Self-figure drawings in women with anorexia; bulimia; overweight; and normal weight: A possible tool for assessment

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Eating disorders (ED) are an increasing problem in children and young adolescents. This paper examines the use of self-figure drawing in the assessment of eating disorders. We combined the use of self-figure drawing as a short and non-intrusive tool with the administration of previously validated questionnaires (EAT-26 and the BSQ). Seventy-six women (thirty-six were diagnosed as having eating disorders according to DSM-IV criteria, either anorexia nervosa or bulimia nervosa, 20 were overweight, 20 had no eating disorders and were of normal weight) were recruited for this study. Objective and quantifiable methods of assessment in analysis of the self-figure drawing were used. The results indicated that self-figure drawing scores were clearly differentiated among groups. The results also indicated significantly high correlation between the self-figure drawing and the two validated psychometric assessments of eating disorders. The findings’ implications and possible interpretations are discussed. Findings indicate that using self-figure drawing as a tool to assess ED or a tendency to develop ED would be valuable for practitioners.

Data derived from eating disorder clinics across five continents suggest that anorexia nervosa and bulimia nervosa are an increasing problem in children and young adolescents (Halmi, 2009). Preti et al. (2009) reported that the majority of eating disorders (ED) initially onset between 10 and 20 years of age, yet many among those who suffer from ED are diagnosed and treated only subsequent to drastic weight loss or after suffering severe distress (Preti et al., 2009). Hudson, Hiripi, Pope, and Kessler (2007), in their study of 2980 adults, used the DSM-IV criteria for each eating disorder and estimated that the lifetime prevalence of eating disorders were as follows: anorexia nervosa (AN) 9% for women, 3% for men; bulimia nervosa (BN) 1.5% for women, 3% for men; binge eating 3.5% for women, and 2.0% for men. Furthermore, they suggested that the duration of these disorders ranged between 1.7 and 8 years. Therefore, it seems that early recognition and treatment are essential in halting further development of psychopathology.

ED in general, and AN and BN in particular, are complex disorders in which problems are linked on behavioral, cognitive and emotional levels (Raphael & Lacey, 1994; Szmukler, Dare, & Treasure, 1995). Weight and shape concerns are required for a diagnosis of AN and BN in both the International Classification of Diseases, 10th Revision and Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) systems. On a very basic level, ED can be defined as a psychosomatic illness that combines aspects of the physical body and the mind (Yates, 1989).

Diverse instruments are available to help healthcare professionals assess eating disorders. Structured instruments, self-report measures, medical, and nutrition assessments offer support for the tasks of diagnosing and treating these illnesses. A variety of self-report measures such as the Eating Disorder Inventory (EDI2) and the Eating Attitudes Test (EAT-26) are useful to quantify symptoms, verify diagnosis, examine specific clinical features, and examine changes in a patient’s symptoms over time. These self-report instruments are often used to verify the ED diagnosis in patients already under observation for ED. Completing these self-report questionnaires requires the patient’s cooperation at a period when he or she often attempts to conceal the eating problem. Given such shortcomings of using existing eating disorders specific diagnosis tools, our goal is to examine whether the Draw-A-Person (DAP) test developed by Machover (1949) might serve as an effective screening tool in assisting practitioners in detecting young adult women at risk for ED but not yet diagnosed and not yet undergoing an ED specific evaluation. Specifically, we intend to use a version of the DAP which requires the drawer to relate to her own body.

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Based on the facts that (1) body image in particular, and body experience in general is a major issue for young women, (2) the main common feature in AN and BN is the over evaluation of body shape and weight (Fairburn & Harrison, 2003), (3) body dissatisfaction is at the core of eating pathologies (Gowers & Shore, 2001; Stice & Shaw, 2002), (4) drawing one's own figure directly addresses the issue of conscious and unconscious conflicts about one's body image (Levy, 1950), and, (5) similarly to the SCOFF questionnaire (Morgan, Reid, & Lacey, 1999), the DAP test can be easily administered to a large group of people, the current study aimed to detect indicators within self-figure drawings that may reflect ED. The research used self-figure drawings of individuals diagnosed with either AN or BN compared to a non-psychiatric group of women with overweight (OW) and a group of normal weight (NW) women.

Draw a Person (DAP), and self-figure drawing as diagnostic tool

Drawing oneself or drawing a figure is a well-known and frequently used projective drawing technique in psychological assessments (Thomas & Jolley, 1998). This method is based on the idea that the figure drawing represents the subject, while the paper represents the subject's environment (Machover, 1949, Draw-A-Person test). Recently, several attempts to analyze art creations and to develop art measures of patients with mental illness were published (e.g., Billingsley, 1999; Kent, 1999). For example, Hacking, Foreman, and Belcher (1996), who analyzed paintings of psychiatric patients and compared them to paintings of non-patients, reported that the diagnostic group's paintings differed on at least 4 of 13 variables (e.g., color, color intensity, quality of line, and space covered). Kent (1999) found a high correlation between the psychometric properties of the DAP test and the Rorschach Schizophrenia Index conditions. The DAP test was found to be differentiated between violent offenders (domestic and general) and nonviolent offenders, and was suggested as an effective tool for detecting violent behavior among male prisoners (Lev-Wiesel & Hershkovitz, 2000).

Self-drawings of individuals diagnosed with schizophrenia differed significantly from non-schizophrenics' self-figure drawings in each of the chosen assessment indicators (Lev-Wiesel & Shvero, 2003). In colorectal cancer patients undergoing stoma surgery, self-figure drawings were also found to reflect psychological distress and the profound threat to physical integrity and self-concept with the change of body image (Lev-Wiesel, Zipperstein, & Raba, 2005). Gillespie (1996) who analyzed paintings of psychiatric patients with ED, using the DAP technique in anorexics and the Mother-and-Child (M/C) technique in obese women, indicated that the drawings differentiated between those groups. She argued that art therapy techniques enable individuals with eating disorders to project their discontent with their inner sense of self into concrete body images.

Hypotheses

Based on previous evidence suggesting that a distortion or omission of any part of a drawn figure suggests conflict related to the specific body part (e.g., Hammer, 1997; Koppitz, 1968; Levy, 1950; Oster & Montgomery, 1987), the current study hypothesized that body image distortion will be manifested in self-figure drawings of women diagnosed with ED. More specifically, based on previous researches (Caparrotta & Ghaffari, 2006; Dare & Crowther, 1995; Moulton, 1942) suggesting that the common elements in ED are fear of maturation and sexuality, fear of separation and impingement, self-aggression, and oral-control, the following indicators were expected to be manifested during comparison of the self-figure drawings of individuals with different eating disorders (see Appendix A):

- Neck (long, disconnected, emphasized, large): reflects the attempts to exert cognitive control over the body (Lubbers, 1991).
- Mouth: Emphasis of the mouth focuses attention on oral issues. The mouth serves as an inlet for ingestion and as an outlet for aggression, friendliness and expression of other feelings (Lev-Wiesel & Hershkovitz, 2000).
- Thigh and sexual signs: are considered to symbolize femininity and, as such, attract great conflict. Mature sex and femininity is usually denied by AN (Bruch, 1978; Caparrotta & Ghaffari, 2006).
- Legs and feet: are considered to symbolize autonomy, self-movement, self-direction and balance (Coram, 1995).

Body shape outline – doubled, emphasized or disconnected lines: indicate confusion regarding self-identity and body image (Abraham, 1989), anxiety, and lack of control (Yama, 1990).

Size of the image: reflects the drawer's perception of her place within the environment and her attitude towards that place. Conflicts in this realm might be reflected in the location and size of the image on the paper sheet (Levy, 1950).

We also aimed to examine the relationships between the DAP and two validated psychometric assessments commonly used in ED diagnosis: The Eating Attitudes Test (EAT-26) (Garner, Olmsted, Bohr, & Garfinkel, 1982) and the Body Shape Questionnaire (BSQ) (Cooper, Taylor, Cooper, & Fairburn, 1987). It was presumed that comparing the DAP test indicators with the already validated measures would assist in achieving validity criteria, and thus promote the DAP test as an easy and effective assessment tool in art therapy (see also Willis, Joy, & Kaiser, 2010).

Method

Participants

A convenience sample of 76 women (36 were diagnosed for either AN or BN, 20 with OW, 20 had no ED and were NW) was recruited for this study. The study was approved by the institutional review board of Soroka University Medical Center. The two study groups consisted of out-patients who were diagnosed via clinical interviews conducted by the medical staff as having AN (n = 16) or BN (n = 20) in accordance with the Diagnostic and Statistical Manual of Mental Disorders 4th Edition (American Psychiatric Association, 1994) criteria. Because of the strong comorbidity of ED with other psychiatric disorders such as anxiety and depression, those with another significant axis-I disorder were excluded. Two comparison groups consisted of women who were overweight (OW, BMI ≥ 30, n = 20) and women with normal weight (NW, n = 20). The comparison group participants were recruited conveniently from the community; all were employed without any known disabilities or disorders. All participants had normal vision and hearing for their age as indicated by self-reports and by their ability to report standard stimuli presented to them visually and in an auditory manner.

Regarding the demographic traits of the 4 groups, no between-group differences were found in terms of age [(F(3) = 1.17; Mse = 32.3)] and education [(F(3) = 1.47; Mse = 6.49)]. Participants' mean age was 24.9 years (SD = 5.7 years, range 17–50 years). The groups differed significantly in BMI (body-mass index is the weight in kilograms divided by the square of the height in meters). One-way ANOVA showed differences among the groups [(F(3) = 110.7; Mse = 13.0; p < 0.01), post-hoc Duncan test indicated a difference among all the groups [p < 0.05] (see Table 1).

Psychometric assessment

Data was obtained by self-report questionnaires that included the following measures: Demographic-clinical information such
as age, weight, height, clinical-psychopathological variables and marital status, the Eating Attitudes Test (EAT-26), the Body Shape Questionnaire (BSQ), and self-figure drawing. Following completion of the drawing task, the participants completed the EAT-26 and the BSQ questionnaires.

The Eating Attitudes Test (EAT-26) (Garner et al., 1982) is a well-known measure for assessment of tendency toward an eating disorder. The EAT-26 was found to be nearly as robust with clinical and psychometric variables, relating to BM, weight, and self-perception of body shape, as the original EAT-40 (Garner & Garfinkel, 1979; Garner et al., 1982). Each item is rated on a 6-point Likert scale ranging from “never” to “always.” The most symptomatic answer receives a score of 3, the next adjacent response a score of 2, and so on. The three least symptomatic responses receive a score of 0. In addition to a total score, the EAT-26 yields three subscales: dieting, bulimia/food preconceptions, and oral control. A total score above 20 in the EAT-26 is the recommended cutoff. The Body Shape Questionnaire (BSQ) (Cooper et al., 1987) is a 34-item, self-report inventory that measures general concerns about body shape, focusing in particular on the subjective experience of “feeling fat.” Subjects responded to items according to how they have felt about their body shape over the past 4 weeks. Items are scored on a 6-point Likert-type scale (1 = never to 6 = always) with a possible total score range from 34 to 204. Average scores of 71.9 (SD = 23.6) for nonclinical college females and 136.9 (SD = 22.5) for individuals diagnosed with BN have been reported by Cooper et al. (1987).

Both questionnaires have demonstrated high concurrent and discriminant validity and differentiate individuals with eating disorders from healthy controls (see Carter & Moss, 1984; Williamson, Anderson, & Gleaves, 1996; evaluating the EAT-26 and Rosen, Jones, Ramirez, & Waxman, 1996 evaluating the BSQ).

Draw a Person (DAP), developed by Machover (1949), is a well-known projective tool. In the current study, a version of draw yourself was used. Participants were given a blank sheet of A4 sized paper and a pencil and were asked to draw themselves. No further instructions were provided. When drawing, some of the participants asked questions such as, “Should I draw my entire body?” The answer to such questions was that the choice was at their discretion.

Upon completion, the drawings were given to three previously trained (by one of the authors RL) evaluators (two art therapists and one psychologist intern) for independent assessment. The evaluators were asked to estimate the level of obviousness ranging from very obvious (5) to not at all obvious (1) each indicator (see Appendix A); for example, a missing part scored 5 and appropriate answer received a score of 0. In addition to a total score, the DAP scores was conducted. Results indicated a significant main effect of groups in the EAT-26 measure. Post-hoc comparisons showed no difference between the AN and BN groups, yet, both groups scored higher than the OW and NW groups, and above the cutoff point suggested in the literature defining eating disorders (Garner et al., 1982) (see Table 1). The OW group also differed from the NW group. The results for the BSQ scores showed significant effect of groups. Post-hoc comparisons showed no differences between the AN and BN groups, but both groups significantly differed from the OW and NW groups. As was found in the EAT-26 measure, the OW group also differed from the NW group. The psychometric data analysis validated the discrimination among the groups; especially between AN and BN and the other two groups. Drawing indicators analysis

Table 2 shows the findings of the DAP indicators analysis. The indicators presented in Appendix A were clustered into the same variable if their patterns were similar. If the patterns were not similar they were presented separately.

Neck – missing double or disconnecting: one-way ANOVA showed significant effect among groups. Post-hoc analyses indicated that the NW group scored significantly lower when compared to all other groups. The OW, AN, and BN groups tended to have more missing, double or disconnected neck lines.

Mouth – emphasizing or omission mouth: significant effect was found among groups. Post-hoc analyses indicate that BN and AN scored significantly higher compared to NW and OW groups, while no difference was found between NW and OW. AN and BN tended
to put greater emphasis on their figure's mouth. No difference was found among groups regarding the omission of the mouth in the figure. 

**Thighs – widening**: significant effect was found among groups. Post-hoc analyses indicate that the NW group has scored significantly lower compared to AN and BN groups but not in comparison to the OW group. AN and BN tended to draw wider thighs than the controls.

**Sexual signs – breast and genital**: one-way ANOVA showed significant effect among groups for breast. Post-hoc analyses indicate that the NW group scored significantly higher compared to AN and OW groups but not comparing to the BN group. OW and AN groups scored significantly lower than all other groups, while no differences was found among OW, AN, and BN meaning that the NW group manifested more missing or disconnected feet.

**Body shape line – emphasis or doubled**: one-way ANOVA showed no significant differences among groups.

**Feet – missing or disconnected feet**: significant effect was found among groups. Post-hoc analyses indicate that NW group significantly differed from all other groups, while no differences was found among OW, AN, and BN meaning that the NW group manifested less missing or disconnected feet.

**Drawing size**: This indicator was computed by multiplying the drawing image length by its width. Significant effect was found among groups. Post-hoc analyses yielded that figure size of BN was larger compared to figure size of AN.

**Correlations and regressions analyses between the psychometric assessments and self drawing indicators**

To examine whether EAT-26 and BSQ are correlated with the DAP test, a Pearson correlation test was conducted between each measure's mean scores. Results indicated that the overall indicators mean of the DAP test is significantly positively correlated with the two previously validated ED measures (EAT r = 0.42, p < 0.001; BSQ r = 0.29, p < 0.05). Regarding correlation between the figure size and the psychometric assessments, a significantly positive correlation was found only with the BSQ (r = 0.25, p < 0.05).

Four variables were found to differentiate the study (AN and BN) groups from the NW group: distortion of the mouth, neck, thighs and feet. Table 3 presents the correlations testing the hypothesis that the four variables would relate positively to ED symptoms and concerns about body shape.

To test the hypothesis that DAP can serve as a predictor of ED, a multiple regression analysis was conducted. The results of the regression analysis (see Table 4) show that the mouth in particular, as well as the feet, had significant unique effects on women's EAT-26 scores.

The relative importance of these variables in predicting ED symptoms (as measures by the EAT-26 scale) and general concerns about body shape (measured by the BSQ) was examined by multiple regression analysis. Thus, the total EAT-26 score and its three facets were regressed on the four variables.

**Table 2**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>NW</th>
<th>OW</th>
<th>AN</th>
<th>BN</th>
<th>Group main effect</th>
<th>Control vs.</th>
<th>OW vs.</th>
<th>AN vs.</th>
<th>BN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neck: missing double or disconnecting</td>
<td>1.31 (0.5)</td>
<td>2.19 (0.9)</td>
<td>2.04 (0.9)</td>
<td>1.89 (0.8)</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Mouth: emphasis</td>
<td>2.01 (1.7)</td>
<td>1.86 (1.6)</td>
<td>3.43 (1.9)</td>
<td>3.2 (1.8)</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Feet: missing or disconnected</td>
<td>1.85 (0.9)</td>
<td>2.44 (0.8)</td>
<td>2.58 (0.8)</td>
<td>2.72 (0.6)</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Thighs: widening</td>
<td>1.31 (0.9)</td>
<td>1.93 (1.6)</td>
<td>2.43 (1.7)</td>
<td>3.18 (1.6)</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Sexual signs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast</td>
<td>2.80 (2.0)</td>
<td>1.61 (1.4)</td>
<td>1.25 (1.0)</td>
<td>2.48 (1.8)</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Genital</td>
<td>1.00 (0.0)</td>
<td>1.2 (0.8)</td>
<td>1.5 (1.3)</td>
<td>1.2 (0.8)</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Body shape line</td>
<td>2.04 (1.1)</td>
<td>1.25 (0.6)</td>
<td>2.42 (1.2)</td>
<td>3.37 (1.0)</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Total indicators means</td>
<td>1.90 (0.57)</td>
<td>1.87 (0.49)</td>
<td>2.36 (0.67)</td>
<td>2.87 (0.66)</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Drawing size</td>
<td>98.8 (69.3)</td>
<td>130.9 (93.8)</td>
<td>76.8 (61.2)</td>
<td>151.2 (90.1)</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td></td>
</tr>
</tbody>
</table>

Values shown are mean (SD).

**Table 3**

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Feet</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Neck</td>
<td>0.42***</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Thigh</td>
<td>0.23</td>
<td>0.15</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) Mouth</td>
<td>0.04</td>
<td>0.12</td>
<td>0.19</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5) Total-EAT</td>
<td>0.29</td>
<td>0.21</td>
<td>0.27</td>
<td>0.36</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(6) Oral control</td>
<td>0.04</td>
<td>0.07</td>
<td>0.05</td>
<td>0.39</td>
<td>0.68***</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7) Bulimia</td>
<td>0.35</td>
<td>0.24</td>
<td>0.33**</td>
<td>0.33</td>
<td>0.89**</td>
<td>0.42**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>(8) Dieting</td>
<td>0.31</td>
<td>0.27</td>
<td>0.25</td>
<td>0.30</td>
<td>0.97</td>
<td>0.56</td>
<td>0.86**</td>
<td>1.00</td>
</tr>
<tr>
<td>(9) BSQ-sum</td>
<td>0.29</td>
<td>0.25</td>
<td>0.30**</td>
<td>0.22</td>
<td>0.77**</td>
<td>0.23</td>
<td>0.77</td>
<td>0.82**</td>
</tr>
</tbody>
</table>

p < 0.05.

< 0.01.
Discussion

The current study investigated whether ED manifests in self-figure drawings of outpatient women diagnosed with AN or BN. As hypothesized, positive correlations were found between the psychometric assessments and four indicators in the DAP test. In addition, indicators of the DAP test were found to differentiate particularly between those who met (anorexia and bulimia) vs. those who did not meet (overweight and normal) the criteria of ED.

Study groups vs. normal weight group

Four indicators of the self-figure drawing were found to significantly differentiate between the study groups (AN and BN) and the control (NW): emphasized mouth, widening of the thigh, neck, and feet portrayals. The first indicator, emphasis of the mouth, is not surprising since the mouth is the main feeding organ enabling the person to accept or reject (refuse to eat or vomit) food. The mouth is the idiom of this disorder. Another possible explanation for emphasizing the mouth might lie in the fact that these patients have specific difficulties verbalizing their feelings (e.g. alexithymia, Bydlowski et al., 2005; Cochrane, Brewerton, Wilson, & Hodges, 1993). Regarding the second indicator, thigh width drawing differences apparent between NW and the study groups (AN and BN) might be explained by the meaning attributed to the thigh in terms of femininity and its function as a Western cultural sex symbol according to which the thinner the thigh, the sexier the woman. The third indicator, namely, missing, double or disconnected neck was also found to distinguish between NW and the study groups. The neck is the tunnel of feeding or vomiting, therefore it is not surprising that women who suffer from ED emphasize or omit the neck. In addition, the neck is considered to be the tunnel between impulses (Id) and feelings examined by rational thinking and intellectual control (Levy, 1950). The fourth indicator, omission or disconnection of feet, was found to distinguish between the study groups and NW. This finding might suggest a lack of a sense of stability and feeling of safety (Machover, 1949). Fig. 1 illustrated some of the above differences.

Indicators differentiating between AN and BN

Three indicators were found to differentiate between the two study groups: the breast, body line, and size. Omission of the breast was more apparent among the self-figure drawings of women diagnosed with AN compared to the self-figure drawings of women diagnosed with BN. The breast is the primary organ for being fed. The breast is also considered as a primary object for projection of femininity and its function as a Western cultural sex symbol according to which the thinner the thigh, the sexier the woman. The third indicator, namely, missing, double or disconnected neck was also found to distinguish between NW and the study groups. The neck is the tunnel of feeding or vomiting, therefore it is not surprising that women who suffer from ED emphasize or omit the neck. In addition, the neck is considered to be the tunnel between impulses (Id) and feelings examined by rational thinking and intellectual control (Levy, 1950). The fourth indicator, omission or disconnection of feet, was found to distinguish between the study groups and NW. This finding might suggest a lack of a sense of stability and feeling of safety (Machover, 1949). Fig. 1 illustrated some of the above differences.

Table 4

<table>
<thead>
<tr>
<th>Indicator</th>
<th>AN</th>
<th>BN</th>
<th>OW</th>
<th>NW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouth</td>
<td>0.31</td>
<td>0.25</td>
<td>0.28</td>
<td>0.41</td>
</tr>
<tr>
<td>Feet</td>
<td>0.22*</td>
<td>0.21</td>
<td>0.25*</td>
<td>0.03</td>
</tr>
<tr>
<td>Neck</td>
<td>0.06</td>
<td>0.10</td>
<td>0.04</td>
<td>−0.00</td>
</tr>
<tr>
<td>Thighs</td>
<td>0.16</td>
<td>0.12</td>
<td>0.23*</td>
<td>−0.10</td>
</tr>
<tr>
<td>BSQ</td>
<td>0.23</td>
<td>0.21</td>
<td>0.27</td>
<td>0.17</td>
</tr>
</tbody>
</table>

Note: The table presents standardized beta coefficients.

* p < 0.06
** p < 0.05
*** p < 0.01

1994; Bruch, 1973). The BN group tended to emphasize the body line more than the AN group. Emphasizing one’s body line might indicate a greater need to guard and maintain one’s boundaries yet be noticed and recognized by others. The BN patient is often concerned about being recognized and acknowledged as an attractive person (Becker, Bell, & Billington, 2006). Such a need could imply a more narcissist characteristic of bulimic patients compared to anorexic patients. This implication is in line with the finding that the BN group’s portrayed body size was the largest among the four groups; significantly larger than that portrayed in the AN drawings. As mentioned above, the relationship between the size of the drawing and the available space may represent the dynamic relationship between the drawer and her environment. A small figure may be indicative of the drawer’s feelings of inadequacy or inferiority within her environment. On the other hand, a large figure, as in the case of BN, might be interpreted as the drawer’s response to environmental pressure and demands through expansion and aggression (Levy, 1950).

Fig. 1. Self drawing by anorectic patient (AN), bulimic patient (BN), overweight (OW) and normal weight (NW) woman.
size. One possible explanation for the inconsistency is that the tools used differed from previously used measures. The request to draw one's self-figure encompasses both physical and emotional aspects of the self as the pictorial product provides a concrete object for the projections of the inner sense of the self (Gillespie, 1996). Anorexics respond to their body image disruption by trying to reduce its size. Therefore it could be that although the anorexics perceive themselves as fat, when they are asked to draw themselves they try to reduce their image on the paper, as they do in real life (by fasting), whereas when asked by Holder and Keates (2006) to select an image that reflects their own perception of their actual body size, they choose a fat image (see Fig. 1).

**Overweight characteristics compare to the other groups**

Despite the fact that the overweight participants in this study were not considered as suffering from a psychiatric disorder, nor did they reach a pathological score on the EAT, they scored between the NW and the two study groups (AN & BN) in terms of the following indicators of the self-figure drawing: neck, feet, breast, and body line. In relation to the neck and feet, they resemble both study groups, whereas in relation to the breast they omitted sign of the breast similarly to the AN group. In regard to body line, their line was found to be the weakest of all other groups. The finding might indicate their attempt to pass unnoticed. Indeed, Giovacchini (1984) associated obesity with blurred ego boundaries reflected in a lack of perceptual discrimination and a tendency for the body image to blend in with the environment (Gillespie, 1996).

It should be noted that all the above interpretations can be useful in art therapy with eating disorders in many directions. For example, inner psychic conflicts can be expressed by those who hold more psychodynamic perspective and issues such as verbalization of emotions, intellectual control, relating to boundaries and self-perception of oneself, are all cognitive perspective characteristic that cognitive-behavioral therapists might stress (Matto, 1997).

**Limitations of the study**

Despite the significant findings of the present study, several limitations should be acknowledged. The sample size was relatively small. Yet recruiting clear-cut diagnosis for AN, BN, and OW is difficult. Another limitation lies in the fact that although the women participating in the study did not qualify as having other major psychiatric disorder according to the DSM, it is well known that ED is frequently associated with at least some personality lines or partial aspects of emotional disturbances such as depression, anxiety and panic disorder; any of which can influence the image quality and size. For example, depression and anxiety may interfere with the motor activity of producing a drawing, resulting in smaller or cruder drawing than one would otherwise produce (Lewinsohn, 1964). This might therefore have influenced the results because although the participants were not diagnosed with comorbidity, we cannot be sure that they did not suffer from other symptoms. This limitation holds true also for the control group.

**In conclusion**

The current study examined the possible use of the self-figure drawing as a short, non-intrusive tool to evaluate ED. In contrast to previous studies that reported low reliability of drawing tests (Anastasi, 1988; Klopf and Taulbee, 1976; Roback, 1968; Swensen, 1968), we found that using very strict criteria on specific indicators enhances inter raters’ reliability. This finding suggests that the reliability score reported in previous studies had less or nothing to do with the specific illustrations of the indicators which led to more subjectivity. The current findings also indicated criterion validity presented by a high correlation between the self-figure drawing and the two previously validated psychometric assessments of eating disorders. Thus, it seems that using the self-figure drawing as a tool to assess ED or a tendency to develop an ED would be valuable for practitioners in general and art therapists in particular. It is important to note that art-based assessment instruments are used by many art therapists to determine and to gain a deeper understanding of a client’s presenting and concealed difficulties. To ensure the appropriate use of drawing tests, evaluation of instrument validity and reliability is imperative. In relation to individuals with ED who often strive to conceal symptoms from their personal contacts and their therapists as well as often struggle to verbally express themselves and talk about their problem, validation of art therapy tools is of great importance. It seems that the most effective approach to assessment in this profession incorporates objective measures such as standardized assessment procedures (formalized assessment tools and rating manuals; portfolio evaluation; behavioral checklists) as well as subjective approaches such as the client’s interpretation of his or her artwork.

**Appendix A.**

The initial evaluated group of indicators. In the reported article we present those who reached statistically significant.

**Feet:**

- Missing
- Disconnected

**Neck:**

- Missing
- Double
- Disconnecting

**Upper body disconnected from lower body**

**Thighs:**

- Widening

**Sexual signs:**

- Breast
- Genital

**Body shape outline:**

- Doubled
- Emphasis
- Mouth:
  - Emphasis
  - Missing
  - Doubled

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References


