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Primary Origins of Sleep Disorders and Attention Deficit Hyperactivity Disorder: Common Symptoms and Implications for Diagnosis and Treatment

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Abstract: There have been many recent studies set up to examine the characteristics of Attention Deficit Hyperactivity Disorder (ADHD) and Sleeping Disorders (SDO), some separately and others to determine whether or not there is a link between them. To control behavior, medication is the most frequent method of treatment for ADHD, even though there is not yet an understanding of long-term effects of chemical intervention. The pharmaceutical industry funds most of these studies on ADHD, beginning with a hypothesis to determine a deficit in character, assigning a label, and proceeding to correct with a prescription. The diagnosis of ADHD is generally based on parent and caregiver's reports of child behavior and has been steadily increasing over the past several decades. Thus far, there have been few studies that explore the relationships and environmental contributions to the problem behaviors identified in both conditions. This paper suggests that ADHD and SDO have relational implications that originate prior to and during the birth process. This paper explores recent studies that have identified the symptoms common of ADHD and SDO and question the validity of the diagnosis and the use of medication to treat the symptoms.

Keywords: ADHD, Attention Deficit Hyperactivity Disorder, SDO, Sleep Disorders

Introduction

Attention Deficit Hyper-Activity Disorder is a relatively new term used to describe children's behavior and is frequently used as a label and a "diagnosis." Diagnosis of ADHD in children has increased over the past decades (Prosser, 2006, Robinson, Sclar, Skaer & Galin, 1999). Prosser, a researcher and educator in Australia, suggests that ADHD is the most commonly diagnosed psychiatric disorder among school-aged children (Posser, 2006, p. 2). The reason for this trend is not clear, but some studies attempt to provide evidence that supports a cross-generational link, whether through family patterns, social constructs, or genetic transmissions. More recent studies explore the neurological

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aspects of ADHD to identify areas of the brain that are affected (Owens, 2008). Concurrent studies focus on sleep disorders (SDO) and are recognizing common patterns in children suffering from sleep disorders and children diagnosed with ADHD (Stuart, 2007). The common characteristics of Attention Deficit-Hyperactivity Disorder (ADHD) are behaviors of inattention, impulsivity, and hyperactivity that interfere with academic and social functioning. However, to consider the behaviors characteristic of ADHD and SDO as psychiatric disorders may be misguided dogma that eludes humane treatment and ignores the intrinsic needs of the child.

Identifying characteristics such as attention span and activity levels and attributing these personality traits to be out of the range of typical developmental may say more about professional interests and beliefs than the experiences of the children. Professionals and researchers are committed to share and apply their knowledge, which is often biased and focused on a single question that has limited parameters. The current development of research regarding ADHD tends to focus on establishing that a link between symptoms and the neurobiology of brain function exists and can be corrected or changed with a chemically derived substitute.

Incidence of children diagnosed with ADHD is a growing phenomenon. The Centers for Disease Control and Prevention statistics, reviewed in May 2010, indicate parents reported children diagnosed with ADHD increased by 22% between 2003 and 2007. A Canadian population health study published in 2005, states that 338,400 or 6.4% of children aged five to seventeen are labeled as having ADHD (Waddell, Shepherd, & McLauchlin, 2007, p. 45). An Australian study finds that three to six percent of school-aged children are diagnosed with ADHD (Prosser, 2006, p. 2). An earlier study found that the number of doctor office-based visits, documenting a diagnosis of ADHD increased from 1.1% in 1990 to 2.3% in 1995 (Robinson, Sclar, Skaer, & Galin, 1999).

The number of prescriptions for psycho-stimulant drugs varies according to age, gender, region, and social economic status. Prosser speculates that more prescriptions are given in working class neighborhoods with lower socio economic status. Boys are more than twice as likely to be diagnosed with ADHD and the rates of ADHD diagnoses are increasing at a greater rate among older teens compared to younger children (Centers for Disease Control and Prevention, 2010). The CDC survey also notes that the highest rates of parent-reported ADHD diagnoses are among multi-racial children and those covered by Medicaid. This ever- increasing trend could be due in part

to a social construct that judges all undesirable behaviors as "bad" behaviors and attributes them to ADHD.

Sleep disorders often coexist with ADHD and, since the symptoms overlap, care has to be taken to avoid mis-diagnoses. Given that there is actually some "thing" to be diagnosed; failure to make a clear distinction between these two conditions may well contribute to the growing numbers of children being treated for ADHD. The increasing incidence of ADHD may be misleading and contributing to the over prescribing of drugs, to manage children's behavior (Fewster, 2008).

Sleep Disorders

The incidence of sleep disorders in children is significant and treatment approaches for the symptomatic behaviors of SDO are approached differently than for ADHD. According to Dr. Scott Stuart, a Developmental-Behavioral Pediatric fellow at the Medical University of South Carolina, the incidence of sleep disorders in the general population of children is 25% by the time they are eighteen years old and as high as 50% in children with ADHD (Stuart, 2007). A team of experts in sleeping disorders led by Dr. Ronald Chervin with the Department of Neurology, Psychiatry and Pediatrics, and Communicable Disease at the University of Michigan Medical Centre, studied the connection between ADHD and sleep disorders, by having the parents of children between two and thirteen years of age complete a survey. He found that youngsters who frequently snore or have sleep disorders are twice as likely to suffer from ADHD as those who sleep well (Chervin, R.D. et al., 2002). Gahan Fallone, PhD, associate professor at the Forest Institute of Professional Psychology notes that the consequences of sleep disorders impair self-regulation and learning (Fallone, n.d., para. 1).

Sleep disorders, such as restless leg syndrome (RLS) and Periodic Limb Movement (PLM), are associated with inattention and hyperactivity (Picchietti, Walters, Willis, & Verrico, 1998; Stuart, 2007). In their study, Pocket and Kirk (2006) have asserted that movement in sleep and ADHD are related and that the symptoms of PLM in children are similar to those of ADHD. According to Stuart, children with any sleep disorder, including more movement during sleep and sleep patterns that vary from night to night, are twice as likely to have ADHD like symptoms (Stuart, 2007). In her study Dr. Judith Owens, with the Academic General Pediatric Department at Rhode Island Hospital, synthesizes current knowledge about the interaction of sleep and attention/arousal in children concludes, "a

multilevel and bidirectional relationship exists among sleep, neurobehavioral functioning, and the clinical syndrome of ADHD" (Owens, 2008, p. 439). This implies a need to address the symptoms holistically rather than chemically. If inattention and hyperactivity are associated with sleep disorders such as RLS and PLM then this is an important public health problem (Chervin et al., 2002).

Neurological or Relational Aspects of ADHD and SDO

Recent advances in technological procedures, such as Magnetic Resonance Imaging (MRI), to examine brain functioning and genetic testing, have contributed to the understanding of the correlation between ADHD and sleep disorders, but they have not established causality. In their study, Gruber and Sadeh (2004) conducted a neurobehavioral assessment with boys diagnosed with ADHD, to examine for correlations of sleep patterns. They found that "children diagnosed with ADHD had increased instability of sleep parameters compared to the control" (p. 271). They conclude that there are similarities in sleep disorders and symptoms of ADHD and that the source of inattentiveness is important in planning intervention (Gruber & Sadeh, 2004). In a study to examine normal sleep patterns of adolescents aged twelve to seventeen years Fallone (n.d.) concludes: "Increasing evidence of a neurobiological basis for ADHD, particularly the documented deficits in functioning of prefrontal cortical circuits, suggests that children with the disorder may be particularly sensitive to the effects of poor sleep" (para. 1). Experts agree that sleep restrictions lead to symptoms of ADHD (Pockett & Kirk, 2006; Stuart, 2007).

Life today has become "a quick fix" society, with an assortment of prescription and street drugs to alleviate all descriptions of pain and suffering. The reliance on drugs can very well begin with the process of birth, which is often feared (Jordan, 1993). Western birth practices are accompanied with an expectation that the pain should be "controlled" with drugs rather than with mothers' wisdom and natural resources. Mothers who choose to, and are supported to, give birth naturally without medical intervention frequently have a euphoric experience. The surge of opiate hormones activates releasing natures own pain control. This experience is overridden when women are conditioned to fear birth and expect medication to get through it. The ultimate result is that the baby has no choice in his birth experience and potentially carries a chemical imprint for life of being in a disconnected haze of relationship to self and others (Emerson, 1997).

When anesthesia is used during birth, both mother and baby's consciousness are dulled and, consequently, they are robbed of their most significant moments of bonding. The consequences of other birth interventions such as induction and rupturing the amniotic membrane could establish life-long imprints as well. Rushing birth takes the momentum away from the baby, disturbing the autonomic nervous system and babies' ability to self-regulate and possibly leaving him with an experience of being out of control (Oberg, 2010).

Self-regulation and arousal are very early developmental tasks that the infant learns to self manage in a supportive relationship with a primary caregiver, most often the mother. Behaviors such as impulsivity and inattention are functions of the prefrontal regions of the brain. In their book, *Parenting from the Inside Out*, Daniel Siegel and Mary Hartzell say:

> External constraints (relationships) enable the young child to develop the emotional regulatory capacity to also rely on internal constraints (neural structure and function that emerges from neural connectivity). In the brain, the balance between these external and internal regulatory processes seems to be mediated by our prefrontal regions. (2004, p. 216)

Genetic or Generational Transmission

Medical and biological experts theorize that there is a cross-generational transmission of both ADHD and sleep disorders (Biederman & Faraone, 2002; Rohde et al. 2005; Thapar, Langly, O'donovan, & Owen, 2006). Rohde and colleagues examine family genetic data and suggest there is a 39% family transmission of ADHD (Rohde et al, 2005, p. 1476). Researchers, Biederman and Faraone (2002) look at data regarding heritability in twins with ADHD. In their studies they found that generational transmission ADHD is about 80% in twins. Adoption studies also seek to support a genetic link to ADHD (Thapar, Langly, O'donovan, & Owen, 2006). However, other studies acknowledge that the gene susceptible for ADHD is yet to be identified (Biederman & Faraone, 2002). Some maintain that sleep disorders have been found to be transmitted through families as well, which is to suggest that sleep regulation can be influenced by genetic factors (Kimura & Winkelmann, 2007). Although they claim that a genetic link has been found for SDO, the genes responsible for SDO are not yet identified

While the assumption is that anything passed from one generation

to the next is necessarily genetic, it is crucial to understand the distinction between cross-generational patterns of behavior and genetic transmission of characteristics from one generation to the next. Cross-generational patterns of behavior are learned and are passed along the generations and can be changed with insight, awareness, and alterations in relational interactions and environment. This is distinctively different from the genetic transmission of characteristics that are inherent through the biological structure of the DNA, which are more or less stable. We must be careful to avoid the assumption that certain characteristics are undesirable, genetically transmitted, and can be fixed pharmaceutically. Many behaviors and values are passed from one generation to the next that are not essentially genetic.

Misdiagnosis skews the incidence of ADHD positively and distracts us from looking more closely at the underlying social factors contributing to the trend (Prosser, 2006, p. 3). Treating SDO is linked to establishing predictable routines and positive relationships, which is also an effective intervention for many troubling behaviors such as inattention, impulsivity, and hyperactivity - often "diagnosed" as ADHD.

Other considerations need to be taken in to account before diagnosing a child with ADHD and/or SDO. In their study, Kimula and Winklemann (2007), note "Genetic susceptibility and environmental factors should be also considered as contributors to sleep phenotype" (p. 1212). This means, for instance, recognizing the ill-effects of preservative-laden, sugar- and caffeine-filled foods on mental health (Newbury, 2004). A study by Acebo and colleagues (2005) at the Sleep and Chronobiology Research Laboratory, East Providence Bradley Hospital/Brown Medical School conducted to investigate the impact of family demographic variables on sleep/wake measures found that:

> Children in families with lower socioeconomic status had later rise times, longer time in bed, more nocturnal wake minutes and bouts, and more night-to-night variability in bedtime and sleep period time. Children with longer naps slept less at night. Individual differences in sleep/wake measures reflect characteristics of children, parents, or parent-child interactions. (p. 1568)

According to Prosser (2006, p.3) parents often feel pressured by teachers and doctors to control children's behavior and to seek diagnosis for ADHD. A strong argument against pathologizing

children's behavior is given by Gerry Fewster. Dr. Fewster, the retired Director of one of Canada's largest treatment centers for children and families for over twenty years, suggests that conditions such as ADHD are manufactured by our culture, legitimized by the medical community and exploited by the pharmaceutical industry. He suggests that being more in touch with our physical, emotional, and spiritual selves could possibly offer solutions to the symptoms which characterize ADHD (Newbury, 2004).

Treatment

Although ADHD and sleep disorders are thought to be related to dopamine production and metabolism, and both respond to dopaminergic therapy (Dominguez-Ortega & de Vicente-Colomina, 2006, p. 500), caution and knowledge need to be exercised in prescribing medication to mediate these symptoms. Treatment of sleep disorders is often associated with improved symptomatology and decreased need for stimulants (Dominguez-Ortega & de Vicente-Colomina, 2006, p. 500). In a letter published in the Globe and Mail (November 29, 2008) Gerry Fewster responded to an earlier article claiming that "80,000 families (in Canada) are dealing with children's mental illness," suggesting that this statistic promotes a popular and dangerous mythology, he wrote:

> I never met a child I considered to be mentally ill. Deprived, confused, angry, misunderstood, and isolated they may have been, but they were not "sick." The roots of their troubles were not medical but relational. It's so easy to tag a child with the latest psychiatric 'disorder' and create new markets for the drug companies, but connecting with a troubled child calls for awareness, commitment, and, above all, adult responsibility. A diagnosis of mental illness lets everybody off the hook except, of course, the child who then becomes a 'patient'. If you really believe that psychiatrists and the pharmaceutical industry have the answer, ask to see the evidence produced by studies that have not been sponsored by the drug companies. In the final analysis, these treatment methods turn out to be far more damaging than the problems they claim to remediate. Is it really the children who are groping around in the darkness? (Fewster, 2008)

Children undergoing evaluation for ADHD should be

systematically assessed for sleep disturbances. In an article published in *Pediatric News*, Dr. Finn cites Dr. Fallone's observation that, "optimizing sleep may be effective in reducing the severity of parent ratings of attention-deficit hyperactivity disorder (ADHD) in certain children" (Finn, 2003, para. 2). At least one component of a treatment plan that makes sense, as Dr. Stuart (p. 11) suggests, is ensuring that students get enough sleep. Sleep management is a significant step in helping children to maximize their learning ability in class as well as for minimizing behaviors characteristic of ADHD. Being conscious of daily routines, nutrition, and seeking family support are also necessary in the overall treatment plan for helping families with children who experience inattention, hyperactivity, and impulsivity. Treatment needs to be more holistic, especially if the symptoms of ADHD and SDO are reinforced by unsupportive social systems, routines and stress in family life. Cognitive Behavior Therapy (CBT) or Multi Modality Therapy (MMT) potentially have the ability to provide better long term generational outcomes by supporting individuals and their families to be empowered without medication. Unfortunately, the psychoanalytical and other forms of long term individual therapy supports are beyond the means of most working class families while access to public health and Medicaid make access to medication easy (Prosser, 2006, p. 4).

Conclusion

Continuing research is important because, in some cases, behavioral symptoms of inattention, hyperactivity, and impulsivity may be categorized as ADHD when SDO or other social factors suggest a more appropriate diagnosis. With reference to sleep disorders, it has been noted that "stressors" experienced by parents of lower economic status may be influenced by, or contribute to, their child's sleep patterns and interfere with their ability to cope, influence their relationships and, subsequently, the child's behavior. Taking the time to explore the developmental history of the child, beginning prior to conception, and the generational patterns that prevail, is necessary to avoid coming to the premature conclusion that the child's behavior indicates ADHD. Understanding the implications of sleep disorders is necessary since adequate sleep is important to everyone's personal well-being, including children who have been diagnosed with ADHD (Stuart, 2007).

This paper indicates a need for ongoing research in the areas of children's sleep, attention, and activity. Research that expands the

knowledge beyond the pharmaceutical perspective to other areas such as prenatal, birth and perinatal experiences, and social relationships of the child is necessary to discover the underlying issues associated with presumed diagnosis of ADHD. We need to ask questions such as: "If ADHD and SDO are transgenerationally transferred, how does the treatment of ADHD with stimulants affect the future transmission of these conditions?" and "do stimulants alter the genetic makeup and contribute further to the dilemma?" Parents seeking support for their children who have behaviors of hyperactivity, impulsivity, and limited attention are struggling. An empathic and patient response is required. These parents are often overwhelmed in their relationship with their child, feel pressure to "do something," and are grieving the loss of their ideal of being a good parent. Interventions other than labeling and prescribing medication take more time and resources but may be more effective in treating both ADHD and SDO. Simply prescribing medications masks the underlying roots of the problem behaviors, perpetuates the generational patterns that exist, and rejects the child's experience.

We need to seek and share a better understanding of how relationships affect the structure and function of the brain. Whatever happened to being in relationship and meeting mind-to-mind and heart-to-heart? Patterns of behaviors are learned in relationship from prior to conception, through the magical moment of embodiment and the first year. This is a time of very early parenting and occurs when the infant is preverbal. The adult holds the integrity of the adult functioning brain, autonomic nervous system, and states of being for the baby to organize and regulate with (McCarty, 2004, p. 121). They are attuned to the energetic presence of others and attune to others energy. Patterns of relationship during the primary period of development, (Natural Family Living, 2008) are somatic and imprint at a cellular level to set the stage for all subsequent relationships. Researcher and writer on child development, Ed Tronick talks about the importance of relationship, he says, ". . . connection has a profound effect on the body, brain, behaviour, and experience in the moment and over time." (Tronick, 2007, p. 477). A significant body of researchers, scholars, practitioners, and parents do know that the fundamental basis of health and wellbeing is established in respectful relationships. At this time the world is just beginning to awaken to this knowledge, and will have to hurry to catch up to make a difference in how we "treat" each other.

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