Self-esteem and anxiety in human figure drawing of Iranian children with ADHD

Afsoon Sanei, M.A. a,*, Hadi Bahrami, Ph.D. a, Sayyed Abbas Haghegh, Ph.D. b

a Department of Psychology, University of Allameh Tabataba’i, Tehran, Iran
b University of Isfahan, Isfahan, Iran

A R T I C L E   I N F O

Keywords:
Draw-A-Person Test
Self-esteem
Anxiety
Attention Deficit/Hyperactivity Disorder

A B S T R A C T

This study is aimed at investigating the self-esteem and anxiety of children with Attention Deficit/Hyperactivity Disorder compared with normal children by means of Draw-A-Person Test. 30 children with ADHD were selected from psychiatric clinics of Isfahan, Iran using multi-cluster sampling. 30 normal children were also selected from public schools of Isfahan by the same method. The results were analyzed using analysis of variance and Chi-square. In this research, six criteria were selected from Draw-A-Person Test. The results revealed significant differences between the performance of the children with ADHD and normal children in terms of size and line characteristic (P<0.05). For the other criteria no significant difference was found between these groups. Based on this finding, some aspects of drawing may be more meaningful than other aspects in drawings of children with ADHD.

© 2011 Elsevier Inc. All rights reserved.

Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most common childhood onset neuropsychiatric disorders, with prevalence rates ranging from approximately 4 to 10% of the population globally (Skounti, Philalithis, & Galanakis, 2007). Children with Attention Deficit/Hyperactivity Disorder (ADHD) suffer from symptoms of inattention, demonstrate hyperactive and impulsive behavior or suffer from a combination of these two symptom domains (APA, 1994).

ADHD is associated with numerous developmental, cognitive, emotional, social, and academic impairments (Barkley, 2006; Barkley, Murphy, & Fischer, 2008; Swanson, 2003). In the United States, over one-third of children with ADHD were reported to have high levels of emotional difficulties (Wehmieier, Schacht, & Barkley, 2010). A study in Europe clearly showed that children and adolescents with ADHD had more emotional problems as measured by the Strengths and Difficulties Questionnaire, than children and adolescents without ADHD (Coghill et al., 2006). Boys with ADHD and comorbid ODD have, in particular, been reported to suffer from impaired regulation of negative emotions (Braaten & Rosein, 2000).

The emotional impairments of children with ADHD may include poor self-regulation of emotion, greater excessive emotional expression, especially anger and aggression, greater problems coping with frustration, reduced empathy, and decreased arousal to stimulation (Barkley, 2006). Anxiety or depression is also a common comorbid disorder of ADHD (Elia, Ambrosini, & Berrettini, 2008; Escobar et al., 2005). Children and adults with ADHD are also more likely to develop dysthymia, major depressive disorder, and various anxiety disorders, all of which involve difficulties with emotion. The reasons for such high comorbidity with other disorders are several (Angold, Costello, & Erkanl, 1999). Experiences such as academic failure, peer rejection, family conflict, parental hostility, accidental injuries, poor occupational achievement, marital strife, or loss of driving license, can all result in emotional consequences. These emotional consequences add to the emotional problems that are already part of ADHD and possible comorbid disorders (Barkley, 2006). The aim of this study was to investigate emotional impairment in children with ADHD. The social and emotional problems of children and adolescents with ADHD have been discussed in reviews (Harpin, 2005; Thorell & Rydell, 2008) and research papers (Buitelaar, Wilens, Zhang, Ning, & Feldman, 2009). But since children may have limited verbal skills and this may not allow them to participate in conversations or conceptualize family issues using language (Terr, 1994), the decision reached was to provide them in a way which helped to express the emotions more easily.

One of the research methods applied to children was analysis of their creations, like their drawings. Drawing is an important element of children’s lives. Children’s drawings can give clues about their ongoing lives. The content of a painting reflects previous experiences of a child. Children may reveal that they are heart-broken, jovial, or aggressive thought in their drawings. The structure of a child’s personality can be revealed through his or her pictures (Oguz, 2010). Children can describe their happiness, unhappiness, future dreams, past life and continuing life as they wish in their drawings (Artut, 2006). Clinicians and researchers claim that analytic interpretation of the expressions in the drawings reveals weaknesses, fears (Freilich & Shechtman, 2010) and...
negative traits, as well as the strengths, accomplishments and untapped potential, giving insight into who one is (Malchiodi, 1998). Unlike other assessment procedures such as psychometric tests, drawing requires the psychologist to administer little or no training to the client. For many children, drawing represents a natural activity, in which the child spontaneously and frequently participates, usually with much enjoyment. When applied to a clinical setting, it is likely to reduce the child’s anxiety about the situation and the nature of the investigation. Furthermore, the drawing literature is littered with formal drawing tests which claim to assess children’s intellectual ability, personality, current emotional state, or their feelings towards the important people in their life. Although research evidence has seriously questioned the reliability and validity of most of these tests, recent surveys conducted in America suggest that drawings are still frequently used as projective assessments (Camara, Nathan, & Puente, 2000; Cashel, 2002).

There are a variety of projective tests employing children’s drawings. Draw-A-Person (DAP) is a type of technique carried out in art therapy diagnosis (Brooke, 2004). This test is a most frequently utilized instrument, as reported in surveys of clinical psychologists, especially when psychologists working with children are surveyed (Camara et al., 2000; Cashel, 2002). There are two main areas where human drawings are used with children. The first is the attempt to do a global prediction of the child’s cognitive development (Brown, 1990; Chering, Seiwert, Dickey, & Flichtbeil, 2006; Koppitz, 1968). The second area of utilization is to evaluate the emotional make up or the emotional state of the child (Catte & Cox, 1999; Matte, 2002; Özé, 2010). In emotional evaluations, the presence of signs that a theoretical framework (which has traditionally been an analytical framework) deemed important has been used as the foundation for clinical interpretation (Özé, 2010).

Macover (1949) and Koppitz (1968) analyzed children’s drawings from an emotional perspective. Macover (1949) proposed projective drawing tests as a means for uncovering the preconscious or unconscious material that a client may not be able to access verbally. Macover’s system attempts to analyze the DAP through a projective hypothesis, whereby the figure is the main subject and the paper is the environment. Numerous attempts have been made to develop valid DAP scoring systems. Nevertheless, the original projective scoring system designed by Macover (1949) remains largely recognized as a most important and widespread DAP system (Arche, Bandeira, & Hutz, 2010).

Koppitz (1968) uses the “Draw a Man” approach in identifying certain emotional disorders in children and proposes alternative ideas in the interpretation of special signs. Koppitz’s view of seeing children’s drawings from the perspective of emotional indicators has continued since the 1950s. It is a popular projective technique based on the assumption that children’s drawings reflect emotions that they cannot verbally express. There are 38 emotional indicators in Koppitz’s Human figure drawing method which are present in some human figure drawings reflecting children’s anxiety, fears and attitudes (Willis, Joy, & Kaiser, 2010). Many of these indicators are noted by Macover (1949), including shading, figure height, absence of certain parts of body, size, detailing, etc. Cultural differences are also important in determining Emotional Indicators (Cox, 1993).

This instrument and other similar instruments are commonly utilized to detect signs of mental maturity, learning difficulties, schizophrenia, dissociative disorders, attention deficit hyperactivity disorder (ADHD), personality and emotional disorders. Such evaluations of child drawings have always cast doubt upon and fueled discussions about the validity and reliability of the method used (Daiioiu, Deniz, & Kan, 2010; Lubin, Larsen, Mattarazzo, & Seever, 1985; Watkins, Campell, Neiberding, & Hallmark, 1995).

Inter-rater reliabilities for the various scales of DAP range from weak to excellent (Maloney and Glasser, 1982). Some reliability studies indicate that the inter-rater reliability estimates ranged from .42 to .78 (Tharinger & Stark, 1990). However, DAP is still commonly used in Iran. It is a popular test in working with children. Numerous studies have been conducted in Iran to investigate the validity of DAP as an emotional assessment technique. These studies have shown that some emotional signs common in the scoring systems of Koppitz and Macover are more reliable indicators for self-esteem and anxiety, especially size, color, line characteristic, shading, etc. (Dadsetan, 1995).

Seven indicators of DAP including size, line characteristics, chromatic drawings, detailing, shading, distortion and detailing based on previous evidences in Iran have been chosen which demonstrated the acceptable correlation between these chosen indicators, anxiety and self-esteem (Dadsetan, 1995). The aim of the current study was to investigate emotional problems of children with ADHD, using their drawings. This study hypothesized that drawings of children with ADHD could show lower self-esteem and higher level of anxiety compared with normal children.

Method

Participants

This study was conducted to examine the emotional problems in the drawings of 7-12 year-old children with ADHD (M = 8.86, SD = 66) comprising normal children of the same age (M = 8.9, SD = 68). The study group comprised of 30 children with ADHD (12 girls and 18 boys) who had referred to the psychiatric clinics of Esfahan in Iran. Also 30 normal children (14 girls and 16 boys) were selected from elementary schools. All the participants of each group were selected through the multi-cluster sampling method.

Instrument

In this study the Draw-A-Person Test was administered to investigate the emotional problems of children with ADHD. Evidences for validity and reliability of this test are ambivalent. Swenson (1968) and Roback (1968) argue that “Draw-A-Person Test” has weak reliability and validity, and that particular aspects of a drawing cannot be related to particular types of maladjusted personality. But in contrast, a few studies have reported findings supporting the validity of the emotional indicators of DAP (Sturmer, Rothbaum, Visintainer, & Woller, 1980). Reliability studies even indicate that the inter-rater reliability commonly exceeds 0.90 (Rae & Hyland, 2001). It should be noted that Koppitz scoring system has received more empirical support (Lilienfeld, Wood, & Garb, 2000).

We selected seven emotional indicators which were noted by both Koppitz (1968) and Macover (1949) and formerly investigated in Iran as reliable indicators for anxiety and self-esteem (Dadsetan, 1995; Pourahmad, Abedin, Pakdaman, Shayeri, & Jalali, 2009).

Children were given crayons or pencils and asked to draw a person. They were made to sit at a distance from each other while drawing so that they would not influence each other.

Statistical analysis

When the participants were selected, the test was administered individually to the group samples. In all the cases, children were free in drawing the style and time. The age and sex of each case were written on their drawing sheets. The collected drawings were analyzed by 3 examiners (master degree students of a clinical psychology) to whom the grading method was taught. For the presence of each indicator, 1 score was allocated to each drawing and 0 was allocated to absence of these indicators. For example, score 1 was
Table 1
Mean age and standard deviation of participants.

<table>
<thead>
<tr>
<th></th>
<th>ADHD group (N=30)</th>
<th>Normal group (N=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M</strong></td>
<td><strong>SD</strong></td>
<td><strong>M</strong></td>
</tr>
<tr>
<td>Age</td>
<td>8.86</td>
<td>0.66</td>
</tr>
</tbody>
</table>

Self-concept and self-esteem have been found to be impaired in these children (Demaray & Elliott, 2001; Graetz, Sawyer, & Baghurst, 2005). Analysis of their drawings in this study showed that they usually draw a significantly shorter person than normal children. Machover (1949) hypothesized that the relative size of a drawing is linked to a person's level of self-esteem and energy. She speculated that extremely small and miniaturized drawings reflect low self-concept, depression, and lack of energy. Moderately large drawings suggest higher levels of energy and self-esteem. Empirical research has produced inconsistent results but there has been moderate support for the view that size reflects varying levels of self-esteem, mood, anxiety level, and relative degree of self-inflation (Fox & Thomas, 1990, Kahill, 1984; Mitchell, Trent, & McArthur, 1993; Paine, Alves, & Tubino, 1985). DiLeo (1983) subscribed to the view that small figures drawn at or near the lower edge of the paper indicated feelings of inadequacy, insecurity, and even depression. Hibbard and Hartman (1990) reported that sexually abused children will draw tiny figures more often than non-abused children, which are credited to shyness or withdrawal.

Children with ADHD are also well-known to experience substantial peer difficulties (Hoza, Gerdes, Mrug, Hinshaw, Bukowski, & Gold, 2005). Compared to typically developing youth, children with ADHD are more peer-rejected, have fewer dyadic friendships (Blachman & Hinshaw, 2002), and are rated by parents and teachers as having lower social skills (Hoza et al., 2005). Poor peer relationships warrant concern, as they predict serious adjustment problems in adolescence and adulthood, such as anxiety and depression (Bagwell, Molina, Kashdan, Pelham, & Hoza, 2006). Anxiety disorders are one of the most studied fields of comorbid conditions with attention deficit hyperactivity disorder (ADHD). Pliszka, Carlson, and Swanson (1999) note that although 5–15% of children population will have an anxiety disorder, 15–35% of children with ADHD also manifest significant anxiety. According to Machover (1949), detailing, shading, distortion and line characteristics show anxiety in Draw-A-Person Test. Hammer (1958) and Machover (1949) have all suggested that inclusion of an excessive number of details is consistent with persons who handle anxiety by becoming more obsessive. Thus, the number of details has been used as a rough index not only of anxiety but also of the style by

Results

Table 1 contains the demographic information of all the samples including children with ADHD and normal children.

Table 2 compares the results of human figures’ size in two groups. The heights of human figure were measured with a ruler and then the means were compared.

The result showed that there was a significant difference between human figures’ sizes in both groups (P < .05).

Table 3 contains the Chi-square test results for five other investigated aspects in Draw-A-Person Test of children with ADHD compared with normal children in this study.

Discussion

Aiming to identify emotional problems of children with ADHD from their drawing, this study used six categories of Draw-A-Person Test for analysis. Children with ADHD are commonly known to have impairments that are linked to low self-esteem (Biederman, 2005).

Table 2
Comparing size in 2 groups.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. error</th>
<th>Mean difference (I – J)</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children with ADHD (Group I)</td>
<td>6.7</td>
<td>0.829</td>
<td>−2.85</td>
<td>1</td>
<td>.001*</td>
</tr>
<tr>
<td>Normal children (Group J)</td>
<td>9.55</td>
<td>0.829</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* P < .05.

Table 3
Frequency and Chi-squares test results of children’s drawings.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>%F</td>
<td>F</td>
<td>%F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line characteristic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thick and sharp</td>
<td>14</td>
<td>46.60%</td>
<td>6</td>
<td>20%</td>
<td>4.8</td>
</tr>
<tr>
<td>Soft</td>
<td>16</td>
<td>53.40%</td>
<td>24</td>
<td>80%</td>
<td></td>
</tr>
<tr>
<td>Detailing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With detailing</td>
<td>6</td>
<td>20%</td>
<td>4</td>
<td>13.30%</td>
<td>0.48</td>
</tr>
<tr>
<td>Without detailing</td>
<td>24</td>
<td>80%</td>
<td>26</td>
<td>86.70%</td>
<td></td>
</tr>
<tr>
<td>Shading</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With shading</td>
<td>2</td>
<td>6.60%</td>
<td>4</td>
<td>13.30%</td>
<td>0.741</td>
</tr>
<tr>
<td>Without shading</td>
<td>28</td>
<td>93.40%</td>
<td>26</td>
<td>86.70%</td>
<td></td>
</tr>
<tr>
<td>Distortion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With distortion</td>
<td>1</td>
<td>3.30%</td>
<td>0</td>
<td>0 %</td>
<td>1.017</td>
</tr>
<tr>
<td>Without distortion</td>
<td>29</td>
<td>96.70%</td>
<td>30</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Colors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warm</td>
<td>19</td>
<td>63.30%</td>
<td>22</td>
<td>73.30%</td>
<td>0.693</td>
</tr>
<tr>
<td>Cool</td>
<td>11</td>
<td>36.70%</td>
<td>8</td>
<td>26.70%</td>
<td></td>
</tr>
</tbody>
</table>

* P < .05.
which the person attempts to deal with their anxiety. In contrast, a noteworthy shortage of detail suggests withdrawal and reduction of energy. A small number of details may also be consistent with persons who are mentally deficient, hesitant, or merely bored with the task (Kahill, 1984; Mitchell et al., 1993). Machover (1949) and Hammer (1958) have hypothesized that shading represents anxiety. The specific area that is shaded is likely to suggest concern for that area. Thus a person who is self-conscious about his or her facial complexion might provide a large amount of shading on the face, or a person with concern for their breasts might similarly include more shading in this area (Burgess & Hartman, 1993; Kahill, 1984). Distortion in drawings occurs when the overall drawing or specific details are drawn in poor proportions, are disconnected, or placed in inappropriate locations on the body. Hammer (1958) hypothesized that mild distortions reflect low self-concept, anxiety, and poor adjustment, and excessive distortions are characteristic of persons who have experienced a severe emotional upheaval. This has become one of the most strongly supported hypotheses (Chantler, Pelco, & Mertin, 1993; Kahill, 1984). The drawn figure can be conceptualized as the relation between the person’s environment and their body (Machover, 1949). It can thus reflect the person’s degree of insulation, vulnerability, or sensitivity to outside forces. Thick, heavily reinforced lines might be attempts to protect one from anxiety-provoking forces, and faint sketchy, thin lines might conversely represent insecurity and anxiety (Kahill, 1984; Mitchell et al., 1993). In this study children with ADHD were not different from normal children in detailing, shading and distortion. But their drawings were different in line characteristic. These children use thick and sharp lines more often than normal children.

In the end, children with ADHD in this study usually used hot colors including red and yellow in their drawings like normal children. It is believed that colors might be important indicators of emotional status or personality traits. The use of colors is an important evaluation criterion in psychological assessment, especially in projective methods. This type of tests and various drawing methods are widely used as children psychological assessment tools, besides interview (information) with the child’s tutors. Research shows that color preferences are important indicators of the child’s emotional state and can demonstrate their feelings towards the drawing object (Boyatzis & Varghese, 1993; Burkitt & Newell, 2005). However, most claims made about the significance of emotions expressed in children’s drawings are based on professional observations usually within clinical contexts (Burkitt, Barrett, & Davis, 2004). Hence there is a lack of controlled research where systematic and objective validation of the children’s feelings towards the colors used and towards the topic drawn would be taken into consideration. When talking about interpretation of child color choices, some developmental, cultural and gender issues should be discussed. Culture influence in color symbolism and gender stereotypes are also important (Kaya & Epps, 2004). Color can be described in temperature terms, such as warm or cool as they relate to dominant wavelength of the colors. Cool colors (e.g. blue, green, and purle) are generally considered to be peaceful and quiet, while warm colors (e.g. red, yellow, and orange) are seen as active and stimulating (Ballast, 2002). However some colors may be associated with several different emotions and some emotions are associated with more than one color (Kaya & Epps, 2004). Using hot colors may show anxiety in children with ADHD (considering culture or developmental stage of children). Thus other signs of emotional problems must be considered to interpret the meaning of color preference in the drawings of these children.

To conclude, the findings of this study showed that some aspects of Draw-A-Person Test such as line characteristics and size may show emotional disturbance better than other features in children with ADHD. These aspects were more reliable in the investigations of the children’s emotions in this study.

References


