be argued that it is reasonable for health services to opt for the most cost effective treatment for the majority of clients, which is management by medication only.

The use of the treatment approach that is perceived to be most cost-effective, impacts upon parental options and choices. Irrespective of parents’ own beliefs and attitudes to the treatment of ADHD, they are dependent upon the treatment options available and, in most cases; medication management is likely to be the only available option. In fact, medication, as a treatment option, is made even cheaper in some countries by the availability of subsidies for the cost of stimulant medication (e.g., Australian Government: Department of Health and Ageing, 2007). Thus, despite the congruence of beliefs about the nature and treatment of ADHD held by a wide range of professional groups, the establishment of multidisciplinary treatment teams is unlikely to occur where service delivery planning is dependent upon decisions about the cost-effectiveness of treatment options.

Another financial barrier to providing multidisciplinary treatment approaches is that current reimbursement practices are largely limited to face-to-face visits (Brinkman and Epstein, 2011). Multimodal treatment approaches to ADHD require a level of infrastructure to support the care coordination of the client by multiple professionals and to facilitate communication between
all members of the care team. Brinkman and Epstein (2011), in their review of evidence-based guidelines for the treatment of ADHD, argue that these reimbursement practices create difficulties in sustaining aspects of multimodal treatments that exists outside of face-to-face visits (e.g., sessions with parents without the ADHD client being present, treatment planning and treatment team meetings that may not include the ADHD client, or at times even family members) and to support the infrastructure that is needed to deliver these treatment approaches.

Other barriers to the delivery of multimodal treatment approaches identified by Brinkman and Epstein (2011) include medical practitioners not having a prominent role in the delivery of behavioural therapies and encountering difficulties in accessing behaviour therapy services for their client from the educational and mental health sectors. Lack of accessible paediatric mental health services, quality of available therapists, long waiting lists and inadequate medical insurance coverage have also been identified as some of the factors that prevented medical practitioners from recommending psychosocial therapies to their client (Reeves and Anthony, 2009; Rushton, Fant and Clark, 2004).

Cost effectiveness and resource/financial restrictions are unlikely to be the only barriers to the development and adoption of multidisciplinary treatment approaches as advocated in the NICE (2008) and AAP (2011) guidelines. A more fundamental issue may be that professionals are unfamiliar with the guidelines. A study by Shaw, Mitchell, Wagner and Eastwood (2002) of the attitudes and practices of Australian general medical practitioners found a reluctance on their part to play any role in the management of this condition due, in part, to unfamiliarity with the guidelines of the time. A more recent qualitative study conducted by Bailey and Simpson (2008) of professionals involved in ADHD treatment in the UK found that many of those interviewed reported that they had either not heard of the NICE guidelines, or had heard of them, but reported not reading them. Bailey and Simpson also reported that some of the professionals who were familiar with the guidelines rejected them as being “too medical” and of limited usefulness or applicability to their own practice. Furthermore, while there was a consensus amongst the professionals that the treatment for ADHD should be multimodal in nature, the non-medical clinicians rejected the NICE guidelines as it was perceived to advocate a medical framework for the diagnosis and treatment of this condition. When combined with the results of our studies, it suggests that even though beliefs held by the various professionals about ADHD are not significantly divergent, tensions exist amongst some professionals with regard to the ‘medicalisation’
of this condition. Such tensions may be contributing to the low interdisciplinary interaction between professionals and to the underutilisation of multidisciplinary treatment approaches.

To conclude, while there is a general recommendation for a multidisciplinary assessment and interventions for ADHD, there has been a low take-up of this recommendation. This chapter shows that the low take-up is unlikely to be due to differences in the attitudes and beliefs of health professionals and teachers about the causes and treatment of this condition, but is more likely to be related to policy decisions of health services and governments about the cost-effectiveness of treatment options. Specifically, as medication management appears to be the most cost-effective treatment approach for most children with ADHD, at least in the short-term, and in the absence of reliable methods of assessing the life-time cost of the condition for the community, medication only options are likely to continue to be the funded treatment option. This in turn, will drive professional practice and parental choice.

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