Attention-Deficit/Hyperactivity Disorder in Children: A Comparative Study on Current Assessment, Diagnosis and Treatment Practices in Malaysia and New Zealand

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Nurul S. Sa'ari

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Abstract

Diagnosis and treatment of attention-deficit/hyperactivity disorder (ADHD)—one of the most common neurobehavioural disorders of childhood and the most chronic childhood disorder—remain controversial because of concern about inappropriate practices among mental health practitioners. The purpose of this study was to examine the current diagnostic assessment procedures and treatment interventions applied in diagnosing and treating ADHD children in Malaysia. The study also addressed the issues of ethnic diversity and age differences among these children that may affect the implementation of such procedures and interventions. This study, then, represents the first effort to compare and contrast the diagnosis and treatment practices for the disorder in Malaysia and in New Zealand. As a replication of a previous study by Kingi (2000) in New Zealand, the study was conducted in 2 phases. First, a random sample of 40 children with ADHD, aged from 3 to 16 years, was surveyed in 2 areas in Malaysia. Then 4 practitioners who provided data for 5 children in the first phase were screened. Each parent completed Kingi's Parent/Guardian Survey and each practitioner completed Kingi's Treating Practitioner Survey. Responses indicated that the majority of Malaysian children were assessed and treated for ADHD with inconsistent application of current scientific recommendations. Ethnic diversity and age differences influenced the use of some types of assessment procedures and treatment interventions for these affected children. The results of a comparison with Kingi's findings indicated that there were significant differences in the utilisation of diagnostic procedures for Malaysian and New Zealand children. However, no differences were detected in the application of treatment interventions in these 2 countries. The diagnosis-country association and treatment-country associations were moderated by the age of the children. Some types of diagnosis and treatment procedures used for ADHD children, varied considerably across Malaysia and New Zealand and age differences also affected the use of some types of procedures in these 2 countries. Overall, these findings add to a growing literature supporting the notion that many ADHD children are inappropriately diagnosed and therefore inaccurately treated.

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CHAPTER ONE: INTRODUCTION

Overview of Attention-Deficit/Hyperactivity Disorder (ADHD)

Attention-Deficit/Hyperactivity Disorder (ADHD) is a persistent pattern of inattention and/or hyperactivity and impulsivity that is more frequent and severe than is normally observed in children at a similar level of development (American Psychiatric Association, 1994). ADHD is the most common neurobehavioural disorder of childhood (American Academy of Pediatrics, 2000) and one of the most controversial conditions of childhood (Brownell & Yogendran, 2001). Recent years have seen growing concerns that ADHD is overdiagnosed and overtreated specifically with stimulant medications (Brownell & Yogendran, 2001; Diller, 2001; Reid & Prosser, 2001; Social, Health and Family Affairs Committee, 2002). According to the Attention Deficit Disorder Association (2000), ADHD is one of the most chronic childhood disorders managed by primary care physicians, with an estimated prevalence varying from 1.7 % to 16 % depending on the populations and methods used for diagnosis.

Introduction to the Study

The proposition set forth here is that current assessment and diagnostic procedures for Attention-Hyperactivity/Disorder (ADHD), and the treatment or interventions currently used by mental health professionals to manage this condition all need to be screened. The dramatic rise in the number of children diagnosed with ADHD over the past ten years, along with the significant number of children being prescribed stimulant medications to treat this disorder, has led to major debates on its diagnostic and treatment validity in many countries such as the United States (Diller, 2001), European countries (Social, Health and Family Affairs Committee, 2002) and Australia (Reid & Prosser, 2001). Despite research indicating that current medication practices lead to better treatment of ADHD (Whalen & Hanker, 1997), concern remains that too many children are misdiagnosed and therefore unnecessarily

medicated (Kube, Peterson, & Palmer, 2002; National Institutes of Health, 1998).

Children in Asian families are always perceived as not only individuals who may one day bring wealth and prosperity, but also as those who may bring glory to the family name in the future. Not surprisingly, a lot of emphasis is placed on the upbringing of children—and much of that has been focused on their academic achievement. So far as health is concerned, much of the focus has been solely on the aspect of physical health. Only recently (in the 1980s) has attention in Malaysia shifted to the emotional and behavioural well-being of children (Hsien-Jin & Peng, 2001).

In Malaysia, the prevalence rate of mental health problems amongst children is similar to that of other countries. It was found to be 13 %, (Teoh, Zubrick, & Martin, 1998), whereas in New Zealand the prevalence of general mental health problems in children was found to be 17.6%. (Anderson et al., 1987). Elsewhere, the overall rates of mental health problems in children were found to be 17.7% in Australia (Zubrick et al., 1995), and 18.1% in Canada (Offord et al., 1987).

There are several specific mental health problems amongst children that have been commonly mentioned by mental health surveys. In Malaysia, the most common mental health problems mentioned can be divided into two broad categories: learning disabilities and affective disorders (Toh et al., 1997). These latter include not being able to sleep, getting scared for no good reason, being slow at learning, and not often playing with other children—while amongst New Zealand children, Anderson et al. (1987) reported that the most commonly diagnosed disorder was attention deficit disorder (6.7%), followed by oppositional disorder (5.7%). There are several potential causes of these problems—such as the child's temperament, social-support and coping style, parenting style, child-parent relationships, inter-parental conflict, parents'

mental health and the occurrence of negative child life events (Hsein-Jin & Peng, 2001).

At present, Attention-Deficit/Hyperactivity Disorder (ADHD) is estimated to be present in 5% of United States elementary school-aged children (Gingerich et al., 1998). In Malaysia, ADHD is thought to affect one in every 25 children (Singam, 2001) and there is recognition of an increase in the number of children being treated for ADHD. For example, in the year 2001, the Institute of Health's Child Guidance Clinic came across 397 new cases, up from 221 in 2000 (Lee, 2002). Similarly to New Zealand, the number of children being prescribed Ritalin for ADHD has risen sharply—from about 300 in 1993 to 3500 in 1999 (Aldrige, 1999).

Moreover, Attention-Deficit/Hyperactivity Disorder (ADHD) does not impact only on individuals but also on their families, as well as on society. For example, children with ADHD can not sit still and pay attention in class, and the negative outcomes of such behaviour have far-reaching and long-term consequences. Their families tend to experience high levels of parental frustration, marital discord and divorce. Finally, these children will consume a large share of resources and attention from either the health care system, criminal justice system, schools or other social service agencies (Attention Deficit Disorder Association, 2000; Rose, 1999). Zigler et al. (1992) in their studies found that childhood psychopathology can cost society over $40, 000 a year to keep a child in a residential placement.

Because of the impacts mentioned above and the increasing number of children being treated for this disorder, the Ministry's Special Education Department and the Ministries of Health and National Unity and Social Development in Malaysia are working together on educating parents about the need to send their children to special schools where teachers are trained and equipped to deal with children's mental health problems. In the year 2000, there were already 73 special schools catering to 6,195 students with learning

disabilities, and the number of ADHD students enrolled in the secondary school was 251 (Ang, 2000). Additionally, the Malaysian government has provided general child psychiatry services in most government hospitals (Hsein-Jin & Peng, 2001). Moreover, mental health services are also provided through a network of Community Health Clinics nationwide at district level and there are individual Development Psychologists, Clinical Psychologists and Child Psychologists who run clinics catering to the mental health needs of children and adolescents within the private sectors (Hsein-Jin & Peng, 2001).

Although Malaysia now has many intervention programmes and services within the community, one important question needs to be answered. Are the current assessment, diagnosis and treatment practices for children with ADHD consistent with the findings of current scientific research? This question has been repeatedly raised in the West and many studies have looked at that issue (Brownell & Yogendra, 2001; Rowland et al., 2002; Wolraich et al., 1990). In Malaysia, however, there is a dearth of information on the current diagnosis and treatment practices used by practitioners for ADHD children.

In a way, this question of the types of diagnosis and treatment practices for ADHD has never been raised in the Malaysian context because Malaysian services in mental health problems are still in their infancy. Malaysia still faces the problem of a serious shortage of health professionals. The Malaysian Psychiatric Association regards "increased recruitment of psychiatrists to be problematic due to the perception that there is little future in the specialisation beyond government postings" (Crabtree & Chong, 2001, p. 24). Crabtree and Chong (2001) also stated that although there has been a significant increase in the number of day-care centres for psychosocial rehabilitation, most of them run by nongovernmental organisations, many are badly affected by underfunding and this automatically can affect the planning of the services as well as the stability necessary for the maintenance and improvement of the programmes.

Due to these problems, there is little work done on screening the effectiveness of the assessment and treatment practices carried out by the health professionals in Malaysia. The number of services set up and patients being seen are not enough to judge the effectiveness of services provided by them. Furthermore, many overseas studies have indicated that reported assessment and treatment practice is not always consistent with methods supported by current research (Brownell & Yogendra, 2001; Rowland et al., 2002; Wolraich et al., 1990). This means that many children are being diagnosed as having ADHD with inadequate assessment. Thus, Brownell and Yogendran (2001) mentioned that statistics indicating a dramatic increase in the production and use of psychostimulants, particularly methylphenidate (MPH), have contributed to the perception that children with ADHD are overdiagnosed and overtreated.

As a result, it is important to start screening all the diagnosis and treatment practices for ADHD children in Malaysia in order to make sure the treatments result in positive impacts on the lives of these child patients. It is also important to determine whether or not all the diagnoses and treatments provided are consistent with current scientific research and recommendations.

In the present paper, the aetiology of ADHD in children is first outlined. Then, the epidemiology of ADHD is reviewed, describing the importance of culture, ethnicity, age, gender and socioeconomics in understanding ADHD. This is followed by a review of findings concerning assessment or methods for identification of ADHD and its diagnostic criteria. Then, major treatment or intervention strategies in both school and community settings are presented. Although the latter are mostly from studies carried out in the West, to some extent, they may also be applicable in the Malaysia and New Zealand contexts. Next, an overview of the issue of ADHD in Malaysia and New Zealand is discussed, and a description of the current study conducted by the researcher is outlined.

CHAPTER TWO: LITERATURE REVIEW

The Aetiology of ADHD

In order to understand the current epidemiological issues of ADHD, it is important to consider the aetiology of this disorder. A number of people (Anastopoulos & Shelton, 2001; Barkley, 1995; Brown, 2000) have reviewed the aetiology. The findings, however, show that the precise causes of ADHD are still unclear at the present time, presumably due to cross-study differences in defining ADHD samples, small sizes, and other methodological limitations. As a result, the aetiology of ADHD is more theoretical speculation than established fact.

Neurological Factors

The first plausible cause is neurological factors. Results of many studies (e.g., Benton, 1991; Mattes, 1980; Stuss & Benson, 1986) had shown remarkable similarities in behaviour problems between ADHD children and people who have suffered from injuries to the front part of the brain, known as the *orbital-frontal region* (Barkley, 1995). In this case, Barkley (1995) stated that those who have experienced injury—such as brain tumors, strokes, trauma, disease and penetrating wounds—to this region of the brain are more likely to have behaviour problems such as deficits in sustained attention, inhibition, regulation of emotion and motivation, and thus capacity to organise behaviour across time.

Genetic Inheritance

Genetic inheritance is a second significant cause of ADHD. By far, the greatest amount of research evidence suggests that ADHD is a trait which is hereditary in nature (Adesman, 2001). Clearer evidence of this conclusion comes from family studies, adoption studies and twin studies in the West (Silver, 2004). Mothers, fathers and siblings of children with ADHD have over 25 % greater risk of having ADHD compared with mothers, fathers and siblings of control groups (Biderman et al., 1990, as cited in Barkley, 1997).

Furthermore, higher rates of hyperactivity are found in the biological parents of hyperactive children than in adoptive parents of such children (Alberts-Corush et al., 1986, as cited in Adesman, 2001). Studies of twins also give further evidence for a genetic contribution to ADHD; that is, if one twin has symptoms of ADHD, the risk that the other twin has the disorder is as high as 80% to 90% (Gillis et al., 1992, as cited in Barkley, 1995).

Environmental Toxins

Another related cause of ADHD is environmental toxins. While genetic inheritance plays a large role in the contribution of ADHD in children (Adesman, 2001), environmental toxins have been proven to be one of the causes for the development of abnormalities within the brain (Barkley, 1995). There are several compromising events that have been repeatedly linked to risks for inattention and hyperactive behaviour.

The first example of environmental toxins is lead exposure. Lead exposure at moderate and high levels can injure brain tissue. In their study, David and his associates (1977) (as cited in Kado & Takagi, 1996) observed that children with no other known cause of hyperactivity had higher lead concentrations than did the controls. However, an earlier study (e.g., Gittelman & Eskinazi, 1983) produced different results (Barkley, 1997). They found no clear-cut relationship between lead concentrations and the cognitive performances of hyperactive children, and no significant elevation of lead concentrations in hyperactive children. Due to the inconsistency of the findings in this area, additional work needs to be conducted on the correlation between lead and symptoms of ADHD.

The second types of environmental toxins found to have some relationship to ADHD are harmful substances—such as alcohol and nicotine, when taken during pregnancy (Silver, 2004). Barkley (1995) thus suggested that nicotine from cigarettes can cause significant abnormalities in the development of the caudate nucleus and the frontal regions of the brain in children.

Food Additives

In addition to the causes mentioned above, the increasing number of children being treated for ADHD is believed to be associated with food additives. This view was very popular in the 1970s and early 1980s. Feingold claimed that over half of all hyperactive children got that way from eating foods that contained additives such as synthetic colourings, flavourings and preservatives (as cited in Kado & Takagi, 1996). However, Barkley (1995) and Kado and Takagi (1996) found that results from more detailed studies (e.g., David, 1987; Kavale & Forness, 1983) simply do not support Feingold's claim. These later researchers concluded that diet modification was not effective for treating hyperactivity.

Psychosocial Factors

It is impossible to study the possible causes of ADHD without, to some extent, addressing the roles of environmental or psychosocial factors. Indeed, factors such as socioeconomic deprivation, intrafamilial adversity and dysfunctional parent/child relationships have for a long time been recognised as risk factors for disruptive behaviour disorders in children (Barkley, 1995). Sandberg and Garralda (1996) stated that "psychosocial factors can influence the expression of overactivity, by acting as stressors or trigger mechanisms in pre-disposed vulnerable children rather than directly causing it" (p. 302).

There are a number of psychosocial factors which have been shown to be associated with ADHD in children. The first group are the social and demo-factors. A study conducted by Schachar et al. (1981) (as cited in Sandberg & Garralda, 1996) on the behaviour of 10- and 11-year-old children proved an association between low social class and pervasive hyperactivity. The results demonstrated that children showing situational hyperactivity were more often from families of low social status compared with nonhyperactive controls.

Second, intrafamiliar factors such as family instability and marital discord, as well as psychiatric disorders—especially maternal depression—also are

possible risks for contribution towards hyperactivity disorder in children. Considering that parents play a major role in children's lives, their actions and behaviours unavoidably affect their children's behaviour (Sandberg & Garralda, 1996).

Moreover, the role of parental psychiatric disorder thus has a possible influence on ADHD. When one or both parents had a mental health problem, children were found to be 1.6 times more likely to have adjustment problems, compared with children from families where neither parent had a mental health problem (Silburn et al., 1996, as cited in Barkley, 1997).

Finally, a child-specific family environment such as parent-child interactions is another factor that likely contributes to the occurrence of ADHD. Throughout childhood, parents are the most significant individuals in children's lives. They seek a relationship that is comforting and loving with their parents. This means that changes in the quality of the relationship between parent and child can have deep effects on a child's mental health and behaviour. Sandberg and Garralda (1996), in their writing, indicated that many mothers of hyperactive boys were more often rated as lacking in warmth, but expressing high levels of criticism towards their children.

This review of the potential aetilogies of ADHD in children suggests that lots of additional work needs to be done in order to learn more about ADHD and its potential causes. In the meantime, neurological factors are regarded as the most closely associated with—and may perhaps be contributors to—this disorder. Thus, genetic inheritance has been shown to make a strong contribution to this disorder in children. Other contributors, such as environmental toxins and food additives, as well as psychosocial factors are also predicted to produce increased risks of this disorder in children. However, one must not forget that the precise causes of this disorder still remain unknown because much of the evidence obtained from studies is indirect and inconsistent (Barkley, 1997).

The Epidemiology of ADHD

As suggested above, a neurological factor is responsible for behavioural disinhibition and other core symptoms among ADHD children. In order to make the argument that epidemiological issues are important in the understanding of ADHD, it is imperative to examine the evidence supporting this hypothesis more closely. This evidence comes from international prevalence ADHD studies, age and gender studies, ethnic and cultural diversity studies and socioecomic status studies.

Prevalence

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), the overall prevalence of ADHD among school age children in the United States is 3 % to 5 % (American Psychiatric Association, 1994). However, determining international prevalence statistics for ADHD has been problematic because prevalence data are affected by variations in the assessment instruments and diagnostic criteria used (Barkley, 1997). Having different informants is another factor that can affect prevalence calculation (Anastopoulos & Shelton, 2001). Gingerich et al. (1998) found that the results of many studies (e.g., Arias & O'Leary, 1983; Holborow, Berry, & Elkins, 1984; O'Leary, Vivian, & Nisi, 1985; Salili & Hoosain, 1985) showed different prevalence rates of ADHD when the same cutoff point for diagnosis of hyperactivity was used with the Conners' Teacher and Parent Rating Scales, such as 16 % in Spain, 12 % in Italy, 12 % in Queensland, Australia and 9 % among boys in Hong Kong.

Ethnic and Cultural Diversity

Findings from epidemiological studies of ADHD in culturally diverse populations in the United States concluded that it has been difficult to make comparisons on prevalence statistics because of differing criteria and methodology used in different cultures and ethnic groups (Gingerich et al., 1998). In a study on the relationship between ethnicity and hyperactivity,

White, African American and Mexican American rural elementary school children were compared on their behaviour with teacher rating scales (Anderson et al., (1987), as cited in Gingerich et al., 1998). The results indicated that African American children were rated as hyper-active more often and Mexican American less often. This showed that the rates of ADHD were not uniform, especially among ethnic minority children.

Age and Gender

The interest in prevalence rates of ADHD has prompted some researchers to assess the role of age and gender in this disorder leading to the conclusion that age and gender can exert an especially powerful influence on prevalence estimates (Anastopoulos & Shelton, 2001). Anastopoulos and Shelton indicated that findings of the analysis study of teacher-generated data (e.g., DuPaul et al., 1997) suggests overall prevalence rates of approximately 25 % for children 5 to 7 years old, 23 % for children 8 to 10 years old, 21 % for 11 to 12 years old and 15 % for youths 14 to 18 years old. Barkley (1998) thus suggested younger children are more likely to be diagnosed as having the hyperactive/impulsive ADHD compared with older children.

Gingerich et al. (1998) thus added that age, as proven by many previous studies (e.g., Biederman, 1991; Hectman, 1991), has a significant impact on the individual with ADHD. The demonstration of the disorder is normally changed as the person matures and this matured individual will experience symptom reduction because he or she has developed various coping strategies through his or her life experience.

Furthermore, the overall prevalence of ADHD is consistently much higher among boys than among girls (American Psychiatric Association, 1994). Ranges of 2:1 to 9:1 have been reported, with the gender difference less obvious for the inattentive type of ADHD (Root & Resnick, 2003). Males are more likely than are females to display aggressive behaviours, and also are more likely to be referred to a clinic (Gingerich et al., 1998).

Socioeconomic Status

Researchers such as Gingerich et al. (1998) and Barkley (1998) have addressed the important effect of socioeconomic status on the prevalence of ADHD. For example, Morrison (1980) (as cited in Gingerich et al., 1998) reported that hyperactive children were more likely to have fathers with lower work classifications and more parental divorce than were controls.

Based on the above discussion, it is clear that culture, ethnicity, age, gender and socioeconomic status in ADHD children must be carefully examined in order for them (i.e., the children) to receive appropriate evaluations and treatments, as all significantly influence the expression of the disorder as well as the practitioner's work with affected children.

Diagnosis and Treatment of ADHD

The clinical practice guidelines of the American Academy of Pediatrics (2000) state "Attention-deficit/hyperactivity disorder is the most common neurobehavioural disorder of childhood" (p. 1158) and "is also among the most prevalent chronic health conditions affecting school-aged children" (p. 1158). *Neurobehavioural* means an abnormality of the brain, yet no confirmatory, diagnostic abnormality has been found (Baughman, 1999).

Further, public interest in the issue of ADHD has also increased during the debate in the media pertaining to the diagnostic process and treatment strategies (American Academy of Pediatrics, 2000; Shakil, 2001). Most concern has been expressed about overdiagnosis of ADHD by placing emphasis on higher rates in prescriptions for stimulant medication among children (Kube, Peterson, & Palmer, 2002). In other words, we are witnessing the rapid increase of the rates of children using stimulant drugs to deal with the ADHD epidemic all over the place in these days (Diller, 2001; Reid & Prosser, 2001; Social, Health and Family Affairs Committee, 2002).

Nevertheless, it has to be admitted that there is no objectively and universally valid single test for this disorder since the precise causes of ADHD are still unknown. Therefore, the diagnosis of ADHD, like other psychiatric and many medical conditions, is made on the basis of symptomatology and associated impairments (Adesman, 2001).

Assessment of ADHD

Over the last few years, various clinical guidelines for the assessment and treatment of children with ADHD have been published (American Academy of Pediatrics, 2000; Attention Deficit Disorder Association, 2000; Magyary & Brandt, 2002). All clinical guidelines emphasise the importance of a comprehensive clinical assessment for the diagnosis of ADHD. Whalen (2001), in his writing, summarised the situation thus:

> There is no definite diagnostic test of ADHD, and problem behaviour may not be observable in the doctor's office. The most useful information is obtained from parents and teachers, using standard behavioural ratings. Systematic interviews and classroom observations are also informative but often infeasible. Medical tests can not confirm ADHD but may be useful in ruling out medical disorders that mimic ADHD symptoms. Self-report is of limited help during the school-age years but adds an important dimension during adolescence and adulthood. (p. 873)

Adesman (2001) also pointed out that, "The diagnosis of ADHD requires a comprehensive clinical assessment including a detailed patient history, clinical interview and observation, and a thorough physical examination (p. 66)". Moreover, the American Academy of Pediatrics (2000) has recently outlined six clinical practice guidelines for recommending an evaluation for ADHD. These are:

1. in a child 6 to 12 years old who presents with inattention, hyperactivity, impulsivity, academic underachievement, or

behaviour problems, primary care clinicians should initiate an evaluation for ADHD;

2. the diagnosis of ADHD requires that a child meet Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition criteria;
3. the assessment of ADHD requires evidence directly obtained from parents or caregivers regarding the core symptoms of ADHD in various settings, the age of onset, duration of symptoms, and degree of functional impairment;
4. the assessment of ADHD requires evidence directly obtained from the classroom teacher (or other school professional) regarding the core symptoms of ADHD, duration of symptoms, degree of functional impairment, and associated conditions;
5. evaluation of the child with ADHD should include assessment for associated (coexisting) conditions;
6. other diagnostic tests are not routinely indicated to establish the diagnosis of ADHD but may be used for the assessment of other coexisting conditions (e.g., learning disabilities and mental retardation). (p. 1158)

Indeed, a variety of methods of assessment should be used to diagnose ADHD since each method has its strengths and weaknesses (Brown, 2000). These limitations can be minimised only by combining many methods and sources of information collected in several settings (Reid & Prosser, 2001).

Clinical interviews

This type of assessment is the method most widely used by mental health professionals (Brown, 2000). There are three types of clinical interview: child interview, parent interview and teacher interview. Child interviews have proved significant particularly for children over 10 years old, because these children are capable of reporting on their own behaviour, and the study showed that the older the children, the higher the reliability of the reports (Edwards et al., 1995, as cited in Brown, 2000). However, Brown added that

these children are more reliable in reporting on internal symptoms only, like anxiety and mood symptoms, than, on external symptoms such as aggressive behaviour.

While parents' interviews are believed to give a reliable report of their child's behaviour, the presence of parental and family stress may result in increased reporting of child behaviour problems (Edwards et al., 1995, as cited in Brown, 2000). However, information such as the child's problems in the home setting, developmental and medical history of the child and the history of mental health or learning problems in other family members of the child can also be obtained through these interviews.

The last type of assessment is teacher interviews that can supply more information on the child's behavioural symptoms, social behaviour and academic performance (Brown, 2000). Then, teachers are more capable of giving details of all the difficulties that the child is experiencing with regard to behaviour, social relationships and academic performance (Silver, 2004).

Behaviour Rating Scales

Vaughn and his associates (1997) point out that "rating scales are important in identifying children with behavioural problems, predicting future socioemotional and behavioural adjustment, and discriminating among clinical types" (p. 349). Rating scales thus can provide more reliable and objective data than can be provided by an interview (Brown, 2000).

Generally, there are two types of behavioural rating scales. The first is *broad-band scales* such as the Behaviour Assessment System for Children and the Child Behaviour Checklist (Brown, 2000). These measure a number of different behaviour constructs and are useful in initial screening as well as being frequently used to assess children suspected of having ADHD. The second is *narrow-band scales* such as the ADHD Rating Scale, the Children Attention Profile, the Brown Attention-Deficit Disorder Scales and the

Conners' Rating Scales-Revised (Brown, 2000) that assess the symptoms of inattention, impulsivity and hyperactivity. The results of the study by Vaughn et al. (1997) on the validity of the Behaviour Assessment System for Children and the Achenbach Parent and Teacher Rating Scales showed that both are highly accurate in their ability to detect ADHD symptoms.

Behaviour Observation

Behaviour observation involves observing the child in the classroom or during simulated academic or social tasks while in the office or clinic (Shelton & Barkley, 1994, as cited in Brown, 2000). However, direct observation does have major disadvantages such as the cost in time, professional resources in conducting the observation (Brown, 2000) and the potential for invalid samples of behaviour because the presence of the observer may alter the behaviour of the child, and others present in the setting (Silver, 2004).

Psychological and Psychoeducational Assessment

Brown (2000) found that the results of earlier studies (e.g., DuPaul & Stoner, 1994; Goldstein, 1996; Shelton & Barkley, 1994) showed that most psychological and psychoeducational assessment techniques do not prove useful in diagnosing ADHD. The DSM-IV also does not emphasise the use of these assessments for making a diagnosis of ADHD (Brown, 2000). However, some scales such as—the Academic Performance Rating Scale—have good reliability to collect information on the child's academic and learning skills and performance (DuPaul et al., 1991, as cited in Brown, 2000).

Diagnostic Process

As yet there is no medical test that identifies the presence of ADHD; as a result diagnosis of ADHD relies on a checklist of hyperactive, inattentive and impulsive behaviours identified in the American Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (Reid & Prosser, 2001). There are four basic steps that need to be used in this diagnosis (Brown, 2000).

The first step is identifying core symptoms. History and observations are the two basic methods to identify core symptoms of ADHD. Interviewing parents and the child's teacher can establish the presence of specific symptoms of ADHD. Additionally, behavioural observation is helpful in identifying the behaviours that characterise ADHD and in identifying whether similar behaviour is present in other children who are the same age as ADHD children—also in determining whether the symptomatic behaviour is exhibited at a level greater than is evident in other children (Brown, 2000).

The second step is differential diagnosis of alternative causes of core symptoms. Silver (2004) thus suggested that there are several disorders that have similar symptoms to ADHD such as anxiety, which may have prominent symptoms of restlessness and inattention. Therefore, in order to exclude other disorders as the sole cause of the child's symptoms it must be adequately determined that the number, duration and intensity of the symptoms are sufficient to meet the criteria for ADHD (Kamphaus & Frick, 1996, as cited in Brown, 2000).

The next step is identification of comorbid disorders. Adesman (2000) indicated that a variety of other psychological and development disorders can exist in up to two-thirds of clinically referred children with ADHD, including up to 50 % for oppositional defiant disorder, 30 % to 50 % for conduct disorder, 15 % to 20 % for mood disorder, 20 % to 25 % for anxiety disorder and 20 % to 30 % for learning disabilities. There are several methods that need to be used in diagnosing this disorder such as using broad-band rating skills that can measure different behaviour constructs including depression and anxiety and are useful for identifying comorbid disorders (Brown, 2000). Tests of cognitive and academic functioning are also important to access children experiencing academic skills problems that may be comorbid with learning disabilities (Brown, 2000).

The final step is assessing secondary impairment of function. Parent and teacher interviews are used in order to identify difficulties related to social, peer and family interactions for children with ADHD (Brown, 2000). Brown also indicated that child interviews are important because the child may be capable of reporting his or her feelings or perceptions of problems in his or her relationships with others. Other tests such as broad-band rating scales and tests of cognitive and academic impairment functioning are useful in assessing secondary impairment of social or interpersonal relationships and of academic performance resulting from ADHD (Brown, 2000).

Treatment Interventions for ADHD

The subcommittee on Attention-Deficit Hyperactivty Disorder and Committee on Quality Improvement (American Academy of Pediatrics, 2001) stated that:

> Attention-deficit/hyperactivity disorder is a common chronic condition of childhood so that its treatment requires the development of child-specific treatment plans that describe methods and goals of treatment and means of monitoring care over time, including specific plans for follow up. (p. 1036)

Furthermore, Whalen (2001) summarised available treatments by writing:

> The therapeutic armamentarium for ADHD is extensive, ranging from traditional behavioral, cognitive, and psychosocial therapies to unproven approaches such as biofeedback, megavitamins, exercise sensorimotor integration, and low-sugar or additive free diets. Parenting programs, social skills training, and educational interventions are often helpful. The most effective single treatment continues to be one that has been used since the middle of the twentieth century, stimulant pharmacotherapy. The immediate and often dramatic short-term improvements seen with stimulant medications have been documented repeatedly. (p. 874)

Therefore, the researchers working in this area have agreed that treatment for ADHD should be multidisciplinary and of long duration—this is known as the *multi-modal approach* (Adesman, 2001; Brown, 2000; American Academy of Pediatrics, 2001; Reid & Prosser, 2000). This approach must include various types of interventions such as psychosocial interventions, psychopharmacological treatments, herbal and homeopathic treatments, biofeedback, meditation and perceptual stimulation (National Institutes of Health, 1998). Because the precise causes of ADHD are still unknown, the primary goal of all these treatments is to improve the individual's ability to cope with it.

Indeed, psychopharmacological treatments and psychosocial interventions are the two major foci of much research conducted in this area. As might be expected, controversy about the treatment of this disorder has arisen in many countries, particularly when it involves stimulants medications (Shaywitz & Shaywitz, 1985). For example, the European Health Committee (2002) has argued that psychostimulants for the treatment of ADHD can be addictive, are subject to abuse and diversion, as well as having the potential to lead to abuse of other substances. Recent estimates showed that as many as 75 per cent of children with a clinical diagnosis of hyperactivity in the United States are treated with stimulants (Wolraich et al., 1990). In Australia, over 290,000 prescriptions were issued through pharmacies for psychostimulants to treat ADHD in the year 1997 (Reid & Prosser, 2001). However, stimulant medications are prescribed less frequently in Canada and are rarely used in Britain and Europe (Schachar et al., 1996).

Psychopharmacological Treatment

The prevalence of ADHD medication treatment for school-aged children on the basis of school records varies from 3.7 % to 17 % (Rowland et. al., 2002). Stimulant medications such as methylphenidate (Ritalin), dextroamphetamine (Dexedrine) and pemoline (Cylert) are usually the first medications choices for

ADHD (Lawrence et al., 1997). A 1996 policy statement by the American Academy of Pediatrics (as cited in Adesman, 2001) includes the following:

> Pharmacologic treatment for ADHD is indicated when the child or adolescent displays attentional signs and sysmptoms and related difficulties to a degree that the problems impair the patient's ability to learn and/or develop interpersonal relationships. The drug therapy should not be used as the sole treatment for the disorder, but, rather, should be part of an integrated approach including proper classroom placement, behavior modification at home and school which may be attempted prior to initiation of pharmacologic treatment. (p. 70)

Brownell and Yogendra (2001) indicated that the efficacy of medication for treating symptoms of ADHD has been demonstrated in both short-term studies (e.g., Spencer et al., 1996) and long-term studies (e.g., The MTA Cooperative Group). In their study, Douglas et al. (1989) (as cited in Schachar et al., 1996) observed that children are more consistent in their behaviour and are judged to be putting forth greater effort when taking medication.

Earlier studies (e.g., Douglas et al., 1986; Rapport et al., 1985) conducted in the West concluded, "that methylphenidate results in substantial improvement in the performance of hyperactive children on tasks designed to resemble classroom assignments such as timed arithmetic problems, speed of reading short passages and reading comprehension" (Whalen & Henker, 1991, p. 438). They thus suggested that the quality of children's social interaction with parents, teachers and peers remarkably improves, noncompliant and aggressive social interactions remarkably decrease in frequency and in intensity and fewer negative verbalisations occur.

Despite these beneficial effects, there are major limitations to this treatment, such as the rapid occurrence of symptoms upon discontinuation of treatment (Brown et al., 1986) and this treatment may not enhance the hyperactive

child's social judgments, remove his or her negative perceptions of peers or normalise social behaviour of most of these children (Schachar et al., 1996).

There have also been concerns about some children who do not seem to benefit from this treatment. A number of physical and behavioural complaints—such as decreased appetite, insomnia and stomachaches— have been identified as side effects of stimulant therapy that are common among ADHD children taking methylphenidate (Barkley et al., 1990). Other studies (e.g., Klein et al., 1988) showed some growth retardation upon the interruption of stimulants taken (Brown, 2000), and the withholding of stimulants may also weaken a child's sense of personal responsibility for his or her successes and failures (Schanchar et al., 1996). Futhermore, in their study, Rosenberg et al. (1998) (as cited in Brown, 2000) mentioned that stimulants have been associated with the development of tics and they should be used cautiously—especially for children with a history of tic disorder. As a result, psychosocial interventions represent another alternative treatment for ADHD.

Psychosocial Interventions

Psychosocial interventions in ADHD are applied less often than medication in the United States (Scharchar et al., 1996). Such intervention has included a number of behavioural strategies such as contingency management like point or token reward systems, time out and response cost that typically are conducted in the classroom, parent training, clinical behaviour therapy and cognitive-behavioural treatment (National Institutes of Health, 1998).

Scharchar et al. (1996) found that many Western studies (e.g., Allyon et al., 1975; Newby & Ganzell, 1981) reported that psychosocial interventions that are conducted by teachers who reinforce the positive behaviour and academic accomplishments of these children produce short-term improvements in both core symptoms and academic performance. For example, response-cost procedures, loss of privileges and time-out procedures may contribute to reductions in disruptive and aggressive behaviour. Core symptoms are also

reduced in intensity, performance on cognitive tasks improves, academic productivity—and possibly learning—improves and children become less defiant and aggressive (Schachar et al., 1996).

Further, parent training programmes are employed in order to increase the frequency of parents' positive behaviour reinforcement and to decrease the use of excessively controlling punitive strategies, as well as to develop more effective responses to oppositional or aggressive behaviour (Schachar et al., 1996). In their study, Pisterman et al. (1992) (as cited in Schachar et al., 1996) found that these programmes have improved child management skills among parents, have enhanced parental confidence and have reduced their stress. In addition to the parenting programmes, various kinds of books and videotapes also provide suggestions on the management of hyperactive children (Barkley, 1995).

Educating Children about ADHD

Providing information to children who have ADHD is an important part of the intervention process. For example, Levine in the year 1993 developed novel materials to help children with all types of learning disorders better understand their disorders and how they can take charge of improving their lives (Brown, 2000). These children need to know how attention, memory and learning processes work and learn effective ways to improve their learning and academic performance.

Individual and Group Counselling

Many children have the experience of repeated failures, social rejection, and feelings of helplessness as a consequence of ADHD (Goldstein & Goldstein, 1990, as cited in Brown, 2000). Therefore, counselling offers a good place in which children can feel understood, reduce their sense of helplessness, and increase motivation. Individual and group counselling interventions are necessary to treat comorbid disorders, such as mood and anxiety disorders (Brown, 2000).

It must be admitted that several complex diagnostic processes for ADHD have been outlined. Ongoing revisions to the DSM-IV reflect contemporary concepts in the evolving understanding of ADHD. However, our culture always relies on upon health professionals and teachers to provide appropriate instruction, accurate diagnosis and effective treatment. This expectation may exceed reality. The risk of misdiagnosis, for instance by relying only on medication, may simply mask the underlying causes of what may constitute most cases of ADHD. Students, whether suffering from ADHD or not, have been shown to have improved powers of concentration while undergoing stimulant therapy (Adesman, 2001). Therefore, ADHD treatment must address the needs and circumstances of the child and family, as well as any other comorbidity. Moreover, it is important that health practitioners should avoid using treatments which have not been proven to be effective in the treatment of ADHD.

Malaysia, New Zealand and ADHD

Not much has been written about the mental health of Malaysian children. Not surprisingly, very little has been written on children with ADHD in Malaysia. In the year 2001, the Institute of Health's Child Guidance Clinic came across 397 new cases of children with ADHD, up from 221 in 2000 (Lee, 2002). In New Zealand, the prevalence rates are 1.4 to 13.3 percent as reviewed by Barkley (1998).

Toh et al. (1997) indicated more males as compared with females were found to have psychiatric problems in Malaysia (14.1 % vs. 12.1 %). A Malaysian study thus specified that the age group reported to have the most problems was the 10-12 year olds (15.5 %), followed by the 13-15 year olds (13.4 %) and, the age group with the least reported was the 5-6 year olds (Toh et al., 1997).

In Malaysia, how children with developmental and learning disabilities are assessed largely depends upon with whom they have their first contact. Generally, the parents of such children first approach a specialist such as a

psychiatrist, clinical psychologist, pediatrician, ear, nose and throat surgeon, audiologist, educational psychologist or optometrist (Hsein-Jin & Peng, 2001). Each of them carries out some aspect of behavioural or emotional assessment. Normally, the children need to go through the whole spectrum of specialists and assessments so that an appropriate intervention can be designed. Very often they are referred to the Non-Governmental Agencies (NGOs) due to the shortage of specialists within the government hospitals. For this reason, there are still long waiting lists for assessments at the hospitals.

In New Zealand, the Ministry of Health has provided *New Zealand Guidelines for the Assessment and Treatment of Attention-Deficit/Hyperactivity Disorder* (2001). These guidelines concentrate on the issue of ADHD in children and young people aged between 5 to 13 years and are primarily directed at health professionals. In addition, their principles and recommendations are of relevance to parents, caregivers, teachers and other professionals involved in the care of children and young people with ADHD. These people are expected to follow these guidelines in order to diagnose and to treat children with ADHD in New Zealand.

The use of medication for children's emotional and behavioural problems is common in Malaysia. Attention-Deficit/Hyperactivity Disorder is one of the kinds of disorders commonly treated with medication. Similarly to New Zealand, medication management is regarded as superior to alternative treatments, including behavioural treatment alone. It is true that ongoing research continues to support the short-term efficacy of stimulant medications in ADHD, but such therapies may be inadequate (Rowe, 1998; Kube et al., 2002).

A study in the West has indicated that many physicians are often forced to rely upon school records as well as teacher and parent reporting (Wolraich et al., 1990). The child who is judged by the teacher as hyperactive and impulsive or inattentive often goes directly to stimulant therapy (Hoggan, 1998). However,

in Malaysia, information is lacking on this aspect. It must be noted that this process places children at an unnecessary risk. It also provides an easy escape from responsibility for medical and teaching professionals involved in the diagnostic process. Furthermore, a study in New Zealand on diagnosis and treatment practices for ADHD by Kingi (2000) revealed inconsistent application of the recommended diagnostic procedures and identified stimulant medication as the main treatment prescribed for children with ADHD.

Statement of the Problem

The body of work cited above on assessment, diagnosis and treatment practices for children with ADHD presents a number of problems and challenges. First, in spite of the importance of an accurate practice for diagnosing and treating ADHD disorder, no study has yet been conducted in a Malaysian context to determine the use of current scientific recommendations. Second, it would be useful to know if epidemiological issues such as age and ethnicity are significantly associated with current diagnostic and treatment practices for ADHD children. Third, this study represents the first effort to compare and contrast the diagnosis and treatment practices for ADHD in Malaysia and in New Zealand.

In the present study, the following research questions were evaluated in a sample of ADHD children:

1. How many types of diagnostic assessment procedures and treatment interventions are used for ADHD children in Malaysia?
2. Are there significant differences in the utilisation of diagnostic methodology and treatment intervention among different age groups and ethnic groups of Malaysian children?
3. Are there significant differences in the diagnostic process used and treatment intervention utilised across Malaysia and New Zealand? Does age moderate the relationship between diagnostic and treatment procedures used in the two countries?

4. Are younger children (7 years and below) more likely to be assessed by medical examination, parent and child interviews, direct observation, parent and teacher checklists, school report, brain scan and EEG for the diagnosis of ADHD than older children (8 years and above)? Do these practices occur more frequently in Malaysia than in New Zealand?
5. Are younger children (7 years and below) more likely to be treated with medication, behaviour modification techniques, school intervention, parent management training, family therapy, dietary intervention and individual psychotherapy for ADHD than older children (8 years and above)? Do these practices occur more frequently in Malaysia than in New Zealand?

CHAPTER THREE: METHOD

Participants

The researcher conducted a field study in which questionnaires were distributed in two phases in two areas in Malaysia: Kuala Lumpur and Selangor. In the first phase, Parent/Guardians Surveys were distributed to parents or guardians (N.B. Henceforth in this thesis the terms "parent/s" is to be read as including "guardian/s") of children currently diagnosed or receiving treatment for ADHD. In the second phase, Treating Practitioner Surveys were completed by practitioners who diagnosed and/or treated children for ADHD.

Child sample

To draw meaningful comparisons between diagnostic and treatment procedures and practices for specific Malaysian children with ADHD and New Zealand children with ADHD (Kingi, 2000), while eliminating several confounding variables, strict eligibility criteria for participation were established for this study. The children were required to be diagnosed with, and treated for, ADHD and to be between 3 and 16 years old.

The final sample contained 40 out of a total of 41 children after parents' questionnaires were completed. One child was eliminated from the study because he did not meet the criteria for inclusion (diagnosed with, or being treated for, ADHD). Table 1 presents demographic characteristics of the 40 children, all of whom were boys.

As indicated, most of the children were Chinese and had been assessed for the diagnosis of ADHD before entering the school system. The sample reflects estimates that suggest that ADHD is more frequently diagnosed in males than in females, with ratios ranging from 4:1 to 9:1 (American Psychiatric Association, 1994). The ages of the children ranged from 6 years to 15 years 4 months ($SD = 2.56$). Most of the children were from two-parent families

(92.5 %). In all, 32.5 % parents said they had a child with hyperactivity, 10 % claimed that they had a child with attention problems, 37.5 % reported that they had a child with both hyperactivity and attention problems and 17.5 % stated they did not know the answer. In this sample, 15 % had family members such as father, uncle or cousin diagnosed with the same disorder.

Table 1

Demographic Characteristics of the Sample

Variable	ADHD children $N = 40$		Variable	Practitioners $N = 4$	
	Number	*Percent*		*Number*	*Percent*
Ethnicity			Ethnicity		
Bumiputera	12	30	Bumiputera	1	25
Chinese	19	48	Chinese	2	50
Others	9	23	Indian	1	25
Male	40	100	Gender Male	1	25
Female	0	0	Female	3	75
Age group of children first diagnosed with ADHD			Professional affiliation		
< 5 y	25	63	Psychologist	1	25
5 – 7 y	15	38	Child/Adolescent Psychologist	1	25
			Pediatrician	1	25
			General Practitioner	1	25
Mean of current age	$M = 10.09$		Mean of years' working experience	$M = 8.25$	

Socioeconomic status appeared to be more representative of middle and upper socioeconomic populations. In terms of educational achievement, more than

half of the children's parents (55 %) had a university degree or diploma. While the majority of these parents earned an income of RM 40,000 or more per year (55 %), only 15 % received an income of RM 19,999 or less per year.

Practitioner sample

Participants were practitioners selected from Selangor and Kuala Lumpur areas. Their participation was dependent on permission from parents of children with ADHD. Of these parents, nine (22.5 %) out of forty parents agreed to the release of information from practitioners who had diagnosed and/or were treating their children.

Of the nine practitioners surveyed, four (63 %) responded and provided data for five children. Table 1 displays the demographic characteristics of responding practitioners. The majority of the sample were female and half of them were Chinese. In addition, they had been in practice with their professional qualification for an average 8.25 years (ranging from 5 years to 13 years).

Procedure

Overview

The survey was conducted across two phases, data were collected from parents of ADHD children and data were obtained from practitioners who diagnosed and/or were treating the sampled children. The procedures were adapted from a previous study on current diagnosis and treatment practices for ADHD with children in New Zealand (Kingi, 2000). Approval to conduct the present research was received from Massey University Human Ethics Committee

Phase 1

To recruit participants who met the study criteria, schools and parents' support groups in Kuala Lumpur and Selangor areas were telephoned and notified about this study. Three agencies—namely, two private schools and one support group—agreed to recruit the participants. The private schools are

privately funded and are devoted to helping school-age children with learning and attention problems. The support group is also a privately funded agency. They received a letter (see Appendix A) describing the purpose and procedures of the study and were asked to complete and return the agreement form (see Appendix B), granting permission for their participation regarding the distribution of survey materials to parents of ADHD children. In all, 75 sets of survey materials were given to these agencies to distribute to the parents of ADHD children.

The participants were selected based on their identification by the aforementioned agencies as children who had been diagnosed with ADHD. The parents of potential participants received survey materials by mail from these agencies in order to protect the confidentiality of the children. The mailing included an information sheet (see Appendix C), a self-administered questionnaire (Parents/Guardians Survey) (see Appendix E), a consent form for the release of information (see Appendix G) and an optional request for study results form (see Appendix I). The information sheet advised the parents of the purpose and the procedures of the study as well as their rights as participants in the study. The consent form provided for agreement by the parents to the release of information by the practitioner relating to assessment and treatment procedures conducted for their children with ADHD. The optional request for study results form offered the opportunity to the parents to gain information about the results of the study, and this information was provided after the study had been completed.

The parents who wanted their children included in the study returned the questionnaire in an enclosed stamped envelope to the researcher. Completing and returning the questionnaire implied consent to participation in this study. The survey materials were provided in both a Malay language version and an English language version. Since English is also one of the official languages in Malaysia, the survey materials were administered to the participants, either in English or in the Malay language, depending on the request of each

participant. They were instructed to skip any items that they could not answer or did not understand. Most of the participants would spend about 20 to 25 minutes filling out the questionnaire. Only children who had been diagnosed with, or were being treated for, ADHD prior to engaging in the study were considered for inclusion in the study.

Of the 75 parents surveyed, 41 (54.7 %) responded. Of those who responded, one was eliminated because a child did not meet the criteria for inclusion (diagnosed with, or being treated for, ADHD). The total final study sample was 40 children. Overall, the response rate was slightly low compared with that obtained in the prior survey in New Zealand (68 %) by Kingi (2000). Of the 40 children selected for the study, 4 (10 %) were diagnosed as ADHD: Predominately Inattentive, 13 (33 %) were diagnosed as ADHD: Predominately Hyperactive-Impulsive, and 15 (38 %) were diagnosed as ADHD: Combined Type. The roughly equivalent rates for Predominately Inattentive and Combined Type in this sample are consistent with the findings in other communities (Power et al., 2001) and clinic-based studies (Vaughn et al., 1997). The rate of children with the Predominately Hyperactive-Impulsive type is also consistent with a study conducted by Kingi (2000) in New Zealand.

Phase 2

To examine the actual diagnostic and treatment practices for these children, the researcher asked permission from the parents to obtain some information from practitioners who had diagnosed or were treating their children via a set of questionnaires. They were informed that a copy of a practitioner questionnaire would be made available for their perusal prior to mailing if requested. Only 22.5 % (9 out of 40) agreed to this request by completing and returning the consent form for the release of information to the researcher. Those who declined permission for the release of information were still included in this study.

A set of the questionnaires (Treating Practitioner Survey, Appendix K), a copy of the parents' consent form, an information sheet (see Appendix M) and an optional request for study results form were mailed to the practitioners—that had been identified by the parents as treating their children—in the Selangor and Kuala Lumpur areas. The information sheet notified the practitioners of the purpose and the procedures of the study as well as their rights as participants in the study. Completing and returning the questionnaire in an enclosed stamped, addressed envelope implied consent to their participation in the study. A second mailing of survey materials was sent to nonresponders, which gave the opportunity to be still included in the study. Of the nine practitioners surveyed, four (44.4 %) responded and these provided data for five children.

Data collection for this field research started in December, 2003 and was completed in March, 2004.

Measures

Using established scales (Kingi, 2000), the researcher first translated the questionnaires into the Malay language. Since English is one of the official languages of Malaysia, the surveys were administered to these participants either in Malay or in the English language, depending on the request of each participant.

Parent/Guardian Survey

The parent/guardian survey is a self-administered questionnaire, designed to obtain information on referral issues, evaluation and treatment procedures, parent's level of satisfaction with these procedures, and cultural issues, as well as child and parent sociodemographic characteristics (see Appendix D).

Referral issues were assessed by having respondents indicate which of nine options (*family member, friend, teacher/ school official, social worker, psychologist, myself, general practitioner (doctor)* and other) is the most

common source responsible for initially identifying ADHD-related symptoms. Then, respondents were asked to list all practitioners seen in relation to ADHD-related behaviours before receiving an actual ADHD diagnosis. This item provided details of the process children encounter prior to official diagnosis, such as whether they are typically being diagnosed following one 30-minute visit to a practitioner, or whether it is a lengthy process involving a number of visits to a variety of practitioners.

Assessment issues were measured by asking respondents to choose from ten options of assessment procedures (*parent interview, child interview (alone), medical examination, observation of child at home or school, parent checklist of child's behaviour, teacher checklist of child's behaviour, child's school reports, brain scan, EEG* and an open space for recording other assessment strategies), as many as they recognised as used in the evaluation process. Then, respondents indicated the type of assessment-related feedback (*verbal, written,* or both) received from the practitioner/s: subtypes of ADHD diagnosis (*inattentive, hyperactive,* or *combined type*) given to their child; any additional psychological conditions present at the time of assessment (*learning disability, depression, anxiety, conduct disorder, oppositional defiant disorder, bipolar disorder,* etc.); and whether any biological family members had received an ADHD diagnosis. In addition, respondents indicated which of six options (*general practitioner (doctor), educational psychologist, pediatrician, psychologist, psychiatrist* and other) was the diagnosing practitioner, in order to identify whether a relationship existed between professional affiliation and types of assessment undertaken.

Cultural issues were assessed with two cultural related items in order to examine how reliable the current assessment procedures are in diagnosing ADHD in Bumiputera children. First, respondents were asked to answer (*yes, no* or *don't know*) whether diagnosing practitioner, treating practitioner, or teacher at time of assessment were from the same cultural background as the sampled children. Then they were given an opportunity to write any comments

on any specific cultural aspects such as factors which had been taken into account and factors not taken into account that related to assessment or treatment procedures.

Treatment issues were measured by asking respondents to report which treatment was discussed with the practitioner, which they preferred, and what treatment/s their child is receiving or has received from a checklist of possible treatment approaches. The lists included *no options discussed, no treatment for child, medication, behaviour modification, school intervention, parent training in child management, family therapy, dietary interventions, individual psychotherapy* and a space for any other treatments to be listed. These items assess the current management practices for ADHD for children in Malaysia. Then respondents were asked to list any treatment they objected to; any treatment they found improved the child's behaviour and school work; and the name of medication and current average daily dose taken (if medication was prescribed). In addition, ongoing monitoring for treatment efficacy was measured by having respondents indicate which of ten monitoring treatment options were established for their child and how often they need to visit a practitioner to monitor treatment effectiveness. Then respondents were asked to choose any common side effects from a checklist (*sleep problems, decreased appetite, stomachache, headache, jitteriness, nausea, irritability,* etc.) as many as were associated with psychopharmacological intervention presented in their children.

Satisfaction scale consisted of 10 items that provide information regarding respondents' levels of satisfaction with ADHD-related assessment and treatment practices. Responses are scored on a 5-point Likert scale, ranging from 1 (*not at all satisfied*), 3 (*satisfied*) to 5 (*extremely satisfied*) that reflects the parents' satisfaction in 10 areas: the amount of information that they received from the practitioner about ADHD symptoms, their involvement in the diagnosis, the feedback from the results of diagnosis, the information about the treatment options that they received from the practitioner/s, the

effectiveness of the treatment that their child was currently receiving, the ongoing monitoring by the practitioner/s on the effectiveness of the treatment, the information on support systems that are available in their community, the importance of their, and their child's, cultural background during the treatment, and assistance from their child's school system. The alpha coefficient value for this scale was .81, which was slightly low compared with that reported in the Kingi study (.92).

Sociodemographic data included the child's gender, ethnicity, age at the time of diagnosis, present age, and age when the child first began displaying ADHD-like symptoms. Besides, respondents were asked to provide information on their gender, age, marital status, ethnicity, educational qualifications and income level. They also gave information about the composition of the household such as whether any extended family members are living in the household and the numbers of people in the house.

Treating Practitioner Survey

A 21-item treating practitioner survey (Kingi, 2000) was developed to determine actual assessment procedures which responding practitioners carried out for the sampled children in order to confirm a diagnosis of ADHD and to find out the type of treatment approaches employed to manage ADHD-related symptoms or any comorbid conditions that may be present (see Appendix G). In addition, this survey was designed to elicit information on clinical characteristics of the sampled child such as the DSM-IV symptom checklist, ADHD subtype and comorbidity, cultural issues, and practitioners' demographic data.

Assessment issues were measured by asking respondents to report all information and assessment tools they had used in the evaluation process. Then respondents indicated any additional assessment information reported by some other professional that they believed significant in the diagnosis. Moreover, assessment issues were assessed by having respondents indicate

whether external factors were ruled out and differential diagnosis and comorbidity were considered during the assessment process of the sampled child. Respondents then chose from a list of options (DSM-IV, ICD-10, Don't know and 'Other' category) to indicate diagnostic criteria utilised during the assessment process. In addition they needed to answer (Yes, No or Don't know) in response to whether ADHD-related symptoms were present prior to the age of 7 years and to indicate (Yes, No, Don't know or Not asked) whether a family history of ADHD was evident. Respondents were also asked to list procedures that they considered useful in differentiating ADHD from other child psychiatric disorders. Then respondents were asked to indicate from a checklist of mental health professionals who had assessed and diagnosed the sampled child. This item will reveal whether the person identified by parents as treating the child may be administrating medication but did not necessarily make the initial diagnosis.

Treatment issues were measured by having respondents indicate which of ten items of possible treatment they discussed, those for which the parent indicated a preference, and the treatment actually received. Respondents then were asked to report in detail on type and current average daily dose if medication was prescribed for the sampled child, and to describe any ongoing monitoring established in order to monitor treatment procedures.

Clinical characteristics of the sampled child were obtained for the analysis of relationships between the child's age, gender, and ethnicity as well as ADHD sub typing, symptoms and comorbidity. Respondents who used DSM-IV criteria in ADHD diagnosis were asked to indicate subtype of ADHD applied to the sampled child. In addition, respondents were asked to choose from 18-item checklist of DSM-IV symptoms for ADHD that were present at the time of assessment to a degree that was maladaptive and inconsistent with the child's developmental level. Comorbid conditions were assessed by having respondents indicate which of nine condition options (*none, learning disability, depression/dysthymia, anxiety, conduct disorder, oppositional*

defiant disorder, bipolar disorder, Asperger's syndrome, autism, and an '*other*' category) were 'considered but ruled out' and which were 'confirmed'. Then, they were asked to indicate why or how the conditions were ruled out.

Cultural issues were measured by asking respondents to give any comments on any specific factors of cultural issue they considered relevant in order to obtain an accurate ADHD diagnosis with Bumiputera children.

Sociodemographic data were collected on their gender, ethnicity, professional affiliation, and level of working experience. Professional affiliation was assessed by having respondents indicate to which of seven professional categories (*general practitioner, registered psychologist, clinical psychologist, child/adolescent clinical psychologist, pediatrician, psychiatrist* and '*other*' category) they belonged. In addition, numbers of years in practice were asked in order to determine respondents' experience level, and to describe any noticeable differences in diagnostic and treatment practices between professional affiliation and the number of years in practice.

Data Analysis

Data analyses were performed using the Statistical Package for Social Sciences (SPSS 10.0) statistical software. Descriptive statistic and chi-square techniques were applied to answer the first and second research questions regarding the types of diagnostic assessment and treatment procedures for ADHD used in Malaysia and whether there are significant differences in applying these procedures among different age and ethnic groups of children.

To answer the third research question—that is, whether there are significant differences in the diagnostic process and treatment intervention used across Malaysia and New Zealand and whether age moderates the relationship between diagnostic and treatment procedures used in these two countries—the researcher calculated a factorial ANOVA in which regions and children's age group were independent variables. The dependent variables were the *z*-scores

the number of assessment procedures applied to the diagnosis is
e *z*-scores on the means of the number of treatment
ed. Separate analyses were conducted for each of these

gression analysis was performed to answer the fourth research
s, whether younger children are more likely to be assessed by
ation, parent and child interviews, direct observation, parent
cklists, school report, brain scan and EEG for the diagnosis of
ler children, and whether these practices occur more frequently
n in New Zealand. This analysis determines which variables
the assessment procedures used for children given a diagnosis
levels of all variables were entered into the model, and odds
idence intervals were calculated at 0.05 level of significance.

same analyses were performed to answer the fifth research
is, whether younger children are more likely to be treated with
haviour modification techniques, school intervention, parent
raining, family therapy, dietary intervention and individual
for ADHD than older children, and whether these practices
equently in Malaysia than in New Zealand. This analysis
hich variables were significant predictors for the types of
rventions employed.

CHAPTER FOUR: RESULTS

The results of this study are organised according to the research questions set out earlier. First, the analyses of ADHD in Malaysia will answer the first and second research questions. Then, the analyses of Malaysia and New Zealand reported diagnostic and treatment practices for ADHD will answer the third, fourth and fifth research questions.

ADHD in Malaysia

This report is based on the results for 40 children. Most of the children (n=25, 63 %) received a formal diagnosis of ADHD under the age of five years old. The other 15 children (38 %) received the diagnosis within the first three years of entering the school system—that is, between the ages of 5 to 7 years old.

Description of Parent-Reported ADHD Diagnostic Process and Group Differences

The first research question set out in this study asked how many types of diagnostic assessment procedures of ADHD are used in Malaysia. Information about diagnostic criteria and resources contributing to the diagnosis with ADHD in Malaysia are provided in Table 2. Most of the children in this investigation were evaluated based on a wide variety of evaluation tools.

Percentages of parents who reported techniques used for diagnosis are listed in the table. Nearly half of the children in the sample (45 %, n=18) had been diagnosed for ADHD with information collected in no more than four sessions. Five to six types of evaluation tools were used to assess another eighteen children (45 %) and only four of the parents (10 %) indicated that their practitioners used all recommended comprehensive evaluations such as parent and child interviews, medical examination, direct observation, parent and teacher checklists, and school reports during the diagnostic process. On average, parents reported that practitioners spent almost all of their time in their evaluations, used teacher checklists and parent checklists less frequently,

and depended more on their direct observation of the child's behaviour at school or home.

The second research question set out in this study asked whether there are differences in the utilisation of diagnostic methodology among different age groups and ethnic groups of children. A chi-square (Π^2) was used to determine if there were significant differences between resources that contributed to diagnosis with ADHD and children's ethnic groups. According to ethnicity, the children differed significantly in the utilisation of school report, brain scan, medical examination and parent interview methods. Non-Bumiputera and non-Chinese children (41 %) were more likely be diagnosed through school report with ADHD than were Bumiputera (36 %) and Chinese (23 %) children ($\Pi^2(2) = 14.340, p = .001$). In contrast, Bumiputera children (75 %) were more likely be evaluated for ADHD based on brain scan results than were Chinese (13 %) and other (27 %) children, $\Pi^2(2) = 13.283, p = .001$. Significantly, Chinese children were more likely to be assessed by medical evaluations (67 %) and parent interviews (40 %) than were Bumiputera (34 %; 24 %) and other (26 %; 10 %) children ($\Pi^2(2) = 7.293, p = .026$; $\Pi^2(2) = 6.316, p = .043$).

Younger children (aged 5 years and below) (60 %) were significantly more likely to be evaluated for the diagnosis of ADHD by a direct observation procedure than were older children (40 %) (aged above 5 years old), $\Pi^2(1) = 8.416, p = .004$. Results of this study thus show that older children (80 %) were more likely to be assessed with EEG than were younger children (10 %).

Table 2

Parents' Reports on Diagnostic Criteria and Resources Contributing to the Diagnosis of ADHD

Items Rated	ADHD children ($N = 40$)	
	Number	*Percentage*
Resources often contributing to diagnosis		
Medical examination	21	53 *
Parent interview	35	88 *
Child interview (alone)	13	33
Direct observation	33†	83
Parent checklist	26	65
Teacher checklist	23	58
School report	22	55 ***
Brain scan	15	38 ***
EEG	5	13
Comorbidity		
No comorbidity	7	18 **
Learning disability	27	68 **
Depression	4	10
Anxiety	3	8
Conduct Disorder	17	43 ***
Oppositional Defiant Disorder	12	30 *
ADHD subtyping *		
Predominately inattentive	4	10
Predominately hyperactive	13	33
Combined type	15	38

Note. Showing aspects with significant differences of age group of children and ethnic group of children

* = significant differences of three ethnic groups of children, *$p<.05$, **$p<.01$, ***$p<.001$,

† = significant differences of three age groups of children, † < .05

Analysis showed that comorbidity was present in 82 % of the children. As indicated in Table 2, most of the parents identified a learning disability (68 %), the most common comorbid condition presented at the time of assessment. Moreover, the majority of younger children (aged below 5 years) who were diagnosed with ADHD were also described as having depression (75 %) and an anxiety disorder (8 %). There were no differences in age groups for comorbidity.

On the contrary, Π^2 tests indicated that children of different ethnic groups differed significantly in the three types of comorbid disorder. i. Learning disabilities Bumiputera (26 %) vs. Chinese (70 %) vs. others (4 %), $\Pi^2(2) = 22.653$, $p = .000$; ii. Conduct disorder; Bumiputera (59 %) vs. Chinese (35 %) vs. others (6 %), $\Pi^2(2) = 12.743$, $p = .002$; and iii. Oppositional defiant disorder; Bumiputera (50 %) vs. Chinese (50 %), $\Pi^2(2) = 6.165$, $p=.046$.

In addition, children of different ethnic backgrounds differed significantly in the subtype of ADHD, $\Pi^2(6) = 14.618$, $p = .026$. Sixty-seven percent of children with the combined type of ADHD came from a Chinese ethnic group. Seventy-five percent of children with the inattentive subtype were Bumiputera and the majority of non-Bumiputera and non-Chinese children were identified as having ADHD with the hyperactive-impulsive subtype (39 %).

Most of the children (35%, $n=14$) were assigned the diagnosis of ADHD by pediatricians. Thirty percent ($n=12$) were diagnosed by general practitioners and another 30 % ($n = 12$) were assessed by psychologists. Fewer were assessed (5 %, $n=2$) by educational psychologists. Due to the small numbers in the data collected in this study, it is difficult to gauge to what extent professional affiliations can have an effect on the choice of the assessment used.

Details of the evaluation instruments employed in the assessment by three practitioners are presented in Table 3. Overall, a pediatrician was most likely to diagnose children with ADHD based on medical examination (64 %) and parent interview (64 %), whereas (surprisingly), general practitioners were more likely to rely on teacher or school reports (83 %) than to rely on medical examination (58 %). A psychologist was more likely to predict ADHD based on parent interview and direct observation of the child's behaviour.

Table 3

Assessment Instruments of Children with Attention-Deficit/Hyperactivity Disorder by Pediatrician, General Practitioner and Psychologist

Instruments	Pediatrician 14 children		General Practitioner 12 children		Psychologist 12 children	
	Number	*Percentage*	*Number*	*Percentage*	*Number*	*Percentage*
Medical examination	9	64	7	58	5	42
Parent interview	9	64	12	100	12	100
Child interview (alone)	4	29	2	17	5	42
Direct observation	13	93	6	50	12	100
Parent checklist	6	43	9	75	9	75
Teacher checklist	8	57	9	75	4	33
School report	3	21	10	83	7	58
Brain scan	7	50	4	33	4	33
EEG	0	0	0	0	5	42

Parents of 31 children (78 %) received both written and verbal diagnostic procedure feedback from diagnostic practitioners. Few parents received written feedback without verbal feedback (33 %, n=6). Only one (3 %), reported receiving verbal feedback without written feedback. There were missing data in two cases (5 %).

Furthermore, the specialty of practitioners who were first seen and who suggested the diagnosis of ADHD differed significantly according to the children's ethnic groups, $\Pi^2(10) = 37.057$, $p = .000$. For Chinese children, almost 78 % (14 out of 18) obtained this information from a general practitioner, 17 % (3 out of 18) from a psychologist and fewer than 2 (11 %) had a diagnosis of ADHD suggested by their relatives. While four Bumiputera children (31 %) who were assessed for ADHD had this suggested first by a general practitioner, the majority (69 %) of parents were more likely to self-identify symptoms in their children. For non-Chinese and non-Bumiputera children, the first suggestion of a diagnosis of ADHD was higher for parents' own observation (45 %) than suggestion by their relatives (22 %), other sources (22 %) and a general practitioner (11 %).

Description of Parent-Reported ADHD Treatment Practices and Group Differences

The first research question also asked how many types of treatment interventions are used to treat Malaysian children. Information about treatment practices reported by parents in this survey is presented in Table 4. On average, children were treated with psychopharmacological intervention, and used more Ritalin as the drug of choice for ADHD.

Table 4

Parents' Reports of Treatment of Attention-Deficit/Hyperactivity Disorder

Items Rated	ADHD children ($N = 40$)	
	Number	*Percent*
Treatment used		
Medication	17	43***
Behaviour Modification	24	60
School intervention	13	33
Parent management training	12†	30
Family therapy	13	33
Dietary intervention	10	25***
Individual psychotherapy	4	10
Medication used		
Ritalin	16	58
Pemoline	1	3
Stimulant medication treatment strategies *a*		
Frequent reports from teachers or parents	9	52*
Prescription renewal	12	71*
Medication increase or decrease	15	88***
Stimulant medication treatment side effects *b*		
Sleep problems	16	94***
Decreased appetite	3	18
Stomachache	2	12
Headache	2	12
Jitteriness	5	30
Nausea	5	30
Irritability	5	29
Rebound	2	12

Note. Showing aspects of significant differences of age group of children and ethnic group of children.

a & b = 17 medicated children, * = significant differences of three ethnic groups of children, * $p<.05$, ** $p<.01$, *** $p<.001$, † = significant differences of three age groups of children, † < .05

The second research question asked whether there are differences in the utilisation of treatment interventions among different age groups and ethnic groups of children in Malaysia. Of ADHD children younger than 5 years of age, 9 (36 %) received stimulant medications, 17 (77 %) were treated with behavioural management interventions, 8 (32 %) with school interventions, for 6 (24 %) the parents applied dietary interventions and only 3 (12 %) engaged in individual psychotherapy. Twelve (48 %) of the parents received training in child behaviour management and eight (32 %) were involved in family therapeutic interventions. Of ADHD children aged 5 years and older, 8 (53 %) took medications, 7 (47 %) received behavioural modification treatment, 5 (33 %) had intervention in their school systems, for 4 (27 %) the parents engaged in dietary interventions and only 1 (7 %) received individual psychotherapy. In contrast to parents of younger children, no parents of older children were interested in parent management training interventions and 5 (33 %) had agreed to take part in family therapeutic sessions.

Significantly, all parents of children below 5 years of age (100 %, n=12) received training in child behaviour management as a part of the intervention strategies used with those 5 years of age and older (0 %, n=0), $\Pi^2(1)=10.286$, p=.001. These findings were expected since more children less than 5 years old (76 %) were reported to have conduct disorders (CD) than were those 5 years and older (24 %). Thus, more than half of the older children (53 %) (aged 5 years and above) were being prescribed the medication than were younger children (36 %) (aged less than 5 years).

When the data were analysed by ethnic groups, 14 (74 %) of Chinese children took medication, 11 (58 %) were treated with behaviour modification, 4 (21 %) with school intervention, 1 (5 %) with dietary intervention, 4 (21 %) with individual psychotherapy and 7 (37 %) of their parents received child behaviour training and 4 (21 %) received family therapy. Of the Bumiputera children, 8 (67%) were treated with behavioural management training, 6 (50 %) with school intervention, 1 (8 %) with dietary intervention, 5 (42 %) of

their parents agreed to take part in child behaviour management training and 5(42 %) in family therapy. There were three (33 %) children from other ethnic groups who were treated with stimulant medications, 5 (56 %) with behavioural management training, 3 (33 %) with intervention in the school system, 2 (22 %) with dietary intervention and 4 (44 %) of their parents were involved in family therapeutic sessions.

Significantly more Chinese children than other ethnic children took medication (82 % vs. 18 %, $\Pi^2(2) = 16.740, p = .000$. Moreover, significantly more Bumiputera children had dietary interventions applied than did children of other ethnicities (70 % vs. 30 %), $\Pi^2(2) = 11.096, p = .002$. There were no significant differences among the three ethnic groups regarding behaviour modification, school intervention, child management training for parents, family therapy and individual psychotherapy.

Medication (50 %) and behaviour modification (58 %) interventions were the most reported treatment strategies discussed initially with parents. However, only eight out of twenty parents (40 %) expressed preference for the medication option, whereas all parents agreed on the behaviour modification as a primary option (100 %). As indicated in Table 4, 43 % of children were medicated with a stimulant and 60 % were treated with the behaviour modification.

In addition, family therapy had been discussed with 53 % of parents, school intervention with 28 % of parents, child management training with 28 % of parents, dietary intervention with 23 % of parents and individual psychotherapy with 13 % of parents. Of all these parents, 43 % showed a preference for school intervention, 25 % for parent management training in child behaviour, 40 % for family therapy, 13 % for dietary interventions and 10 % for individual child psychotherapy. Only 33 % of children were treated in school settings and 30 % with family therapy (Table 4). The rates of percentage of children whose parents received child management training

(30 %) and dietary intervention (25 %) were slightly higher than reported by parents as their primary options. Children of parents who agreed to individual psychotherapy were given this treatment (10 %).

All parents of the seventeen medicated children reported side effects. Table 4 shows that almost all of these children reported sleep problems during the medication intake (94 %). The data of the study show that 76 % of Chinese children had sleep problems, 6 % had decreased appetite problems, 30 % had jitteriness problems, 30 % had nausea problems and another 30 % had irritability problems. Of medicated Bumiputera children, 9% experienced sleep problems, 9 % experienced irritability problems and 67 % did not indicate types of side effects their children had. Non-Chinese and non-Bumiputera children reported that they had suffered from sleep problems (44 %), decreased appetite (33 %), stomachache (33 %), headache (33 %) and rebound (33 %) during ADHD medication treatment. Significantly, more Chinese children (72 %) suffered from sleep problems than did Bumiputera children (5 %) and non-Bumiputera and non-Chinese children (22 %), $\Pi^2(2) = 12.221, p = .002$.

When the data were analysed by age group, 39 % of the medicated children less than 5 years old experienced sleep problems, 4 % experienced decreased appetite, 4 % experienced jitteriness, 4 % experienced nausea and 9 % experienced irritability. Of the medicated children 5 years of age and older, 64 % had sleep problems, 21 % had decreased appetite, 21 % had stomachache, 21 % had headache, 29 % had jitteriness, 29 % had nausea and 29 % had irritability. There were no significant differences between the two groups regarding sleep problems as a side effect of medication treatment.

In twelve medicated children who had an adjustment of medication prescribed by their practitioners, significantly more Chinese (73 %) received this treatment strategy than non-Chinese and non-Bumiputera (27 %), $\Pi^2(2) = 10.794, p = .005$. Of children having prescription renewal, Chinese (67 %)

received this stimulant medication strategy significantly more often than did those who were non-Chinese (33 %), $\Pi^2(2) = 7.145, p = .028$. Additionally, those children who were Chinese (89 %), received significantly more ongoing treatment monitoring of frequent reports from teachers or parents than did those who were Bumiputera (11 %), $\Pi^2(2) = 8.381, p = .015$.

Table 5 presents the information provided by parents about the most prevalent comorbid conditions reported in this study and the treatment interventions applied to children who had these comorbid disorders. More than half of the parents of children with ADHD and conduct disorder (CD) (53 %) did not receive child management training and eleven parents (65 %) were informed about this treatment option. While this option was discussed among four parents of children with ADHD and oppositional defiant disorder (ODD) (33 %), only one parent (25 %) declined to participate in this programme. This treatment was also presented to 30 % of parents of children with ADHD and learning disabilities (LD) (n=27), and only 26 % (n=7) accepted this programme.

Behaviour modification was presented to nine (53 %) parents of children with ADHD and CD. As indicated in Table 5, more than half of these children were treated with this option. Furthermore, this behavioural management technique was discussed with 67 % (n=8) of parents of children with ADHD and ODD, 83 % (n=10) expressed their preference and 75 % (n=9) of them had been given this treatment option. This option was also presented to parents of children with ADHD and LD (63 %, n=17) and fifteen out of seventeen children were treated by this option (88 %).

School intervention was presented as a treatment option to eight parents of children with ADHD and CD (47 %), six parents of children with ADHD and ODD (50 %) and eight parents of children with ADHD and LD (30 %). More children with ADHD and LD (36 %) were treated with this intervention than were other children with ADHD and CD (32 %) and children with ADHD and

LD (32 %). Family therapy was discussed with twelve parents of children with ADHD and CD (71 %), seven parents of children with ADHD and ODD (58 %), and fifteen parents of children with ADHD and LD (56 %). Results showed that fewer parents of children with ADHD and ODD (25 %) reported taking this therapeutic intervention than did parents of children with ADHD and LD (33 %) and parents of children with ADHD and CD (41 %).

Table 5

Prevalence of Parent-Reported Comorbid Conditions and Prevalence of Parent-Reported Treatment Modality for ADHD Children

	Learning Disability $n = 27$	Conduct Disorder $n = 17$	Oppostional Defiant Disorder $n = 12$
Medication	15 (56)	3 (18)	5 (42)
Behaviour modification	15 (56)	12 (71)	9 (75)
School intervention	8 (30)	7 (41)	7 (58)
Parent training in child management	7 (26)	8 (47)	3 (25)
Family therapy	9 (33)	7 (41)	3 (25)
Dietary intervention	4 (15)	8 (47)	1 (8)
Individual psychotherapy	4 (15)	4 (24)	1 (8)

Note. Results are numbers and percentages are in parentheses.

Parents of children with ADHD and CD reported that eight of them (47 %) had discussed dietary intervention and four (24 %) were presented with an option of individual psychotherapy. Conversely, only three parents of children with ADHD and ODD (25 %) indicated that they had discussed dietary intervention options and four were presented with individual psychotherapy (33 %). Of parents of children with ADHD and LD, five (19 %) had discussed dietary interventions and four (15 %) were informed about the individual psychotherapy treatment option. More children with ADHD and CD (62 %) were given dietary interventions as a treatment compared to children with ADHD and LD (31 %) and children with ADHD and ODD (8 %). Moreover,

individual psychotherapy was less well known among parents of children with ADHD and ODD (11 %) than among parents of children with ADHD and parents of LD (44 %) and children with ADHD and CD (44 %).

To assess which problems were most likely to be reported as intense (i.e., feel dissatisfied), the 10 parent satisfaction scale items were recoded to indicate 5 as *extremely satisfied* or 3 as *satisfied* or 1 as *extremely dissatisfied* and compared for the three ethnic groups. Chinese parents (48 %) had significantly higher levels of satisfaction with the amount of ADHD information obtained than Bumiputera (26 %) and non-Chinese or non-Bumiputera (26 %) parents, $\Pi^2(4) = 10.647, p = .031$. Furthermore, there were significance differences in levels of satisfaction among the three groups of parents in their involvement in the ADHD diagnosis (Bumiputera (50 %), Chinese (68 %), Others (44 %), $\Pi^2(4) = 14.836, p = .022$ and in the choices of treatment options (Bumiputera (33 %), Chinese (53 %), Others (78 %), $\Pi^2(6) = 19.957, p = .003$.

While more non-Chinese and non-Bumiputera parents (33 %) expressed dissatisfaction with the effectiveness of treatment in school settings, more Bumiputera parents (50 %) felt generally satisfied and more Chinese parents (53 %) indicated a high level of satisfaction, $\Pi^2(6) = 19.544, p = .003$. Significantly, Bumiputera parents (33 %) experienced higher levels of satisfaction in the effectiveness of treatment on peer relationships of their child than did Chinese parents (26 %) and parents of other ethnic groups (28 %), $\Pi^2(8) = 19.281, p = .013$. The findings thus showed that 26 % of Chinese parents were extremely dissatisfied with the information they had received about support systems available in the community, 25 % of Bumiputera parents were extremely satisfied and 33 % of parents of other groups indicated dissatisfaction, $\Pi^2(8) = 18.714, p = .016$.

Of the parents of twelve Bumiputera children, 42 % felt dissatisfied with information about treatment options given by practitioners, 25 % with

effectiveness of treatment at home on parent-child interactions and 17 % with siblings-child interactions. Another 8 % indicated extreme dissatisfaction with ongoing monitoring for their child's treatment, 25 % were dissatisfied with cultural background information taken during diagnosis and 33 % with assistance from their child's school system. Chinese parents showed satisfaction with information about treatment options received (37 %), effectiveness of treatment on parent-child interactions (89 %) and siblings-child interactions (68 %), ongoing treatment monitoring (11 %), child's cultural background (47 %) and another 11 % indicated a high level of satisfaction with their child's school assistance.

The majority of non-Chinese and non-Bumiputera parents (77 %) were satisfied with treatment options given by practitioners, 56 % were satisfied with effects of treatment on parent-child interactions and 44 % on siblings-child interactions, 33 % on ongoing monitoring, 67 % on cultural issues and 33 % on assistance from school. There were no significance differences among the three ethnic groups regarding information on treatment options, effectiveness of treatment at home with parents and siblings, ongoing monitoring, cultural issues and assistance from school.

As indicated in Table 6, overall intense dissatisfaction with ongoing monitoring by practitioners on the effectiveness of an ADHD treatment was prevalent in all three groups (Bumiputera=25 %, Chinese=58 %, and Other=33 %). High levels of dissatisfaction among Chinese parents focused on information about treatment options that they received from practitioners (47 %) and their involvement in the choices of treatment (47 %). Due to the small number of subjects in this analysis, no significance tests were conducted.

Table 6

Frequency of "Dissatisfaction" in the Bumiputera, Chinese and Other Parent Groups

Parent Satisfaction Scale Item: How dissatisfied I feel with	**%**		
	Bumiputera[1]	**Chinese[2]**	**Others[3]**
1. The amount of information I received from my practitioner about ADHD children	42	32	0
2. my involvement in the diagnosis	42	26	0
3. feedback from the results of diagnosis	42	42	0
4. information I received from the practitioner on treatment options for my child	42	47	0
5. my involvement in the choice of treatment	42	47	0
6. effectiveness of the treatment my child is currently receiving for ADHD			
(a) at home -with parents	16	11	33
-with siblings	17	11	33
(b) at school	16	0	33
(c) with peers	16	5	33
7. ongoing monitoring by the practitioner on whether treatment is effective	25	58	33
8. information support systems or resources available in my community	0	11	33
9. taking my child's and my cultural background into account	25	37	0
10. assistance from my child's school system	33	37	44

Note. [1]n=13, [2]n=19, [3]n=9

Cultural Issues in Assessment of ADHD

Of all child participants, 30 % (n=12) were Bumiputera. Half of their parents reported that practitioners or the child's teacher who diagnosed their child had the same cultural background as themselves. Thus, 42 % said practitioners that came from the same background treated their children.

Four of the twelve parents (33 %) indicated that they were satisfied with the way their child's cultural background was taken into account during the diagnosis process and treatment. However, three (25 %) indicated dissatisfaction. Five cases were missing here. Results also show that Bumiputera parents were more likely than were Chinese or other parents to initiate an assessment for ADHD for their children.

Description of the Practitioner-Reported ADHD Diagnostic Process

The researcher analysed the results of the surveys of four responding practitioners who provided data for five sampled children. The number of practitioners who responded was very small and no statistical comparisons of their responses were made.

Table 7 displays information on diagnostic criteria and resources contributing to the diagnosis of ADHD reported by practitioners. As indicated in the table, a wide variation existed in the amount of information sought and evaluation tools used by practitioners. No practitioner employed most of the recommended procedures. The findings showed five to six types of recommended evaluation tools were used to assess two of the sampled children. Another three of them had been diagnosed with information sought from not more than four settings. Consistent with parent-reported diagnostic procedures findings, all practitioners used parent interviews during the assessment time. On average, practitioners depended more on medical examination and child school report and used rating scales for parents or teachers (The Conners' Parent and Teacher Rating Scales), child interview and results of brain scans less frequently.

Table 7

Practitioners' Reports on Diagnostic Criteria and Resources Contributing to ADHD Diagnosis

Items Rated	ADHD children ($n = 5$)	
	Number	*Percentage*
Resources often contributing to diagnosis		
Medical examination	3	60
Parent interview	5	100
Child interview (alone)	2	40
Parent checklist	2	40
Teacher checklist	2	40
School report	3	60
Brain scan	2	40
EEG	1	20
Comorbidity		
Learning disability	5	100
Depression	1	20
Anxiety	1	20
Conduct Disorder	1	20
ADHD subtyping		
Predominately inattentive	3	60
Predominately hyperactive	1	20
Combined type	1	20

Most practitioners relied on DSM-IV criteria in their diagnosis and only a quarter based diagnosis on experiences of this type of child disorder. Only one practitioner confirmed ADHD presented prior to age seven of the sampled child. Diagnoses derived from parent or teacher checklists were based directly on DSM-IV criteria. Of the three not receiving the diagnosis of ADHD by parent or teacher checklists, two were rated as having problems with attention without necessarily being hyperactive and all three were confirmed comorbid with learning disability.

Descriptions of Practitioner-Reported ADHD Treatment Practices

Information about treatment use reported by practitioners in this survey is presented in Table 8. More than half of the practitioners used behaviour management training as the choice of treatment. Neither practitioner reported making use of dietary intervention in their treatment. In general, one practitioner reported prescribing medication for two school-aged children older than 5 years of age. Three practitioners used behaviour modification, while only one used parent management training.

Two practitioners treating children with modification reported receiving parent reports on a six-monthly basis and monitoring of the medication prescribed. Three of those treating with behaviour medication reported receiving frequent reports from parents of the children. One practitioner relied on frequent reports from a school official.

Cultural Issues in Assessment of ADHD

Responding practitioners in the current study provided data in regard to one Malay child and four Chinese children. Due to this small number of responses, it was not possible to analyse any cultural issues in assessment of Malaysian children. When practitioners were asked to identify cultural factors considered relevant when assessing, or treating, for ADHD, they did not identify any additional issues they would consider necessary to take into account when assessing or treating children from different ethnic groups. Differences emerged only with the frequency of symptom No.7 and No. 13 of DSM-IV criteria for ADHD – "Loses things necessary for tasks/activities" and "Has difficulty playing/engaging in leisure activities quietly". Practitioners identified these symptoms as present in all Chinese children but not in Malay children.

Table 8

Practitioners' Reports of Treatment of Attention-Deficit/Hyperactivity Disorder

Items Rated	ADHD children (n = 5)	
	Number	*Percentage*
Treatment used		
Medication	2	40
Behaviour Modification	3	60
School intervention	2	40
Parent management training	1	20
Family therapy	2	40
Dietary intervention	2	40
Speech therapy	1	20
Medication used		
Ritalin	2	40
Stimulant medication treatment strategies		
Frequent reports from teachers or parents	5	100
Medication increase or decrease	2	40
Frequent visits to pediatrician	1	20
Visit speech therapist every two weeks	1	20

Comparison of Malaysia and New Zealand Reported Diagnostic and Treatment Practices for ADHD

The following survey results include the data from the previous study of ADHD in New Zealand by Kingi (2000) for comparison with the responses of this study in Malaysia.

Diagnosis and Treatment of ADHD

The third research question asked whether there are significant differences in the number of diagnostic procedures applied to children in Malaysia and New Zealand, and whether age moderates the relationship between diagnostic and treatment procedures used in these two countries. In order to answer this

question, firstly, a factorial univariate analysis of variance (ANOVA) was calculated, in which the countries and children's age were independent variables. The dependent variables used in the analysis were the z-sores on the means of the number of diagnostic procedures applied. A .05 criterion of statistical significance was employed for all tests.

This analysis achieved a statistically significant main effect for countries, $F(1,87) = 6.131, p = .015, \eta^2 = .02$ and the interaction between countries and children's age, $F(2,87) = 130.335, p = .000, \eta^2 = .75$. However, there was no main effect for children's age, $F(2,87) = 2.048, p = .136$. As shown in Table 9, there was no difference between the numbers of diagnostic procedures used for each age group in general.

To examine the nature of the interaction effect, the marginal means were plotted as displayed in Figure 1. Age was significantly related to diagnostic procedures in both countries, Malaysia, ($F(2,39)=46.758, p=.000, \eta^2.= .72$) and New Zealand, ($F(2,46)=114.437, p=.000, \eta^2.= .84$) but the direction of the effect was different. New Zealand children were more likely to have more diagnostic procedures at a younger age and Malaysian children were more likely to receive more procedures as they grew older.

Table 9

The Main Effects of Diagnostic Procedures and Treatment Interventions

Variable	Group Age of Children		
	7 and below	8 to 10	11 to 16
Mean No. of Diagnostic Procedures	-.1389 ^{A}	.0051 ^{A}	.1039 ^{A}
Mean No. of Treatment Interventions	-.5027 ^{A}	.2488 ^{B}	.2760 ^{B}

Note. Means sharing a letter in their superscript are not significantly different from one another according to REGWQ tests.

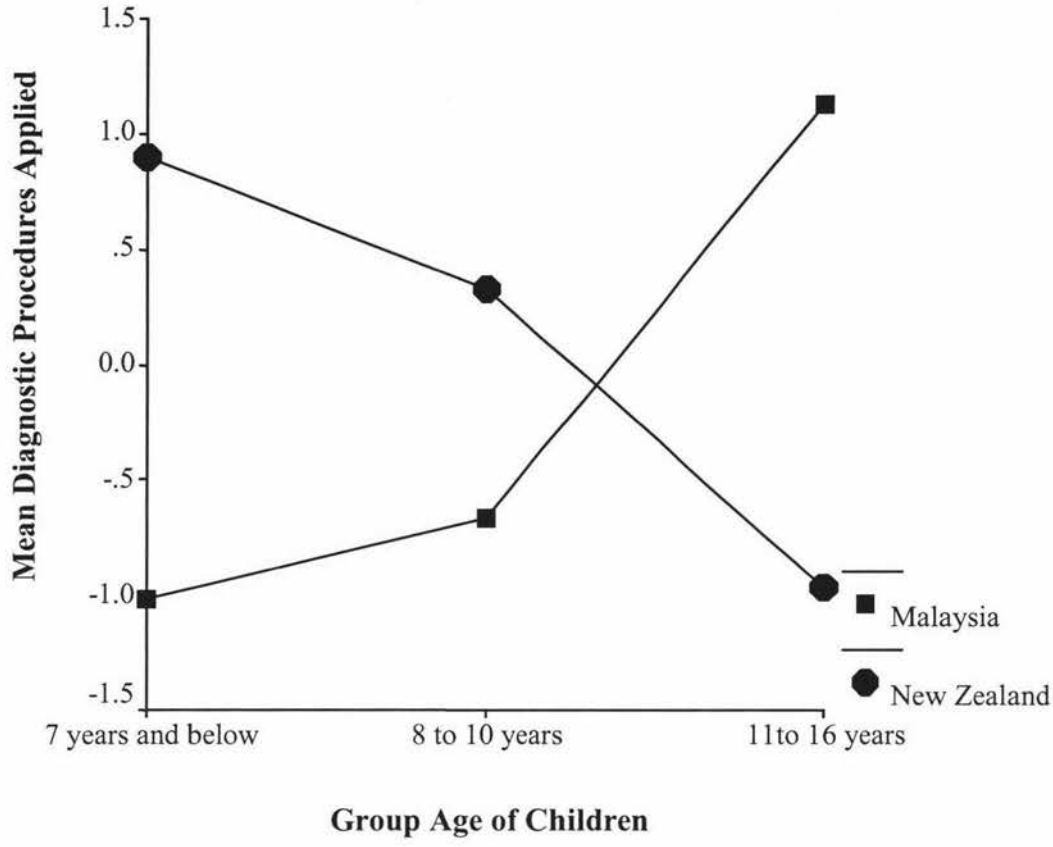

Figure 1. Diagnostic Procedures Applied in Malaysia and New Zealand

Secondly, a similar analysis, using as the dependent variables the z-scores on the means of the number of treatments used, revealed statistically significant main effects for children's age, $F(2,87 = 24.232, p = .000, \eta^2 = .13)$; and the interaction between countries and children's age, $F(2,87) = 123.974, p = .000, \eta^2 = .65$. However, this analysis failed to show significant main effects for countries, $F(1,87) = 3.141, p = .080$. REGWQ analyses showed that younger children were more likely to be treated by comprehensive treatment interventions than were older children (Table 9).

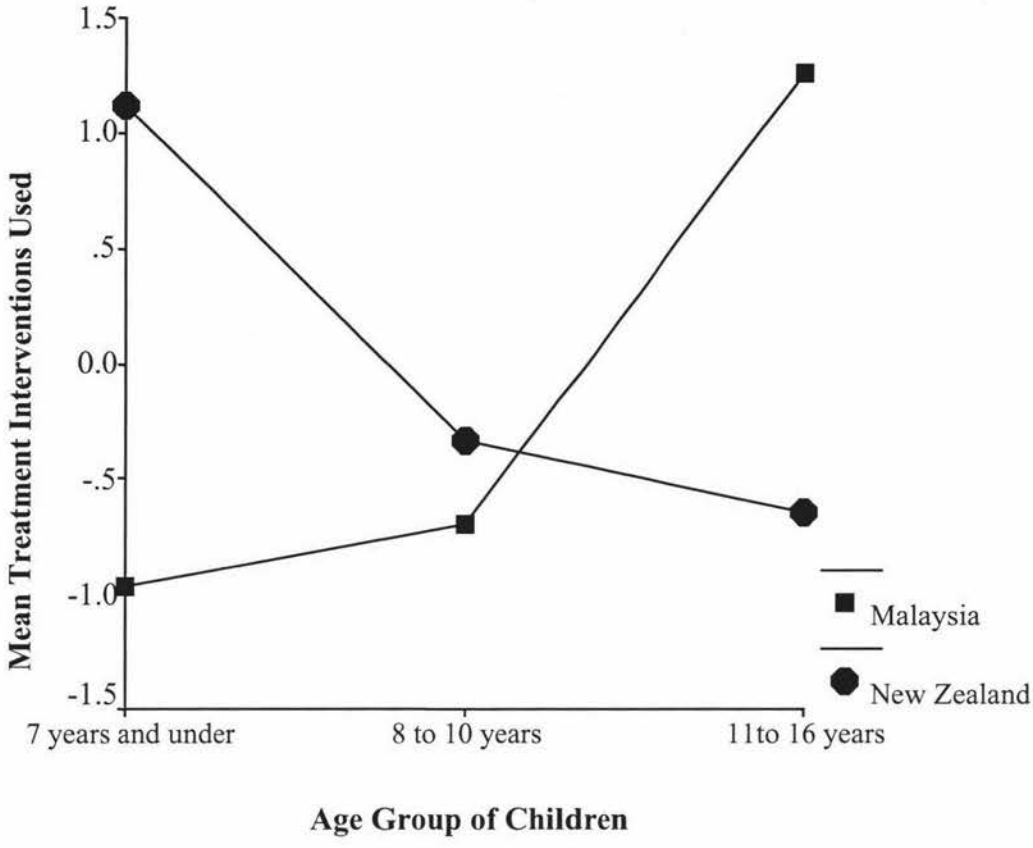

Figure 2. Treatment Interventions for Children in Malaysia and New Zealand

The marginal means were plotted as shown in Figure 2, in order to examine the nature of the interaction effect between countries and age on treatment interventions. Age was significantly related to treatment interventions in Malaysia, $F(2,39) = 78.676$, $p = .000$, $\eta^2 = .81$ and in New Zealand, $F(2,46) = 67.369$, $p = .000$, $\eta^2 = .75$. However, New Zealand children were more likely to have more treatment interventions at a younger age and Malaysian children were more likely to receive more procedures as they grew older.

Types of Diagnostic Procedures for ADHD

The fourth research question asked whether younger children (aged 7 years and below) are more likely to be assessed by medical examination, parent and child interviews, direct observation, parent and teacher checklists, school

report, brain scan and EEG for the diagnosis of ADHD than are older children (aged 8 years and above) and whether these practices occur more frequently in Malaysia than in New Zealand. A logistic regression analysis was conducted to determine which variables predicted diagnostic assessment procedures used once a child was assumed to have symptoms of ADHD. Country and participant's age were the predictor variables in this analysis.

As indicated in Table 10, employing an alpha level of .05, country, age, and its constituent dummy variables, had significant effects on direct observation. The odds ratio for country indicates that when holding all other variables constant, Malaysian children are 4.12 times more likely to be assessed by direct observation than are New Zealand children.

The age group variable was dummy coded using the age group of 7 years and below as the reference group. Children aged 11 to 16 years old were significantly less likely to be assessed by direct observation than were children aged 7 years and below. In contrast, children aged 8 to 10 years old were significantly more likely to be assessed by direct observation than were children aged 7 years and below. Inverted odds ratios for these dummy variables indicate that the odds of using direct observation for children aged 7 years and below were 5.71 times lower than for children aged 8 to 10 years old and 70.81 times higher than for children aged 11 to 16 years old.

Malaysian children were significantly 0.09 times more likely to be assessed by brain scan than were New Zealand children. Of these children, children aged 8 to 10 years old were significantly much less likely to be assessed with this assessment procedure than were children aged 7 years old and below. Inverted odds ratios for this variable indicates that the odds of using brain scan assessment for children aged 8 to 10 years old were 1.21 times lower than for children aged 7 years and below.

Table 10

Logistic Regression Predicting Types of Assessment from Country and Age

Diagnosis	Predictor	B	Wald χ^2	p	Odds Ratio
Medical Examination	Country	1.41	8.01	.005	4.12
	Age				
	8-10 years old	-0.82	1.83	.176	0.44
	11-16 years old	-0.17	0.09	.766	0.84
Parent Interview	Country	1.99	2.98	.084	7.30
	Age				
	8-10 years old	7.55	0.02	.886	1894.32
	11-16 years old	-1.99	2.98	.084	0.14
Child Interview	Country	0.60	1.68	.195	1.82
	Age				
	8-10 years old	0.74	1.81	.179	2.10
	11-16 years old	-0.60	1.20	.274	0.55
Direct Observation	Country	-1.21	4.33	.037	0.30
	Age				
	8-10 years old	3.30	8.96	.003	27.07
	11-16 years old	1.45	5.78	.016	4.26
Parent Checklist	Country	1.64	7.48	.006	5.18
	Age				
	8-10 years old	-1.27	3.30	.069	0.28
	11-16 years old	-0.39	0.32	.570	0.67
Teacher Checklist	Country	0.38	0.68	.410	1.46
	Age				
	8-10 years old	0.25	0.21	.643	1.29
	11-16 years old	1.13	4.12	.042	3.10
School Report	Country	-0.63	2.04	.153	0.53
	Age				
	8-10 years old	0.45	0.67	.412	1.57
	11-16 years old	-0.49	0.87	.351	0.61

Table 10 (Continued)

Logistic Regression Predicting Types of Assessment from Country and Age

Diagnosis	Predictor	B	Wald χ^2	p	Odds Ratio
	Country	-2.38	10.93	.001	0.09
Brain Scan	Age				
	8-10 years old	-1.66	4.95	.026	0.19
	11-16 years old	-10.37	0.14	.710	0.00
	Country	-1.21	1.86	.170	0.30
EEG	Age				
	8-10 years old	-0.61	0.47	.493	0.54
	11-16 years old	-9.47	0.04	.845	0.00

The results of the analysis thus indicate that New Zealand children were significantly 4.12 times more likely to be assessed by medical examination and 5.18 times more likely to be evaluated using parent checklist than were Malaysian children. Of these children, children aged 11 to 16 years old were significantly more likely to be assessed by teacher checklist than were children aged 7 years old and below. Inverted odds ratio for this variable shows that the odds of using teacher checklist for children aged 7 years old and below were 22.20 times lower than for children aged 11 to 16 years old. The results of analysis for other assessment procedures did not show significant effects.

Types of Treatment Interventions for ADHD

The fifth research question asked whether younger children (7 years and below) are more likely to be treated with medication, behaviour modification techniques, school intervention, parent management training, family therapy, dietary intervention and individual psychotherapy for ADHD than are older children (8 years and above) and whther these practices occur more frequently in Malaysia than in New Zealand. To determine which variables predicted

treatment interventions used once a child was diagnosed with ADHD, logistic regression analysis was conducted. Country and participant's age were the predictor variables.

As shown in Table 11, country, age, and its constituent dummy variables had significant effects for medication intervention. The odds ratio for country indicated that when holding all other variables constant, New Zealand children were 27.66 times more likely to be prescribed medication than were Malaysian children. Once diagnosed with ADHD, both children aged 8 to 10 years old and children aged 11 to 16 years old were significantly more likely to receive medication than were children aged 7 years and below. Inverted odds ratios for these variables indicate that the odds of using medication for children aged 7 years and below were 1.08 times lower than for children aged 8 to 10 years old and 1.09 times lower than for children aged 11 to 16 years old.

The results thus showed that Malaysian children were significantly 0.30 times more likely to be treated with family therapy than were New Zealand children. Moreover, children aged 11 to 16 years old were significantly less likely to receive family therapy than were children aged 7 years and below. Inverted odd ratios for this variable also indicated that the odds of using school intervention for children aged 7 years and below were 9.16 times higher than for children aged between 11 to 16 years old. The results of other treatment interventions did not produce significant effects.

Table 11

Logistic Regression Predicting Types of Treatment from Country and Age

Diagnosis	Predictor	B	Wald χ^2	p	Odds Ratio
Medication	Country	3.32	21.43	.000	27.66
	Age				
	8-10 years old	-2.62	9.21	.002	0.07
	11-16 years old	-2.49	9.71	.002	0.08
Behaviour	Country	-0.73	2.78	.095	0.48
Modification	Age				
	8-10 years old	0.46	0.70	.403	1.59
	11-16 years old	-0.06	0.01	.904	0.94
	Country	0.02	0.00	.972	1.02
School Intervention	Age				
	8-10 years old	0.77	1.96	.162	2.15
	11-16 years old	-2.21	7.36	.007	0.11
	Country	-0.75	1.78	.182	0.47
Parent Management	Age				
Training	8-10 years old	0.10	0.03	.856	1.11
	11-16 years old	-9.66	0.11	.745	0.00
	Country	-1.22	4.33	.037	0.30
Family Therapy	Age				
	8-10 years old	-0.41	0.47	.495	0.66
	11-16 years old	-9.84	0.11	.737	0.00
Dietary Intervention	Country	-0.60	1.08	.299	0.55
	Age				
	8-10 years old	0.18	0.10	.752	1.20
	11-16 years old	-9.37	0.10	.753	0.00
Individual	Country	-0.53	0.43	.514	0.59
Psychotherapy	Age				
	8-10 years old	0.07	0.01	.930	1.07
	11-16 years old	-8.21	0.08	.783	0.00

CHAPTER FIVE: DISCUSSION, LIMITATIONS AND IMPLICATIONS

This study investigated current diagnostic assessment procedures and treatment interventions used for children with ADHD by Malaysian mental health practitioners. The study further examined similarities and differences between Malaysia and New Zealand in applying diagnostic assessment procedures and treatment modalities for children with ADHD. Five research questions were generated to understand these issues.

.In general, the majority of Malaysian children in this study were found to be assessed for ADHD with inconsistent application of current scientific recommendations of diagnostic procedures. Behaviour modification and stimulant medication were the main treatments prescribed by Malaysian mental health practitioners for these ADHD children. This study further showed that ethnicity and age influenced the use of some types of assessment procedures and treatment interventions for ADHD children in Malaysia.

Children with ADHD in Malaysia and New Zealand experienced significantly different types of diagnostic procedures. In treatment modalities, no differences were found between these two countries, although a higher percentage of New Zealand children were given psychostimulant treatment. In addition, the results showed that age was a significant moderator of the relationships between countries and diagnosis criterion, and countries and treatment. Younger children in both countries, Malaysia and New Zealand, are more likely to be diagnosed for ADHD based on the brain scan method, whereas older children are more likely to be assessed by a teacher checklist during the assessment process. Once diagnosed, practitioners in both countries are more likely to prescribe medications for older children and family therapy for younger children. Types of ADHD diagnosis and treatment procedures vary considerably across the two countries. Malaysian practitioners are more likely to spend time in their evaluation, and use more direct observation than

other diagnostic assessment methods. Then, they are more likely to employ family therapeutic methods once a diagnosis of ADHD has been made. In contrast, New Zealand practitioners are more likely to depend on medical examination and parent checklist during the evaluation process and they are more likely to prescribe medication once a diagnosis has been made.

ADHD in Malaysia

The first research question asked how many types of diagnostic assessment and treatment procedures are used for children with ADHD in Malaysia.

ADHD Diagnostic Process

Results of this study show that the prevalence of ADHD comprehensive assessment procedures (10 %) is consistent with that reported in the New Zealand study (11 %) by Kingi (2000). The abnormally low rates of comprehensive assessment reported here reflect deficient diagnosis practices by mental health professionals (Cooper & Bilton, 1999). The American Academy of Child and Adolescent Psychiatry (1997) and other clinical guidelines (Adesman, 2001; American Academy of Pediatrics, 2001) have outlined a comprehensive clinical assessment that includes the use of parent and teacher interviews, school information, rating scales, observation, and complete medical or physical examination. Ninety percent of the entire sample of 40 children was diagnosed with inconsistent application of these recommended diagnostic procedures. This may reflect a situation in which many practitioners have less training in recognising ADHD and which leads to less appropriate diagnosis of this disorder (Brownell & Yogendra, 2001).

This study shows that children referred for ADHD problems often have been diagnosed by direct observation methods, particularly if they are less than 5 years old. This rate (83 %) is higher than the 66% reported in Kingi's study (2000), even though this method has been demonstrated to be ineffective in assessing ADHD symptoms—especially in the clinical office (Silver, 2004).

Besides, the cost in time and professional resources in conducting observations are other major drawbacks of this method (Brown, 2000).

The most common assessment method found for children in Malaysia was parent interviews. This method was more commonly used among Chinese children than among Bumiputera and other children. This practice is consistent with the American Academy of Pediatrics' clinical parameters (2001) that emphasise the importance of obtaining the evidence directly from parents regarding the core symptoms of ADHD in various settings, the age of onset, duration of symptoms, and degree of functional impairment. Furthermore, the results showed that only 33 % of the entire sample were engaged in child interview alone. This is due to the fact that the majority of the sample in the present study are children aged less than 5 years old. Brown (2000) suggested that only children aged over 10 years old can reliably report on their own behaviour, and the reliability of their report increases with age.

In this study, more than 50 % of all children were assessed by reports from their teacher. This result is slightly higher than the number shown in a recent study from New Zealand, which found that 40 % of the sample was evaluated by school reports (Kingi, 2000). This method was more common among minority ethnic groups in Malaysia than among other main ethnic groups such as Bumiputera and Chinese groups.

This study shows that medical evaluation was applied to more than half of the children (53 %), particularly if they are Chinese children. These rates are lower than those found by Kingi (2000) in which 81 % of New Zealand practitioners reported the inclusion of a physical examination in the diagnostic assessment of ADHD. One possible explanation of this result is that parents failed to remember all examinations that had been done within the past 12 months of diagnosis (Kingi, 2000). Further investigation is required here since the use of this diagnostic assessment method is important to determine

whether any deficits exist that may mimic the symptoms of ADHD (Adesman, 2000; Kube, Peterson & Palmer, 2002).

Another finding showed that standardised rating scales or checklists were not used to assess one-third of the entire sample of 40 children. This practice is consistent with the guidelines of the American Academy of Pediatrics (2001) that proposes this method as an option, cautioning clinicians not to validate or disprove a diagnosis based solely on the scales. In contrast, the majority of the New Zealand parents reported that their children being assessed by parent or teacher rating scales since these scales have proven very useful in obtaining valuable diagnostic and prognostic information (Adesman, 2000; Silver, 2004). The findings also suggest that the EEG assessment method is not commonly practised in Malaysia (38 %). A possible explanation is that EEG is a new, costly assessment compared with other assessments. Therefore, this method is practicable only for those who have the ability to pay for costly medication. Future research is needed to establish an accurate assessment of this practice.

This study confirmed that learning disability, conduct disorder, oppositional defiant disorder, depression and anxiety were common as conditions comorbid with ADHD as suggested by Kube, Peterson and Palmer (2002). These developmental or emotional disorders may mimic ADHD and lead to misdiagnosis unless a careful history of physical examination, developmental history and supportive diagnostic testing are used to assess them (Adesman, 2001; American Academy of Child and Adolescent Psychiatry, 1997; American Academy of Pediatrics, 2001; Silver, 2004).

Learning disabilities were the most common problem among children with ADHD. These findings are consistent with the results of a previous study (Mayes et al., 2000) that indicated children with ADHD had more learning problems than children without ADHD. Kube, Peterson and Palmer (2002) also suggested that this disorder is often found in children with ADHD or

school problems. Furthermore, psychiatric disorders such as depression and anxiety were more common in children less than age 5, emphasising the need for careful evaluation in this age group. Similarly, the Kube and colleagues' study reported high rates of this psychiatric disorder among younger children.

Children in Malaysia are more likely to be diagnosed by a pediatrician than by a general practitioner, psychologist or educational psychologist. The result of this study is consistent with the Manitoba study conducted by Brownell and Yogendra (2001). The present study indicates that all these practitioners depend more on parent interview and direct observation of the child's behaviour in their evaluation of ADHD symptoms. This is somewhat disconcerting because observation of a child's behaviour in the office is often unreliable, and parents alone are not always the best sources of diagnostic information (Wolraich et al., 1990). A study by Brownell and Yogendra (2001) found that diagnosis and prescription rates varied according to physician specialty. Given the potential for differences in the methods used by practitioners to diagnose ADHD, additional population-based studies in Malaysia of this issue are needed.

ADHD Treatment Interventions

Although the cause of ADHD remains unknown, successful treatment of ADHD can be achieved through the use of the internationally recognised multimodal treatment approach (Reid & Prosser, 2001).It is clear from this study that behaviour treatment intervention (60 %) and the stimulant medication approach (43 %) are the main treatments prescribed by practitioners for children with ADHD in Malaysia. However, a combined behavioural and medication approach is suitable for more severe situations of ADHD, such as when there is severe family trouble caused by ADHD symptoms, when a rapid response is needed, and when significant rapid externalizing disorders, mental retardation, reading achievement, or central nervous system problems like epilepsy appear (Root & Resnick, 2003).

Even though about 80 % of children showed improvement in their behaviour while taking the appropriate stimulant medication in the proper way (Silver, 2004), the rate of treatment with medication reported in this study is lower than that reported in the previous study (Kingi, 2000). This study suggests that Malaysian practitioners are adopting a more cautious approach to stimulant treatment of this disorder. Almost all medicated children (94 %) used Ritalin as a drug of choice and nearly of all of them (94 %) experienced sleeping difficulties as side effects. In contrast, the results of the Efron et al. (1997) study suggested that appetite suppression was the only substantial side effect on Methylphenidate (Ritalin).

Fewer other forms of treatment, such as school intervention (33 %), family therapy (33 %), parent management training (30 %), dietary intervention (25%) and individual psychotherapy (10 %), were actually used by Malaysian practitioners. The low usage rate of these nondrug treatments with ADHD children is of concern given the findings that suggest the importance of multimodality treatment for long-term beneficial results (Wolraich et al., 1990). Results thus show that one practitioner has confirmed the use of speech therapy as a part of ADHD interventions, however, no parent data indicated the use of this therapy. One possible explanation here is that parents have failed to realise this therapy is a part of treatment interventions for ADHD.

Group Differences

In regard to the second research question, regarding differences in the utilisation of diagnostic methodology and treatment intervention among different age groups and ethnic groups of Malaysian children, the results have shown that ethnicity and age are related to some types of assessment procedures and treatment interventions applied to ADHD children in Malaysia.

Ethnicity clearly affects some types of diagnostic assessment procedures and treatment interventions used for children with ADHD in Malaysia.

Bumiputera, Chinese and other ethnic groups were found to differ significantly on the use of medical examination, parent interview, school report and brain scan as ADHD assessment methods. Bumiputera children were more likely to be evaluated for ADHD based on the brain scan method. Most Chinese children were diagnosed for ADHD based on parent interviews and medical examinations. However, other ethnic groups were more likely to be assessed by school report for the diagnosis of ADHD. Research conducted by Stevens (1981, as cited in Gingerich et al., 1998) in the United States concluded that psychologists and parents appeared to be more affected by ethnic characteristics compared to teachers, when rating hyperactivity in children.

For comorbid conditions, the ethnic outcome difference seen is that more Chinese children (70 %) were, significantly, categorised as having comorbid learning disability than the other groups. Significantly more Bumiputera children (59 %) were rated as having comorbid conduct disorder than the other groups. Malaysian practitioners tended to rate more oppositional defiant disorder in ADHD children that were Chinese (50 %) and Bumiputera (50 %). General practitioners were the most likely to see ADHD symptoms in Chinese children. In contrast, parents of Bumiputera children and other ethnic groups were more likely to notice ADHD symptoms in their own children.

The significant differences in treatment approach, particularly between medication and dietary interventions, also appeared among different ethnic groups of children. Practitioners tended to prescribe more medications to Chinese children than to the other ethnic groups. In this study, most of them had experienced sleeping difficulties during the medication intake. Significantly, more Chinese children had an adjustment of medication prescribed by their practitioners and received more ongoing treatment of frequent reports from their teachers or their parents. In contrast, most of the Bumiputera children engaged in dietary interventions as a part of ADHD treatments.

Satisfaction with, and acceptance of, interventions play a considerable role in the degree to which a particular intervention will even be initiated (Anastopoulos & Shelton, 2001). The results of the present study indicate that significantly more parents of Chinese children were satisfied with their involvement in the ADHD diagnosis than other groups, and more non-Chinese or non-Bumiputera were satisfied in the choices of ADHD treatments given by their practitioners than other groups. More parents of Chinese children showed high satisfaction with the effectiveness of treatment in school settings. Bumiputera parents experienced higher satisfaction in the effectiveness of treatment on peer relationships of their children, and non-Bumiputera and non-Chinese indicated dissatisfaction with the information they had received about support systems available in the community.

The higher rates of diagnosis and treatment among Chinese children in this study may be due to increased recognition of this disorder, increased awareness and acceptance of this condition, and greater knowledge of the course of the illness (Adesman, 2001). Further empirical investigation on the relationship between ADHD and cultural variables is needed. The consequences of these investigations may reduce the problems of under- and over-diagnosis based on cultural insensitivity and diagnostic bias, misinterpretation of prevalence data and misjudgements of appropriate treatment interventions (Gingerich et al., 1998).

The results of this study also reveal that age did influence some diagnostic assessment procedures and treatment modalities applied to ADHD children in Malaysia. Significantly, younger children (60 %) were more likely to be evaluated for the diagnosis of ADHD by the direct observation method than were older children. All parents of younger children received training in child behaviour management as a part of ADHD treatment interventions. The high rates of diagnostic methodology and treatment approach among younger children in the current study is consistent with the DuPaul et al. study (1997,

as cited in Anastopoulos & Shelton, 2001) that indicated children aged 7 years and less were more likely to have a high prevalence of ADHD.

Comparison of Malaysia and New Zealand Diagnostic and Treatment Practices for ADHD

Diagnosis and Treatment of ADHD

The third research question asked whether there are significant differences in the number of diagnostic procedures applied to children in Malaysia and New Zealand, and whether age moderates the relationship between diagnostic and treatment procedures used in these two countries.

Results of this study showed that ADHD children in Malaysia and New Zealand experienced significantly different types of diagnostic assessment procedures during the evaluation process. There were apparently no differences in treatment interventions, however, the relationships between diagnosis procedures and treatment interventions used in Malaysia and New Zealand were moderated by the age group of the children.

ADHD children in Malaysia were much more likely to be diagnosed and treated with comprehensive assessment and treatment procedures when they grew older than were children in New Zealand. This may be attributed to the failure to recognise ADHD symptoms in the earlier stage of children's lives by practitioners or maybe by the parents. Malaysian children were more likely to become involved in various type of treatment intervention when they grew older. As indicated by Joughin, Ramchandi and Zwi (2003), more than 70 percent of hyperactive children may continue to meet criteria for ADHD in adolescence and meet criteria for ADHD in adulthood. The current results suggest that inattention and impulsivity tend to continue to pose significant problems in adolescence and adulthood in the Malaysian context.

The higher rates of comprehensive evaluation and treatment modalities applied to younger children with ADHD in New Zealand compared with those

in Malaysia is most likely a result of the increased awareness and acceptance of the ADHD condition among children's parents and mental health practitioners. Moreover, an increase in the use of stimulant medications in younger children in New Zealand may be a reflection of confidence in the efficacy and safety of these stimulant medications (Adesman, 2001). Early detection and appropriate treatment of the disorder would be likely to reduce the occurrence of ADHD symptoms in adolescence and in adulthood in New Zealand.

This contrast in findings may have something to do with the cultural differences in child rearing between Malaysian parents and New Zealand parents. In reality, bringing up children with attention problems or undesirable behaviour would pose just as many challenges and difficulties to Malaysian parents as to Western parents. However, urban Malaysian parents have been observed to not spend enough time doing things together with their children (Hsein-Jin & Peng, 2001). There is rarely time to play and have regular meals with the children. Much of the care giving is done by others such as relatives, friends or maids. Due to these situations, parents may fail to recognise symptoms of this disorder in the earlier stage of their child's life. Therefore, additional research is required to document how factors like parenting style affect the diagnosis and treatment for ADHD children in Malaysia.

Types of ADHD Diagnostic Assessment Procedures

The fourth research question asked whether younger children are more likely to be assessed by medical examination, parent and child interviews, direct observation, parent and teacher checklists, school report, brain scan and EEG for the diagnosis of ADHD than are older children, and do these practices occur more frequently in Malaysia than in New Zealand? The findings have revealed that some types of ADHD diagnosis procedures vary significantly across different age groups and countries.

Younger children (aged 7 years and less) in both Malaysia and New Zealand are more likely to be diagnosed for ADHD based on direct observation than are older children (aged 11 to 16 years). However, these younger children are less likely to be evaluated by this assessment when compared to those children aged 8 to 10 years old. In contrast, these younger children are more likely to be assessed by brain scan than are those children aged 8 years to 10 years old. Furthermore, standardised teacher checklists are more common among older children (11 to 16 years old) than younger children (7 years and less) during the evaluation process in these two countries.

Once symptoms of ADHD have been recognised, Malaysian practitioners are more likely to depend on direct observation and brain scan results than are New Zealand practitioners in diagnosing children for ADHD. However, appropriate medical examination and parent checklist are the two methods used more frequently among New Zealand practitioners than among Malaysian practitioners.

Types of ADHD Treatment Interventions

The fifth research question asked whether younger children (7 years and below) are more likely to be treated with medication, behaviour modification techniques, school intervention, parent management training, family therapy, dietary intervention and individual psychotherapy for ADHD than are older children (8 years and above), and whether these practices occur more frequently in Malaysia than in New Zealand. Results indicate that some types of ADHD treatment interventions differ significantly across different age groups and countries.

Older children (more than 7 years) in both Malaysia and New Zealand are more likely to be treated with stimulant medications once a diagnosis has been made. However, more parents of younger children (7 years and less) are likely to engage in family therapeutic sessions than are parents of older children.

The treatment intervention pattern varies considerably across different countries, particularly psychostimulant therapy and family therapy. Not surprisingly, children in New Zealand are more likely to take medications once diagnosis has been made. The results of the Kingi study (2000) revealed that medication treatment was the main intervention applied to most ADHD children in New Zealand. Significantly, more parents of Malaysian children are more likely to be involved in family therapeutic sessions than are parents of New Zealand children.

Differences in some types of diagnosis and treatment procedures used for ADHD children in Malaysia and New Zealand may reflect differences in the specialty of practitioners in assessing and treating the disorder. Findings of studies carried out in the West have shown the physician specialty pattern varies across different regions of the province (Brownell & Yogendra, 2001). The primary care physicians are frequently the health professionals who play the principal role in assessing and treating children with ADHD (Wolraich et al., 1990). In Malaysia, most government hospitals have psychiatric units but not all are staffed with psychiatrists specialising in child psychiatry (Hsein-Jin & Peng, 2001). Besides, most clinical psychologists, child psychiatrists and developmental psychologists run individual consultancy services and rarely work as part of multidisciplinary teams (Hsein-Jin & Peng, 2001). These situations may lead to inappropriate diagnosis and treatment of the disorder. Therefore, these explanations deserve fuller investigation in future research, particularly in the Malaysian context.

As noted earlier, age differences affected the use of some types of the diagnostic procedures and treatment interventions in these two countries. These findings may reflect differences in the prevalence of ADHD. In Malaysia, the age group reported to have most problems were the 10- to 12-years old, followed by the 13- to 15-years old and the age group with the least reported psychiatric problems were the 5- to 6-years old (Hsein-Jin & Peng, 2001). In contrast, the results of the Western study indicated younger children

(aged 5- to 7-years old) are more likely to be diagnosed with, and treated for, ADHD (Anastopoulos & Shelton, 2001). Therefore, additional research is needed in this area in order to find out prevalence rates of ADHD among different age groups of Malaysian children.

Limitations

There are several limitations to the present study. Especially those related to the sample. Although the results of the present study provide important information about current diagnosis and treatments for ADHD in Malaysia, several factors suggest the need for caution in interpreting these results. Bias is an important problem in this study since the sample of children was all boys. The study is also limited because the child samples were restricted to two areas in Malaysia. Therefore, this sample may not be representative of current practices throughout the country.

In addition, all information about diagnosis and treatment of ADHD in this study was based on parent report and not confirmed with medical records. The medical records were difficult to obtain since only a few parents had agreed to the release of information about their children from their practitioners. The rates of practitioners' responses were also low. Therefore, the data presented here can describe the current practice for diagnosis and treatment but do not address whether ADHD is under- or overdiagnosed or treated in the Malaysian population.

Another limitation is a potential response bias in this parent-based survey. Some parents of children may have chosen to participate in this study out of a desire to increase public understanding of this disorder, whereas others may have not been motivated to participate because of concerns about confidentiality.

The findings from a comparative study on diagnosis and treatment of ADHD between Malaysia and New Zealand are tempered by additional limitations.

The samples were matched on the specific criterion of being diagnosed with, and treated for, ADHD and to be between 3 and 16 years old, for sample comparability. However, different ethnic backgrounds and socioeconomic status may decrease the accuracy of the current findings. Future research on ADHD diagnosis and treatment in these countries should aim to capture more differences between children in each country.

Implications

The results of the present study have several implications for further research. First, a major contribution of the current study is some preliminary indications about current ADHD assessment, diagnosis and treatment practices for children in Malaysia. Although these findings may not be representative of the practices throughout the whole country, they do provide some initial data and suggest important areas for further investigation.

Despite the limitations mentioned above, the study does reveal high rates of ADHD diagnosis and treatment interventions among Chinese children. Hsein-Jin and Peng (2001) reported that in Malaysia, children that came from the Indian community had the highest rate of psychiatry morbidity (24.6 %), followed by other non-Bumiputera ethnic groups (23.6 %), then the Bumiputera (11.9 %) and lastly the Chinese (3.6 %). The results of this study contradict those reported by these authors, and therefore encourage further investigation of this problem.

A final recommendation for further research arises from the cross-cultural aspect of the research. Future research on the diagnosis and treatment interventions of ADHD across two countries, Malaysia and New Zealand, should aim to continue to examine the effects of cultural diversity and age and include gender and socioeconomic status. These effects are important to consider in order to provide appropriate assessment, diagnosis and treatment for individuals with ADHD (Gingerich et al., 1998).

Despite increases in knowledge about ADHD children, ADHD and its diagnosis as well as its treatment are likely to remain inappropriately applied. The findings of this study reveal that the majority of Malaysian children were found to be assessed and treated for ADHD with inconsistent application of current scientific recommendations of diagnostic procedures and treatment interventions. Ethnic diversity and age differences also influence some of the types of assessment procedures and treatment interventions applied to these children. The findings also suggest that not only are diagnostic procedures differently applied in two countries, Malaysia and New Zealand, but also these differences depended on age. Moreover, the children's age influences the use of some types of diagnosis and treatment procedures in both countries. Therefore, much still needs to be done to clarify the diagnosis of ADHD and its treatment. It is critical that more systematic methods for the diagnosis and treatment of ADHD be applied to those children in Malaysia. A continuous review of ongoing practices by Malaysian mental health practitioners must be conducted to ensure that there will be efficient and equitable mental health care provision available to all ADHD children in Malaysia.

REFERENCES

Adesman, A. R. (2001). The diagnosis and management of attention-deficit/hyperactivity disorder in pediatric patients. *Journal Clinical Psychiatry: Primary Care Companion, 3(2),* 66-77.

Aldridge, V. (1999, April 17). Ritalin hits the streets. *The Dominion,* p.17.

American Academy of Child and Adolescent Psychiatry. (1997). Practice parameters for the assessment and treatment of children, adolescents, and adults with attention-deficit/hyperactivity disorder. *Journal of the American of Child Adolescent Psychiatry, 36(10),* Supplement, 85S-121S.

American Academy of Pediatrics. (2000). Clinical practice guideline: Diagnosis and evaluation of the child with attention-deficit/hyperactivity disorder. *Pediatrics, 105(5),* 1158-1170.

American Academy of Pediatrics. (2001). Clinical practice guideline: Treatment of the school-aged child with attention-deficit/hyperactivity disorder. *Pediatrics, 108 (4),* 1033-1044.

American Psychiatry Association. (1994). *Diagnostic and statistical manual for mental disorders* (4th ed.). Washington, DC: Author.

Anastopoulos, A. D., & Shelton, T. L. (2001). *Assessing attention-deficit/hyperactivity disorder.* New York: Kluwer Academic/Plenum Publishers.

Anderson, J., Williams, S., McGee, R., & Silva, P. (1987). DSM-111 disorders in preadolescent children. *Archives of General Psychiatry,* 69-76.

Ang, S. (2000, June 20). Special children have rights too. The *Strait Times*, p. 10.

Attention Deficit Disorder Association. (2000). *Guiding principles for diagnosis and treatment of attention deficit hyperactivity disorder.* Retrieved December 6, 2003, from http://www.add.org

Barkley, R.A. (1990). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment.* New York: The Guilford Press.

Barkley, R.A. (1995). *Taking charge of ADHD-The complete, authoritative guide for parents.* New York: The Guilford Press.

Barkley, R.A. (1997). *ADHD and the nature of self-control.* New York: The Guilford Press.

Barkley, R.A. (1998). *Attention-deficit hyperactivity disorder. A handbook for diagnosis and treatment* (2nd ed.). New York: The Guilford Press.

Baughman, F. A., Jr. (1999, Febuary). Diagnosis and evaluation of the child with attention-deficit/hyperactivity disorder [Letter to the editor]. *Child Adolescence Behaviour Letter,* p.1239-1240.

Brown, M.B. (2000). Diagnosis and treatment of children and adolescents with attention-deficit/hyperactivity disorder. *Journal of Counseling and Development, 78,* 195-203.

Brownell, M.D., & Yogendran, M.S. (2001). Attention-deficit hyperactivity disorder in Manitoba children: Medical diagnosis and psychostimulant treatment rates. *Canada Journal Psychiatry, 46,* 264-272.

Cooper, P., & Bilton, K. (1999). *ADHD research, practice and opinion*. London: Whurr Publishers.

Crabtree, S., & Chong, G. (2001). Mental health in Malaysia since independence. In A.Haque (Ed.), *Mental health in Malaysia: Issues and concern* (pp. 21-34). Kuala Lumpur: University of Malaya Press.

Diller, L. H. (2001, August 20). *Controversies in the diagnosis and treatment of ADHD: One doctor's perspective.* Retrieved February 12, 2004, from http://planethealth.healthology.com/focus_article.

Efron, D., Jarman, F., & Barker, M. (1997). Side effects of methylphenidate and dexamphetamine in children with attention deficit hyperactivity disorder: A double-blind, crossover trial. *Pediatrics, 100(4),* 662-666.

Gingerich, K. J., Turnock, P., & Rosén, L. A. (1998). Diversity and attention deficit hyperactivity disorder. *Journal of Clinical Psychology, 54(4),* 415-426.

Hoggan, R. (1998). *Application of the exorphin hypothesis to attention deficit hyperactivity disorder: A theoretical framework.* Unpublished master's thesis, University of Calgary, Alberta, Canada.

Hsien-Jin, T., & Peng, R. (2001). Child mental health: Integrating Malaysian needs with international experiences. In A.Haque (Ed.), *Mental health in Malaysia: Issues and concern* (pp. 103-129). Kuala Lumpur: University of Malaya Press.

Joughin, C., Ramchandani, P. & Zwi, M. (2003). Attention-deficit/hyperactivity disorder. *American Family Physician, 67(9),* 1969-2003.

Kado, S., & Takagi, R. (1996). Biological aspects. In S. Sandberg (Ed.), *Hyperactivity disorders of childhood* (pp. 246-279). Cambridge: Cambridge University Press.

Kingi, D. A. (2000). *Current diagnosis and treatment practices for attention-deficit hyperactivity disorder with children.* Unpublished master's thesis, Massey University, Palmerston North, New Zealand.

Kube, D. A., Peterson, M. C., & Palmer, F. B. (2002). Attention deficit hyperactivity disorder: Comorbidity and medication use. *Clinical Pediatrics, 41,* 461-469.

Lawrence, J. D., Lawrence, D. B., & Carson, D. S. (1997). Optimizing ADHD therapy with sustained-release methylphenidate. *American Family Physician, 55(5),*1705-1709.

Lee, J. (2002, September 23). These kids are not naughty, they just need help. *The Straits Times,* p.8.

Magyary, D., & Brandt, P. (2002). A decision tree and clinical paths for the assessment and management of children with ADHD. *Issues in Mental Health Nursing, 23,* 553-566.

Mayes, S. D., Calhoun, S. L., & Crowell, E. W. (2000). Learning disabilities and ADHD: Overlapping spectrum disorders. *Journal of Learning Disabilities, 33(5),* 417-424.

Ministry of Health. (2001). *New Zealand guidelines for the assessment and treatment of attention-deficit/hyperactivity disorder.* Wellington, New Zealand: Ministry of Health.

National Institutes of Health Consensus Statement Online. (1998, November 16-18). *Diagnosis and treatment of attention deficit hyperactivity disorder.* Retrieved October 18, 2003, from http://odp.od.nih.gov/consensus/cons/110/110_statement.htm.

Offord, D. R., Boyle, M. H., Szatmari, P., Rae-Grant, N. I., Links, P. S., Cadman, D. T., et al. (1987). Woodward, Ontario child health study, II: Six-month prevalence of disorder and rates of service utilization, *Archives of General Psychiatry,* 832-836.

Power, T. J., Costigan, T. E., Leff, S. S., Eiraldi, R. B., & Landau, S. (2001). Assessing ADHD across settings: Contributions of behavioral assessment to categorical decision making. *Journal of Clinical Child Psychology, 30(3),* 399-412.

Reid, P. R., & Prosser, B. (2001, April). *Issues for the treatment of attention deficit hyperactivity disorder (ADHD) in South Australia: Submission to the social development committee 49th South Australian Parliament.* Retrieved Febuary 22, 2004, from http://members.ozemail.com.au/~.

Root, R. W., II., & Resnick, R. J. (2003). An update on the diagnosis and treatment of attention-deficit/hyperactivity disorder in children. *Professional Psychology: Research and Practice, 34(1),* 34-41.

Rose, V. L. (1999). NIH issues consensus statement on attention-deficit/hyperactivity disorder. *American Family Physician, 59(9),* 2645-2646.

Rowe, K. (1988). Synthetic food coloring and 'hyperactivity': A double-blind crossover study. *Australian Pediatric Journal, 24,* 143-147.

Rowland, A. S., Umbach, D. M., Stallone, L., Naftel, A. J., Bohlig, E. M., & Sandler, D. P. (2002). Prevalence of medication treatment for attention deficit-hyperactivity disorder among elementary school children in Johnston County, North Carolina America. *Journal of Public Health, 92(2),* 231-234.

Sandberg, S., & Garralda, M. E. (1996). Psychosocial contributions. In S. Sandberg (Ed.), *Hyperactivity disorders of childhood* (pp. 280-328). Cambridge: Cambridge University Press.

Schachar, R., Tannock, R., & Cunningham, C. (1996). Treatment. In S. Sandberg (Ed.), *Hyperactivity disorders of childhood* (pp. 433-476). Cambridge: Cambridge University Press.

Shakil, A. (2001). Finding guidance amid uncertainty of ADHD diagnosis. *American Family Physician, 63(9),* 1694-1700.

Shaywitz, S., & Shaywitz, B. (1985). Attention deficit. *Pediatrics, 76(4),* 623-625.

Silver, L. B. (2004). *Attention-deficit/hyperactivity disorder: A clinical guide to diagnosis and treatment for health and mental health professionals (3rd ed.).* Washington, DC: American Psychiatric Publishing.

Singam, D. (2001, July 26). The truth about hyperactivity. *The Sun,* p.2.

Social, Health and Family Committee. (2002, May 5). *Controlling the diagnosis and treatment of hyperactive children in Europe.* Retrieved December5,2003,fromhttp://assembly.coe.int/Documents/WorkingDocs/Doc02/EDOC9456.htm.

Teoh, H-J, Zubrick, S. R., & Martin, P. R. (1998, December 4-6). The role of family structure and family process in predicting children's mental health. Paper presented at 7th ASEAN Congress on Psychiatry and Mental Health, Kuala Lumpur, Malaysia.

Toh, C. L., Ding, R. P., Maniam, T. Lim, T. O., Abdullah, A., & Sararaks. S. (1997). *Psychiatry morbidity in children and adolescents.* Malaysia: Public Health Institute.

Vaughn, M. L., Riccio, C. A., Hynd, G. W., & Hall, J. (1997). Diagnosing ADHD (predominantly inattentive and combined type subtypes): Discriminant validity of the behavior assessment system for children and the Achenbach parent and teacher rating scales. *Journal of Clinical Child Psychology, 26(4),* 349-357.

Whalen, C. K. (2001). Attention deficit/hyperactivity disorder (ADHD). *International Encyclopedia of the Social and Behavioral Sciences,* 871-875.

Whalen, C. K., & Henker, B. (1991). Social impact of stimulant treatment for hyperactive children. *Journal of Learning Disabilities, 24,* 231-241.

Whalen, C. K., & Henker, B. (1997). Stimulant pharmacotherapy for attention-deficit/hyperactivity disorder: An analysis of progress, problems, and prospects. In Fisher S., & Greenberg, R.P. (Eds.), *From placebo to panacea: Putting psychiatric drugs to the test* (pp. 323-355). New York: John Wiley.

Wolraich, M. L., Lindgren, S., Stromquist, A., Milich, R. Davis, C., & Watson, D. (1990). Stimulant medication use by primary care physicians in the treatment of attention deficit hyperactivity disorder. *Pediatrics, 86(1),* 95-101.

Zigler, E., Taussig, C., & Black, K. (1992). Early childhood intervention: A promising preventative for juvenile delinquency. *American Psychologist, 47,* 997-1006.

Zubrick, S. R., Silburn, S. R., Garton, A., Burton, P., Dalby, R., Carlton, J., et al. (1995). *Western Australian child health survey: Developing health and well-being in the nineties,* Perth: Australian Bureau Statistics and The Institute for Child Health Research.

APPENDICES

Appendix A: Letter to Organisation

_____(Date)

_____(Agency Name)
_____(Address)
_____

Dear Sir,

My name is Nurul Salikin Sa'ari and I am currently conducting a research related to Attention-Deficit Hyperactivity Disorder (ADHD) as a part of my Masters degree in Psychology at Massey University, New Zealand under the supervision of Dr. Chris Stephens, Senior Lecturer, School of Psychology, Massey University.

During these days, there are the growing public and professional concerns about the variations in treatment patterns for ADHD including the increased use of psycho stimulants. Many studies said that reported assessment and treatment practice is not always consistent with methods supported by current research. Meaning some children is being diagnosed as having ADHD due to insufficient evaluation. Therefore, this research is committed to providing an important finding as regards to the current methods used for diagnosing and treating this disorder, specifically at Malaysia. It will examine the current assessment, diagnosis and treatment practices for ADHD children as well as will determine their consistency with current scientific research and recommendations. Parents or guardians of these children will be the participants of this research.

The reason that I am writing this letter is to ask your assistance and cooperation in order to recruit the mentioned participants. It seems that your organization can access to this type of participants and I would extremely appreciate if you could hand out the questionnaires to them. You can choose either to send via mail or to wait as they visit. The questionnaire together with the information sheet and the consent form will be put inside the postage paid envelope. The participants will send their responses directly back to me.

Please complete the enclosed feedback form and it is important that I have this information. I would appreciate it if you would return the completed form in the envelope provided as soon as possible.

If you have any queries regarding this research, please feel free to contact me on this email: Nurul.Sa'ari1@uni.massey.ac.nz or blue_ikin@hotmail.com or my supervisor Dr. Chris Stephens, School of Psychology, Massey University, Private Bag 11222, Palmerston North, New Zealand, email: C.V.Stephens@massey.ac.nz

Thanks for your consideration in this important matter and your cooperation are highly appreciated.

Kind regards,
Nurul Salikin Sa'ari

Appendix B: Agreement Form

AGREEMENT FORM

We hereby **agree/do not agree** (if not circled, we assume 'agree') to give our cooperation in distributing the questionnaires, the information sheets and the consent forms to our clients (parents/guardians of ADHD children) for the purpose of the research project, entitled "Attention-Deficit/Hyperactivity Disorder Children: A Comparative Study on Current Assessment, Diagnosis and Treatment Practices in Malaysia and New Zealand".

Estimated number of clients:.....

(The questionnaires and other related documents will be sent to you according to the above estimation)

Estimated number of clients who use Bahasa Malaysia :.....

Estimated number of clients who use English :.....

(The documents are prepared in two languages. Based on the above estimation, please indicate the number of clients that prefer the documents written in Bahasa Malaysia and written in English)

Organisation Name :.....

.....

Signature :.....

Date :.....

Appendix C: Parent/Guardian Information Sheet

INFORMATION SHEET FOR PARENT/GUARDIAN
(English and Bahasa Malaysia)

Project Title:
"Attention-Deficit/Hyperactivity Disorder in Children: A Comparative Study on Current Assessment, Diagnosis and Treatment Practices in Malaysia and New Zealand"

I am Nurul Salikin Sa'ari, a Masters student at the School of Psychology, Massey University, New Zealand. My supervisor is Dr. Christine Stephens and she is the lecturer at the School of Psychology, Massey University. I would like to invite you to participate in my research project. Please read and consider carefully this information sheet before you decide to participate.

The purposes of this study are to identify the present assessment, diagnosis and treatment practices for ADHD children in Malaysia and to determine their consistency with current scientific research and recommendations. This study will also compare and contrast the diagnosis and treatment of ADHD as practiced in Malaysia and New Zealand.

If you are a parent or guardian of a child, aged between 3-16 years, who is currently diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD), you will be invited to complete a questionnaire relating to your experiences of referral, assessment and treatment procedures for ADHD. You will also be asked to provide some general background information. The questionnaire will take around 15-20 minutes to complete. With your consent, a standard questionnaire will be sent to the practitioner currently treating your child for ADHD in order to collect additional information on the assessment and treatment procedures that were conducted. If requested, this questionnaire can be made available for your perusal prior to it being sent out. Your participation in this research is voluntary and it is assumed that, by completing and returning the questionnaire you consent to participate in the study.

The data will be used for academic purposes only. As soon as the data have been analysed, all information will be destroyed. All information will be treated with the maximum confidentiality and your child's name will not be mentioned anywhere in the study report. Only myself and my supervisor will see your completed questionnaire.

If you would like to know about the findings of the study, please supply your name and address on the form on the last page of the questionnaire. This will be removed from the questionnaire immediately and used only to send you a summary of the results and then destroyed.

If you choose to take part in this study you have the right to:

- contact the researcher at any time to discuss any aspects of the study or to ask any questions;
- decline to participate;
- decline to answer any particular question;
- withdraw from the study at any time before returning the questionnaire;
- provide information on the understanding that your name will not be used;
- be given access to a summary of the project findings when it is concluded.

If you would like to take part in this study, please answer the questions provided in the questionnaire and return it to the researcher in the envelope provided as soon as possible. Please keep this information sheet for your own reference. Your participation/non participation in this research will not affect your access to treatment. Should you have any queries regarding this study, please feel free to contact me:

Nurul Salikin Sa'ari
School of Psychology,
Massey University, Private Bag 11222,
Palmerston North, New Zealand.
Email: i. Nurul.Sa'ari.1@uni.massey.ac.nz ii. blue_ikin@hotmail.com
Phone: 09-7443696 / 012-9280461 (Malaysia)

or

Dr. Christine Stephens
School of Psychology,
Massey University, Private Bag 11222,
Palmerston North, New Zealand.
Phone: 0064-6-350 5799 ext. 2071
Email: C.V.Stephens@massey.ac.nz

This project has been reviewed and approved by the Massey University Human Ethics Committee, PN Protocol 03/133.. If you have any concerns about the conduct of this research, please contact Professor Sylvia V Rumball, Chair, Massey University Campus Human Ethics Committee: Palmerston North, telephone 0064 6 350 5249, email **humanethicspn@massey.ac.nz**

Appendix D: Parent/Guardian Information Sheet-Malay Language

KERTAS MAKLUMAT UNTUK IBUBAPA/PENJAGA
(Bahasa Malaysia dan English)

Tajuk Projek:
"Kanak-Kanak Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD):
Satu perbandingan ke atas penilaian, diagnosis dan rawatan-rawatan terkini yang dipraktifkan di Malaysia dan New Zealand"

Saya, Nurul Salikin Sa'ari merupakan seorang pelajar sarjana di Sekolah Psikologi, Universiti Massey, di New Zealand. Dr. Christine Stephens merupakan penyelia saya dan dia adalah seorang pensyarah di Sekolah Psikologi Universiti Massey. Di sini saya ingin mengalu-alukan anda untuk mengambil bahagian dalam projek kajian ini. Sila baca secara teliti dan pertimbangkan apa yang dinyatakan di dalam Kertas Maklumat ini sebelum anda mengambil keputusan untuk menyertai dalam kajian ini.

Kajian ini adalah bertujuan untuk mengenalpasti penilaian, diagnosis dan rawatan-rawatan terkini yang sedang dipraktifkan untuk merawati kanak-kanak Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) di Malaysia dan juga untuk menentukan keselarian perkara-perkara tersebut dengan kajian saintifik terkini dan apa yang dicadangankannya. Selain daripada menganalisis dan mengenalpasti penilaian, diagnosis dan rawatan-rawatan tersebut di Malaysia, kajian ini juga akan membuat perbandingan ke atas diagnosis dan rawatan yang sedang dipraktifkan di Malaysia dan di New Zealand.

Jikalau anda merupakan ibu atau bapa atau penjaga bagi kanak-kanak, yang berumur di antara 3 hingga 16 tahun, yang sedang didiagnosiskan dengan ADHD, anda diminta menjawab soalan-soalan berkenaan dengan pengalaman anda sebagai tempat rujukan dan pengalaman ketika melihat penilaian dibuat dan rawatan-rawatan dilakukan bagi ADHD. Di samping itu, anda juga diminta menyediakan maklumat berkenaan latarbelakang secara umum. Kertas soalan ini akan mengambil masa di antara 15 hingga 20 minit untuk dijawab. Dengan persetujuan anda, satu set soalan akan dihantar kepada pegawai perubatan yang sedang memberi rawatan kepada anak anda, bertujuan untuk memperolehi maklumat-maklumat tambahan bekenaan penilaian, diagnosis dan cara-cara rawatan yang dilakukannya. Anda berhak untuk memohon bagi melihat kertas soalan tersebut sebelumnya dihantar kepada pegawai-pegawai perubatan anak anda. Penyertaan anda di dalam kajian ini adalah secara sukarela dan anda akan dianggap telah bersetuju untuk menyertai penyelidikan ini apabila anda menjawab dan mengembalikan semula kertas soalan kepada penyelidik.

Data yang diperolehi hanya akan digunakan untuk tujuan pengajian sahaja. Selepas data ditukar kepada analisis berkomputer, segala maklumat yang

diperolehi akan dimusnahkan. Segala maklumat akan dijaga secara ketat dan nama anak anda tidak akan sekali-kali dinyatakan atau ditulis di dalam laporan kajian. Hanya saya dan penyelia saya berhak melihat Kertas Soalan yang dipenuhi oleh anda.

Jikalau anda hendak mengetahui keputusan kajian ini, sila nyatakan nama dan alamat anda di dalam borang yang disediakan di muka surat terakhir dalam kertas soalan. Borang ini akan diasingkan dari Kertas Soalan dengan segera dan hanya akan digunakan bagi menghantar ringkasan keputusan kajian ini kepada anda. Kemudian, borang tersebut akan diluputkan.

Jikalau anda memilih untuk mengambil bahagian dalam kajian ini, anda mempunyai hak untuk:

- Menghubungi penyelidik pada bila-bila masa bagi berbincang mana-mana aspek yang berkaitan dengan kajian ini atau untuk mengemukakan soalan;
- Menolak untuk menyertai;
- Menolak dari menjawab mana-mana soalan;
- Menarik diri dari kajian pada bila-bila masa sebelum kembalikan Kertas Soalan;
- Memberitahu maklumat berasaskan pemahaman nama anda tidak akan digunakan;
- Mendapat peluang untuk melihat ringkasan keputusan penyelidikan apabilanya selesai;

Jikalau anda bersetuju untuk menyertai dalam kajian ini, sila jawab soalan-soalan dalam Kertas Soalan yang disediakan dan kembalikannya yang telah lengkap diisi kepada penyelidik di dalam sampul surat yang disediakan dengan segera. Sila simpan Kertas Maklumat ini untuk rujukan puan/tuan. Samada anda bersetuju menyertai atau tidak menyertai kajian ini, ia tidak akan memberi kesan terhadap rawatan yang anda perolehi. Jikalau anda mempunyai sebarang persoalanan yang berkaitan dengan kajian ini, anda diminta untuk menghubungi saya:

Nurul Salikin Sa'ari
School of Psychology,
Massey University, Private Bag 11222,
Palmerston North, New Zealand.
Email: i. Nurul.Sa'ari.1@uni.massey.ac.nz ii. blue_ikin@hotmail.com
Telefon: 09-7443696 / 012-9280461 (Malaysia)

Atau

Dr. Christine Stephens
School of Psychology,
Massey University, Private Bag 11222,
Palmerston North, New Zealand.
Emaill: C.V.Stephens@massey.ac.nz
Telefon: 0064-6-350 5799 ext. 2071

Projek ini telah dinilai dan diluluskan oleh Jawatankuasa Etika Manusia Universiti Massey, Protokol PN 03/133. Jikalau anda mempunyai sebarang persoalan mengenai cara-cara kajian ini dijalankan, sila hubungi Professor Sylvia V Rumball, Chair, Massey University Campus Human Ethics Committee: Palmerston North, telefon 0064 6 350 5249, email **humanethicspn@massey.ac.nz**

Appendix E: Parent/Guardian Survey

Dear Sir/Madam,

Please try your best to complete all of the questions. If you cannot answer a question or do not understand it, please move onto the next one.

Once you have completed the survey, place it in the postage paid envelope provided and post it as soon as possible. *It is assumed that by completing and returning the questionnaire you consent to participate in this study.*

Many thanks for your support and co-operation. Your response is extremely important to us.

***Notes**: For the purpose of this study the term "Practitioner" refers to a general practitioner (doctor), psychologist, pediatrician or psychiatrist.*

1. Who was the first person to **suggest** that your child be assessed for ADHD? (please circle)

   Family member 1
   Friend 2
   Teacher/School official 3
   Social Worker 4
   Psychologist 5
   Myself 6
   General Practitioner (Doctor) 7
   Other (please specify) 8

   _____

2. Which practitioner diagnosed your child with ADHD and which practitioner is now treating your child for ADHD? (please circle)

	Diagnosed	Treating
General Practitioner (Doctor)	1	1
Educational Psychologist	2	2
Pediatrician	3	3
Psychologist	4	4
Psychiatrist	5	5
Other (please specify)	6	6

3. Please list all the practitioners your child saw before being diagnosed with ADHD and list them in order in which your child saw them.

Practitioner	Number of visits with practitioner	Length of time at each visit	Outcome (referred on, diagnosis given etc)
1.			
2.			
3.			
4.			
5.			

4. Was either of the following individuals from the same cultural background as your child? (please circle)

Practitioner diagnosing your child	Yes	No	Don't know
Practitioner treating your child	Yes	No	Don't know
Teacher at time of assessment	Yes	No	Don't know

5. Which of the following assessment procedures were used to help make a diagnosis of ADHD for your child? (circle as many as applicable)

Parent interview 1
Child interview (alone) 2
Medical examination 3
Observation of child at home/school 4
Parent checklist of child's behaviour 5
Teacher checklist of child's behaviour 6
Child's school reports 7
Brain Scan 8
EEG 9
Others – please specify 10

_____

_____

6. Were you given any feedback about how the practitioner arrived at an ADHD diagnosis? (Please circle).

No Yes **(if yes, please circle type of feedback)**

Verbal..... 1
Written 2
Both 3

7. What subtype of ADHD was your child classified as? (please circle)

Don't know 1
Predominately inattentive type..... 2
Predominately hyperactive type.....3
Combined type (inattentive and hyperactive)..... 4

8. For the following questions please show (by ticking in the brackets) which treatment options your practitioner discussed with you, which one/s you said you preferred, and the treatment/s your child is currently receiving or has received (tick as many as applicable).

	Discussed with Practitioner	Parents/Guardian Expressed A Preference	Treatment actually received/ or receiving
No options discussed			
No treatment for child			
Medication			
Behavior Modification			
School Intervention			
Parent training in child management			
Family therapy			
Dietary interventions			
Individual Psychotherapy			
Others (please specify)			

9. Please list any ADHD-related treatment/s you objected to or did not want for your child.

_____

_____

_____

10. Please list any ADHD-related treatment/s which you found to improve your child's behaviour and school work.

_____

_____

_____

11. If your child is being prescribed medication for ADHD please answer the following questions (brand name and dosage of medication may be found on the container label)

Brand name/s of medication: _____

Current average daily dosage: _____
(e.g., 10mg, 2 times daily)

12. What type/s of ongoing monitoring has the treating practitioner established for your child?

None 1
Annual academic testing 2
Frequent reports from teachers or parents 3
Parents completing rating scales annually 4
Prescription renewal 5
Medication-free trials at home 6
Medication-free trials at school 7
Placebo trials 8
Medication increase or decrease 9
Other (please specify)..... 10

_____

13. Which are the following side effects has your child experienced while taking ADHD-related medication? (circle as many as applicable)

None 1
Sleep problems 2
Decreased appetite 3
Stomachache 4
Headache 5
Jitteriness 6
Nausea 7
Irritability..... 8
Rebound 9
Other (please specify) 10

_____

14. How often do you visit your practitioner to see if the medication is working? (please circle)

Not on medication 1
Never 2
Monthly 3
Three monthly 4
Six monthly 5
Annually 6
When we (parents/guardian) initiate 7

15. Which of the following psychological conditions was your child identified as having, in addition to ADHD, at the time assessment? (circle as many as applicable)

None 1
Learning Disability 2
Depression 3
Anxiety 4
Conduct Disorder 5
Oppositional Defiant Disorder 6
Bipolar Disorder 7
Don't know 8
Other (please specify) 9

---

16. What have you found to be the most distressing aspect of having your child diagnosed and treated for ADHD? (please circle)

Perception of being blamed by others 1
Where to go for help 2
Not knowing what was wrong with your child 3
Not knowing whom to believe 4
The school system 5
Administrating medication at home/school 6
Lack of information from the practitioner 7
Other (please specify) 8

The following statements refer to your degree of satisfaction with help received from the practitioner and how effective treatment has been. Please circle the one number, using the scale below that best describes how satisfied you feel about each statement.

	Not at all Satisfied		Satisfied		Extremely Satisfied
1. Amount of information you received from your practitioner about ADHD symptoms	1	2	3	4	5
2. Your involvement in the diagnosis	1	2	3	4	5
3. Feedback from the results of diagnosis	1	2	3	4	5
4. Information you received from the practitioner on treatment options for your child	1	2	3	4	5
5. Your involvement in the choice of treatment	1	2	3	4	5
6. Effectiveness of the treatment your child is currently receiving for ADHD					
(a) at home-with parents	1	2	3	4	5
-with siblings	1	2	3	4	5
(b) at school	1	2	3	4	5
(c) with peer relationships	1	2	3	4	5
7. Ongoing monitoring by the practitioner on whether treatment is effective	1	2	3	4	5
8. Information on support systems or resources available in your community	1	2	3	4	5
9. Taking your and your child's cultural background into account	1	2	3	4	5
10. The assistance from your child's school system	1	2	3	4	5

Are there any other ADHD-related issues you wish to comment on that have not been covered in this survey.

_____

_____

_____

_____

_____

In terms of culture, do you have any specific comments on the assessment/treatment process (e.g. factors taken into account, factors not taken into account)?

General Information

The following questions relate to the child diagnosed with ADHD. Please answer as best you can.

1. Is your child (please circle)

Male Female

2. How old your child when he/she was first diagnosed with ADHD? (e.g., 5 years 3 months)

.....years .....months

3. What is her/his age now?

.....years .....months

4. How old was your child when you first noticed him/her displaying ADHD-type problems?

.....years .....months

5. Please indicate which ethnic group/s the child identifies with (circle as many as applicable)

Bumiputera..... 1
Chinese..... 2
Indian..... 3
Others (please specify)..... 4

---

6. Do any other biological members of the child's family have, or have they had in the past a diagnosis of ADHD? (please circle)

No Yes (**if Yes, what is their relationship to the child e.g: brother, mother etc**)

_____

7. Are there any extended family (e.g., grandparents, uncles, etc.) living in your house?

No Yes (if **yes, please list e.g., grandmother and aunty**)

_____

We would like to ask you a few questions about yourself. Please circle the response that is most true for you.

8. Please indicate whether you are

Male Female

9. What is your age? .....years

10. Marital status;

Single 1
Married 2
Defacto 3
Separated 4
Widowed 5
Divorced 6

11. Please indicate which ethnic group/s you identify with (circle as many as applicable)

Bumiputera 1
Chinese 2
Indian 3
Others (please specify) 4

_____

12. Which of the groups below show your and your partner's highest educational qualification?

No school qualification 1
School Certificate 2
University Degree or Diploma 3
Any other Tertiary qualification 4

13. What is the combined total income of your household?

RM0 - 19,999 1
RM20,000 - 39,999 2
RM40,000 - 59,999 3
RM60,000 - 79,999 4
RM80,000 plus 5

14. How many people live in your home?

_____

Thank you for taking the time to complete this questionnaire.

A standard questionnaire will be sent to your child's practitioner in order to collect additional information on the assessment, diagnosis and treatment procedures that were conducted by him/her.

Please complete and sign the release of information form that located on the next page. If you are declining to the release of information, you are still included in this research study. Thank you.

Appendix F: Parent/Guardian Survey-Malay Language

Tuan/Puan,

Sila jawab semua soalan-soalan berikut dengan sebaik mungkin. Jikalau anda tidak mengetahui jawapan atau tidak memahami mana-mana soalan sila beralih ke soalan berikutnya.

Apabila anda telah melengkapi set soalan ini, sila letakkannya di dalam sampul surat berbayar dan kembalikannya dengan segera. *Anda akan dianggap bersetuju menyertai kajian ini apabila anda telah melengkapi dan mengembalikan kertas soalan ini.*

Terima kasih diucapkan di atas sokongan dan bantuan anda. Maklumbalas anda adalah amat penting bagi pihak kami.

***Nota**: Dalam penyelidikan ini, perkataan 'Pegawai Perubatan' adalah merujuk kepada 'Doktor', 'Pakar Psikologi', 'Pakar Kanak-Kanak (Paediatrik)', atau 'Pakar Psikiatri'.*

1. Siapakah orang pertama yang telah mencadangkan bahawa anak anda perlu dinilai untuk Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD)?

Ahli keluarga 1
Kawan 2
Guru/Pegawai Sekolah 3
Pegawai Kebajikan 4
Pakar Psikologi 5
Diri sendiri 6
Doktor 7
Lain-lain (Sila nyatakan) 8

---

2. Yang manakah di antara Pegawai-Pegawai Perubatan berikut yang telah melakukan diagnosis Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) dan yang sedang memberi rawatan untuk anak anda? (Sila bulatkan)

	Diagnosis	Merawat
Doktor	1	1
Pakar Psikologi Pendidikan	2	2
Pakar Kanak-Kanak (Paediatrik)	3	3
Pakar Psikologi	4	4
Pakar Psikiatri	5	5
Lain-lain (Sila nyatakan)	6	6

3. Sila nyatakan semua Pegawai-Pegawai Perubatan yang **telah** anak anda temui secara teratur, sebelum dia didiagnosiskan dengan Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD)

Pegawai Perubatan	Bilangan Temujanji Dibuat	Masa Dihabiskan Setiap Temujanji	Kesan Diperolehi (Cth: dirujuk kpd,diagnosis dibuat, dll)
1.			
2.			
3.			
4.			
5.			

4. Adakah Pegawai-Pegawai Perubatan yang dinyatakan di bawah mempunyai budaya dan adat resam yang sama dengan anak anda? (Sila bulatkan)

Pegawai Perubatan yang telah melakukan diagnosis.	Ya	Tidak	Tidak tahu
Pegawai Perubatan yang memberi rawatan	Ya	Tidak	Tidak tahu
Guru Sekolah semasa membuat penilaian	Ya	Tidak	Tidak tahu

5. Di antara kaedah-kaedah penilaian berikut, yang manakah telah dibuatkan untuk melakukan diagnosis Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) bagi anak anda? (Sila bulatkan sebanyak mungkin yang berkaitan)

Menemubual Ibubapa 1
Menemubual kanak kanak (sendirian) 2
Pemeriksaan Perubatan (Ubat-Ubatan) 3
Melakukan pemerhatian kanak-kanak di rumah/di sekolah 4
Senarai Penyemakan Kelakuan Kanak-Kanak Untuk Ibubapa 5
Senarai Penyemakan Kelakuan Kanak-Kanak Untuk Guru Sekolah 6
Laporan Sekolah Kanak-Kanak 7
Melakukan Penelitian Otak - 'Brain Scan' 8
'EEG' 9
Lain-lain (sila nyatakan) 10

6. Adakah anda telah diberi maklum balas mengenai cara-cara keputusan dibuat oleh Pegawai Perubatan bagi melakukan diagnosis Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD)?

Tidak Ya (**jika Ya, sila bulatkan jenis maklumbalas**)

Secara Lisan 1
Secara Bertulis..... 2
Semua yang dinyatakan di atas..... 3

7. Apakah kategori Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) anak anda alami? (sila bulatkan)

Tidak tahu 1
Kekurangan Tumpuan Perhatian 2
Berkelakuan Terlalu Aktif 3
Gabungan Kedua-dua (Kekurangan Tumpuan Perhatian dan Terlalu Aktif)... 4

8. Bagi soalan-soalan berikut (sila tandakan ✓ di dalam kotak), sila nyatakan jenis-jenis rawatan yang telah dibincangkan oleh Pegawai Perubatan dengan anda, rawatan yang menjadi pilihan anda, dan rawatan yang sedang diterima atau telah diterima oleh anak anda. (tandakan sebanyak yang perlu)

	Berbincang dengan Peg. Perubatan	Pilihan Ibubapa / Penjaga	Rawatan telah / sedang diterima
Tiada pilihan dibincangkan			
Tiada rawatan untuk kanak-kanak			
Perubatan (Ubat-ubatan)			
Teknik Pengubahsuaian Kelakuan			
Pencelahan/Campurtangan di Sekolah			
Latihan Ibubapa Bagi Mengurus Kanak-Kanak			
Kaunseling Keluarga			
Pemakanan			
Psikoterapi Secara Individu			
Lain-lain (sila nyatakan)			

9. Sila nyatakan jenis-jenis rawatan Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) yang anda tolak atau tidak setuju untuk anak anda?

_____

_____

_____

10. Sila nyatakan jenis-jenis rawatan Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) yang telah memberi peningkatan positif kepada kelakuan dan kerja sekolah anak anda?

_____

_____

_____

11. Jikalau anak anda diberi rawatan untuk Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) secara pengambilan ubat, sila jawab soalan-soalan berikut (nama ubat dan dos boleh dilihat pada label di bekas ubat)

Nama ubat: _____

Dos harian diambil: _____
(contoh: 10 mg, 2 kali sehari)

12. Apakah jenis pengawasan berterusan yang telah ditentukan oleh Pegawai Perubatan yang merawat anak anda?

Tiada 1
Ujian Akademik Setiap Tahun 2
Laporan Guru atau Ibubapa Secara Kerap 3
Ibubapa melengkapkan skala perbandingan (rating scale) setiap tahun 4
Pembaharuan Penyediaan dan Penggunaan Ubat 5
Percubaan Tanpa Pengambilan Ubat di Rumah 6
Percubaan Tanpa Pengambilan Ubat di Sekolah 7
Percubaan Pengambilan Benda Yang Tidak Bahaya Sebagai Ubat (Placebo) . 8
Pengambilan Ubat Bertambah atau Berkurang 9
Lain-lain (sila nyatakan) 10

_____

13. Di antara kesan-kesan sampingan berikut, yang manakah telah anak anda alami ketika pengambilan ubat bagi Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD)? (tandakan bulat sebanyak yang perlu)

Tiada 1
Masalah Untuk Tidur 2
Selera Makan Menurun 3
Sakit Perut 4
Sakit Kepala 5
Gugup 6
Rasa Loya 7
Mudah Meragam 8
Kembali Sebagaimana Asal 9
Lain-lain (sila nyatakan) 10

_____

14. Berapa kalikah anda perlu berjumpa Pegawai Perubatan bagi mengetahui kesan ubat yang sedang diambil? (sila bulatkan)

Tidak mengambil ubat 1
Tidak pernah 2
Setiap bulan 3
Setiap tiga bulan 4
Setiap enam bulan 5
Setahun sekali..... 6
Bergantung kepada pilihan kami (ibubapa/penjaga) 7

15. Di antara ganguan-ganguan psikologi berikut, yang manakah telah anak anda alami,di samping sindrom Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) semasa penilaian dilakukan? (bulatkan sebanyak yang perlu)

Tiada 1
Kesukaran Pembelajaran 2
Tertekan 3
Bimbang 4
Masalah Tngkah Laku 5
Gangguan Tingkah Laku yang Melampau (Tidak menurut arahan) 6
Gangguan Jiwa atau Perasaan (Tertekan dan/atau Mania) 7
Tidak tahu 8
Lain-lain (sila nyatakan) 10

_____

16. Apakah perkara yang paling menyedihkan anda mempunyai anak didiagnosis dan dirawat dengan Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD)? (sila bulatkan)

Persepsi dipersalahkan oleh orang lain 1
Tempat untuk meminta pertolonganan 2
Tidak mengetahui apakah yang tidak kena dengan anak anda 3
Tidak mengetahui siapa yang boleh dipercayai 4
Sistem persekolahan 5
Pemberian ubat di rumah/di sekolah 6
Mendapat maklumat tidak lengkap dari Pegawai Perubatan 7
Lain-lain (sila nyatakan) 8

_____

Pernyataan-pernyataan berikut adalah merujuk kepada kadar kepuasan anda terhadap pertolongan yang diberikan oleh Pegawai Perubatan dan sejauh manakah keberkesanan rawatan yang diterima. Sila bulatkan salah satu nombor yang paling betul menggambarkan perasaan anda dengan menggunakan skale di bawah bagi setiap pernyataan berikut:

	Tidak Memuaskan		Memuaskan		Amat Memuaskan
1. Bilangan maklumat yang diberitahu oleh Pegawai Perubatan mengenai ADHD	1	2	3	4	5
2. Penglibatan anda semasa diagnosis dilakukan	1	2	3	4	5
3. Menerima maklum balas mengenai keputusan diagnosis yang dilakukan	1	2	3	4	5
4. Maklumat yang anda perolehi mengenai pilihan-pilihan rawatan untuk anak anda.	1	2	3	4	5
5. Penglibatan anda semasa pemilihan jenis rawatan	1	2	3	4	5
6. Keberkesanan rawatan ADHD yang sedang diterima oleh anak anda:					
(a) di rumah_ dengan ibubapa	1	2	3	4	5
_ dengan adik-beradik	1	2	3	4	5
(b) di sekolah	1	2	3	4	5
(c) hubungan dengan kawan	1	2	3	4	5
7. Pengawasan berterusan oleh Pegawai perubatan bagi memastikan keberkesanan rawatan yang diberi.	1	2	3	4	5
8. Maklumat mengenai kumpulan sokongan atau bantuan-bantuan yang wujud dalam komuniti anda.	1	2	3	4	5
9. Mengambil berat terhadap budaya dan adapt resam anda dan anak anda.	1	2	3	4	5
10. Bantuan dari sistem persekolahan anak anda.	1	2	3	4	5

Andakah anda mempunyai sebarang ulasan atau komen yang berkaitan dengan isu Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD)yang tidak dinyatakan dalam kajian ini.

_____

_____

_____

Adakah anda mempunyai sebarang ulasan atau komen terhadap penilaian atau cara-cara rawatan yang dilakukan mengikut **perspektif budaya dan adat resam** anda. (contoh: perkara-perkara yang perlu ditekan dan/atau perkara-perkara yang tidak perlu ditekan semasa penilaian dan rawatan dilakukan)

Maklumat Umum

Soalan-soalan berikut adalah berkaitan dengan kanak-kanak yang didiagnosis dengan Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD). Sila jawab dengan sebaik mungkin.

1. Anak anda (sila bulatkan)
   Lelaki Perempuan

2. Berapakah umur anak anda semasa dia didiagnosis dengan Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) buat pertama kali? (cth: 5 tahun, 3 bulan)

   _____tahun _____bulan

3. Berapakan umur anak anda sekarang?

   _____tahun _____bulan

4. Berapakah umur anak anda apabila anda sedari yang dia mula menunjukkan masalah-masalah berkaitan Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) dalam kelakuan-kelakuannya?

   _____tahun _____bulan

5. Di antara berikut, anak anda tergolong dalam kategori;(bulatkan sebanyak yang anda mahu)

   Bumiputera 1
   Cina 2
   India 3
   Lain-lain (sila nyatakan) 4

   _____

6. Adakah terdapat sesiapa di dalam kalangan keluarga anda, yang telah atau sedang didiagnosis dengan Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD)? (sila bulatkan)

   Tiada Ada (**jika Ada, apakah hubungan dengan kanak-kanak, (contoh: abang, emak dll)**

   _____

7. Adakah terdapat saudara mara (contoh: nenek/datuk, bapa saudara dll) tinggal bersama di rumah anda?

   Tiada Ada (**jika Ada, tolong senaraikan contoh: nenek dan emak saudara)**

   _____

Sekarang penyelidik ingin bertanya beberapa soalan mengenai diri anda. Sila bulatkan jawapan yang paling tepat dengan anda.

8. Sila nyatakan samada anda (sila bulatkan)

Lelaki Perempuan

9. Berapakah umur anda?

_____tahun

10. Status perkahwinan (sila bulatkan)

Bujang 1
Kahwin 2
Berteman (Tanpa Ikatan Perkahwinan) 3
Berpisah 4
Janda/Duda (Sebab Kematian) 5
Bercerai 6

11. Di antara berikut anda dikenali sebagai: (bulat sebanyak yang berkaitan)

Bumiputera 1
Cina 2
India 3
Lain-lain (sila nyatakan) 4

_____

12. Di antara kumpulan berikut, anda dan teman anda boleh dikategorikan sebagai: (sila bulatkan)

Tidak mempunyai kelayakan sekolah 1
Sijil Sekolah 2
Ijazah atau Diploma Universiti 3
Lain-lain Kelayakan Ketiga 4

13. Berapakah jumlah pendapatan tahunan bersama untuk keluarga anda?

RM0 - 19,999 1
RM20,000 - 39,999 2
RM40,000 - 59,999 3
RM60,000 - 79,999 4
RM80,000 ke atas 5

14. Berapakah orang tinggal bersama di rumah anda?

_____

Terima kasih kerana meluangkan masa anda untuk menjawab soalan-soalan ini.

Satu set soalan akan dihantar kepada pegawai perubatan anak anda bagi memperolehi maklumat tambahan mengenai penilaian, diagnosis dan cara-cara rawatan yang telah dilakukan olehnya untuk anak anda.

Sila lengkapkan dan tandatangan 'Borang Persetujuan Pelepasan Maklumat' yang terletak di muka surat berikut. Walaupun anda tidak bersetuju bagi pelepasan maklumat tersebut, penyertaan anda dalam kajian ini masih diambil kira. Terima kasih.

Appendix G: Consent Form for the Release of Information

RELEASE OF INFORMATION

Confidential Records

I hereby **agree/do not agree** (if not circled, we assume 'agree') to the release of information, via a standard questionnaire, concerning the evaluation procedures conducted and treatment strategies implemented for Attention-Deficit/Hyperactivity Disorder with my child. The records will at all times remain **strictly confidential.**

To (Name of practitioner) :.....

Address :.....

:.....

:.....

Signature Parent/Guardian :.....

Name of child :.....

Date :.....

Appendix H: Consent Form for the Release of Information-Malay Language

'BORANG PERSETUJUAN PELEPASAN MAKLUMAT'

Rekod Sulit

Saya adalah **setuju/tidak setuju** (jika tidak dibulatkan, ia dianggap 'setuju') untuk pelepasan maklumat, melalui jawapan pada kertas soalan, berkenaan cara-cara penilaian dilakukan dan juga mengenai strategi rawatan Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) yang dibuat untuk anak saya. Rekod ini akan disimpan **secara sulit** untuk sepanjang masa.

Kepada: (Nama Pegawai Perubatan) :.....

Alamat :.....

:.....

:.....

Tandatangan Ibubapa/Penjaga :.....

Nama anak :.....

Tarikh :.....

Appendix I: Optional Request for Study Results Form

OPTIONAL REQUEST FOR STUDY RESULTS

Your full name: .....

Postal Address: .....

.....

.....

(This is optional. You do NOT need to enter your name and postal address. However, by entering your name and postal address, I will be able to send you a summary of the results of this research study. Then this sheet will be destroyed)

Appendix J: Optional Request for Study Results Form-Malay Language

PILIHAN BAGI MEMPEROLEHI KEPUTUSAN KAJIAN

Nama penuh anda: .....

Alamat surat menyurat: .....

.....

.....

(Ini adalah pilihan anda. Anda TIDAK perlu menyatakan nama dan alamat surat menyurat anda. Walaubagaimanapun, apabila anda menyatakan nama dan alamat surat menyurat anda, saya akan dapat menghantar ringkasan keputusan kajian ini. Kemudian, kertas ini akan diluputkan)

Appendix K: Treating Practitioner Survey

Dear Practitioner,

Please complete the following questions in relation to the child referred to in the enclosed letter and named below. I enclose a photocopy of that consent. The parents have consented to the release of this information. Please use the back of the questionnaire if you require more space to answer any of the following questions.

Please try your best to complete all the questions. If you cannot answer a question or do not understand it, please move onto the next one.

Once you have completed the survey, place it in the postage paid envelope provided and post it as soon as possible. *It is assumed that by completing and returning the questionnaire you consent to participate in this study.*

Many thanks for your support and co-operation. Your response is extremely important to us.

NAME OF CHILD: _____

1. Which practitioner assessed and diagnosed the above-mentioned client? (please circle)

   Yourself 1
   General Practitioner 2
   Psychologist 3
   Pediatrician 4
   Psychiatrist 5
   Other – (please specify) 6

   _____

2. Was the client diagnosed by you (or some other health professional) according to the criteria of: (please circle)

   DSM-IV 1
   ICD-10 2
   Don't know 3
   Other (please specify) 4

   _____

3. If using DSM-IV criteria, what ADHD subtyping was applied to this child? (please circle)

None 1
Predominately inattentive type..... 2
Predominately hyperactive type..... 3
Combined type..... 4

4. How many times have you seen this client regarding ADHD-related symptoms?

_____

5. Were any ADHD-related symptoms present in this child prior to the age of 7 years? (please circle)

Yes No Don't know

6. In order to base a diagnosis of ADHD with the client, what information and assessment tools were utilised in the evaluation process and from whom did you obtain information? Please list methods used even if you did not collect the information yourself. E.g., if another practitioner performed a physical examination but you received a report).
(**NOTE**: if rating scales/checklists utilised, please name them)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

7. Was a family history of ADHD evident with this client?

Yes No Don't know Not asked

8. If parent and teacher checklists/rating scales were administered, did they show agreement on symptoms suggesting an ADHD diagnosis? (please circle)

Don't know Yes No (**if No, please circle which informant you would consider to be more influential in your ADHD diagnosis**)

Parent Teacher Neither

9. Which of the following symptoms were considered present during the assessment to a degree that is maladaptive and inconsistent with developmental level) (**tick all that apply**)

- ☐ Fails to give close attention to details/makes careless mistakes
- ☐ Has difficulty sustaining attention in tasks or play activities
- ☐ Does not seem to listen when spoken to
- ☐ Does not follow through on instructions/requests
- ☐ Has difficulty organizing tasks and activities
- ☐ Avoids/dislikes/ is reluctant to engage in tasks that require sustained mental effort
- ☐ Loses things necessary for tasks/activities
- ☐ Is easily distracted by extraneous stimuli
- ☐ Is forgetful in daily activities
- ☐ Fidgets with hands or feet/squirms in seat
- ☐ Leaves seat when remaining seated is expected
- ☐ Runs about/climbs excessively in situations in which it is inappropriate
- ☐ Has difficulty playing/engaging in leisure activities quietly
- ☐ Is "on the go"/acts as if "driven by a motor"
- ☐ Talks excessively
- ☐ Blurts out answers before questions have been completed
- ☐ Has difficulty awaiting turn
- ☐ Interrupts/intrudes on others

10. Please indicate whether the child was either considered for or identified as having any of the following conditions which can coexist with ADHD (**tick as many as apply**)

	Considered but ruled out	Confirmed
None	( )	( )
Learning Disability	( )	( )
Depression/Dysthymia	( )	( )
Anxiety	( )	( )
Conduct Disorder	( )	( )
Oppositional Defiant Disorder	( )	( )
Bipolar Disorder	( )	( )
Asperger's syndrome	( )	( )
Autism	( )	( )
Other – (please specify)	( )	( )

11. Of the alternative problems that were considered with the client and ticked above why/how were these ruled out?

_____

_____

_____

12. Which of the following treatment options have you discussed directly with and for which one(s) did the clients parent(s)/guardian(s) express a specific preference? Please also indicate all treatment(s) the client is currently receiving (**tick as many as apply**)

	Discussed with Parents/Guardian	Parents/Guardian Expressed A Preference	Treatment currently receiving
No options discussed			
No treatment for child			
Medication			
Behavior Modification			
School Intervention			
Parent training in child management			
Family therapy			
Dietary interventions			
Individual Psychotherapy			
Others (please specify)			

13. If the client is being prescribed medication for ADHD please answer the following questions:

    Brandname(s) of medication: _____

    _____

    Current average daily dose: (e.g: 10mg or 5 mg bid) _____

14. What type of ongoing monitoring has been established for the client to monitor (or administer) treatment procedures?

    _____

    _____

    _____

    _____

    _____

    _____

    _____

    _____

General Information

The following questions are not specifically related to the referred client, but are general questions which may contribute to our understanding of current assessment and treatment practices for ADHD children in Malaysia. Your contribution would be greatly appreciated. Please use reverse side of questionnaire if you require more space.

15. In your work with children, what other psychiatric disorders have you found to coexist most often with ADHD **(circle as many as apply)**

    None 1
    Learning Disability 2
    Depression/Dysthymia 3
    Anxiety 4
    Conduct Disorder 5
    Oppositional Defiant Disorder 6
    Bipolar Disorder 7
    Don't know 8
    Other (please specify) 9

    _____

16. In your experience, what procedures do you consider to be most useful in differentiating ADHD from other child psychiatric disorders?

_____

_____

_____

_____

_____

17. When assessing or treating from a Bumiputera background are there any additional specific factors that you consider relevant in order to obtain an accurate ADHD diagnosis?

_____

_____

_____

_____

_____

_____

_____

18. Please indicate whether you are (please circle)

Male Female

19. What is your professional affiliation? (circle as many as apply)

General practitioner 1
Registered Psychologist 2
Clinical Psychologist 3
Child/Adolescent Clinical Psychologist 4
Pediatrician 5
Psychiatrist 6
Other (please specify) 7

_____

20. How many years since graduating with your professional qualification (as indicated above) have you been in practice, whether full-time or part-time?

_____

21. Please indicate which race(s) you identify with (circle as many as apply)

Bumiputera 1
Chinese 2
Indian 3
Other (please specify) 4

_____

Thank you for taking the time to complete this questionnaire.

Appendix L: Treating Practitioner Survey-Malay Language

Tuan/Puan,

Sila lengkapkan soalan-soalan berikut. Soalan-soalan ini adalah merujuk kepada kanak-kanak yang dinyatakan di dalam surat yang dikepilkan di sini dan namanya tertera di bawah. Saya kepilkan bersama salinan surat kebenaran tersebut. Ibubapa kanak-kanak ini telah memberi kebenaran bagi pelepasan maklumat berkenaan kanak-kanak ini. Sila guna ruang di belakang Kertas Soalan ini, jikalau anda memerlukan ruang tambahan bagi menjawab mana-mana soalan berikut.

Sila jawab semua soalan-soalan berikut dengan sebaik mungkin. Jikalau anda tidak mengetahui jawapan atau tidak memahami mana-mana soalan sila beralih ke soalan berikutnya.

Apabila anda telah melengkapi set soalan ini, sila letakkannya di dalam sampul surat yang disediakan dan kembalikannya dengan segera. *Anda akan dianggap bersetuju menyertai kajian ini apabila anda telah melengkapi dan mengembalikan Kertas Soalan ini.*Terima kasih diucapkan di atas sokongan dan bantuan anda. Maklumbalas anda adalah amat penting bagi pihak kami.

NAMA KANAK-KANAK: _____

1. Di antara pegawai-pegawai perubatan berikut, siapakah yang membuat penilaian dan diagnosis terhadap kanak-kanak yang dinyatakan di atas? (sila bulatkan)

   Diri sendiri 1
   Doktor 2
   Pakar Psikologi 3
   Pakar Kanak-kanak (Paediatrik) 4
   Pakar Psikiatri 5
   Lain-lain (sila nyatakan) 6

   _____

2. Adakah kanak-kanak ini didiagnosis oleh anda(atau pegawai perubatan lain) mengikut ciri-ciri berikut: (sila bulatkan)

   DSM-IV 1
   ICD-10 2
   Tidak tahu 3
   Lain-lain (sila nyatakan) 4

   _____

3. Jika menggunakan DSM-IV, apakah jenis Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) yang boleh dikategorikan untuk kanak-kanak ini? (sila bulatkan)

   Tiada 1
   Kekurangan Tumpuan Perhatian 2
   Berkelakuan Terlalu Aktif 3
   Gabungan Kedua-dua
   (Kekurangan Tumpuan Perhatian dan Terlalu Aktif) 4

4. Berapa kalikah anda telah memeriksa kanak-kanak ini berkaitan dengan simptom Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD)?

   _____

5. Adakah terdapat simptom lain yang berkaitan dengan Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) wujud pada kanak-kanak ini sebelum dia berumur 7 tahun?

   Ya Tiada Tidak tahu

6. Bagi melakukan diagnosis Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD)terhadap klien ini, apakah jenis maklumat dan kaedah-kaedah penilaian yang telah digunakan semasa proses penilaian dilakukan dan dari siapakah anda telah memperolehi maklumat tersebut? Sila senaraikan kaedah-kaedah yang telah digunakan walaupun bukan anda yang melakukannya. . Contoh: Pegawai Perubatan lain yang melakukan pemeriksaan fizikal terhadap klien ini dan anda memperolehi keputusannya)
   (**NOTA**: Jikalau Skala Perbandingan/Senarai Pemeriksaan digunakan, sila nyatakan juga)

   _____

   _____

   _____

   _____

   _____

   _____

   _____

   _____

   _____

   _____

   _____

7. Adakah Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) wujud dalam sejarah keluarga klien ini?

Ya Tiada Tidak Tahu Tidak ditanya

8. Jikalau senarai pemeriksaan/skala perbandingan ibubapa dan guru digunakan, adakah ia menunjukkan adanya simptom-simptom yang memerlukan melakukan diagnosis Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD)? (sila bulatkan)

Tidak tahu Ya Tidak (jika **Tidak**, sila bulatkan yang manakah di antara pemberitahu maklumat yang paling mempengaruhi anda ketika membuat diagnosis Gangguan Hiperaktif Kurang Daya Tumpuan [ADHD]).

Ibubapa Guru Tidak kedua-duanya

9. Di antara simptom-simptom berikut, yang manakah wujud dan boleh dikategorikan sebagai tidak berfungsi dan konsisten dengan tingkat pembesaran kanak-kanak ini, ketika proses penilaian dilakukan? (tandakan ✓ semua yang berkaitan)

☐ Gagal untuk memberi sepenuh perhatian / membuat kesalahan dengan cuai

☐ Susah untuk tumpukan perhatian dalam tugas atau dalam aktiviti bermain

☐ Tidak mahu mendengar apabila bercakap kepadanya

☐ Tidak mengikut semua arahan/ permintaan

☐ Susah untuk menyusun tugas dan aktiviti

☐ Menghindari atau Tidak suka atau Enggan untuk melakukan aktiviti yang memerlukan penggunaan mental berterusan

☐ Hilang barang yang penting untuk tugas atau aktiviti

☐ Senang dipensongkan oleh gangguan luar

☐ Sangat pelupa mengenai aktivti-aktiviti harian

☐ Gugup tangan dan kakinya atau tidak diam ketika duduk

☐ Tinggalkan tempat duduk apabila duduk diperlukan

☐ Berlari atau memanjat berlebih-lebihan di dalam keadaan yang tidak elok dilakukan

☐ Susah untuk bermain/berada di dalam aktiviti senang secara aman

☐ Selalu bergerak atau berkelakuan seperti disokong motor

☐ Bercakap berlebih-lebihan

☐ Menjawab pertanyaan sebelum soalan habis ditanya

☐ Susah menunggu giliran

☐ Suka mencelah atau mengganggu orang lain

10. Sila nyatakan samada kanak-kanak ini boleh dianggap atau dikenali mempunyai salah satu keadaan-keadaan berikut yang wujud bersama Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) (tandakan sebanyak mungkin)

	Dipertimbangkan Tetapi Ditolak	Sah Ada
Tiada	( )	( )
Masalah Pembelajaran	( )	( )
Tertekan	( )	( )
Bimbang	( )	( )
Masalah Tingkah Laku.....	( )	( )
Gangguan Tingkah Laku yang Melampau .	( )	( )
Gangguan Jiwa atau Perasaan (Tertekan dan atau Mania)	( )	( )
Sindrom Asperger	( )	( )
Gangguan Spektrum Autistik	( )	( )
Lain-lain (sila nyatakan)	( )	( )

11. Kenapakah dan bagaimanakah masalah-masalah yang boleh dipertimbangkan wujud pada klien ini, dan kemudiannya ditolak?

12. Di antara jenis-jenis rawatan berikut, yang manakah yang telah anda bincangkan dan yang manakah menjadi pilihan ibupaba/penjaga? Sila nyatakan juga semua rawatan yang sedang diterima oleh klien sekarang? (tandakan ✓ sebanyak mungkin)

	Berbincang dengan Ibubapa/Penjaga	Pilihan Ibubapa/ Penjaga	Rawatan sedang diterima
Tiada pilihan dibincangkan			
Tiada rawatan untuk kanak-kanak			
Perubatan (Ubat-ubatan)			
Teknik Pengubahsuaian Kelakuan			
Pencelahan/Campurtangan di Sekolah			
Latihan Ibubapa Bagi Mengurus Kanak-Kanak			
Kaunseling Keluarga			
Pemakanan			
Psikoterapi Secara Individu			
Lain-lain (sila nyatakan)			

13. Jikalau kilen sedang di bawah preskripsi ubat untuk merawat Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD), sila jawab soalan-soalan berikut:

    Nama Ubat: _____

    _____

    Dos diambil harian: _____
    (contoh: 10mg atau 5 mg bid)

14. Apakah jenis pengawasan berterusan yang telah ditentukan kepada klien ini bagi mengawasi atau memberi rawatan?

    _____

    _____

    _____

    _____

    _____

    _____

MAKLUMAT UMUM

Soalan-soalan berikut adalah tidak berkaitan dengan klien ini, tetapi merupakan soalan-soalan umum yang boleh memberi penambahan maklumat terhadap pemahaman penilaian terkini dan kaedah-kaedah rawatan Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) kanak-kanak di Malaysia. Kerjasama anda amatlah dihargai. Sila guna bahagian sebelah jika anda memerlukan ruang tambahan.

15. Apakah jenis penyakit mental kanak-kanak yang lain anda telah ketemui wujud bersama Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) sepanjang penglibatan anda dalam memberi rawatan terhadap kanak-kanak? (bulatkan sebanyak mungkin)

Tiada 1
Kesukaran Pembelajaran 2
Tertekan 3
Bimbang 4
Masalah Tngkah Laku 5
Gangguan Tingkah Laku yang Melampau
(Tidak menurut arahan) 6
Gangguan Jiwa atau Perasaan (Tertekan dan/atau Mania) 7
Tidak tahu 8
Lain-lain (sila nyatakan) 10

16. Mengikut pengalaman anda, apakah kaedah yang paling berkesan untuk membezakan Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) dengan ganguan-ganguan psikiatri kanak-kanak yang lain?

17. Apabila membuat penilaian atau merawat kanak-kanak dari kaum Bumiputera, adakah terdapat aspek-aspek tambahan yang berkaitan supaya anda dapat melakukan diagnosis Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) dengan tepat?

18. Sila tandakan samada anda (sila bulatkan)

Lelaki Perempuan

19. Anda dikategorikan sebagai: (sila bulatkan sebanyak yang berkaitan)

Doktor 1
Pakar Psikologi 2
Pakar Klinikal Psikologi 3
Pakar Klinikal Kanak-Kanak/Remaja Psikologi 4
Pakar Kanak-kanak (Paediatrik) 5
Pakar Psikiatri 6
Lain-lain (sila nyatakan) 7

20. Berapa lamakah anda telah berkecimpung dalam bidang ini samada sepenuh atau separuh masa, setelah anda memperolehi kelulusan (seperti yang ditandakan di atas)?

21. Anda tergolong dalam kategori: (bulatkan)

Bumiputera 1
Cina 2
India 3
Lain-lain (sila nyatakan) 4

Terima kasih kerana meluangkan masa anda bagi menjawab soalan-soalan ini.

Appendix M: Treating Practitioner Information Sheet

INFORMATION SHEET FOR PRACTITIONER
(English and Bahasa Malaysia)

Project Title:
"Attention-Deficit/Hyperactivity Disorder in Children: A Comparative Study on Current Assessment, Diagnosis and Treatment Practices in Malaysia and New Zealand"

I am Nurul Salikin Sa'ari and I am currently conducting research related to Attention-Deficit/Hyperactivity Disorder (ADHD) as part of my Masters degree in Psychology at Massey University New Zealand under the supervision of Dr. Christine Stephens, Senior Lecturer, School of Psychology, Massey University. I would like to invite you to participate in my research study. Please read and consider carefully this information sheet before you decide to participate.

This research involves examining the present assessment, diagnosis and treatment practices for ADHD children in Malaysia as well as identifying certain clinical and treatment characteristics of children presenting with ADHD-related symptoms. Then, it will also compare and contrast the diagnosis and treatment of ADHD as practised in Malaysia and New Zealand.

The parent or guardian of **Name of Child** has agreed to participate in the present study and has identified you as the practitioner who diagnosed, or is currently treating his or her child for ADHD. The parent or guardian has been made aware of the reasons for collecting this information and consented to the release of such information, via a standard questionnaire, which I have attached for your information. Therefore, I would very much appreciate your help with the enclosed questionnaire for practitioners. It should take only 15 to 20 minutes to complete.

The data will be used for academic purposes only. As soon as the data have been analysed, all information will be destroyed. At no time during this research will your name be identifiable and the information you give will remain strictly confidential.

If you choose to take part in this study you have the right to:

- contact the researcher at any time to discuss any aspects of the study or to ask any questions;
- decline to participate;
- decline to answer any particular question;
- withdraw from the study at any time before returning the questionnaire;
- provide information on the understanding that your name will not be used;

- be given access to a summary of the project findings when it is concluded.

If you are willing to complete the enclosed questionnaire could you please return it in the envelope provided as soon as possible. It is assumed that filling in the questionnaire and returning it to the researcher implies consent to participate in this study. If you would like to know about the findings of the study, please supply your name and address on the form on the last page of the questionnaire. This will be removed from the questionnaire immediately and used only to send you a summary of the results and then destroyed.

Your assistance with this research would be greatly appreciated. Please keep this information sheet for your own reference. Should you have any queries regarding this study, please feel free to contact me:

Nurul Salikin Sa'ari
School of Psychology,
Massey University, Private Bag 11222,
Palmerston North, New Zealand.
Email: i. Nurul.Sa'ari.1@uni.massey.ac.nz ii. blue_ikin@hotmail.com
Phone: 09-7443696 / 012-9280461 (Malaysia)

or

Dr. Christine Stephens
School of Psychology,
Massey University, Private Bag 11222,
Palmerston North, New Zealand.
Phone: 0064-6-350 5799 ext. 2071
Email: C.V.Stephens@massey.ac.nz

This project has been reviewed and approved by the Massey University Human Ethics Committee, PN Protocol 03/133. If you have any concerns about the conduct of this research, please contact Professor Sylvia V Rumball, Chair, Massey University Campus Human Ethics Committee: Palmerston North, telephone 0064 6 350 5249, email **humanethicspn@massey.ac.nz**

Appendix N: Treating Practitioner Information Sheet-Malay Language

KERTAS MAKLUMAT UNTUK PEGAWAI PERUBATAN
(Bahasa Malaysia dan English)

Tajuk Projek:
"Kanak-Kanak Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD):
Satu perbandingan ke atas penilaian, diagnosis dan rawatan-rawatan terkini yang dipraktifkan di Malaysia dan New Zealand"

Saya, Nurul Salikin Sa'ari, sedang menjalankan satu kajian mengenai Gangguan Hiperaktif Kurang Daya Tumpuan (ADHD) sebagai salah satu tugas dalam pengajian sarjana Psikologi di Universiti Massey New Zealand, di bawah pengawasan Dr Christine Stephens, Pensyarah Senior, di Sekolah Psikologi Universiti Massey. Di sini saya ingin mengalu-alukan anda untuk mengambil bahagian dalam projek kajian ini. Sila baca secara teliti dan pertimbangkan apa yang dinyatakan di dalam Kertas Maklumat ini sebelum anda mengambil keputusan untuk menyertai dalam kajian ini.

Kajian ini akan membuat penelitian terhadap penilaian terkini, diagnosis dan rawatan-rawatan yang dilakukan untuk kanak-kanak yang mempunyai gangguan hiperaktif kurang daya tumpuan (ADHD) di Malaysia. Kajian ini juga akan mengenalpasti ciri-ciri klinikal dan cirri-ciri rawatan untuk kanak-kanak yang disyaki mempunyai petanda-petanda berkaitan dengan ADHD. Kemudian, kajian ini juga akan membuat perbandingan ke atas diagnosis dan rawatan yang sedang dipraktifkan di Malaysia dan di New Zealand.

Ibubapa atau penjaga bagi **Nama Kanak-Kanak** yang mempunyai gangguan hiperaktif kurang daya tumpuan (ADHD), telah bersetuju untuk menyertai dalam kajian ini dan telah menyatakan anda sebagai pegawai perubatan yang telah membuat diagnosis, atau sedang memberi rawatan kepada anak mereka. Ibubapa atau penjaga ini telah diberitahu mengenai sebab-sebab untuk memperolehi maklumat ini, dan keizinan mereka telah diperolehi terlebih dahulu bagi memperolehi maklumat berkenaan anak mereka iaitu melalui satu set kertas soalan, seperti yang dikepilkan bersama di sini. Dengan itu, saya amat memerlukan bantuan anda dengan menjawab kertas soalan yang dikepilkan di sini. Ia akan mengambil masa di antara 15-20 minit untuk dijawab.

Data yang diperolehi hanya akan digunakan untuk tujuan pengajian sahaja. Selepas data ditukar kepada analisis berkomputer, segala maklumat yang diperolehi akan dimusnahkan. Nama anda tidak akan dinyatakan sepanjang kajian ini dijalankan dan maklumat yang anda kemukakan akan dikategorikan sebagai sulit.

Jikalau anda memilih untuk mengambil bahagian dalam kajian ini, anda mempunyai hak untuk:

- Menghubungi penyelidik pada bila-bila masa bagi berbincang mana-mana aspek yang berkaitan dengan kajian ini atau untuk mengemukakan soalan;
- Menolak untuk menyertai;
- Menolak dari menjawab mana-mana soalan;
- Menarik diri dari kajian pada bila-bila masa sebelum kembalikan Kertas Soalan;
- Memberitahu maklumat berasaskan pemahaman nama anda tidak akan digunakan;
- Mendapat peluang untuk melihat ringkasan keputusan penyelidikan apabilanya selesai;

Jikalau anda bersetuju untuk menjawab kertas soalan yang dikepilkan di sini, sila kembalikannya yang telah lengkap kepada penyelidik di dalam sampul surat yang disediakan dengan segera. Dengan menjawab soalan dan mengembalikan kepada penyelidik, ia akan dianggap anda telah bersetuju untuk menyertai dalam kajian ini. Jikalau anda hendak mengetahui keputusan kajian ini, sila nyatakan nama dan alamat anda di dalam borang yang disediakan di muka surat terakhir dalam Kertas Soalan. Borang ini akan diasingkan dari Kertas Soalan dengan segera dan hanya akan digunakan bagi menghantar ringkasan keputusan kajian ini kepada anda. Kemudian, borang tersebut akan diluputkan.

Bantuan anda dalam kajian ini amatlah dihargai. Sila simpan Kertas Maklumat ini untuk rujukan puan/tuan. Jikalau anda mempunyai sebarang persoalanan yang berkaitan dengan kajian ini, anda diminta untuk menghubungi saya:

Nurul Salikin Sa'ari
School of Psychology,
Massey University, Private Bag 11222,
Palmerston North, New Zealand.
Email: i. Nurul.Sa'ari.1@uni.massey.ac.nz ii. blue_ikin@hotmail.com
Telefon: 09-7443696 / 012-9280461 (Malaysia)

atau

Dr. Chris Stephens
School of Psychology,
Massey University, Private Bag 11222,
Palmerston North, New Zealand.
Emaill: C.V.Stephens@massey.ac.nz
Telefon: 0064-6-350 5799 ext. 2071

Projek ini telah dinilai dan diluluskan oleh Jawatankuasa Etika Manusia Universiti Massey, Protokol PN 03/133. Jikalau anda mempunyai sebarang persoalan mengenai cara-cara kajian ini dijalankan, sila hubungi Professor Sylvia V Rumball, Chair, Massey University Campus Human Ethics Committee: Palmerston North, telefon 0064 6 350 5249, email **humanethicspn@massey.ac.nz**