Attention Deficit and Hyperactivity Disorder in Preschool Period

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Abstract Attention deficit hyperactivity disorder (ADHD) which cause deterioration in functionality, is the most common neuropsychiatric disorder in childhood today. Attention Deficit Hyperactivity Disorder (ADHD), according to DSM-V, is defined with attention deficit, impulsivity and hyperactivity concepts (14). Attention deficit hyperactivity disorder has 3 main subtypes; the character dominated by lack of attention, the character dominated by hyperactivity-impulsive and related 3 more types. It is one of the most seen problems in Early childhood and childhood periods. Pre-school children with Attention deficit and hyperactivity disorder (ADHD), difficulties are experienced in diagnostics and education in Turkey. The aim of this study in this context is to discuss the causes, prevalence, treatment and the other related disorders of the character dominated by lack of attention (ADD) in Turkey. Writing was held on the basis of the study is only Attention Deficit Disorder. The conclusion has discussions, personal ideas and some advices.

Keywords ADD, Attention Deficit Disorder, Preschool Period

1. Introduction

In recent years, there has been a great scientific and social interest in attention-deficit/hyperactivity disorder (ADHD) (12). Attention-deficit disorder is one of the three sub-types of Attention Deficit Hyperactivity Disorder is a common neurobehavioral disorder of childhood which leads to a prominent deterioration in the life quality of a patient and the family. ADHD often takes years and it has biological, psychiatric, educational and social aspects. Children who are diagnosed with ADHD have various difficulties such as lack of attention, inability to get organized, and inability to provide the desired concentration in time. These problems lead to problems in the academic and areas of competence, low school achievement and being excluded from a group of

friends and colleagues.

ADHD starts in the preschool period and it can also last into adulthood. It is a disorder which is characterized with hyperactivity, short attention span and impulsivity. According to the DSM-IV-TR (7), ADHD is basically characterized by a persistent and continuous pattern of inattention and/or more frequent and severe hyperactivity-impulsivity compared to peers. ADHD begins in childhood and it frequently lasts into adulthood (60-70%). Similar to other diseases, ADHD also positively responds to early diagnosis and treatment. However, it can lead to severe medical, academic and social problems in case it is not treated (8). Lack of realization or identification of attention deficit disorders until the school age hinders early intervention in early childhood. However attempts of intervention in this period could prevent academic and social failure resulting from attention deficit in school age.

2. Results

2.1. Attention Deficit Disorder

ADHD has three basic subtypes; predominantly inattentive type, predominantly hyperactive-impulsive type, and the combination type.

In the predominantly inattentive type, that is to say, for the type in which attention deficit is dominant "symptoms of attention deficit" are dominant. In this type, it is possible that there are no symptoms of hyperactivity and impulsivity or symptoms are not significantly severe. Severe distractibility can lead to problems such as delaying the work, having difficulties in getting organized, avoiding the long-term tasks which require mental effort, inability to pay attention to details, losing belongings, inability to complete the tasks and severe forgetfulness while performing daily tasks. The problem of children with attention deficit is being insufficient to start of finalize these functions on time and in a right place. These children frequently need more help, and proper attitudes and behaviors should be exhibited towards

them. Furthermore, they need to be directed and reminded more according to their peers who can easily perform these tasks in their daily lives (4). In other words, it meets the diagnostic criteria under the 'inattention' title in DSM-5, but does not meet the diagnostic criteria under the title 'hyperactivity and impulsivity'. Children who are diagnosed with attention deficit cannot concentrate and have problems with focusing and maintaining attention (24). Though they experience these difficulties in every area, they experience the biggest one at school. These children are identified as late comers, ones who cannot finish their home works, irretentive by their teachers. Inattention may cause difficulties in understanding which leads to decrease in performance and motivation. This situation, which is seen more in girls than boys, may result in a success below their existing intelligence level (6).

Characteristics of the predominantly inattentive type of the disease were determined in the diagnoses criteria DSM-V (3) and these are specified as follows:

- a) The child mostly does not pay attention to details or classes at school, and frequently and carelessly makes mistakes during activities at school (for instance; ignoring or skipping details or doing a wrong job).
- b) The child mostly has difficulty to maintain the attention during any type of activity or while playing games (for instance; having difficulty staying focused and attending to lectures, talks or reading classes).
- c) It mostly appears that the child does not listen to others (for instance; it seems as that her/his mind is somewhere else although there is no distraction).
- d) The child does not follow directions, and cannot complete the ordinary tasks and responsibilities during the daily life and at school (for instance; the child starts the job, but he/she quickly loses the focus and he/she is easily distracted).
- e) The child mostly has difficulty to organize the works and activities (having difficulty in managing the sequential jobs, keeping the school equipment and personal belongings in order. The child studies messy and disorganized and he/she has a bad time management and cannot obey time limitations).
- f) The child mostly avoids anything that requires a sustained mental effort, does not like these kinds of jobs and does not want to be involved in these activities (for instance; homework or responsibilities at school, preparation of reports in the period of youth or adulthood, filling forms and reviewing long texts).
- g) The child mostly loses her/his equipment, belongings and tools which are prepared for work or certain activities (for instance; School supplies, pencils, books, everyday tools, wallet, keys, articles, glasses, cell phones).
- h) The child is mostly and easily distracted by external stimuli (this can be observed as irrelevant thoughts in youths and adults).
- i) The child is often forgetful (having difficulties during

routine and daily works, and errands, being late to return phone calls in youths and adults, being late in paying bills and adjusting daily life according to appointments).

According to DSM V (3) criteria, at least six of these signs and symptoms should be observed during at least six months for the ADD diagnosis.

Attention deficit disorder (ADD) that appear as lower appearance Attention deficit of hyperactivity disorder (ADHD) are defined in DSM IV as well as some minor differences in DSM V.

"The Attention Deficit and Hyperactivity Disorder" in DSM-5 is quite similar to that in DSM-4-TR. However, the diagnostic criteria for impairment in DSM-5 have been further strengthened. For example, more emphasis has been placed on the impairment of DSM-5 in different cultures. Other differences in DSM V for impairment include:

In addition to the diagnostic criteria in DSM-5, the age range foreseen to manifest certain symptoms of impairment has been raised from 7 to 12.

For DSM-5 subgroups of impairment, "presentation" rather than "type" is preferred.

In DSM-5, diagnostic criteria numbers to be met for people under 17 and diagnostic criteria to be met for people over 17 years old has changed. While 5 diagnostic criteria are sufficient for 17 year olds, 6 diagnostic criteria are sufficient for 17 year olds.

According to DSM V Attention deficit and hyperactivity disorder and its lower appearance Attention deficit disorder includes the following criteria.

A. A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development, as characterized by (1) and/or (2):

1. Inattention: Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities:

Note: The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least five symptoms are required.

a. Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or during other activities (e.g., overlooks or misses details, work is inaccurate).

b. Often has difficulty sustaining attention in tasks or play activities (e.g., has difficulty remaining focused during lectures, conversations, or lengthy reading).

c. Often does not seem to listen when spoken to directly (e.g., mind seems elsewhere, even in the absence of any obvious distraction).

d. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g.,

starts tasks but quickly loses focus and is easily sidetracked).

e. Often has difficulty organizing tasks and activities (e.g., difficulty managing sequential tasks; difficulty keeping materials and belongings in order; messy, disorganized work; has poor time management; fails to meet deadlines).

f. Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (e.g., schoolwork or homework; for older adolescents and adults, preparing reports, completing forms, reviewing lengthy papers).

g. Often loses things necessary for tasks or activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).

h. Is often easily distracted by extraneous stimuli (for older adolescents and adults, may include unrelated thoughts).

i. Is often forgetful in daily activities (e.g., doing chores, running errands; for older adolescents and adults, returning calls, paying bills, keeping appointments).

2. Hyperactivity and impulsivity: Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities:

Note: The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or a failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least five symptoms are required.

a. Often fidgets with or taps hands or feet or squirms in seat.

b. Often leaves seat in situations when remaining seated is expected (e.g., leaves his or her place in the classroom, in the office or other workplace, or in other situations that require remaining in place).

c. Often runs about or climbs in situations where it is inappropriate. (Note: In adolescents or adults, may be limited to feeling restless.)

d. Often unable to play or engage in leisure activities quietly.

e. Is often "on the go," acting as if "driven by a motor" (e.g., is unable to be or uncomfortable being still for extended time, as in restaurants, meetings; may be experienced by others as being restless or difficult to keep up with).

f. Often talks excessively.

g. Often blurts out an answer before a question has been completed (e.g., completes people's sentences; cannot wait for turn in conversation).

h. Often has difficulty waiting his or her turn (e.g., while waiting in line).

i. Often interrupts or intrudes on others (e.g., butts into conversations, games, or activities; may start using other people's things without asking or receiving permission; for adolescents and adults, may intrude into or take over what others are doing).

B. Several inattentive or hyperactive-impulsive symptoms were present prior to age 12 years.

C. Several inattentive or hyperactive-impulsive symptoms are present in two or more settings (e.g., at home, school, or work; with friends or relatives; in other activities).

D. There is clear evidence that the symptoms interfere with, or reduce the quality of, social, academic, or occupational functioning.

E. The symptoms do not occur exclusively during the course of schizophrenia or another psychotic disorder and are not better explained by another mental disorder (e.g., mood disorder, anxiety disorder, dissociative disorder, personality disorder, substance intoxication or withdrawal).

Specify whether:

Combined presentation: If both Criterion A1 (inattention) and Criterion A2 (hyperactivity-impulsivity) are met for the past 6 months.

Predominantly inattentive presentation: If Criterion A1 (inattention) is met but Criterion A2 (hyperactivity-impulsivity) is not met for the past 6 months.

Predominantly hyperactive/impulsive presentation: If Criterion A2 (hyperactivity impulsivity) is met but Criterion A1 (inattention) is not met over the past 6 months (2, 3).

2.2. Causes of Attention Deficit Disorder

Lack of attention is a disorder characterized by problems in concentrating, being forgetful and disorganized, having difficulties in organizing tasks, being distracted easily during performing any kind of job, avoiding the tasks which needs attention and 'patience' and frequently making simple mistakes(8). Even though ADD is the most frequently studied disease in the child psychiatry, mechanisms underlying the disorder have not yet been clarified. Various imaging techniques have been used in order to examine the brain structure and functions in ADD. It was primarily suggested that involvement of front striatal link was responsible for the disease. Additionally, it has been recently shown that the reason of ADD can also be morphological alterations in temporoparietal lobe and cerebellum, basal ganglia and corpus callosum (10, 5). In the first meta-analysis which showed structural abnormalities in magnetic resonance imaging (MRI), it was found that the maximum volumetric reduction was observed in the most posterior inferior cerebellar vermis, corpus callosum splenial, right caudate nucleus, total brain and right cerebral hemisphere of children with ADHD compared to controls (26).

Recently, interaction of genetic and epigenetic factors related to ADHD and environment have been actively examined. The mostly studied factors are as follows; maternal smoking and/or alcohol use during pregnancy and

dopaminergic genes, low birth weight, psychosocial problems, serotonergic genes and disputes between parents (18).

2.3. Attention Deficit Disorder and Preschool Period

Not all of ADD patients, but vast majority of them experience prominent problems. The incidence of attention deficient disorder with/without hyperactivity is between 6% and 9% in school children (22).

Children with ADD should be need directed and reminded more according to their peers who can easily perform these tasks in their daily lives. Parents and acquaintances increasingly feel confusion and despair as the child falls behind in learning the management of daily tasks and interactions in life and at school. In order to achieve this, more than a particular talent is needed and child has a tendency to have problems in self-management. Since children's growth rate varies from person to person, it is possible that parents do not understand whether their children grow slowly or it is a matter of neurobehavioral disorder. In the beginning, the child may seem to fail to understand and achieve the expectations of parents compared to peers or there can be an unusual inconsistency in child's behaviors. Parents are worried about this situation and they may suppose that their children should be more matured in order to perform these tasks compared to their peers. This delay is generally very long in children with ADHD and the absence of the expected development and maturation leads to an increasing concern. Children with ADHD have more injuries due to their hyperactivity and disturbing behaviors (13). Children with ADHD are highly restless and fearless. Majority of peers ask for directions and help for some dangerous situations. However, children with ADHD can be brave to touch hot or sharp things or walk across the street alone. They can resist against the control of adults. Brown (4) classifies prominent features of a child with ADD as follows.

1. **Planning, establishing priorities and action:** Children with ADD struggle when they start an action. Even though it seems that they behave impulsively in some fields, it is generally observed that they cannot initiate easily in case the task is not interesting for them. They postpone the requirements and tasks until the last minute. They can motivate themselves only in the last minute and when it is urgent. The reason for this is the existence of a problem in cognitive functions that has become chronic.
2. **Focus, maintaining, shifting attention to tasks:** Children with ADHD have difficulties in paying attention to things which is not interesting for her/him or which force her/him. Understanding the meaning of sentences and paragraphs is an active process which requires a persistent and intense focus and attention. Since these children cannot get their attention from interesting things, they can have tendency to behave as they wish. This can deteriorate the social compliance

and an individual can avoid performing tasks which are expected or asked from him/her.

3. Children with ADHD generally feel themselves tired during the day. The problem of sleepiness which can be observed while they are sitting or quietly standing is not due to being tired. Rather it is the chronic problem of maintaining the viability. Due to the slow processing speed, these children need extraordinarily long time to complete these kinds of tasks. Children with ADD show reluctance to participate in works and games which requires attention and intense physical activity.
4. These children have difficulties in directing their feelings, they are less tolerant to disappointments, they suffer while they are trying to cope with daily life stresses and they easily feel 'overwhelmed' and 'nervous'. According to Brown (4), Wender (27, 28) described that how individuals with ADD syndrome are lost in 'emotional instability', how they frequently feel down, and how they exhibit nervous complaints, furious behaviors or excitability which cannot be sufficiently controlled. It was emphasized in the study that children with ADHD are less tolerant to disappointments, they suffer while they are trying to cope with daily life stresses and they easily feel 'overwhelmed' and 'nervous'.
5. **The use of process memory and reminiscence:** Problems are generally related to the working memory and it is not related to the storage memory. One of the most important functions of the working memory is to keep a small piece of information in an efficient way while dealing with another work.

Working memory can be conceptualized as a desk where old and new data are constantly converted, combined and transferred. It does not only store the knowledge, it is also similar to a very effective calculation unit which efficiently processes instant information to enormous files of long-term memory. Working memory is very important for the group or individual discussions in which an individual tries to understand what is told and meanwhile prepares his/her answers to others. Children with ADHD have frequently important problems in these simultaneous functions.

6. **Follow-up and self-regulation action:** Children with attention deficit cannot follow the instructions from the beginning to the end, struggle to give attention to the work or play, lose the equipment and belongings which are needed for activities at home or at school, do not listen carefully, miss the details, appear uneven, struggle to perform activities which require mental effort for a long time, they are forgetful and their attention easily shifts to another field.

2.4. Prevalence and Treatment

ADD is most commonly observed as a preschool disorder, it can lead to important academic, social and psychiatric

problems and its negative impacts can continue lifetime. Since it can affect the health of the individual, family and society, ADHD is accepted as an important health problem. ADHD can start in the early period of the life and it has a big impact on the individual's socialization (21). According to Vanlı and Güven, it is observed that, children who has attention deficit disorder along with hyperactivity in preschool age does not experience problems while they play by themselves but display different behaviour when with the joining of other friends. Now the game consists of a few people and there are some certain rules. It is monitored that hyperactive kids are more aggressive, game spoiling and mobile in organized games like this. The shown result of this is; they already have difficulties maintaining their attention, the inclusion of more stimulants cause their attention to scatter and they cannot adapt to the rules of the game (30).

ADHD varies according to geographical regions and communities and its incidence is between 3%-13%. In preschool period children, according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R), ADHD was detected as 3.8-9.4% in Canada, 3.4% in Australia (DSM-III-R), 6.7% in small children and 2-3% in adolescents in New Zealand (DSM-III-R), 4.2% in Germany, 5% in India, 7.5% in Taiwan, 6-9% in China, 1.3% in adolescents in Netherlands, 9.5% in children and adolescents in Puerto Rico, 7.7% in Japan, 2-13% in Colombia [DSM-IV], 5.8% in 12-14 year old children in Brazil (DSM IV, 1987; DSM IV, 1994). American Psychiatric Association reports that the incidence of ADHD is between 5% and 7% in preschool children. According to a comprehensive meta-analysis study performed in 2008, it was found that the prevalence of ADHD throughout the world was 5.29% (20).

Analyzing the studies in Turkey, because the diagnosis for the attention deficit disorder is made in school age, the studies about the extensity are mostly done with the children who are at school age.

According to Mercan, Bozkurt, Oyur and Giderler (17) the prevalence of attention deficit and hyperactivity disorder (ADHD) In Turkey is reported to be approximately 8% in childhood, 6% in adolescents and 4% in adults. ADD (attention deficit disorder), a dimension of ADHD, is on average 3-5% of all ADHD individuals. ADD leads to inability to focus on children which may hinder the realization of learning. Children with ADD start many tasks at the same time, and could not finish many of them. In children with ADD, behaviors such as obstacle to starting new task, worse time management, cannot finish the many of tasks which started to do at the same time, cannot focus on a non-moving activity, cannot sit during activity, tends to saying the first thing that comes into his/her mind, forgetting words, rules or things they have to do, difficulty in doing multi-step tasks, having difficulties starting and finishing an activity, distraction, tendency to postpone, difficulty in giving priority to information, quick getting bored and feeling uneasy, inefficient time using, cannot find own things

at home or at school, forgetting, losing and putting in the wrong place can be observed (11). Some of the persons with ADD in childhood continue to express symptoms during adulthood (9).

In Turkey, the prevalence of ADHD is detected as 5% in Turkish primary school children living in urban areas (15). In Trabzon, it was shown in a thesis study that ADHD rate was 2.81% in primary school students (29). These differences can be related to the diagnostic criteria, cultural differences and limitations of methods used in studies. ADHD is more common among male and it has been reported that the female-male rate of the disease is respectively 4:1 and 9:1 throughout the world (2). After the change in the DSM-IV system and after sub types are formed, it was specified that the prevalence of ADHD in children increased from 3-5% [DSM-III-R] to approximately 12% [DSM-IV] (1, 2).

Both inattention and hyperactivity/impulsivity signs are seen together in great majority of the individuals who has Attention Deficit Hyperactivity Disorder, but a sign pattern may be dominant for some individuals. Because of this, three sub-types for Attention Deficit Hyperactivity Disorder diagnosis is identified in DSM-IV (2). Attention Deficit Hyperactivity Disorder-attention deficit and Attention Deficit Hyperactivity Disorder-combined subtypes are seen roughly in same amount in school age children (16). It is determined in a study which took place in our country that Attention Deficit Hyperactivity Disorder according to subtypes are 1% Attention Deficit Hyperactivity Disorder-attention deficit, 1,5% Attention Deficit Hyperactivity Disorder-hyperactivity/impulsivity and 4% Attention Deficit Hyperactivity Disorder-combined. Soysal, Birgül, Bayoğlu, Kivılcım and Gücüyener (23), stated in their study that, in distribution according to subtypes in school aged children who has Attention Deficit Hyperactivity Disorder, Attention Deficit Hyperactivity Disorder-combined type took first place, Attention Deficit Hyperactivity Disorder-attention disorder type took second place, and Attention Deficit Hyperactivity Disorder-hyperactivity/impulsivity took third place.

The treatment of the ADD should be comprehensive since it affects the functionality of the child in many areas. The primary aim of the ADD treatment is to solve behavioral, cognitive, social and familial problems. An efficient treatment is composed of medication, psychotherapy and psychosocial therapies. Family therapy, relaxation therapy, vitamin therapy, diet and 'biofeedback' therapies have been specified in various studies. However, there is no study which has systematically examined the efficiency of these ADD therapies. Psychosocial interventions can be family, school and child oriented. ADD assessments are important in family oriented therapies (19).

3. Conclusions

Preschool period is one of the most critical periods of a

human life and it is important to diagnose and treat this type of anxiety disorders during childhood. Therefore, particularly mothers should be careful observers for the early diagnosis. Unfortunately, it is stated that it starts generally about the age three, but diagnosis cannot be made until elementary school where necessary attention span and concentration development for organized learning is expected to happen (2). No matter how much intelligence they have, children with lack of attention can be compensated to some extent and they will be unsuccessful in the school life since they cannot focus on their education. Children who are not treated can experience depression, anxiety disorder, tic and behavioral disorders. The self-reliance of children can be deteriorated since they are continuously criticized by others. Therefore, the disorder should be diagnosed in an early period and it should be efficiently treated on time. In case it is noticed in early childhood years, providing efficient education and opportunities will minimize this disadvantage during the developmental period of children. When preschool teachers notice something outside the norm, they should inform families and they should direct them for the early diagnosis and the treatment.

The greatest challenge we have experienced during the research period is that there is not enough research about ADDs in the preschool time. It will be very useful to begin studies on this subject from early childhood. We think that the early recognition of children with the ADD in preschool period and their diagnosis at this time will contribute to the future life of the family and the child. For this reason, parents and preschool teachers should be guided primarily on the guidance of children with diagnostic criteria to specialists.

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