Attention Deficit Hyperactivity Disorder in Minority Populations & Treatment Approaches

A Research Paper

Presented to

The Faculty of the Adler Graduate School

In Partial Fulfillment of the Requirement for

The Degrees of Master of Arts in

Adlerian Counseling and Psychotherapy

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September 2008
Abstract

This thesis explores two topics that lack needed attention in contemporary research conducted on Attention Deficit Hyperactivity Disorder (ADHD). The first part of this thesis focuses on assessment and treatment with minority populations. The second part of the thesis is devoted to non-mainstream treatments of ADHD. Special attention is given to therapy within minority populations and non-mainstream treatments. Research information is based on experiential studies methods. Assessment and treatment methods, as well as general understanding of the diagnosis as applied to the two topics are examined throughout the thesis. In conclusion, general and Adlerian implications are stated to assist parents and professionals in their work with ADHD children.
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I would like to express my gratitude to all those who gave me direction, encouragement, and guidance to complete this thesis. Special thanks should be given to my student colleagues who helped me in many ways. Words alone cannot express the thanks I owe to my husband, Don Winston, and our children, Miles and Mariah. Thanks for your patience and understanding. Finally, I would like to thank God. For without him, none of this would be possible.
ADHD: Calling Attention to Significant Subjects

Introduction

An attentive researcher involved in clinical situations will become aware of etiology of conditions, researched populations, and approaches to treatment when it comes to mainstream and non-mainstream populations, as well as typical and non-typical treatments. Within ADHD research the two areas experiencing deficits of attention are minority populations and non-pharmaceutical treatments.

Even though there has been an increase in the number of children and adolescents who receive clinical services for Attention Deficit Hyperactive Disorder, there are significant topics that warrant awareness. Compared to their non-minority counterpart, ethnic minorities lag behind in the rate of treatment and diagnosis of ADHD. There is a limited amount of research information that focuses on ADHD and the ethnic minority population. Because of this, minorities continue to be in the non-mainstream of therapy and other treatments.

Another area of unequal and insufficient research attention is non-pharmaceutical treatment for symptoms of ADHD. The purpose of this paper is to paint a picture of common versus uncommon understanding of ADHD, mainstream versus non-mainstream populations in focus of ADHD research, and typical versus non-typical treatment of the illness. Common understandings and traditional treatments of ADHD can affect diagnosis.

Statistics

Approximately 3-7% of school aged children are diagnosed with ADHD in the United States (Johnston, Seipp, Hommersen, Hoza, & Fine, 2005). It is 6-9% more prevalent in boys than in girls (APA, 2000; Johnson, 1988). Reviews of data available in other countries show that rates range from 1.7% in Britain to 9.5% in Puerto Rico. Changing criteria and variations in
diagnostic methodology make international statistics for ADHD uncertain. Differences between countries may be due to terminology, diagnostic criteria, and treatment modalities (Gingerich, Turnock, Litfin, & Rosen, 1998). These differences make accurate cross-cultural comparisons difficult. For example, although in the United States ADHD is frequently diagnosed among school-age children, clinicians in other countries do not diagnose ADHD in the same manner. This might account for discrepancies in reported rates. To show that professionals from other countries differ in diagnostic methodology, experienced clinicians in four different countries (China, Indonesia, Japan, and the United States) were asked to rate children in terms of ADHD symptoms. The clinicians used identical video tapes and rating tools. The differences in character and severity of diagnoses were significant. The rates reflected cultural and diagnostic differences (Johnston, et al., 2005). Clinicians from Indonesia and China gave higher ratings on hyperactivity than clinicians in Japan and the United States. This shows that perceptions of hyperactivity vary across countries even when standardized rating tests are used. It becomes difficult to make comparisons without correcting or at least controlling perceptual differences in rates. This might also show the importance of culturally defined norms in human behavior.

Little is known in regards to how parents perceive ADHD symptoms, beliefs, and treatments. Because of the central role that parents play in selecting and accessing treatment and service plans for their children, understanding these factors is important (Johnston, et al., 2005). Surveys have found that most children diagnosed with ADHD are treated with stimulant drugs. However, alternative treatments are not uncommon. Studies show that 54% of parents with children evaluated for ADHD used an alternate treatment which included diet, vitamins, herbal approaches, occupational or art therapy (Johnston, et al., 2005). Many parents believed that the naturalness of these types of alternate treatments allowed them to have greater control over
treatment for their children. In Johnston’s (2005) study, counseling has been found to be a common addition to medication in 54% of children. Also, 67% of the parents participated in the study specified a belief in the effectiveness of diet management (Johnston, et al., 2005). This information leads to the need of research to establish characteristics of the child, parent, and or family associated with treatment choice.

Alternative treatments, parental accuracy, knowledge, and attitude regarding ADHD are related to socioeconomic status (SES) and ethnicity (Johnston, et al., 2005). However, these results are not always duplicated and appear manipulated by variables. This information highlights the need for educators, childcare providers, and others who care for children with ADHD to understand guidelines for working with children from these backgrounds and to critically assess the available research.

Over the past 30 years, many investigational studies have been done on ADHD. The results show that ADHD is a complex disorder that needs to be investigated from different and often interacting perspectives. Many different fields such as psychology, education, and medicine have tried to find explanations for this disorder. Some researchers have relied upon etiology, genetics, and environmental factors to explain ADHD (Schnoll, Burshteyn, & Cea-Aravena, 2003). Most studies utilizing these explanations have been focused on a small number of modalities, usually examining just an individual modality. In order for clinicians to find more comprehensive explanations for ADHD, they will have to cooperate with other disciplines (Schnoll, et al., 2003).

The effect of diet and nutrition on ADHD is a topic that is worth recognition in regards to understanding broader and more diverse treatment options. For example, an investigation was done by Uhlig, Merkenschlager, Brandmaier, and Egger (1979) on the connection between diet
and brain electrical activity in children with ADHD. The investigation found that certain food sensitivities influenced ADHD symptoms in children and also altered brain electrical activity (Schnoll, et al., 2003). The investigation proved the value in understanding the relationship between ADHD and nutrition. Within the past 20 years there has been an increasing interest in dietary habits and beliefs. Most of the attention has been focused on the role that food additives, refined sugars, food allergies, and fatty food have on children with ADHD.

**Characteristics of ADHD**

Some of the essential characteristics of Attention Deficit Hyperactivity Disorder (ADHD) include difficulty with delayed gratification, a continual pattern of inattention & distractibility, impulsive behaviors, excessive bodily motor activity, and anxiety. These characteristics are often paired with social and emotional immaturity, aggressiveness, and poor academic achievement (Schnoll, Burshteyn, & Cea-Aravena, 2003). Deficits in cognitive skills known as executive functions can effect abilities to succeed. Executive function deficits may cause students problems with getting started and finishing work, remembering homework, memorizing facts, being on time, writing reports and essays, and working with math problems.

**Diagnostic features.** Hyperactive-impulsiveness or inattentiveness symptoms must have been present before age 7 years. Impairments must be present in two settings (home and school). There should be clear facts of interference with social development, academic, or occupational performance.

Inattention is prevalent in academic, social, occupational, or social settings. Individuals have difficulty focusing on a particular detail or may make careless mistakes on homework assignments. Work is often messy and unorganized, and tasks are not followed through. Their minds appear to be elsewhere as if they are not listening. Failure to complete a task should be a
major consideration in making a diagnosis unless it is related to other causes (not understanding or defiance) (APA, 2000, p. 85). Individuals have difficulty in organizing tasks and activities. Tasks that require constant mental focus are unpleasant experiences for individuals with ADHD. As a result, they may avoid these types of tasks.

Diagnostic features of hyperactivity include fidgetiness or squirming in one’s seat. There is excessive climbing and running in situations when it’s not appropriate. In children they have difficulty playing and engaging in quiet activities. Caution should be taken when diagnosing hyperactivity, especially with young children. Preschoolers and toddlers diagnosed differ from normal active kids in this age range. Hyperactivity varies with the individual’s age and developmental level. Diagnosed children are constantly on the go and get into everything. They dart back and forth and are normally out the door before their parents. Parents may complain that their children climb and jump on furniture, consistently run through the house, and have difficulty participating in group activities in preschool (listening to stories). School age children display the same characteristics as toddlers and preschooler but with less frequency or intensity. They cannot stay in their seats without getting up frequently. They fidget a lot with objects and consistently tap their hands. There is an excessive amount of leg and foot shaking. They talk a lot and make excessive noise during quite activities. Adolescents and adults take on the form of hyperactivity with feelings and restlessness, and have difficulty participating in quiet activities.

Impulsivity appears in the form of impatience, difficulty in delaying responses, blurring out answers to questions before they are completed, and difficulty waiting for one’s turn. Frequent interruption of others’ conversations and intrusion on others’ personal space are common. Individuals with this disorder may grab objects from others without permission, touch things that are not supposed to be touched, and like to play around a lot. Impulsivity may lead to
serious accidents such as running into people, grabbing hot pans or objects, and climbing into unstable positions.

Behavioral and attentional symptoms can usually emerge in various forms and settings, including school, work, and social settings. To make this diagnosis, there must be at least six or more impairments in either one of these settings. It is unusual for an individual to display the same level of dysfunction in all settings (APA, 2000). Symptoms are more apparent in settings that require sustained mental focus (listening, doing class assignments, repetitive activities). Signs of symptoms may be minimized when the individual is receiving rewards for great behavior, is under close supervision, exposed to interesting or novel activities, or is in a one-to-one situation. Clinicians should collect information from multiple sources (parents, siblings, colleagues, and teachers) and query about the individual’s behavior in many situations within the setting (APA, 2000).

Subtypes. There are three subtypes. The subtypes include: ADHD (predominantly inattentive type), ADHD (predominantly hyperactive-impulsive type), and ADHD (combined type). Individuals may present with symptoms of both inattention and hyperactivity-impulsivity. There are individuals who may have one or the other as a predominant symptom. The most appropriate subtype for a diagnosis should be based on the predominant symptom patterns for at least the past 6 months.

ADHD & Diversity

Research information for ethnically and socioeconomically diverse populations with ADHD is scarce. Most studies have utilized young white male subjects who met the criteria for diagnosis of ADHD but did not represent a heterogeneous population (Gingerich, Turnock, Litfin, Rosen, 1998). The following information will examine existing articles pertaining to
several aspects of ADHD and diversity, including international differences and rates, ADHD in ethnically diverse populations within the United States, as well as age, gender, and socioeconomic issues.

*Rates across countries.* In addition to perceptual variations that were mentioned in the introduction of this paper, consistent use of assessment tools does not occur at all times (Gingerich, Turnock, Litfin, Rosen, 1998). Data from five countries were examined to compare the use of the Conners Teacher and Parent Rating Scale. Differences were found in cut-off for diagnosis of hyperactivity, and variation in sampling methodology (Gingerich, et al., 1998). This influenced differences in reported prevalence. O’Leary, Vivian, and Cornoldi (1986) compared how ADHD is diagnosed by pediatricians and psychologists from the United States and Italy. They found that professionals from both countries did not differ in their frequency of diagnosing ADHD when given identical cases of a young boy with disruptive behavior. There were some significant differences in reported use of assessments to diagnose ADHD (Americans used more assessment methods than Italians). With regards to etiology, Italians cited environmental influences and Americans frequently cited organic influences.

Using identical videotape cases, a study was done by clinicians from Britain and the United States. Variations in diagnosis appeared between clinicians using the DSM-III (American Psychiatric Association, 1980) versus ICD-9 (World Health Organizations, 1978) diagnostic criteria. The DSM-III diagnostic criteria generated more findings than the ICD-9 for ADHD. The clinicians in Britain had larger ADHD diagnosis than the American clinicians (Prendergast et al., 1988).

The variations of assessments, differences in sampling methodology, and sample characteristics in cross-cultural studies should be kept in mind. It is worthwhile to observe
reported rates of ADHD diagnosis from an international perception. Data on more than 3,000 children in Ontario, Canada were utilized in a multiple source (parents, teachers, and child checklist) to study the prevalence of ADHD. The results proved that ADHD was more prevalent in Canadian boys (9.0%) than girls (3.3%) (Gingerich, Turnock, Litfin, Rosen, 1998). Chinese school children have rates of ADHD ranging from 1.3 to 13.6% depending on the assessment tool of choice. When the DSM-III requirements were used 3% of Chinese children were diagnosed with ADHD. In Puerto Rico, rates based on the same criteria of the DSM-III were higher (16.2%) when another assessment device was added (Children’s Global Assessment Scale). In doing this, the prevalence rate dropped to 9.5% (Gingerich, et al., 1998).

Prevalence rates varied cross-culturally when using the same cut-off with the Conners Teacher Rating Scale (Gingerich, et al., 1998). An 8% hyperactivity rate was found with German children while using the same cut off point. Prevalence rates were 15% in New Zealand, 16% in Spain, 12% in Italy, 12% in Australia, and 9% among boys in Hong Kong.

Research has clearly shown that there is a need for more empirical investigations into the relationship of ADHD and cultural variables. Without this information, individuals are subjected to under-and-over diagnosis based on cultural insensitivity and biases. Misinterpretation of prevalence data and misjudgment of appropriate treatment modalities are also consequences of this research deficit. It is imperative that cross-cultural comparison of ADHD be understood within the context of the individual’s cultural environment (Gingerich, et al., 1998). It has been suggested by Chandra (1993) that we should define conditions such as ADHD within the social norms of each culture. Chandra notes that “cultural and societal tolerances for different behaviors vary and that deviance in behavior is perceived on the basis of culture specific norms
rather than globally uniform criteria” (p. 1279). The author suggest that individual cultures define their own conditions instead of others dictating from a far.

*Diverse groups in the United States.* Few studies have measured epidemiology of ADHD among culturally diverse groups in the United States. The differentiation between prevalence and severity has been unclear. Comparable to international rates, prevalence among diverse groups in the United States may be due to the variation in the use of assessment tools and diagnostic criteria. There were several comparison studies done using teachers’ ratings to compare prevalence of ADHD between racial minorities and White elementary school children. These studies included over 1300 African American, Chicano, and Asian American children. Their results were compared to norms derived from the studies with White participants. The Hyperactive Rating Scale (Gingerich, et al., 1998) reported that African American children had the highest rating for hyperactivity. Asian American children had the lowest hyperactivity rating score. Chicano children’s ratings were neither higher nor lower compared to norms derived from studies with White participants (Gingerich, et al., 1998). An examined study was done by Anderson, Williamson, and Lundy (1977) to study the relationship between hyperactivity and ethnicity among White American, African American, and Chicano American rural elementary children (Gingerich, et al., 1998). The investigation concluded that the rates were not consistent between ethnic minority children (Gingerich, et al., 1998). African American children were rated higher for hyperactivity than Chicano American children. After further study this investigation concluded that although hyperactivity rating scores were higher for African American children, behavioral characteristics of children labeled as “hyperactive” across ethnic groups varied. (Gingerich, et al., 1998). Juarez, Madrigal, and Anderson (1981) quoted “the quality of the
activity that reflects the disorder may vary according to ethnic status, social-class background, teacher, and student expectations” (p.157).

The ratings of hyperactivity by American school psychologists, parents, and teachers also may be influenced by ethnicity and socioeconomic status of the children. It is also important to note that influences can greatly fluctuate when it comes to cross-cultural comparison of teachers to families, parents to ethnic preferences, etc. A group of raters, all of middle socioeconomic status (SES) viewed films and read biographies of African American, Mexican American, and White American boys. The biographies of each boy included their SES background. The investigative conclusion indicated that school psychologists rated the “lower class” boys as more hyperactive than any other ethnically diverse group of boys (Gingerich, et al., 1998). African American and Chicano American boys were classified as more hyperactive than White American boys. This investigation proves that one’s professionalism and training do not inhibit the impact of ethnic/racial perceptions (including misperceptions) of normal versus abnormal behavior. Teachers’ rating scores were more stable compared to those of school psychologists. Although parents’ rating scores reflected more on ethnic characteristics than SES, African American boys received the highest scoring of hyperactivity in all ratings by parents, teachers, and professionals (Gingerich, et al., 1998).

Because professionalism and training does not hinder influences on specific cultural characteristics, it is important that clinicians are aware of how their beliefs and biases can sway the diagnosing of ADHD in racially and ethnically non-mainstream populations. Effortless research into the background of non-mainstream populations results in over-diagnosing. Statistical information about non-mainstream populations and ADHD would be most effective in
understanding if clinicians are willing to do the homework. The common knowledge within ADHD in mainstream population does not necessarily fit non-mainstream populations.

Children who are prone to hyperactivity may be suffering from a culturally induced stimulus overload. Agitation, hyperactivity, overreaction to provocation from others, inability to concentrate, impulsiveness, distractibility, and noncompliance may result from living in a stressful and unpredictable environment. This fact was supported by an investigative study done by Barbarin and Soler (1993). This and other studies have documented that a number of ethnic minorities live in highly stressful environments (Gingerich, et al., 1998). Keeping this information in mind, clinicians must understand the social environment their clients come from before attempting diagnosis or treatment intervention. Clinicians and researchers can benefit from continued examination of the relationship between ADHD and other cultural variables, such as SES, race, urban/rural status.

**Age.** Originally, it was thought that only children could be diagnosed with ADHD and that ADHD symptoms lose their intensity as earlier diagnosed children passed through adolescence and adulthood. Today, the prevailing view of the diagnosis of ADHD has changed. Over the last 15 years there have been countless studies that have proven that 30-60% of ADHD children carry the symptoms into adulthood. The studies also showed that over 40% carried at least one disabling symptom of the condition into adulthood (Gingerich, et al., 1998).

Research information on adults with ADHD is scarce. The research that was done focused predominately on individuals who were white middle-class males. There is limited research information on adult females and ethnic minorities with ADHD (Gingerich, et al., 1998). Because of this, most likely, women and ethnic minorities are under-diagnosed and underserved. Cultural, age, gender, SES, and environmental etiologies are not taken into
consideration when diagnosing. With this information in mind, it would be worthwhile for researchers to conduct further research on ADHD in adulthood.

Age has a huge impact on ADHD individuals specifically as they mature. Impulsivity and inattention continues to create significant problems for diagnosed individuals as they move into adolescence and adulthood. Hyperactivity is less in evidence during these developmental stages (APA, 2000). As most individuals mature, they tend to expand on their coping strategies as they gain life experience (Gingerich, et al., 1998).

As the appearance of symptoms change for adults with ADHD, their cultural expectations in relationship to children differ (Gingerich, et al., 1998). One expectation is that adults are responsible (legally also) for their own actions. On the other hand, children are excluded from this expectation. For example, a child who is disruptive when others are talking or/and forget to do school homework would be considered to be “behaving as a child.” This type of behavior with an adult would be considered far more serious and could be grounds for losing a job. Self-control is another cultural expectation of adults. For example, adults are expected to be able to emotionally block out challenging demands for attention to focus on less-than-rewarding chores, such as dealing with disorderly working peers. This type of task is unfortunately very difficult for a person diagnosed with ADHD. Tasks that lack external structure are the most difficult (Gingerich, et al., 1998).

Because there is an enormous lack of research on females and ethnic minorities, it would be wise for clinicians to be receptive when it comes to placing a diagnosis of ADHD upon an individual. Future researchers must look at the relations between age and other related variable to improve diagnostic strategies with underserved females and ethnic minority groups.
Gender. Depending on the study cited, the average male-female ratio in ADHD cases (base data provided by outpatient clinics) in the United States is 6:1 (Barkley, 1990). However, epidemiological research has established the ratio to be 3:1 within the general United States population of children (Gingerich, et al., 1998). Barkley (1990) states that the inconsistency between ratios found in clinical referred cases and that of general U.S. population has to do with referral bias. Females are less likely to display aggressive behavior than males. Because of this, male are most likely to be referred for counseling or therapy. More severe behavior must be displayed by girls before they are referred to a clinic. Consequently, girls are often older at the time of referral and it becomes visible that girls are under-diagnosed. Boys are diagnosed three to nine times more than girls depending on the population studied (Gingerich, et al., 1998).

A study performed by Breen and Altepeter (1990) established that there are a few gender differences that exist between boys and girls diagnosed with ADHD. There were great differences in gender when subjects were given confusing expectations and consequences. Behavior problems in this situation were more prevalent in boys than girls. It was also established that girls present the same level of distractibility as boys but with less aggression and hyperactivity (Gingerich, et al., 1998). Depression and anxiety are more prevalent symptoms in females during child and adulthood. To sum it up, females internally experience (depression and anxiety) and males socialize symptoms externally (aggression and hyperactivity) (Gingerich, et al., 1998). Psychopathology is determined by biological, psychological, and sociocultural factors (Franks, 1986; Helman, 1984). Sociocultural factors can create a huge difference between males and females; therefore it is important to take these issues into account when determining intervention plans. To illustrate, it has been theorized that girls with ADHD exhibit
fewer hyperactivity symptoms than boys. Hyperactivity is socially less tolerable in girls (Frank, 1986). Research has shown that gender plays an important role in the diagnosis of ADHD.

Psychopathology is determined by biological, psychological, and sociocultural factors (Franks, 1986; Helman, 1984). Sociocultural factors can create a huge difference between males and females; therefore it is important to take these issues into account when determining intervention plans. To illustrate, it has been theorized that girls with ADHD exhibit fewer hyperactivity symptoms than boys. Hyperactivity is socially less tolerable in girls (Frank, 1986). Research has shown that gender plays an important role in the diagnosis of ADHD.

Gender differences are also neglected when it comes to research and treatment of ADHD. Similar to many other studies, predominately white male middle class subjects were used. In studies that did use females, there were no separate investigations conducted for gender (Gingerich, et al., 1998).

**Socioeconomic status.** Many links between SES and ADHD have been found (Gingerich, et al., 1998). Established proof has been found that support the fact that SES along with other factors affect the rates of the condition. Being a minority compounded with lower SES may produce a climate of stress among individuals and families. Families who are associated with lower SES have been found to receive lower utilization of mental health services, to show poorer treatment compliance, to be getting lower prenatal care, and to report higher substance abuse (Gingerich, et al., 1998). Stress has been linked with elevated levels of pathology and ADHD (Morrison, 1980). Although there is not enough evidence to establish linear causality in the above cases, the relationships between diagnosed ADHD and SES seem to be more than just coincidental.
The fact that ADHD has a higher incident rate among lower SES populations does not come as a surprise to researchers. The theory of “social drift” explains this fact (Barkley, 1990). Traditional educational curriculums work best for individuals who are not diagnosed with ADHD. Individuals who are diagnosed with ADHD do not learn from traditional educational curriculums. These individuals tend to inhibit lower SES brackets as a result of this. Because of this, the high level of inheritability of the disorder and the low SES remains intergenerationally throughout the population. This results in the incident rate of ADHD remaining higher than in middle or upper class SES groups (Gingerich, et al., 1998).

Socioeconomic status also impacts treatment. Children with ADHD in lower SES groups with ADHD are likely to complete treatment procedures but less likely to comply with medication treatment following the initial assessment (Gingerich, et al., 1998). Clinicians have to be conscious of the elevated vulnerabilities of lower SES individual in regards to diagnosing ADHD.

Criticism of Traditional ADHD Diagnosis and Treatments

A study was conducted by Lee Kyunghwa, 2008 with 10 early childhood teachers who lived in the Southwestern part of the United States. The study was done to bring about a better understanding of teachers’ perceptions of diagnosis and treatment of children with ADHD. Questions such as (1) What are your perspectives of ADHD diagnosis and (2) What are your thoughts on medication treatment for children with ADHD were examined.

Teachers’ perception of ADHD diagnosis. All the teachers included in this study had stated that they had experience working with children diagnosed with ADHD. They were all asked to describe the behavioral characteristics of children that participated in the study. One teacher (elementary) described behavior that was hyperactivity and inattentive types according to
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the DSM-IV-TR (American Psychiatric Association, 2000). A couple of the teachers (elementary) described behavior that was hyperactive-impulsive type. Three of the teacher (elementary) discussed behaviors that were inattentive and hyperactivity-impulsive types.

Conversely, teachers working in pre-kindergarten, kindergarten, and one third grade teacher discussed behavioral characteristic that could be classified as the primary inattentive type (American Psychiatric Association, 2000). The contrasting pattern that surfaced with this information was that pre-kindergarten and kindergarten teachers tended to focus more on the inattentive type behavior while the elementary teachers focused on the hyperactivity-impulsive behavior. Teachers working with younger children accept the fact that hyperactivity and impulsiveness is a part of normal childhood behavior for this age group. Elementary teachers think the opposite for children in their age group. Regardless of the discussions for inattentive or hyperactivity-impulsive type, none of the teachers rejected the possible existence of ADHD (Kyunghwa, 2008). One of the teachers participating in the study commented that “The possible existence of ADHD within a child brings about labeling” (Kyunghwa, 2008).

All 10 teachers in this study agreed that it was difficult to distinguish a child with ADHD from his or her undiagnosed peers (Kyunghwa, 2008). The preschool teachers had more difficulty than the elementary teachers due to the difference in the curriculums. For example, preschool children do not receive tasks that require them to sit at a desk for long periods of time and they do not have homework assignments that require full concentration.

*Teachers’ views about ADHD medication treatment.* All the teachers in this study, except for one, had experience with medicating children with ADHD. One teacher did not oppose prescribed medications in general, but did not like that young (preschool) children have the medication prescribed to them. She felt that there was a high risk for misdiagnosis among
children in this age group. The teacher believed that the only reason why medication might be needed in that age group was the child’s behavior interfering with his or her education or the education of others. The teachers were alert to the fears of misdiagnosis of ADHD and over prescribing of medication. Many of the teachers expressed concern that medication was used as “a quick fix” and should only be used as a “last resort” (Kyunghwa, 2008). One of the teachers believed that behavior should be changed first with behavioral modification, counseling, and diet; only using medication as a last option.

All 10 teachers accepted the fact that medication is an effective treatment for some children diagnosed with ADHD (severe cases) even though they had great caution and hesitation (Kyunghwa, 2008). One teacher believed that deciding to prescribe medication is based on case-by-case situations. She felt that children who could not develop coping strategies to deal with the disorder truly needed to be medicated.

The teachers highlighted some positive effects of medication for children with ADHD. Participants reported following positive effects of medication use: (1) it calmed the child down (2) the child’s anger and behavior was manageable (3) the child focused better (4) disruptive behavior was minimized (5) tasks were getting done and, (6) academic potential is high. On the contrary, some negative effects were also highlighted. The negative effects included (1) loss of appetite and growth (2) chemicals in the child’s body and, (3) feelings of lethargy. The effects that were seen by some teachers as positive were negative to others and vise versa. One teacher stated that it makes her day easier when children diagnosed with ADHD have taken their medication. Another teacher, however, criticized the suggestion that “medication makes their day easier” (Kyunghwa, 2008).
Even though the teachers expressed both positive and negative perceptions of the effect of ADHD medication, they all found one reason for using drugs for treatment. That reasoning was to ensure that all children being medicated for ADHD were functioning in the classroom more effectively (Kyunghwa, 2008).

**Clinical Implications**

Based upon all studies examined, professionals, educators, and parents working with non-mainstream populations must be responsive to clinical implications. In order for clinicians to find explanations for ADHD, they have to be willing to work together with other disciplines (Schnoll, et al., 2003). Studies that have been examined showed a lack of cooperation in this respect.

Hyperactivity varies across countries when using standardized rating tests. With knowledge of this information, it is clear that perception plays a huge role in rating dissimilarity. Can rating differences become comparable with varying perceptions? It is possible if we are willing to correct perceptual differences in rates.

Not much is known as to how parents conceive their beliefs in treatment interventions for ADHD. Parents who developed and experienced their own individual intervention plans have the utmost belief that this is the best possible treatment for their child. This information leads to the importance of clinicians assessing experiences in practice. It also leads to the need for research to establish characteristics of the child, parent, and or family associated with treatment choice.

Treatments, knowledge, and attitudes that parents adopt for ADHD are related to their socioeconomic status and ethnicity (Johnston, et al., 2005). This information is often overlooked when it comes to implementing therapy and intervention plans for ADHD. This highlights the
need for educators, childcare providers, and others who care for children with ADHD to comprehend guidelines for working with children from these specific backgrounds. Doing the extra research and consulting with professionals who are experienced in the field will yield results that are most functional and accurate.

Studies demonstrate that educators have their own perception of ADHD and how it should be treated in classroom settings. It is sometimes difficult for teachers to distinguish a child with ADHD from his or her peers. Intensive training in mainstream and non-mainstream etiology, populations, and treatments would help all educators provide a better learning environment for children who are diagnosed with ADHD. With top administrators enforcing these guidelines, our school system can become an institute that provides an equal education for all children.

*Alternative Approaches to Treatment and Understanding of ADHD*

This sub-topic will focus on the effect of nutritional therapy on ADHD in children. In 1973, Dr. Benjamin Feingold hypothesized that food additives, refined sugars, and salicylates had an effect on the behaviors of children with ADHD (hyperactivity behaviors) (Frith & Lindsey, 1982). As a result of his theory, he created the Feingold Kaiser-Permanente Diet in 1973. Different experimental methods were used to try to reach a conclusion of validity in Feingold’s theory. The outcome is to find out if nutritional therapy is an alternative treatment to traditional approaches of ADHD in children.

*The Feingold diet.* The Feingold Diet required children to eliminate all artificial food coloring, flavors, sugars, and salicylates from their daily diets. Feingold reported that 50% of children who were placed on the diet showed favorable results (Schnoll et al., 2003). The diet experienced overwhelming attention of parents. It allowed parents to shift the blame of their
child’s behavior problems to bad choices of food rather than family genetics (Gross, Tofanelli, Butzirus, & Snodgrass, 1987). Because Feingold only used clinical observations and not experimental evidence to prove his theory (Kavale & Forness, 1983; Thorley, 1983), the validity of his diet has been under many investigational experiments (Gross, et al., 1987). Agencies developed special guidelines to further investigate the correlation between diet and hyperactivity. These guidelines fell into two groups: individuals that would evaluate the hyperactive behaviors of children while on the Feingold Diet using the comparison of a placebo diet, and individuals that would evaluate the response to particular foods (Schnoll et al., 2003).

*Empirical studies.* There were 39 children involved in an experiment conducted by Gross, Tofanelli, Butzirus, and Snodgrass (1987). All 39 children were enrolled in a private school that worked with children with learning disorders. All the children that were enrolled in this school were referred by a psychologist from a public school. The age range of the children was 11 to 17; 30 of the participants were boys and nine were girls. The children were sent to a camp located in an isolated area. The isolation allowed investigators to control the food that was given to the children. For example, during an empirical study that was done with 16 boys by Richard Milich (1986), the parents were given instructions to withhold food so that the boys could be given a special kool-aid sugary drink when they arrived at the treatment center. One child drank orange juice allowing the investigators to not have control of food sources. Having control over the environment has been a flaw in some empirical investigations. In the Tofanelli, Butzirus, and Snodgrass study (1987), the children were given the Feingold Diet for a week and then given a diet rich in artificial additives, sugars, and salicylates. Raters were asked to review and rate tape recordings randomly. The tapes featured the children eating their meals during mealtime. They
were asked to rate the behavior of the children participants on a scale from zero to 10. Motor restlessness, disorganized behavior, and misbehavior were studied in the experiment.

The results of the experiment showed that the behaviors of the children did not change much with their diet change. During all mealtimes, the children were well-behaved and quiet. This may have been due to the unfamiliar setting. The teacher who worked with the children stated that the children seem to be a little bit nosier during the second week of the experiment. The overall consensus was that there was minimal difference between the first and second week with the diets. The children exhibited the normal behaviors of normal camp kids (Gross et al., 1987).

This study had strong points. The food for the Feingold Diet was prepared properly, the food sources were controlled, and the rating was done by video tape (blindly). The raters did not know which week they were watching. The following were weak points that were found in the study: viewing kids in a camp site yields different results than when viewing them in a school classroom, all but one of the hyperactive children was taking medication, and the trial period between the time the kids ate their food was short (Gross et al., 1987). Because the difference in the two weeks studied was minimal, it cannot be said that a diet rich in food additives, sugars, and salicylates produces aggressive behavior in children with ADHD. Further study is needed to come to a final conclusion.

Another study, completed by Kaplan, McNicol, Conte, & Moghadam (1989) was done on 24 preschool-age boys showing behavioral signs of hyperactivity. In other studies done (Kaplan, McNicol, Conte, & Moghadam, 1989), younger children were more vulnerable to nutrition and behavior problems; therefore preschool-aged boys were chosen for this study. Letters were sent out to parents with boys who participated in some kind of day care program. The plan was to
recruit overly active or inattentive boys. Each boy in the study met the diagnostic criteria of the DSM III-TR for Attention Deficit Hyperactivity Disorder (ADHD). The age-range for the boys was 3.5 to 6 years. None of the children were on any stimulate medications. One of the original focal plans was to show that sleep problems and somatic allergy-type symptoms might be associated with nutrition which could cause unwanted behaviors. During the recruitment plan, a parent commented that her child was given a one week health food type diet. The comment slightly changed the hypothesis of the study to the effects of nutrition on unwanted behaviors.

The study was conducted for 10 weeks using three periods (a three week baseline period, a three week controlled-placebo period, and an experimental period of four weeks). The first three week period was a baseline period. During this period, the families were trained on how to measure, serve, and document food intake. All food was pre-cooked and provided by the research study team. Food was also provided to the daycare center the children attended. This allowed families to spend less time cooking and more time documenting. The families had 3 weeks to try all foods and eliminate the foods that were posing a health problem for their child. During the second three week period, the children were placed on a controlled-placebo diet. The diet of choice was called the Alberta Children’s Hospital diet (ACH). This diet is similar to the original Feingold Diet; free of food coloring, additives, sugars, and salicylates. An attempt was also made to keep the children away from environmental inhalants within the household. Paper products were replaced with non-chemical ones, perfumed toiletries, and toys were removed. During the experimental period, the children were exposed to foods that included food coloring, additives, sugars, and salicylates.

Approximately 42% of the children on the ACH diet showed 50% improvement in behavior and an additional 16% showed behavior improvement without a placebo (Kaplan et al.,
The remaining children showed no response to dietary involvements. This study showed evidence of a larger effect of dietary intervention compared to Connors, Goyette, & Southwick 1976 study (Kaplan et al., 1989). The results of this study were in coordination with the home-base evaluations done by Harley, Ray, & Tomasi (1978) study (Kaplan et al., 1989). This study showed that 13 of 36 school aged children showed great improvements when placed on a diet free of food coloring, additives, sugars, and salicylates. Because not all the children responded to the diet, it was considered that individual children react differently to different dietary involvements (Kaplan et al., 1989). Further study would need to be done to evaluate this hypothesis.

By using a broader dietary intervention, the ACH study yielded a larger number of improvements. A large percentage of the children responded to the dietary intervention compared to others. Only half of the children who participated in the ACH study showed behavioral improvement. This study suggested that all practitioners take into consideration dietary modifications in younger children.

A study performed by Bernard Rimland (1983) assessed past reviews that did not support the validity of the Feingold Diet. Most of the reviews came to the same conclusion. The Feingold Diet was of no value and showed only a marginal value for a small number of children who exhibited hyperactivity symptoms (Rimland, 1983). Rimland felt that these claims were unwarranted, most likely incorrect, and damaging. He referred to his colleagues’ claims as “GIGO”, which refers to garbage in, garbage out (p. 331). This means if the data is of no value, no amount of study or manipulation will change the value (Rimland, 1983). Rimland’s criticism of the above studies went in several directions: small dosage level, failure to recognize role of
subject nutritional status, failure to recognize and control variables, arbitrary negative conclusions, inadequate attention to animals and in vitro studies.

*Most of the studies are limited.* Feingold brought to our attention that there are over 3,000 additives that are added to our food source with no testing for results of behavioral effects (Rimland, 1983). These additives include food colorings, additives, flavorings, preservatives, thickening agents, and a list of others. Because the list was so long and complex, Feingold thought it would be wise to do test studies a few additives at a time. He thought by doing this, they would have better control over studies. The Nutrition Foundation, to who he suggested this information, distorted his suggestion to imply that food coloring was the most important factor. There is no information available today to support this suggestion. Rimland expressed skepticism that researchers can make claims that they have tested Feingold’s Diet (which includes elimination of over 3,000 additives) on only 10 food coloring dyes.

*Dosage levels were too small.* During studies conducted on food coloring testing on children, small doses of coloring were used to provoke hyperactivity. Most studies used 1.6 to 26 milligrams of coloring per day (Rimland, 1983). The FDA states that the daily consumption of coloring per day is 59mg for children ages one to five and 76mg per day for children six to 12. Children who fail in the 90th percentile consumption took in 121mg/day to age five and 146mg/day for six to 12 year olds (Rimland, 1983). The effects were supportive when Swanson and Kinsborune (1980) conducted their study using the 90th percentile values (Rimland, 1983).

*Failure to recognize role of subject nutritional status.* Many participants that were used in past studies had been on the Feingold Diet prior to being challenged by experimental food colorings. After being challenged with the experimental food coloring, the results showed that the food coloring had no effect or less effect than the Feingold Diet (Rimland, 1983). Children
who had been on the Feingold Diet a lengthy period of time were healthier (due to proper nutrition) than regular hyperactive children who had not been on the diet. The Feingold Diet children had the ability to endure food additive challenges. The Feingold Diet built up the necessary vitamins, minerals, amino acids and other nutrients that were needed for proper brain functions in these children (Rimland, 1983).

*Failure to recognize and control relevant variables.* There are certain variables investigators may not have been aware of during their experiments with the Feingold Diet. Variables such as copper level ingestions, florescent lighting, acid rain, and drinking water may have had an effect on the children who did not benefit from the diet. A study done by Brenner (1979) showed that food colorings and flavorings can have an effect on hyperactive children with high blood copper levels (Rimland, 1983). Rimland believed that these examples should be taken into consideration when proving the validity of the diet.

*Arbitrary negative conclusions.* In many investigative findings, researchers chose to promote the negative findings of the Feingold Diet instead of the positive findings. Many investigative findings concluded that some children reacted to additives and some of them showed improvement after going on the Feingold Diet (Rimland, 1983). Some investigators felt a little apprehensive about their findings because a lot of the positive aspects of the diet were rated by parents. Because of this, investigators felt that parent information was not reliable information.

*Inadequate attention to animals and in vitro studies.* Many studies show that food colorings and additives have an effect on animals and in vitro studies. Food colorings have been known to cause hyperactivity in lab animals and destroy nerve tissue in tube-testing (Rimland, 1983). Laboratory studies of animals and nerve tissues should not be ruled out since information
that is received by parents and teachers tend to be weak and insensitive (Rimland, 1983). Many investigators have not taken into consideration what these colorings and flavorings have done to lab animals and nerve tissue.

Rimland believes that the pollutants that we place in our foods (additives) could have a possible link to the decline in academic abilities in our youngsters and the upsurge in youth crime. He believes that we should not dismiss Feingold’s hypothesis that food additives cause hyperactivity in children.

A study conducted by Holborow, Elkins, and Berry (1981) was done on 344 children (181 boys and 163 girls) without ADHD diagnosis from seven schools to determine if food additives cause hyperactivity. Using normal children in this study gave the investigator a chance to compare the results with the results of studies that were done with ADHD children. The age range for participate was five to 12 years old. A special rating scale was devised for the teacher to rate the children’s behavior. The Feingold Diet was introduced and used for the study. All the parents gave general information as to how much additives were ingested by their children prior to the diet.

After the study ended, the results showed that twice as many boys (26) had improved compared to 12 girls by 4 or 5 points or more (Holborow, Elkins, & Berry, 1981). Teachers rated children with large ingestions of additive as having more overall behavior problems compared to children who ingested small amounts of additives (Holborow et al., 1981). Some hyperactivity was found in children who ingested small amounts of additives. In this situation, there were possibilities for hypersensitivity (allergic reactions to certain foods) or other reasons not related to the diet (Holborow et al., 1981). As in most studies including the Feingold Diet,
some children did not improve. This study suggested that a continual study be done to determine the effect of the Feingold Diet on ADHD.

A study done by Dykman and Dykman (1998) proved that nutritional supplements decreased the symptoms in children diagnosed with ADHD. The nutritional supplements used in this study included a glyconutritional product containing saccharides that have been known to be important in healthy bodily functions and a phytonutritional supplement containing flash-dried fruits and vegetables.

Seventeen Caucasian children were recruited for this study. All the children were professionally diagnosed with ADHD. Five of the children’s parents refused to use medications (No Med). The remaining 12 children used the prescribed drug Methylphenidate. These children were separated into two different groups. Six of these children were randomly chosen to be in a drug reduction group (MedRed). The other six were kept on their regular dosage of medication (Med). The study included four girls. Three of the girls were in the NoMed group and one in the Meds group. After the first two weeks of the study, the medication dosage for the MedRed group was reduced by half.

The glyconutritional supplement was the first to be given for three weeks. After the first three weeks, the phytonutritional supplement was given in addition to the glyconutritional supplements. A rating scale for ADHD was constructed using the DSM-IV and making use of the procedure used by DuPaul as an assessment tool. Different scales were used in rating Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) symptoms. Because the children varied in ages from six to 14 years of age, they were compared for differences in age (Dykman & Dykman, 1998).
All three groups showed decreased behavioral ratings. The ratings for ODD were considerably higher. The ratings for inattention were much higher than any other symptoms. This leads to the conclusion that inattention was the most bothersome to teachers and parents (Dykman & Dykman, 1998). The nutritional supplements used in the study reduced the symptoms of ADHD dramatically. It did not matter if they were taking drugs or not. Nutritional supplements have been proven to reduce ADHD symptoms in children. These supplements can be used as a second option to traditional medications that are given to children with this disorder (Dykman & Dykman, 1998).

Methodology. It is important that research methodologies follow accurate guidelines to yield accurate results. In this literature review, measurement tools, participants, observations and assessments, and designs were used to prove the effects of nutritional therapy on ADHD in children. Feingold used only clinical observations for his methodology. This brought about the question “How can a hypothesis with such great results be based on clinical observations only?” This question prompted many investigators to try to prove the validity of Feingold’s hypothesis. Different methodologies were used to do just that.

In the study conducted by Gross, Tofanelli, Butzirus, and Snodgrass (1987), 39 children (boys and girls) from a private learning disability school were used as participants. In most of the case studies reviewed, behavioral observations of psychologists, parents, and teachers, as well as adherence to the DSM-III-TR criteria were used to decide on diagnosis of participants with suspected ADHD and their status during the study. All the children in this study were diagnosed with ADHD by a professional psychologist. Tape recordings were made of the children while they were eating their meals. Teachers and senior authors of the Feingold diet book were used as raters. They were given the tapes randomly to rate. The children’s behaviors
were rated on a scale from zero to 10 for disorganized behavior, motor restlessness, and misbehavior (Gross et al., 1987).

In the second study performed by Kaplan, McNicol, Conte, & Moghadam (1989) 24 hyperactive preschool-age boys were used as participants. They chose to use preschool age children because these children are more vulnerable to nutrition and behavior problems (Kaplan et al., 1989). Letters were given to parents of over 100 day care centers. If the parents showed an interest, they were interviewed. The DSM III was used to make a diagnostic criterion for ADHD. The Connors Behavior Scale, a sleep frequency check list, and a Canada Health and Welfare questionnaire were used in determining the participants. A controlled placebo diet was used as a crossover diet to the Feingold Diet.

A study performed by Bernard Rimland (1983) found causes for assessment of past reviews that did not support the validity of the Feingold Diet. Rimland claimed that past reviews did not take guidelines into consideration when conducting their investigations. Rimland’s method was to reevaluate past investigative reviews that were already done on the Feingold Diet. His techniques led him to find gaps in many investigative studies.

A study conducted by Holborow, Elkins, and Berry (1981) was done on 344 children (boys and girls) from seven schools to determine if food additives cause hyperactivity. The children and their parents received home information and a consent form regarding the study. A rating scale similar to the Connors Behavior Scale was used to rate the children. The teachers rated the children in this study. All the children in this study did not have a diagnosis of ADHD as compared to other studies.

Clinical implications. Research shows that nutritional therapy is not 100% effective in reducing the symptoms of ADHD in children. Because not all the children responded to
nutritional therapy in these studies, it was considered that individual children react differently to different foods (Spring, 1981; Kaplan et al., 1989). It was concluded that further study would need to be done to evaluate the hypothesis.

Rimland’s claims made a lot of sense after researching some of the investigative experiments that were done to revisit the Feingold Diet and reevaluate the major theory behind it. He felt that certain guidelines were not followed correctly. He added that more reviews should be done to further study the effects of the diet.

The study results conducted by Holborow, Elkins, and Berry (1981) that was done on 344 normal children, showed that twice as many boys (26) had improved compared to girls (12). As in most studies done that included the Feingold Diet, some children did not improve. The study suggested that a continual study be done to determine the effect of Feingold Diet on ADHD.

The study performed by Dykman and Dykman (1998) showed that nutritional supplements reduced symptoms of ADHD and ODD in children dramatically. Claims were made that nutritional supplements may be a substitute for medications. This would be most attractive to families that refuse medications as a treatment for ADHD, ODD, and CD in children (Dykman & Dykman, 1998).

After reviewing many investigative studies, treatment by nutrition seemed to affect individual children with symptoms of ADHD differently. This form of treatment is alluring to families due to major concerns of adverse reaction to ADHD medications (Johnson, 1988). For children who reacted to substances in the diets, it is undoubtedly recommended that they use nutritional therapy versus medications. However, there is the group that did not respond to nutritional therapy. Their symptoms may have arisen out of substances that are not related to allergic or toxic foods (Johnson, 1988). Nutritional supplements versus nutritional diet seem to
have the greatest success when it came to treating children. This could be a possible treatment for children with or without medication. The clinical implications of these studies definitely educate families as to what choices are out there when it comes to alternative treatment of ADHD. There is definitely room for more investigative studies based on the reviewed empirical studies.

Confounds/limitations. There were some questions of whether investigative experiments were carried through properly (Mattes, 1983). One question had to do with the dosage levels of food coloring administered to the children (as cited by Mattes, 1983). The claim was that the dosage was considerably low (Mattes, 1983). The FDA states that the daily consumption of food coloring for children ages one to five is 59mg per day and 76mg per day for children six to 12 years old. Children who fall in the 90th percentile consumption took in 121mg/day to age five and 146mg/day for six to 12 year olds (Rimland, 1983). Investigators in the reviewed empirical studies did not follow these guidelines. The second question regarding the research asked whether it was possible to conduct double-blind experiments with the Feingold Diet. The diet was overwhelmingly supported by families with hyperactive children. Investigators found that studies became unworkable because of this matter (Mattes, 1983). In some studies, claims were made that the children were only tested using food colorings and not other additives such as food flavorings and natural salicylates. Feingold felt that his theory was not evaluated properly because of this (Mattes, 1983). It was difficult to distinguish the difference between natural and artificial food flavorings. The chemical make-up of both was similar; therefore investigators favored food colorings in their experiments (Mattes, 1983). The final question in this research had to do with conflict of interest. The Nutrition Foundation prepared placebo cookies that were used in the Goyette, Connors, and Petti study (Mattes, 1983). There were questions in regards to
the Nutrition Foundation’s favorable result choice in investigative studies. Were they in favor of negative study results to protect major food manufacturers? The food manufacturers would certainly have a lot to lose if it was found that food additives can be harmful to humans (Mattes, 1983).

Future research. When Dr. Benjamin Feingold hypothesized that behavior disorders were associated with the ingestion of food additives, the question was “Is it an effective diet?” This was a question that teachers, parents, psychologists, medical doctors, and others asked. As a result of this question, many investigative studies were conducted (Frith & Lindsey, 1982). There were investigative studies that supported the validity of the diet. They stated that the hyperactivity in children could be controlled with diet (Frith & Lindsey, 1982). At the same time, there were investigative studies that annulled the diet’s effects. Their claim was the diet had no effect on hyperactivity (Frith & Lindsey, 1982). To make things more confusing, other researchers such as those affiliated with the Food, Drug, and Administration (FDA) became involved and stated that the Feingold Diet reduced hyperactivity in only some individuals not all (Frith, et al., 1982). Is the Feingold Diet effective? In 1978 and 1979 the answer was unclear (Frith, et al., 1982).

Investigators who worked with children with ADHD asked the same question in 1982 (Frith, et al., 1982). The National Advisory Committee on Hyperkinesis and Food Additives reported that after several investigative studies, there is no correlation between hyperactivity and food additives. The report disproved Feingold’s hypothesis calling it controversial. The final results of the report stated that no further funding should be granted to further study this hypothesis. They felt it was not necessary to change public food policies, ban foods that have
additives from school lunch rooms, and create symbols for grocery food products that would alert consumers if the foods had additives or not (Frith, et al., 1982).

Clinical Implications

Dietary nutrition is not 100% effective as a therapeutic measure for ADHD in children. Dietary nutrition is not harmless for those who believe in it, and may have a profound improvement on some individual children with ADHD. At the same time, other studies have suggested that professionals should accept the fact that diet is not a universal therapeutic treatment (Frith, et al., 1982). Dietary therapy should not be completely dismissed especially if positive results have been experienced.

Family Health Beliefs and ADHD

A total of 128 Caucasian Canadian parents with children diagnosed with ADHD (ages five-13) responded to a newspaper article asking them to participate in research concerning treatment experiences (Johnson, Seipp, Hommersen, Hoza, Fine, 2005). Out of the 128 parents that were sent questionnaires, 103 filled out the questionnaire and returned it. Parents who were interested were interviewed on the phone. Thirty of the children did not meet the diagnostic criteria for ADHD (19 girls) and were excluded from the study. Because the ratio of girls to boys was not comparable, the study included boys only leaving 73 participant families.

In order for the child to be qualified for the study, parents had to report that the child had been diagnosed by a pediatrician or a psychiatrist. Also, parents and teachers had to rate the child as having six inattentive and/or six hyperactive/impulsive symptoms on a four point rating scale ranging from zero (never or rarely) to four (very often). Ratings of two to three were indicated as symptoms presence (Johnson, Seipp, Hommersen, Hoza, Fine, 2005). The
evaluation was based on the ADHD-IV Rating Scale (Johnson, et al., 2005) which used each of
the 18 DSM-IV ADHD symptoms (Johnson, et al., 2005).

*History of treatment questionnaire.* The questionnaire used both forced-choice and one
through seven rating scale formats. The first half of the questionnaire asked for descriptive
information in regards to the child (who diagnosed the child, etc.). The second half asked about
the child’s treatment plan (Does the child take medication? What is the dosage?) Parents then
had to report their strategies for behavioral management (rewards, time-out) (how often used),
their source of information regarding ADHD (books, professionals, etc), if their child had
received special help from school, individual child therapy, family therapy, vitamin or
Naturopathic, bio/neuro-feedback treatments, and finally if anyone in their family had been
diagnosed with ADHD (what kind of treatment?).

*Belief scale.* Parents were asked to give a response to a variety of beliefs regarding the
causes and treatments of ADHD. An ADHD Belief Scale was composed of four factors. The
factors included: beliefs in behavior management; beliefs in medication; beliefs in psychological
causes/treatment; and beliefs in diet/vitamin treatment.

*Written analogue questionnaire.* Parents were asked to read and respond to five
scenarios that included children acting out ADHD symptoms (inattentiveness, hyperactivity, and
impulsiveness). After reading the scenarios, they were asked to rate the children on a rating
scale of 10 points assessing casual locus (1 = something about other people/situation to 10 =
something about the child), globality of cause (1 = specific situation to 10 = complete control),
steadiness of situation (1 = a one time thing to 10 = will happen again in future), and the child
controlling the behavior (1 = not in control to 10 = completely in control). The results of this
study are shown below.
Results. Behavioral management and medication are the primary beliefs indicated by parents when it comes to treating ADHD. Families that sought help from schools indicated that this strategy was helpful. One half of families reported using alternate approaches to treatment such as diet and vitamins even though families rated the effectiveness of treatment as low. A quarter of families had experience using child/family psychotherapy (Johnson, et al., 2005).

Families that had experience with alternate treatments for ADHD remained unsatisfied with some aspect of their treatment. The adverse reactions to medication and the time consuming methods of behavior management appeared to be barriers for parents. Even though these strategies may be unbarring, clinicians are advised to ask questions regarding experiences with alternative treatments and plan treatments with this in mind.

Parents in this study were adamant about the importance of behavioral management and parent training in regards to ADHD. The lowest belief ranking was that ADHD was that of psychological causes figured prominently in the etiology or management of the disorder (Johnson, et al., 2005). This study shows that this group of families accepted correct treatment and knowledge of ADHD. When it comes to families on the opposite side of the spectrum, it is important for clinicians to remain attentive to the potential of inaccurate beliefs and to consider the origin of these inaccuracies.

Tasks for Helping Professionals and Parents

Many teachers are lacking information needed to assist them in effective work with children diagnosed with ADHD. Informing teachers about the academic, behavioral, personal, and social problems that are exhibited by the student could be a huge first step toward improvement. Educating teachers could also maximize treatment or interventions that might be used in the classroom to help students in areas of academic deficiencies or social skill
functioning. Educational training for teachers can include books, workbooks, and videotapes that address the disorder and how to treat it. Teachers who have success in working with ADHD students can help other teachers experience the same.

Enhancing self-esteem is a foremost goal for students with ADHD (Erk, 1999). Many parents and teachers undermine the self-esteem of the child or adolescent with ADHD by criticizing, complaining, or seriously nagging without realizing the consequences. It is not uncommon for children or adolescents with ADHD to often experience feelings of being unaccepted, unattached, hopeless, worthless, and separated from the group. School counselors should focus on the possibilities of developing programs that would increase the self-worth or self-confidence of these children, accept these children as they are, realize they are attached, connected, and cared for by others, and provide motivation and encouragement about their future.

Children diagnosed with ADHD experience the most difficulty in social settings (Erk, 1999). In these settings, they are described as disruptive or demanding. They are the target of bullying and harassment from many of their class peers. These types of experiences for ADHD children can result in permanent bad memories. Students who appear self-centered, unaware of the needs of others, and inattentive may be misread by teachers and parents who are not familiar with ADHD. Many children with this disorder defy the rules of teachers and parents. These children are acting in an incompetent way. They are not able to distinguish between their noncompliance and competent ways to behave (Erk, 1999). Children with ADHD need to acquire and learn a list of successful social skills. They can do this if a strong educational component of social skills and training is coupled with immediate and repeated practice.
Educational social skills could focus on: basic interaction skills (eye contact, correct voice level, turning taking in conversation); getting-along with others skills (using polite words, following social rules, helping others); making friends skills (learning importance of smiling, complimenting others, showing concern for others); and coping skills (how to react when someone says no, coping with frustration or anger, how to deal with classmates that hurt you).

Medication coupled with behavioral management can be the most effective treatment for children and adolescents with ADHD (Barkley, 1990). Behavioral intervention plans should permit: learned patterns of thoughts and behaviors to occur; opportunities for repetition in areas where improved behavior is needed; and rewarding systems of behavior that build encouragement and create reinforcing effects. The child, parents, and teachers could be provided with instructions in the following areas: positive praise; positive self talk; behavioral practice; avoidance of negative reinforcement; using time outs; and cost response. Instructional plans may need to be varied, adjusted, or changed to meet the child’s individual needs. This is a very important piece to creating an intervention plan for a child with ADHD (Barkley, 1990).

Family counseling may be recommended to families with ADHD children. These families are usually confronted with bigger problems when it comes to dealing with the disorder (Erk, 1999). ADHD goes further than the school door. It can cause marital discord, parental burn out, and sibling disagreement. Families can be socially avoided by other families in their community.

ADHD is a disabling condition that affects or disrupts the entire family system (Erk, 1999). Counseling can help guide families that may be dysfunctional because of this disorder. The unity of the school and the family in treatment of ADHD is a very crucial piece when it comes to treatment (Erk, 1999).
Adlerian Approaches for Parents and Professionals

Adlerian based interventions emphasize that children with ADHD need to develop a sense of belonging and social interest skills in order to function. It has been found through literature that a child’s sense of belonging and social interest is vital for his or her well-being and psychological health (Edwards & Gfroerer, 2001). When children feel connected to their teachers and classmates, they show increased self-esteem. Research has shown that individuals who experience a sense of belonging and social interest benefit in many different ways. It is connected with high self-esteem, the ability to keep and make friends, and high academic achievement (Edward, Gfroerer, 2001).

Adler perceived the family as a child’s first social world and the classroom as a validation of early social beliefs (Edward & Gfroerer, 2001). He also believed that a child had to be a part of a group before he or she could feel like they could identify with the group (Edwards, et al., 2001). Sense of belonging includes sharing, giving in return, and feeling that one’s membership is important. Children with ADHD may not feel that they play important roles in their families or classrooms. ADHD behaviors such as impulsiveness, hyperactivity, and inattentiveness are usually punishable by parents and teacher by way of negative attention and separation from the group. As a result, ADHD children are left to experience feelings of isolation and discouragement. At this point, underdeveloped social skills are intensified.

Children with ADHD have an underdeveloped concern for others. Clinical observations have shown that children with ADHD are generally disconnected from others and do not feel a sense of belonging (Edwards, et al., 2001). It is suggested that these children should be connected to others and guided into behaviors that would encourage them to consider others needs (Edwards, et al., 2001). School-base interventions that include Adler’s idea about building
a sense of belonging and social interest will help children with ADHD soar academically and socially. Social interest is having a genuine awareness of others and a positive outlook towards life (Eriksson, 1992). It is the key to a healthy and functional personality (Dreikurs and Stoltz, 1964). People with a strong sense of belonging and social interest have been able to develop better stress coping skills (Edwards, et al., 2001).

Group experiences that are positive can build a sense of connection with others; encourage social interest and useful behaviors (Edwards, et al., 2001). Routines that highlight trust, cooperation, respect for others, equality of worth, shared decision making, and shared consequences will arouse the development of social interest. Children’s attitude could be changed tremendously through the interest and development of their peers (Edwards, et al., 2001). Adler believed that educators should make it their goal to increase cooperation and social interest through creative and cooperative social units in the classroom (Edwards, et al., 2001).

As mentioned earlier, a sense of belonging is very important when we are looking at the academic and social complexities that ADHD children face. Because of misbehaviors, these children are rarely given the opportunity to contribute, thus setting them up for further failures. Yet, per Albert (1989), educators need to be aware that.

When students contribute, they feel needed. Students who are needed feel they belong. Those who belong develop high self-esteem. Students with high self-esteem have much to contribute. It’s a wonderful circular process (p. 129).

Dinkmeyer, Dinkmeyer, and Sperry (1987) suggest that we make use of the natural social environment of the classroom to provide situations that could help to build belongingness with children diagnosed with ADHD. In addition to this, these children need specific instructions on peer and teacher communication skills. Teaching these children how to communicate with their peers and teachers will increase the likelihood of belonging (Edwards, et al., 2001). Giving them
the opportunity to practice these skills is important. This is an important opportunity for young children because they learn best by doing.

School-based classroom interventions. The following interventions are based on the three C’s of belonging: to connect, to feel capable, and to contribute (Albert, 1989). Professional educators and parents stand to benefit from these strategies. These intervention plans can also improve the entire school community.

Children with ADHD who are involved with school-wide projects can build their sense of connection and feel like they are contributing. Projects that include students working together for a worthy cause can encourage feelings of contribution and belongingness. Children share decision making and cooperative group efforts. The feelings of sharing the reward for these children are phenomenal.

Another great intervention to encourage social interest and belonging in children with ADHD is peer tutoring. Peer tutoring involves students in the same class serving as tutor for classmates who are having difficulties in school. The benefit of this strategy enhances learning experiences. The tutor’s learning is reinforced by explaining it to another student. The person being tutored benefits from one-on-one instructions. Peer tutoring may help ADHD children sustain their focus and concentration. Also, positive peer relationships take place during the process. Finally, peer tutoring increases acceptance from other peers and social interactions.

Children with ADHD benefit from small group experiences that are designed to build social skills. Social skills training has been known to help improve symptomized behaviors in children with this disorder (Edwards & Gfroerer, 2001). Children who work in small group settings generally have an easier time using their learned skills in a real life setting.
ADHD children the opportunity to learn social skills in a small group experience is much more effective than individualized training (Edwards, et al., 2001).

Role playing activities help students diagnosed with ADHD develop effective social skills. This activity can help students feel more confident in a real life situation and problem solving skills are increased. They will most likely feel comfortable in engaging in more social relationships. Increased relationships will lead to feelings of connection and belonging.

Children who exhibit aggressive, impulsive, and inattentive behaviors benefit from being taught communication skills. Teaching communications skills in a group or as a classroom guidance lesson is most effective (Edwards, et al., 2001). Strategies should focus more on active listening and assertive training. This will increase the student’s ability to pay attention and decrease negative communication patterns (Edwards, et al., 2001). Structure and system are important when it comes to teaching these skills.

Teaching ADHD children active listening skills can help build connections with teacher and peers. Games such as taping a peer’s voice talking about an exciting experience and then asking another peer to recite that experience can help build active listening skills. This type of activity proves to children that they have control over what they choose to hear or not.

Conclusion

Reviews shows that continued ADHD educational efforts in regards to ADHD and minority populations are needed. It is important for clinicians and educators to be aware that common understandings and traditional treatments of ADHD do not fit the diagnostic criteria for every individual. Research and treatment for ADHD should take into consideration nonmainstream as well as mainstream theories and clinical approaches.
References


