BODY-IMAGE DISTURBANCE IN THE DAP AND A DIRECT AND INDIRECT MEASURE OF BODY ATTITUDE

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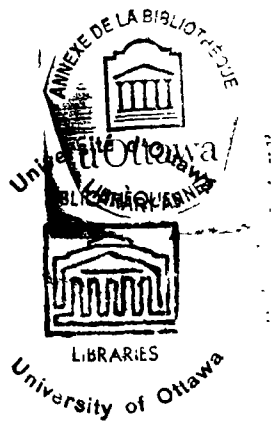

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CURRICULUM STUDIORUM

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INTRODUCTION

In view of the complexity of research into the experimental verification of Machover's body-image hypothesis on the Draw-A-Person test, the present thesis attempts to contribute to its construct validity through a preliminary investigation into the theory and measurement of a subject's direct and indirect attitudes and feelings concerning his body as they may relate to a body-image disturbance measurement of the DAP. The interrelationships found, it is hoped, will provide clues for further studies into Machover's hypothesis through investigations of measured attitudes and feelings related to the body as such, and as distinct from measures of the self-concept.

The first chapter of this study presents a review of the literature which surveys both the early and more recent research which studied the DAP in relation to criterion groups and measures of the self-concept. Then, an examination of the theory and measurement of the relationship between body-image and the self-concept is presented and this is followed by an investigation into direct and indirect measures of body attitude. The chapter ends with a statement of the problem and hypotheses.

The second chapter examines the nature and degree of reliability and validity of the psychometric instruments

employed and describes the actual operations and procedures utilized in testing the hypotheses experimentally.

The third chapter presents an analysis of the data obtained in the study, which includes the statistical degree reliability obtained, the relative influence of sex on the subject on the measures employed and the intercorrelation coefficients of the major hypotheses.

The fourth chapter discusses the significance of the results found including the direction and size of the correlations, the theoretical implications and experimental limitations of the present study.

The last section of this study attempts to offer a brief summary and conclusion of the results of the experiment.

CHAPTER I

REVIEW OF THE LITERATURE

The Draw-A-Person (DAP) technique has been a widely used diagnostic instrument in the clinical setting for many years. Its value and accuracy in interpretation for the experienced clinician is well-known. In attempting to offer guidelines for successful drawing interpretation, Karen Machover proposes the intimate connection between the drawer and his production:

> We repeat the basic assumption, verified repeatedly in clinical experience, that the human figure drawn by an individual who is directed to 'draw a person' relates intimately to the impulses, anxieties, conflicts, and compensations characteristic of that individual. [...] The process of drawing the human figure is for the subject, whether he realizes it or not, a problem not only in graphic skill, but one of projecting himself in all of the body meanings and attitudes that have come to be represented in his body-image.[1]

The validity of Machover's statements regarding the DAP test might be examined in relation to its legitimate investigation in research. Swensen, for example, states that a definitive test of this hypothesis is impossible since the concept of body-image is a construct which is defined by a

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1 Karen Machover, Personality Projection in the Drawing of the Human Figure, Springfield, Ill., Charles C. Thomas, 1949, p. 35.

variety of behavioural and self-regard measures.[2] The problem, therefore, is essentially one of determining its construct validity, and the research which measures the relationships of the DAP performance to other kinds of performances would be legitimate.

A survey of the literature revealed several major trends followed by the researchers who have attempted to investigate the construct validity of Machover's hypothesis regarding the body-image and the DAP test. The research could be listed as follows:

1. The DAP and Criterion Group Comparisons of Body-Image.
2. The DAP and Measures of the Self-Concept.
3. Theory and Measurement of the Relationships Between Body-Image and Self-Concept.
4. Direct and Indirect Measures of Body-Image and the DAP.

A review will be made under each of these categories which will include an assessment of their relative significance towards an investigation of the body-image hypothesis. This will be followed by a Summary and Statement of the Problem of this study.

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2 Clifford H. Swensen, 'Empirical Evaluations of Human Figure Drawings: 1957-1966', Psychological Bulletin, Vol. 70, 1966, p. 23.

1. The DAP and Criterion Group Comparisons of Body-Image.

Immediately following Machover's hypothesis, some authors attempted studies measuring various groups of subjects of different ages, body-types and pathological conditions anticipating significant similarities within groups and differences between other groups in their human figure drawings. Lehner and Silver[3] requested their subjects to assign ages to their DAP's. The authors anticipated a close relationship between the assigned ages of the drawings and the various chronological age groups of the subjects, but found that as the chronological ages increased, the assigned ages of the drawings fluctuated. In addition, subjects over twenty-five, and especially females, tended to assign younger ages to the drawings. In another study, Geidt and Lehner[4] utilized both male college students and neuropsychiatric patients, but even with abnormals, the fluctuation of assigned ages was found. Prater[5] compared the head and body size in drawings made by

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3 G.F.J. Lehner and H. Silver, "Age Relationships on the Draw-A-Person Test", Journal of Personality, Vol. 17, 1948, p. 199-209.

4 F.H. Geidt and G.F.J. Lehner, "Assignment of Ages on the Draw-A-Person Test by Male Psychoneurotic Patients", Journal of Personality, Vol. 19, 1951, p. 440-448.

5 G.F. Prater, "A Comparison of the Head and Body Size in the Drawing of the Human Figure by Hemiplegic and Non-Hemiplegic Persons", unpublished Master's thesis, University of Kentucky, as cited in Clifford H. Swensen, "Empirical Evaluations of Human Figure Drawings", Psychological Bulletin, Vol. 5, 1957, p. 437.

hemiplegic and non-hemiplegic subjects and found no significant differences in size or sidedness of the various drawings of head, limbs or body. Kotkov and Goodman[6] expected to find differences in the drawings of obese women as compared to women of ideal weight but significant differences were only partially accounted for. (Out of 129 chi-squares only seven were significant at the .05 level.) Berman and Laffal[7] had judges rate the body-types of the drawer and his human figure drawing, and although there was some support statistically (r = .35 at .05 level), only eighteen of their thirty-nine subjects drew the same body-type as their own body. Schmidt and McGowan[8] found that both skilled and unskilled judges successfully distinguished the figure drawings of physically disabled persons from the drawings of physically normal persons but there was no mention of the method of scoring which was used. Silverstein and Robinson[9] reported no

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6 B. Kotkov and M. Goodman, "The Draw-A-Person Tests of Obese Women", Journal of Clinical Psychology, Vol. 9, 1953, p. 362-364.

7 S. Berman and J. Laffal, "Body Type and Figure Drawing", Journal of Clinical Psychology, Vol. 10, 1954, p. 120-125.

8 L. Schmidt and J. McGowan, "The Differentiation of Human Figure Drawings", Journal of Consulting Psychology, Vol. 23, 1959, p. 129-133.

9 A. Silverstein and H. Robinson, "The Representation of Orthopedic Disability in Children's Figure Drawings", Journal of Consulting Psychology, Vol. 20, 1956, p. 333-341.

significant differences in figure drawings by orthopedically disabled subjects and controls with judges using both a sign and global approach. Several studies which did find that judges could distinguish figure drawings by physically disabled subjects and normal subjects failed to account for important effects of the physical handicap on the graphic movements involved in the figure drawings.[10] Burton and Sjoberg only found trends in their attempt to distinguish the figure drawings of schizophrenic and non-schizophrenic subjects using a scale which measured the degree of body primitization and differentiation in drawings.[11]

After a critical review of the literature up to 1957, Swensen stated:

> The results suggest that for many, or perhaps most subjects, the figure drawn does not represent the subject's own body. [...] the most outstanding conclusion that can be drawn is that definitive research on the basic meaning or significance of the human figure drawing is lacking.[12]

According to Swensen, very few studies up to 1957 had any bearing at all on the question of whether or not the human

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10 Howard B. Roback, "Human Figure Drawings: Their Utility in the Clinical Psychologist's Armentarium for Personality Assessment", Psychological Bulletin, Vol. 70, 1968, p. 1-19.

11 A. Burton and B. Sjoberg, "The Diagnostic Validity of Human Figure Drawings in Schizophrenia", Journal of Psychology, Vol. 57, 1964, p. 3-18.

12 Clifford H. Swensen, "Empirical Evaluations of Human Figure Drawings", Psychological Bulletin, Vol. 5, 1957, p. 437.

figure drawings do in fact represent the drawer's perception of himself.[13] The investigations of Machover's body-image hypothesis and the DAP by comparing various groups of subjects on the inferences made about their body-images have contributed little experimental support. Roback concluded after a survey of the literature that the investigations of the relationship between figure drawings and body-image were still unclear and inconsistent.[14]

2. The DAP and Measures of the Self-Concept.

Swensen concluded after his 1968 review that: "[...] the results of the last 10 years' research provides more evidence in support of the body-image hypothesis than the previous 10 years had produced."[15] Most of the recent research which gives more uniform support for the DAP, has in fact concerned itself with the subject's attitude and feelings about his self-concept.

Levy[16] assumed that figure drawings represented in many respects projections of the self-concept which are a person's attitudes toward life and society in general.

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13 Ibid., p. 435.

14 Roback, Op. Cit., p. 3.

15 Swensen, Op. Cit., 1968, p. 25.

16 Sidney Levy, "Figure Drawing as a Projective Technique", in L.E. Apt and L. Bellock, (eds.), Projective Psychology, New York, Knopf, 1950, p. 257-297.

Bodwin and Bruck,[17] for example, attempted a validation study of the DAP as one measure of the self-concept by constructing a scale consisting of some general elements of a person's feelings and attitudes about himself as seen in his drawings. This scale correlated highly with the judges' ratings of the self-concept of the drawer (at the .01 level of confidence). Kamano,[18] utilizing the semantic differential, found semantic similarity between the subject's rating of his figure drawing and the rating of his actual self, as compared to ratings of his ideal and least-liked self. Craddick[19] found significant similarities between the self-image as measured by the self-portrait technique and the DAP technique. Smith and Lebo[20] found that pre- and post-pubescent males differed significantly in the desired directions on a 52-item measure of self-projection in the DAP which was derived from a survey of the literature on the self-concept and the DAP. Bennett[21] found

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17 Raymond Bodwin and Max Bruck, "The Adaptation and Validation of the DAP Test as a Measure of Self-Concept", Journal of Clinical Psychology, Vol. 16, 1960, p. 427-429.

18 Dennis K. Kamano, "An Investigation on the Meaning of Human Figure Drawings", Journal of Clinical Psychology, Vol. 16, 1960, p. 429-430.

19 Ray A. Craddick, "The Self-Image in the Draw-A-Person Test and Self-Portrait Drawing", Journal of Projective Techniques and Personality Assessment, Vol. 27, 1965, p. 88-91.

20 Walter D. Smith and Dell Lebo, "Some Changing Aspects of the Self-Concept of Pubescent Males", Journal of Genetic Psychology, Vol. 88, 1956, p. 61-75.

21 Virginia D.C. Bennett, "Combination of Figure Drawing Characteristics Related to the Drawer's Self-Concept", Journal of Projective Techniques, Vol. 30, 1966, p. 192-196.

significant relationships between the Q-sort measure of self-concept and twenty-seven graphic personality traits on the DAP among sixth-graders (F score significant at .01 level).

3. Theory and Measurement of the Relationship between Body-Image and Self-Concept.

Studies on the subject's attitudes towards his self-concept and its relationship with the DAP test should not necessarily obscure the search for construct validity of the body-image hypothesis of this drawing test. Indeed, Machover states in her book: "Most drawings contain elements of self-evaluation in both direct and compensated forms of projection and of both conscious and unconscious phases of self-evaluation."[22] Some writers (such as Swensen and Roback in their reviews) have failed to make a distinction between the body-image and the self-concept as it applies to the construct validity of the body-image hypothesis and the DAP. A presentation is needed of theoretical positions and research which have attempted to distinguish and describe the connection between the body-image and self-concept and have utilized measures of the subject's evaluation of these two concepts.

Fisher and Cleveland describe the self-concept as including the whole range of complicated attitudes which an individual has about his identity, life role and

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22 Machover, Op. Cit., p. 9.

appearance.[23] They consider the body-image as one aspect or psychological experience of the broader concept of self,[24] and refer to it as the "[...] individual's feelings and attitudes towards his own body."[25] This definition theoretically establishes a close connection between the body-image and the self-concept; and has led this study to anticipate that the assessment of body attitudes might contribute to construct validity of the DAP, just as measurements of self attitudes have shown in the literature. Fisher and Cleveland's definition of body-image will be followed in this study.

Few experiments have been found in the literature which have attempted to evaluate this connection between the body image and the self-concept by reporting the subject's attitudes and feelings. Secord and Jourard[26] found a significant positive correlation between measures of the subject's bodily satisfaction and his self-satisfaction ($r = .50$ for males and $r = .66$ for females, both significant at the .01 level of confidence). Almost similar correlations are

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23 Seymour Fisher and Sidney E. Cleveland, Body-Image and Personality, New Jersey, D. vanNostrand, 1958, p. 111.

24 Ibid.

25 Ibid., p. 7.

26 Paul F. Secord and Sidney M. Jourard, "The Appraisal of Body-Cathexis: Body-Cathexis and the Self", Journal of Consulting Psychology, Vol. 17, 1953, p. 343-347.

reported by Johnson[27] utilizing the same measures (r = .66 for males and r = .79 for females). A briefly reported but pertinent study by Rosen and Ross[28] also found significant relationships between Secord and Jourard's measures of bodily satisfaction and self-satisfaction among eighty-two students; in addition, the ratings of the most important body parts commensurated with their ratings of the most important descriptions about themselves. These studies also suggest that subjects' attitudes towards their body and self are rated in the same direction.

4. Direct and Indirect Measures of Body-Image and the DAP.

Ruth Wylie[29] reviewed the current research in the area of self psychology and classified measures as "phenomenological" or "non-phenomenological" depending on whether reports of direct, conscious attitudes and feelings of the subjects or indirect, unconscious attitudes of the subjects were made. Secord and Jourard found that their direct and

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27 L.C. Johnson, "Body Cathexis as a Factor in Somatic Complaints", Journal of Consulting Psychology, Vol. 20, 1956, p. 145-149.

28 Gerald M. Rosen and Allan O. Ross, "Relationships of Body-Image to Self-Concept", Journal of Clinical Psychology, Vol. 32, 1968, p. 100.

29 Ruth C. Wylie, The Self-Concept: A Critical Survey of Pertinent Research Literature, Lincoln, University of Nebraska Press, 1961, xiii-370 p.

indirect measures of body attitude significantly covaried ($r = -.42$) for both sexes,[30] while Secord found a significant inverse relationship with females only ($r = -.42$).[31] Only one study investigated the application of a direct measure of the body-image with human figure drawings. Hunt and Fellman[32] found no significant relationships between subjects' actual ratings of body-satisfaction and judges' ratings for signs of disturbance on their nude figure drawings; but in that study the measures of body-image, the DAP, and the experimental procedure had been radically modified and poorly reported. The authors in that study were essentially interested in subjects' ratings of their adolescent and contemporary body attitude and comparing them to their "nude" figure drawings. Judges were given brief descriptions of the signs of disturbance associated with 'each' body part described in Machover's book. No mention of exactly how the drawings were rated or the statistical analysis of the data was reported, and oddly enough subjects' ratings of their adolescent body attitude from memory and their 'nude" drawings were found to be significantly related.

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30 Secord and Jourard, Op. Cit., p. 343-347.

31 Paul F. Secord, "The Objectification of Word Association Procedures by the Use of Homonyms: A Measure of Body-Cathexis", Journal of Personality, Vol. 21, 1953, p. 479-495.

32 R.G. Hunt and M.J. Fellman, 'Body-Image and Ratings of Adjustment on Human Figure Drawings", Journal of Clinical Psychology, Vol. 16, 1960, p. 35-38.

5. Summary and Hypotheses.

Interest in the validity of Machover's DAP technique as a measure of a person's body-image has led this writer through several major trends in the research. Firstly, studies were reviewed which utilized criterion groups of subjects under the presumption that these groups would demonstrate a measurably distinct body-image; and these studies, according to some writers, contributed unevenly to Machover's body-image hypothesis. Secondly, a review of important research which studied the DAP as a measure of the self-concept through reporting of the subject's attitudes and feelings has provided considerable support for the validity of the DAP as a measure of self-concept. Then Fisher and Cleveland's theory, which considered the body-image as one aspect of the broader self-concept, was examined. Their definition of body-image as a subject's "attitudes and feelings about his body" refers to this limited area of the self-concept. At this point, studies were reviewed on the relationship between the subject's reported attitudes and feelings about the self and reported attitudes and feelings about his body. The correlations found were significant and thus support the claim that a relationship exists between these two concepts, but they were not so high as to preclude the possibility of relative independence between these concepts of body-image and self.

In view of the studies reviewed thus far, Machover's body-image hypothesis regarding the DAP might be investigated through the measurements of a subject's attitudes and feelings about his body. Following Wylie's classification of measured attitudes, it would seem worthwhile in the present investigation to study body-image through both 'direct' and "indirect" measures of the subject's attitudes and feelings. For the purposes of the present study, the Body Cathexis Test[33] has been chosen as a direct measure of body attitude, and the Homonyms Test[34] has been chosen as an indirect measure of body attitude. These instruments will be discussed in detail in the next chapter.

In conclusion, this study proposes that direct measures of body attitude, indirect measures of body attitude and an overall body-image disturbance measurement obtainable on the DAP are interrelated:

1. There is a significant relationship between scores on the Body-Cathexis Test and scores on an overall Body-Image Disturbance measurement obtainable from the DAP.
2. There is a significant relationship between scores on the Homonyms Test and scores on an overall Body-Image Disturbance measurement obtainable from the DAP.
3. There is a significant relationship between scores on the Body-Cathexis Test and scores on the Homonyms Test.

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33 Secord and Jourard, On. Cit., p. 343-347.

34 Secord, On. Cit., p. 479-495.

CHAPTER II

EXPERIMENTAL DESIGN

This chapter will discuss the total design undertaken to experimentally investigate the theoretical hypotheses presented in the preceding chapter. The first section of this chapter presents the hypotheses in their operational form; and this is followed in the second section with a description of the psychometric measurements referred to in the experimental hypotheses and utilized in this study. In the third section the subjects are discussed. The final section of this chapter is devoted to the procedural operations, including the presentation of the test battery, the reliability measure undertaken, and the statistical techniques used to verify the hypotheses.

1. Experimental Hypotheses.

In the preceding chapter, the proposition that direct and indirect measures of body attitude might be associated with an overall body-image disturbance measurement obtainable on the DAP may be stated here in the null form:

A. The correlation between Body-Cathexis Test scores and Body-Image Disturbance scores is not significantly different from zero.

B. The correlation between Homonyms Test scores and Body-Image Disturbance scores is not significantly different from zero.

Also, the theoretical hypothesis that direct and indirect measures of body attitude are related may be stated in the null form as:

C. The correlation between Body-Cathexis Test scores and Homonyms Test scores is not significantly different from zero.

2. The Psychometric Battery.

The instruments comprising the battery which are referred to in the statistical hypotheses are the Body-Cathexis (BC) test, the Homonyms Test (HT) and the Body-Image Disturbance (BID) scale of the DAP; they can be found in Appendices 1, 2 and 4 respectively. A description of each test includes a report on its current construct validity and reliability.

Secord and Jourard define the Body-Cathexis (BC) test as a measure of the degree of feeling of satisfaction (positive cathexis) or dissatisfaction (negative cathexis) with various parts and processes of the body.[1] It has been classified by Wylie as a direct measure of body attitude.[2] It is composed of forty-six items pertaining to body parts

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1 Paul F. Secord and Sidney M. Jourard, 'The Appraisal of Body-Cathexis: Body-Cathexis and the Self', Journal of Consulting Psychology, Vol. 17, 1953, p. 343-347.

2 Ruth C. Wylie, The Self Concept: A Critical Survey of Pertinent Research Literature, Lincoln, University of Nebraska Press, 1961, xiii-370 p.

and processes and a five-point scale where the subject rates his own body on a continuum ranging from feelings of strong dissatisfaction to satisfaction. In constructing the test, items which were difficult to understand, difficult for a subject to assign a meaningful rating to or which resulted in little variability from subject to subject were eliminated provided it did not leave an important part of the body unrepresented. In addition, items pertaining to sexual and excretory organs or functions were eliminated because they might give rise to an evasive attitude which would transfer to other items. A copy of this test can be found in Appendix 1.

The reliability of the BC scale has been investigated in several studies. Secord and Jourard found a split-half reliability coefficient of .dl in a sample of eighty-eight subjects (the reliability for forty-five males was .78 and for females .83). This was determined after thirty-eight subjects were eliminated because they did not measure up to the criterion applied to eliminate response sets.[3] Piccinin showed internal consistency of the same test by reporting odd-even reliability coefficient of .86 from his 140 subjects.[4]

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3 Secord and Jourard, Op. Cit., p. 357.

4 Sergio Piccinin, Assessment of Body-Attitudes of Normal Individuals by Direct and Indirect Measures, Unpublished Master's thesis presented to the School of Psychology and Education, University of Ottawa, 1960, p. 22.

Stability of attitude toward the body over a period of time was investigated by Johnson[5] and Trites.[6] Johnson found a test-retest reliability coefficient of .72 among fifty-two male subjects retested after a six- to eight-week interval.[7] Trites randomly selected thirty males and thirty females out of a sample of 150 college students and obtained a reliability coefficient of .75 for males and .85 for females after a five-week interval.[8] The coefficients of reliability reported for the BC test would appear to be sufficient for experimental purposes.

Validation of the BC scale was initially investigated during its test construction. Secord and Jourard[9] reported that a significant relationship existed between body satisfaction and self-satisfaction (r = .58 for males and .66 for females, both p's = .01), also between low body cathexis and body anxiety as measured by the MT (r = -.40 for females, r = -.37 for males), and between low body cathexis and the

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5 Laverne C. Johnson, "Body Cathexis as a Factor in Somatic Complaints", Journal of Consulting Psychology, Vol. 20, 1956, p. 145-149.

6 Ronald Trites, Perceptual Differentiation of the Field as Related to Differentiation of the Perceived Self, unpublished doctoral thesis presented to the School of Psychology and Education, University of Ottawa, 1965, ix-94 p.

7 Johnson, Op. Cit., p. 145.

8 Trites, Op. Cit., p. 30.

9 Secord and Jourard, Op. Cit., p. 343-347.

Maslow test of insecurity ($r = -.37$, $p > .01$).[10] Females tended to be more satisfied or dissatisfied with their bodies than males.[11,12] From other studies it was found that males with large bodies tended to be more highly satisfied with their bodies.[13] On the other hand, women tended to rate their ideal body size smaller than their actual measurements, except bust which was rated ideally larger than the actual size. Body cathexis was also found to vary with the extent of deviation of measured size to ideal size.[14] Calden *et al.* found that women were generally dissatisfied from their waist down, desiring smallness and petiteness of body parts (except for bust); males were generally dissatisfied from their waist up, desiring bigness. In addition, women were less inclined than men to view the extreme mesomorphic man as attractive.[15] Johnson found that women

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10 *Ibid.*, p. 345.

11 *Ibid.*, p. 346.

12 Paul F. Secord and Sidney M. Jourard, "Body-Cathexis and Personality", *British Journal of Psychology*, Vol. 46, 1955, p. 130-138.

13 ---------, "Body Size and Body Cathexis", *Journal of Consulting Psychology*, Vol. 18, 1954, p. 184.

14 ---------, "Body-Cathexis and the Ideal Female Figure", *Journal of Abnormal and Social Psychology*, Vol. 50, 1955, p. 243-246.

15 George Calden, Richard M. Lundy and Richard J. Schlafer, "Sex Differences in Body Concepts", *Journal of Consulting Psychology*, Vol. 23, 1959, p. 378.

reported a larger number of somatic symptoms than men on the Cornell Index, and that for both sexes, there was significant inverse relationship between body attitude and the number of somatic symptoms reported. In addition, an "anxiety-indicator' score on the BC test (which was defined as the thirteen and fourteen most negatively cathected items for men and women respectively) correlated significantly with the Taylor Manifest Anxiety Test ($r = -.40$ for males, $r = -.53$ for females, $p = >.01$).[16] Rosen and Ross presented their eighty-two subjects with the BC test and an adjective checklist where they rated how important each body part was. They obtained a significant correlation ($r = .62$) for items judged above mean importance.[17]

These studies show evidence that the BC test possesses adequate validity as a measure of the subject's attitude towards the body and other aspects of the self as the authors have intended. Therefore, the writer considers himself justified in using this test as a direct measure of body attitude.

The Homonyms Test (HT) which was classified by Wylie as an indirect measure of body attitude[18] was constructed by

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16 Johnson, Op. Cit., p. 145-149.

17 Gerald M. Rosen and Allan O. Ross, 'Relationships of Body-Image to Self-Concept", Journal of Clinical Psychology, Vol. 32, 1968, p. 100.

18 Wylie, Op. Cit., xiii-370 p.

one of the authors of the BC test.[19] Secord defines it as the "degree of importance or implied concern for the body of the person." Used as a group form of a free-association test, it consists of seventy-five homonyms, each of which has a meaning pertaining to body parts and processes as well as having common non-bodily meanings. These words are interspersed with twenty-five "neutral" or non-body words. The words are presented orally to the subject who is instructed to write down the first word that occurs to him. A score is obtained by totalling the number of bodily as opposed to non-bodily responses. A copy of this test can be found in Appendix 2.

The reliability of the BT has been reported in several studies. Split-half reliabilities were computed on a group of 145 subjects and a group of 179 subjects (r = .81 and an r = .73 respectively). Also equivalent forms were administered to 161 subjects one week apart and an r of .67 was found.[20] Secord and Jourard obtained split-half reliabilities on forty-five males and forty-three females (r = .63 for males and r = .66 for females);[21] these

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19 Paul F. Secord, "The Objectification of word-Association Procedures by the Use of Homonyms: A Measure of Body-Cathexis", Journal of Personality, Vol. 21, 1953, p. 479-495.

20 Ibid., p. 485.

21 Secord and Jourard, "The Appraisal of Body-Cathexis: Body-Cathexis and the Self", p. 345.

reliability coefficients were about .15 lower than the previous study, but they were still considered to be satisfactory according to the authors. While sufficient internal consistency has been demonstrated, there have been no studies reporting the JDT's stability over time by a test-retest analysis of reliability of idential tests.

Validation of the JDT has been investigated essentially by demonstrations of congruency between its scores and the results of widely different approaches. Jourard believed that High scoring individuals of his test could be classified as either narcissistic (i.e., they overvalue and overprotect their bodies because of its great worth) or anxious (i.e., abnormally concerned or fearful of their body parts, processes and appearance). Low scorers were considered to be over-controllers or individuals who attempt to rid themselves of anxious feelings about their bodies by avoidance or self-denial mechanisms. He found that judges predicted at a .002 level of confidence whether individuals were High or Low JDT scorers on the basis of signs on their Rorschach protocols. The Rorschach signs assumed to be characteristic of High scorers were:

a) colour disturbances such as C or CF, unsuccessful colour sublimation in content (Abstract, Emblem), decline in Form-Level, significant anxiety or evasive comments to colour, impoverished content, rejection of colour cards whole or part, etc.;

b) anxiety indicated by content responses such as blood, fire, smoke, anatomy, especially significant when referring to coloured cards; and,

c) sex disturbances indicated by projections and sex symbols.

The signs which were assumed to be characteristic of Low homonym scorers were:

a) constriction such as high F %, brief and qualified responses;

b) underproduction in Cards VIII, IX and X (≤ 33% of total R's) unless accompanied by colour disturbance;

c) lack of reaction to coloured cards but not rejection (i.e., no use is made of the colour in the cards).

Successful predictions were obtained by judges using these signs very significantly above chance; but an analysis of body-content on the Rorschach was not considered a good predictor. In addition, the HT was found to be significantly associated with total scores and body-build items of body-acceptance ($r = -.42$ and $r = -.54$ respectively) suggesting that the theoretical interpretation of the HT is congruent with the degree of body-acceptance.[22] Secord and Jourard also obtained significant relationships between the HT and BC measures for females ($r = -.41$, $p > .01$) and between the HT and Anxiety Indicators on the BC test for both sexes ($r = -.37$, $p > .05$ for males, and $r = -.48$, $p > .01$ for females).[23]

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22 Secord, On. Cit., p. 479-495.

23 Secord and Jourard, "The Appraisal of Body-Cathexis: Body-Cathexis and the Self", p. 345.

These results are in agreement with Jourard's previous studies. One recent study by Hartley[24] extended the MT as a measure of body 'barrier' (applying Fisher and Cleveland's usage of the term) and found significant relationships between judges' ratings of the Holtzman Inkblot technique and the Homonym Barrier Measure ($r = .60$ for males and $r = .56$ for females). In summary, while there has been a limited number of investigations into the validity of the MT reported, the results suggest some uniformity of agreement with other measures of body disturbances, particularly with indirect, apperceptive measures. Because of such results, and in agreement with Wylie's classification, the writer has decided to use this test as an indirect measure of the subject's attitude towards his body.

The Body-Image Disturbance (BID) scale was derived from a list of forty figure-drawing signs empirically constructed by Machover[25] to indicate lack of body-confidence and general difficulty in developing an acceptable body-image. Fisher[26] decided to use only fourteen of these signs to

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24 Ronald B. Hartley, "The Barrier Variable as Measured by Homonyms", Journal of Clinical Psychology, Vol. 23, 1967, p. 196-203.

25 H.A. Witkin, H.B. Lewis, M. Hertzman, K. Machover, P. Bretnall Meissner, and S. Wagner, Personality through Perception, New York, Harper, 1954, xxvi-571 p.

26 Seymour Fisher, "The Body-Reactivity Gradients and Figure Drawing Variables", Journal of Consulting Psychology, Vol. 23, 1959, p. 54-59.

ensure 'simple' and relatively 'objective' judgment of the DAP in the measurement of body-image disturbance. One penalty point for the presence of each of the following signs on the DAP yields a total score for each subject:[27]

1. Erasures.
2. Transparency such that the figure defies the laws of perspective as regards the masking of objects when they are behind others.
3. Lack of any body part.
4. Nose indicated only by two nostril dots.
5. Mouth indicated only by a line.
6. One or more arms behind back.
7. Very crude or peculiar clothing.
8. Lack of breasts in the female figure.
9. Shading of the body.
10. Lack of margins and delimiting lines in the figure (e.g., cuffs, collar, hemline).
11. Figure markedly off balance.
12. Figure very small (less than one-half the length of the page).
13. Markedly unusual shading or elaboration of the crotch area.
14. Opposite sex drawn first.

A copy of this list can also be found in Appendix 4.

Reliabilities of the BIP have been reported in several studies. Strumpfer reports test-retest reliability coefficients

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27 Ibid., p. 57.

ranging from .74 to .84 and interjudge reliability between .79 and .94.[28,29] Judges were mainly doctoral students in clinical psychology or practising clinicians although in one study a college sophomore with no training correlated his ratings .90 with two clinicians.[30] A rate-rerating coefficient of reliability was also done in that study and found to be .90. Phi coefficients of reliability of the fourteen BID signs found between the male and female drawings of 197 subjects ranged between .27 and .51.[31]

The literature reporting the degree of construct validity of the BID scale has been limited. A significant relationship between the overall BID score of a subject's DAP and his relative G.S.R. directionality of response was found by Fisher ($p > .001$),[32] contributing to the expectation that there is a close association between an individual's body-image and his physiological reactivity. A factor

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28 L.J.W. Strumpfer, 'The Relation of Draw-A-Person Test Variables to Age and Chronicity in Psychotic Group', Journal of Clinical Psychology, Vol. 19, 1963, p. 208-211.

29 Deodandus J.W. Strumpfer and Robert C. Nichols, 'A Study of Some Communicable Measures for the Evaluation of Human Figure Drawings', Journal of Projective Techniques, Vol. 26, 1962, p. 342-353.

30 Ibid., p. 347.

31 Robert C. Nichols and Deodandus J.W. Strumpfer, 'A Factor Analysis of Draw-A-Person Test Scores', Journal of Consulting Psychology, Vol. 26, 1962, p. 156-161.

32 Fisher, Op. Cit., p. 58.

analytic study by Nichols and Strümpfer[33] using the BID scale as one of several global and sign measures found a .79 correlation of the BID scale with the major factor later defined as "quality of the drawing." In addition, none of the fourteen signs taken separately had a major loading on an obliquely derived factor of gross adjustment, while several signs, especially those penalizing an absence of parts, lines, margins, and clothing showed fairly high correlations with drawing quality. The conclusions of this study may be criticized on the basis that all of the measures employed in the factor analysis pertain to the same drawings of the subjects. Furthermore, in a later study by Marais and Strümpfer[34] the quality of drawings was experimentally held constant by the Wagner-Schubert Quality Scale and 104 homogeneous subjects were selected. When the upper and lower twenty-five per cent of BID scores were compared, they found that those subjects with a high BID score attributed more disturbance to undisturbed figures on a tachistoscopic test than subjects with a low BID score. In another study, the BID and other measures of the DAP correlated negatively with the degree of chronicity in "functional" psychotics, and showed no significant

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33 Nichols and Strümpfer, "A Factor Analysis of Draw-A-Person Test Scores", p. 156-161.

34 H.C. Marais and I.J.W. Strümpfer, The Draw-A-Person Body-Image Disturbance Scale and 'Quality of Drawing', Perceptual and Motor Skills, Vol. 21, 1966, p. 196.

correlations with age of the drawer, suggesting that ability to draw human figures decreases with duration of hospitalization of psychotic subjects.[35] Seventeen items of the California Psychological Inventory (CPI) which contains a pool of 480 items covering a wide area of self appraisal were found to be significantly related to BID scores, but there was no mention of the precise psychological meanings of these items reported in that study.[36]

It is difficult to draw clear conclusions as to the validity of the BID scale as a measure of body-image disturbance. Some evidence exists favouring this construct, but there is also dissonant evidence and evidence that the BID measures traits other than body-image disturbance, as for example, physiological reactivity. However, because the BID has been constructed as a measure of body-image disturbance, it is felt that further research into its validity should be carried out. For this reason, the present study will investigate its possible relationship with two other measures of body attitude (BC and HT).

In concluding the discussion on the psychometric battery utilized in this study, the writer wishes to note that the BID is a relevant instrument because it has been

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35 Strumpfer, On. Cit., p. 208-211.

36 Strumpfer and Nichols, "A Study of Some Communicable Measures for the Evaluation of Human Figure Drawings", p. 342-353.

constructed by Fisher based on Machover's theorizing and empirical signs concerning the nature and measurement of body-image obtainable from the DAP. In addition, Fisher's theoretical definition of body-image is employed in the present study.

The writer has decided to investigate the validity of the BID scale, and by inference Machover's body-image hypothesis, by correlating it with the BC and MT tests because these measures are classified by Wylie as measures of body-attitude, because their construct validity appears to be adequate for the present purpose, and because they are both co-authored by Secord leading to the expectation that they are intended as direct and indirect measures of the same construct.

3. The Subjects.

A description of the population leading to the final subject selection for this study will include a discussion of the relative influences of sex, educational background and response sets towards the psychological instruments employed.

Previous studies employing the BC test have shown that women tend to be more variable than men in their ratings

of body-attitude.[37,38,39] In addition, it has been found that women have significantly lower mean BC ratings than men (mean BC scores = 3.44 for males and 3.27 for females, p .01).[40]

However, total score difference between the sexes on the BC, HT or BID measures have not been reported in the literature. For this reasnn, the writer has not introduced the control for sex in the design, but will in the analysis and discussion of the data consider the possibility of such differences.

Most of the studies on the BC test and the HT have utilized a sample of college students from introductory psychology classes, which have had a variety of course backgrounds ranging from nursing, biology, to pre-medicine, etc. Secord's study found that familarity or extra experience with homonyms and associated bodily response words did not greatly increase the likelihood of the occurrence of bodily responses on the HT. In his study no significant differences were

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37 Secord and Jourard, "The Appraisal of Body-Cathexis: Body-Cathexis and the Self", p. 345.

38 --------, "Body Cathexis and Personality", p. 130-138.

39 R.G. Hunt and M.S. Fellman, "Body-Image and Ratings of Adjustment on the Human Figure Drawing", Journal of Clinical Psychology, Vol. 16, 1960, p. 100.

40 Johnson, Op. Cit., p. 145-149.

found between such sub-groups as group drama and arts majors, pre-medical students and psychology students, although variability within any one sub-group was significant (statistical computations on this were not reported in that study).[41] Thus, this study will not attempt to control for course background.

A consideration of response sets operating in subject's ratings of the BC test, led to the application of Secord and Jourard's criterion[42] which will be discussed in detail in the next section on experimental procedures. Using this criterion, fifteen response sets were found in 118 BC records, leaving a total number of 104 subjects included for statistical computation.

The final selection of subjects consisted of fifty-one male and fifty-three female students in introductory psychology at St. Patrick's College, Ottawa, Ontario. Ages ranged from eighteen to sixty years, with a median age of twenty-two years.

4. The Experimental Procedure.

The procedural operations in this study will include a presentation of the technique of administration of the

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41 Secord, Op. Cit., p. 489-490.

42 Secord and Jourard, "The Appraisal of Body-Cathexis: Body-Cathexis and the Self", p. 345.

test battery in considering the possibility of response sets, the reliability measures undertaken, and the statistical analysis involved in the verification of the experimental hypotheses.

A brief introduction to the testing was necessary in order to aid in diminishing any general response sets which might operate in the subjects during their performance. Subjects were assured of the anonymity and confidentiality of their productions and were given an assigned number which they wrote on the face of the test material along with their age, sex and educational background. In addition, they were informed that this was not an examination of their academic abilities and were permitted to leave the classroom if they did not wish to participate in the project. (One person requested to leave stating she found the DAP test too difficult for her.) The subjects were urged to consider the serious and independent performance of the tasks. Previous to this introduction, their instructor had informed them simply that they would be participating in a research project.

Research on response patterns has shown that certain response sets might be operating on some subjects who are requested to rate themselves on a five-point scale as presented

in the BC test.[43,44] As a result, Secord and Jourard established an arbitrary criterion for the BC test which has been employed in subsequent studies. Subjects falling into the following classes were eliminated from statistical computations:[45]

a) a frequency ≧ 32 responses to category 4 of the test

b) a frequency ≧ 28 responses to category 5 of the test

c) a frequency ≧ 24 responses to category 5 when accompanied by less than 2 responses to categories 1 or 2 combined.

Rosen and Ross argued against the existence of specific response sets on the BC test; their study found an expected change in ratings of BC items when accompanied by a change in ratings of important body parts.[46]

The test battery was administered in an order arranged according to the ambiguity of the tasks; this was done to aid in diminishing specific response sets to the problem of body-image, particularly in view of the subjects' ratings of body

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43 L.J. Cronbach, "Response Sets and Test Validity", Educational Psychological Measurement, Vol. 6, 1946, p. 475-494.

44 --------, "Further Evidence on Response Sets and Test Design", Educational Psychological Measurement, Vol. 10, 1950, p. 3-31.

45 Secord and Jourard, "The Appraisal of Body-Cathexis: Body-Cathexis and the Self", p. 345.

46 Gerald M. Rosen and Allen O. Ross, "The Relationship of Body-Image and the Self-Concept", Journal of Consulting Psychology, Vol. 32, 1968, p. 100.

attitude demanded in the BC test. Thus, the DAP test, the HT and the BC test were administered in that order. Total performance time took approximately one hour.

The DAP test was modified so that only the first drawing was requested, and subjects were told that "stick" drawings were not permitted. They were instructed simply to "draw a person".

The HT was administered orally by the examiner. A list of one hundred words was read aloud at the rate of one word every five seconds, with instructions to the subjects to respond by writing down the first word that occurred to them. If a response was not forthcoming, the subjects were instructed to leave a blank space on that particular line in their list of responses. Secord's correction formula was applied to account for the number of blank spaces in the computation of the total HT score:[47]

$$H_c = H + B\,[H/(100 - B)]$$

where H_c = the corrected homonym score, H = the original homonym score, and B = the number of blanks.

The HT list of one hundred words can be found in Appendix 2.

The BC test was the final test to be distributed and the instructions as they appear in Appendix 1 were read aloud with the subjects.

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47 Secord, On. Cit., p. 482.

The reliability measures undertaken include an analysis of the amount of variability in both the subjects' productions over a time interval and judges' ratings of the productions.

The test-retest method of reliability was employed on the BK, HT and BID scales. Out of one hundred and four subjects in the sample (51 males and 53 females), fifty-two of the subjects (22 males and 30 females) returned after a three-week interval and were utilized in the statistical computations. Pearson's "r's" of total scores on all three scales were computed.

The degree of objectivity of ratings on the HT and BID scales was considered by correlating the ratings of several judges. Twenty test protocols were selected at random from the original sample and were scored by four judges.

A scoring table of the HT to aid in the judges' assessment of ambiguous bodily and non-bodily responses to each homonym stimulus used was obtained through correspondence with Professor Secord, its author. A copy of this criterion table can be found in Appendix 3. The fourteen BID penalty points used to rate the subjects' drawings can be found in Appendix 4.

The ratings of the four judges were assigned ranks and Spearman's rank order correlations were computed.

Finally, in the verification of the experimental hypotheses one, two, and three, the statistical analysis of this study includes the computation of Pearson's "r" between total scores on BC test, total scores on the BT and the BID scores from the DAP tests for the subjects. As discussed in the section on the psychometric battery, the authors define the total scores on the BC tests as the "degree of feeling of satisfaction or dissatisfaction with body parts and processes', and the total scores on the BT as the 'degree of importance or implied concern for the body" for each subject. The overall BID score includes the total score derived from the DAP of each of fourteen signs indicative of "body-concern and general difficulty in developing an acceptable body-image.'

The data which include the results of the reliability measures and the verification of the hypotheses will be presented in the next chapter.

CHAPTER III

PRESENTATION OF RESULTS

This chapter presents the results of the experiment described in the preceding chapter. The first two sections deal with the reliability data on the psychometric instruments used in this study; both the subjects' test-retest performances and the judges' scoring of their performance will be described. The next section presents the results of the comparison of male and female groups on the psychometric scores. In the final section, the results and a brief description of the correlations computed for the verification of the major hypotheses of this study will be presented.

1. Reliability of the Subjects' Performances.

The reliability of the subjects' performances on the BC, MT and BID scales was determined by the test-retest method at a three-week interval. Fifty-two subjects from the original group of 104 returned for the retesting. Pearson's "r" coefficients of the total scores on each test were computed and all coefficients turned out to be significant at the .001 level. These results can be found in Table 1.

The test-retest reliability coefficient for the BC test was .90 for the fifty-two subjects as seen in Table I. Since this coefficient was derived from a test-retest technique

Table I.-

Test-Retest Reliability Coefficients on the Body-Cathexis (BC) Test, Homonyms Test (HT), and Body-Image Disturbance (BID) Scale of the LAP.

Measures	N	r	Levels of Significance
BC	52	.90	>.001
HT	52	.65	>.001
BID	52	.63	>.001

of the total scores on the BC test, it cannot be directly compared with any other study reported in the literature. The reliability studies on the BC test which were mentioned in the preceding chapter have reported split-half and odd-even reliability coefficients of .81[1] and .86,[2] respectively. Also test-retest reliability coefficients calculated on intratest item means and inter-item variability scores of the BC were found to be .72[3] and .81,[4] respectively. Generally, the results of the present study compare favourably with these studies with an additional explanation. The slightly higher reliability coefficient reported here is partly understood in view of the procedure employed in this experiment. While 104 subjects originally underwent the tests, retesting of the total number was not possible because

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1 Paul F. Secord and Sidney M. Jourard, "The Appraisal of Body-Cathexis: Body-Cathexis and the Self", Journal of Consulting Psychology, Vol. 17, 1953, p. 343-347.

2 Sergio Piccinin, Assessment of Body-Attitude of Normal Individuals by Direct and Indirect Measures, unpublished Master's thesis presented to the School of Psychology and Education, University of Ottawa, 1960, p. 22.

3 Laverne C. Johnson, "Body-Cathexis as a Factor in Somatic Complaints", Journal of Consulting Psychology, Vol. 20, 1956, p. 145-149.

4 Ronald Trites, Perceptual Differentiation of the Field as Related to Differentiation of the Perceived Self, unpublished doctoral thesis presented to the School of Psychology and Education, University of Ottawa, 1956, ix-94 p.

only fifty-two subjects returned. Random selection from the returning subjects was sacrificed to include the largest number possible for statistical analysis.

The test-retest reliability coefficient derived from total scores on the DAT was found to be .65 as seen in Table I. The literature as mentioned in the previous chapter, has reported sufficient internal consistency of this test with split-half coefficients of .61 and .73[5] in two early studies, and .63 for males and .66 for females in a later study.[6] In addition, when equivalent forms of the DAT were administered one week apart, a reliability coefficient of .67 was reported.[7] The present study compares favourably with these studies, particularly with the study employing a test-retest procedure.

In the literature, test-retest reliability coefficients on the BIP ranged from .74 to .84, although very little information on the interval of time between testing and mode of selection of subjects was reported.[8] The present study

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5 Paul F. Secord, "The Objectification of Word-Association Procedures by the Use of Homonyms: A Measure of Body-Cathexis", Journal of Personality, Vol. 21, 1953, p. 485.

6 Secord and Jourard, Op. Cit., p. 345.

7 Secord, Op. Cit., p. 405.

8 D.J.W. Strumpfer, "The Relation of Draw-A-Person Test Variables to Age and Chronicity in Psychotic Groups", Journal of Clinical Psychology, Vol. 19, 1963, p. 208-211.

found a test-retest reliability coefficient of .63 as seen in Table I. This coefficient was slightly lower than those reported in other studies but still found to be significant beyond the .001 level. Part of the variation in BID test-retest scores may be due to the slight variations in the judges' ratings in addition to fluctuations in the subjects' drawings.

Overall, the test-retest reliability coefficients found compare favourably with the literature on the BG, HT and BID scales, and present this study with sufficient indices of stability in measurement.

2. Reliability of the Judges' Scores.

Measures of the degree of objectivity in the scoring of the HT and BID scales were obtained by Spearman rank order correlations of the scores of four judges on twenty randomly selected protocols in this study. The judges were all graduate students in clinical psychology at the Ph.D. level, who followed the straightforward methods of scoring outlined in the experimental procedure and appearing in Appendices 3 and 4. Inter-scorer reliability coefficients were calculated for both the HT and BID scales. The twelve interrelationships among the judges are presented in Table II. All twelve rho coefficients were found to be significant at the one per cent

Table II.-

Interjudge Reliability Coefficients of Ranked Scores on the Homonyms Test (HT) and Body-Image Disturbance (BID) Scale of the DAP.

Scales	Judges[a]					
	A x B	A x C	A x D	B x C	B x D	C x D
HT	.78[b]	.73	.91	.88	.76	.76
BID	.86	.78	.53	.90	.70	.72

a Judge A is writer; judges B, C and D are Ph.D. candidates in clinical psychology.

b All rho's are significant beyond the .01 level of confidence.

level of confidence indicating a satisfactory degree of agreement among all of the judges on the two different scales.

The interjudge reliability coefficients of the HT can be compared to one other study reported in the literature. Secord found exceptionally high correlations of .99 in each case, among the independent scores of three judges on forty unselected HT protocols from their sample of 179 subjects.[9] No mention was made of the method of statistical analysis employed in that study. While the same scoring table was utilized in the present study, small variations in scores among these judges were still found. The hypotheses of practice effects, familiarity, and other possible variables operating among the judges in the scoring of the HT cannot be checked at this time.

The interjudge reliability coefficients of the BID scale can be indirectly compared to several studies reported in the literature which were discussed in the preceding chapter. The reliability coefficients among the judges ranged from .79 to .94[10, 11, 12] which compare favourably with

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9 Secord, Op. Cit., p. 406.

10 Strumpfer, Op. Cit., p. 208-211.

11 D.J.W. Strumpfer and Robert C. Nichols, 'A Study of Some Communicable Measures for the Evaluation of Human Figure Drawings', Journal of Projective Techniques, Vol. 26, 1962, p. 342-353.

12 Ibid., p. 347.

the .70 to .90 range of interjudge rho coefficients found in this study.

The comparisons of these interjudge reliability coefficients strongly suggest that an adequate degree of objectivity in the scoring of the BT and BIk scales has been maintained in this study.

3. A Comparison of Sex of the Subjects on the Psychometric Measures.

In this section a comparison of the relative variations in performance of male and female subjects on the measures employed in this study will be presented.

As discussed in the previous chapter, several related studies have reported significant sex differences in mean ratings[13,14,15] and variability of ratings[16] on the BC test while another study has found no sex differences.[17] No studies

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13 Secord and Jourard, "The Appraisal of Body-Cathexis: Body-Cathexis and the Self", p. 345.

14 ---------, "Body-Cathexis and Personality", British Journal of Psychology, Vol. 46, 1955, p. 130-135.

15 R.G. Hunt and M.B. Hellman, "Body-Image and Ratings of Adjustment on the Human Figure Drawing", Journal of Clinical Psychology, Vol. 16, 1960, p. 100.

16 Johnson, Op. Cit., p. 145-149.

17 Trites, Op. Cit., ix-94 p.

reported differences in mean total scores between the sexes on the BC, HT or BID measures used in this study. As seen in Table III, there were no statistically significant sex differences found between the mean total scores on either the BC or HT tests. The ranges and standard deviations were also nearly identical. However, significant sex differences between the mean BID scores for males and females were found at the .001 level. In this study, females obtained significantly higher scores on the body-image disturbance scale of their drawings than the males. In the light of the major hypotheses to be analyzed in the next section and discussed in the following chapter, the sex of the subject appears to be at least one statistically significant factor which has affected the size of the correlations between the BID scores and both BC and HT scores of the subjects in this study.

4. Correlations between BC, BID and HT Tests.

In this section, the three major null hypotheses stated in the preceding chapter will be repeated and the statistical results will be presented following each null hypothesis.

The first hypothesis in this study stated that the correlation between Body Cathexis (BC) test scores and Body-Image Disturbance (BID) scores was not significantly different from zero.

Table III.-

Means, Standard Deviations and Ranges of Total Scores on the Body-Cathexis (BC), Hononyms Test (HT) and Body-Image Disturbance (BID), Measures for Males and Females

Measures	N	Range	Total Scores Means	S.D.	Critical Ratio of Means
BC Test					
Males	51	122 - 196	155.90	16.09	.80
Females	53	123 - 193	153.94	15.16	
Total	104	122 - 196	154.80	15.66	
HT Test					
Males	51	15.00 - 30.21	21.53	3.96	1.33
Females	53	15.47 - 29.78	22.21	3.34	
Total	104	15.00 - 30.21	21.88	3.67	
BID Scale					
Males	51	3 - 10	5.00	1.37	3.38***
Females	53	3 - 11	6.66	2.31	
Total	104	3 - 11	6.15	1.74	

*** Difference between the means is significant at the .001 level.

In accordance with the operational definition of the BC test already discussed, a total score on this test was said to indicate the degree of body satisfaction as directly measured from each subject. The total score on the BID scale of the DAP was operationally defined as a measure of body-image disturbance found in the DAP for each subject. Scores on the BC and the BID scales might be expected to vary in the opposite direction of one another; that is, the higher the bodily satisfaction scores of the subjects, the lower the subjects' scores on the body-image disturbance scale of their drawings. This will be elaborated upon in the next chapter. Pearson's correlation coefficients were calculated on the total scores of 10⁴ subjects and can be found in Table IV. A correlation in the expected direction of -.52 was found to be significant beyond the .001 level. The results indicate that the null hypothesis must be rejected.

The second hypothesis stated that the correlation between Homonym Test (HT) scores and Body-Image Disturbance (BID) scores is not significantly different from zero. A total score on the HT was operationally defined as an indirect measure of the degree of bodily importance or concern of each subject. Scores on the HT and BID scales might be expected to vary in the same direction; that is, the greater the importance or implied concern for the body,

Table IV.-

Correlation Coefficients Between the Body-Cathexis (BC), Homonyms Test (HT) and Body-Image Disturbance (BID) Measures for Total, Male and Female Subjects.

Subjects	N	Correlation of Measures		
		BC x BID	HT x BID	BC x HT
Total	104	-.52***	.32***	-.52***
Males	51	-.62***	.35**	-.48***
Females	53	-.35**	.29*	-.41**

*** Significant beyond the .001 level.
** " " .01 level.
* " " .05 level.

the greater the scores on the body-image disturbance scale of the drawings. The size of the correlation might depend on several factors which will be discussed in the next chapter.

Pearson's correlation coefficients were calculated on the total scores of 104 subjects and can be found in Table IV. A correlation in the expected direction of .32 was found to be significant beyond the .001 level. The results indicate that the null hypothesis must be rejected.

The final hypothesis of this study stated that the correlation between Body-Cathexis (BC) test scores and Homonyms Test (HT) scores is not significantly different from zero. Scores on the BC and HT were said to measure both direct and indirect degrees of body attitude, respectively.[18] In addition, these measures might be expected to vary in the opposite direction of one another; that is, the higher the degree of body satisfaction, the lower the scores on the HT. The Pearson correlation coefficients which were calculated on the total scores of 104 subjects can be found in Table IV. A correlation in the expected direction of -.52 was found to be significant beyond the .001 level. The results indicate that the null hypothesis must be

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18 Ruth C. Wylie, The Self-Concept: A Critical Survey of Pertinent Research Literature, Lincoln, University of Nebraska Press, 1961, xiii-370 p.

rejected. This correlation coefficient compares favourably with the correlation coefficient range of -.37 to -.54 between BC and MT tests found in other studies.[19,20]

The chapter has contained an analysis and description of the reliability data, sex comparisons, and intercorrelations of the psychometric measures employed in this study for the verification of the major hypotheses. The next chapter will present an interpretive discussion of this data.

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19 Secord, On. Cit., p. 479-495.

20 Secord and Jourard, "The Appraisal of Body-Cathexis: Body Cathexis and the Self", p. 343-347.

CHAPTER IV

DISCUSSION OF RESULTS

This chapter will present a discussion of the results outlined in the previous chapter. The first two sections will attempt to offer explanations related to the direction, the size and quality of the correlations obtained for the verification of the major hypotheses. The third section will discuss the theoretical implications of the major hypotheses in the present study. The final section will discuss some of the limitations of the present study.

1. The Direction of the Correlations.

The statistical results of this study permitted the rejection of the null hypotheses of no relationship between a direct measure of body attitude and an overall body-image disturbance measurement on the DAP. Also, the hypothesis of no relationship between an indirect measure of body attitude and an overall body-image disturbance measurement on the DAP was rejected. The directions of the relationships found deserve some discussion.

In accordance with the operational definitions of the measures employed, a negative correlation between the degree of bodily satisfaction (BC) and body-image disturbance (BID) was expected and found. Satisfaction and positive attitude

towards the body, its parts and processes as directly rated by subjects would be associated with low ratings of body-image disturbance in the drawings. On the other hand, the degree of bodily importance or implied concern (HT) was positively correlated with body-image disturbance (BID), in the same way that strong bodily concern would be associated with high ratings of body-image disturbance in the drawings. This latter point must be slightly qualified, however, in that the measure of importance or implied concern for the body (HT) is said to reflect both narcissistic and anxious body attitudes in high scoring subjects with the narcissistic subjects being in the minority.[1] The directions of the correlations obtained in this study are reasonably consistent with the writer's expectations as already outlined.

The final null hypothesis which permitted rejection in this study stated that no relationship existed between direct and indirect measures of body attitude. In accordance with the operational definitions of the measures and the literature,[2,3] a negative correlation between a subject's

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1 Paul F. Secord, "The Objectification of Word-Association Procedures by the Use of Homonyms: A Measure of Body-Cathexis", Journal of Personality, Vol. 21, 1953, p. 479-495.

2 Paul F. Secord and Sidney M. Jourard, "The Appraisal of Body-Cathexis: Body-Cathexis and the Self", Journal of Consulting Psychology, Vol. 17, 1953, p. 343-347.

3 Secord, On. Cit., p. 479-495.

ratings of the degree of body satisfaction (BC) and measurements of the degree of implied body importance or concern (BT) were expected and found. Furthermore, the direction of this relationship appears consistent with Secord's contention that high scoring BT subjects approaching a narcissistic body attitude are in the minority in a college population as compared to those subjects approaching overvaluation of the body because of an anxious adjustment to felt inadequacy.[4] Otherwise, one might expect that the majority of high bodily satisfaction scores (BC) would be associated with a majority of scores reflecting overvaluation of the body through a narcissistic adjustment of subjects rather than through an anxious adjustment which was not found in this study.

2. The Size of the Correlations.

Body-image disturbance in the drawings (BID), the degree of bodily satisfaction (BC) and the degree of implied body concern (BT) should be discussed with reference to the size of the correlations obtained in this study. Both obtained and theoretical influences of the experimental design in this study will be discussed.

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[4] Ibid.

The relative reliability coefficients obtained from the psychometric instruments employed in this study, particularly the lower coefficients obtained on the HT ($r = .65$) and BID ($r = .63$) as compared to the BC test ($r = .90$) should account for smaller intercorrelation coefficients of the three measures in the present study.

In addition, drawing ability and drawing quality seem to be possible sources of variance in drawing interpretation according to two reviewers.[5,6] These variables were not experimentally controlled in the present study and might have accordingly affected the size of the correlations with the BID.

Sex of the subject has been found to be one statistically significant factor contributing to the size of the correlations with the BID in the present study. It will be remembered that the female subjects obtained significantly higher scores on the BID than the males in this study, while no such differences had been reported in the literature. Even though sex differences were not observed in the results of the BC and HT measures, the sex differences found on the

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5 Howard B. Roback, "Human Figure Drawings: Their Utility in the Clinical Psychologist's Armentarium for Personality Assessment", Psychological Bulletin, Vol. 70, 1968, p. 1-19.

6 Clifford H. Swensen, "Empirical Evaluations of Human Figure Drawings: 1957-1966", Psychological Bulletin, Vol. 70, 1968, p. 23.

BID have actually lowered the size of the correlations of the BID with the other measures for the total subjects, and more so for the female subjects in this study (see Table IV). One possible explanation of these results might be that the females as compared to the males in this study tended to show more measurable body-image disturbance in their drawings which were unrelated to measures of their direct or indirect body attitudes of satisfaction or concern. What these sex-linked body-image disturbances actually might relate to is open to further analysis which the literature or research design has not provided.

Similarly, a comparison of the obtained score distributions of the three measures employed reveals a slight negative skewedness of the BID curve, while the other two distributions remained relatively symmetrical about their respective central values. The mode, median, and mean values of the BC and HT scores all varied less than one-half of one score unit from each other; while the mean of the BID scores varied slightly more than one score unit from its mode. Thus, the slight negative skewedness found in the obtained BID score distribution has probably contributed to a very slight lowering in the size of the correlations of the other two measures with it.

However, in spite of possible lowerings in the correlations through the obtained limited reliability of

the instruments, through drawing quality as a possible contaminant and through obtained sex differences and respectively skewed score distribution on the BID, the intercorrelations among BC, BT and BID are still statistically significant.

Interesting theoretical explanations and post hoc hypotheses related to the sizes of the three obtained intercorrelation coefficients should also be the subject of some discussion.

A comparison of the sizes of the obtained correlation between both the BC x BID ($r = -.52$) and the BT x BID ($r = .32$) suggests that a relatively stronger relationship might exist between a direct as opposed to indirect measure of body attitude with body-image disturbance as measured in the DAP. Buck[7] and Hammer[8] have presented similar theoretical positions regarding the Person drawing in the H-T-P technique. Buck stated that the Person drawing "lends itself well to direct self-portraiture"[9] meaning the subject gives a more conscious picture of his self-concept in his

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7 John N. Buck, "The H-T-P Technique, A Qualitative and Quantitative Scoring Manual", in Monograph Supplement of Journal of Clinical Psychology, No. 5, 1948, 120 p.

8 Emmanuel F. Hammer, (ed.), The Clinical Application of Projective Drawings, Springfield, Ill., Thomas, 1958, xxii-663 p.

9 Buck, Op. Cit., p. 55.

drawing of the person. Hammer, following Buck's reasoning more explicitly, treats the various levels of interpretation of the H-T-P technique on a conscious-unconscious continuum where the deeper and more forbidden negative feelings of the drawer are reflected in the Tree drawing in the H-T-P sequence rather than the Person drawing.[10] In the light of these theories, one way to interpret the finding in this study is to say that the body-image disturbance (BID) measurement of the DAP is more closely associated with conscious ratings of body attitude (BC) than to presumably unconscious or indirect measures of body attitude. Experimentation on this position, however, has not been conclusive.[11]

The size of the obtained correlation between BC and BT ($r = -.52$) compares favourably with the studies reported in the research.[12,13] As discussed earlier, the high scores on the BT are said to reflect subjects approaching both narcissistic and anxious body attitudes, and since there is a negative correlation with bodily satisfaction (BC) scores, the anxious body attitudes would be in the majority. Consistent with this interpretation, the size of

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10 Hammer, Op. Cit., p. 171.

11 Paul C. Cutterman, H-T-P Drawings, Their Meaning and the Levels Hypothesis, unpublished doctoral thesis, presented to the Faculty of Psychology, University of Ottawa, 1967, ix-165 p.

12 Secord, Op. Cit., p. 479-495.

13 Secord and Jourard, Op. Cit., p. 343-347.

the correlation between MT and BC scores would be adversely affected by the proportion of subjects approaching narcissistic body attitudes. On the other hand, the size of the correlation might also be adversely affected by the proportion of subjects in this study who have both low BC scores and low MT scores. Upon inspection, there were a number of such subjects who rated themselves as dissatisfied with their bodies and who had obtained low bodily concern scores. Since no research has reported information on such cases, it could be hypothesized that while such individuals may rate or consider their body attitude as dissatisfied or unfortunate, by an objective standard, they are not personally anxious or concerned about their bodies.

Similar post hoc hypotheses from the data in this study can be made about the sizes of the intercorrelations. Such theorizing is of limited value, however, without experimental verification and remains the subject of further research.

3. Theoretical Implications of the Results.

This study was mainly intended to present findings pertinent to the construct validity of Machover's body-image hypothesis based on Fisher's assumption that the BIL scale of the DAP serves as a measure of body-image within the content of that hypothesis. Thus, the data which contributes

to the construct validity of the BID in this context, serves at the same time as suggesting evidence of Machover's hypothesis. Part of the difficulty in the past research might have been the lack of precision and continuity between the theory and measurement of body-image as it applied to the DAP. As discussed in the first chapter of this study, much of the early research which contributed irregular support to Machover's hypothesis, failed to consider the importance of the drawer's attitudes and feelings about his body. Many of these studies dealt with group comparisons, evaluations and influences based on the various body-types, pathological conditions, and ages of their subjects. While recent studies measured the subjects' attitudes and feelings, they were essentially concerned with validating certain measures of the self-concept with the DAP. Fisher and Cleveland considered the body-image to be one aspect of the broader self-concept and the research including this study generally support their claim of similarities and divergence in the subject's attitudes and feelings about his self and his body.

In addition, this study had intended to offer some precision to the investigation of the body-image hypothesis and the DAP, by introducing direct and indirect measures of the subject's "body" attitude and feelings. Indeed, as discussed earlier, two reviewers had failed to make this more

precise distinction between body attitude and self attitude in their surveys. Swensen stated:

> [...] all research related, even in a tangential way, to the relationship between the human figure drawings of subjects and their bodies, or their concepts of their bodies, or their self-concept, is applicable to the validity of the body-image hypothesis.[14]

Consistent with the trends in the research and the results of the present study, however, Machover's body-image hypothesis may be interpreted in the more literal form as she has stated:

> The process of drawing the human figure is for the subject, whether he realizes it or not, a problem not only in graphic skill, but one of projecting himself in all of the body meanings and attitudes that have come to be represented in his body-image.[15] (Underlining is ours.)

Direct and indirect measures of the body attitude have shown significant associations with a measure of body-image disturbance from the correlations obtained in the present study. In addition, some indirect inferences have been made about the relative significance of conscious as opposed to unconscious body attitudes and the DAI in the last section.

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[14] Clifford D. Swensen, 'Empirical Evaluations of Human Figure Drawings: 1957-1966', Psychological Bulletin, Vol. 70, 1968, p. 23.

[15] Karen Machover, Personality Projection in the Drawing of the Human Figure, Springfield, Ill., Charles C. Thomas, 1949, p. 35.

In view of the complexity of the research on body-image and the body-image hypothesis of the DAP some degree of consistency in theory and measurement has been maintained. This study has applied the Body-Image Disturbance (BID) scale of the DAP which Fisher derived from Machover's empirical scale construction to indicate a lack of body confidence and general difficulty in developing an acceptable body-image on the DAP.[16] Fisher and Cleveland's operational definition of body-image was also followed in this study.[17] Similarly, the direct and indirect measures of body attitude employed in this study were constructed by Secord[18] along with Jourard.[19] Such attempts at consistency might contribute to more reliability in the research of body-image.

4. Limitations of the Present Study.

The theoretical discussion presented some general formulations concerning the construct validity of Machover's

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16 Seymour Fisher, The Body-Reactivity Gradients and Figure Drawing Variables", Journal of Consulting Psychology, Vol. 23, 1959, p. 54-59.

17 Seymour Fisher and Sidney E. Cleveland, Body-Image and Personality, New Jersey, D. van Nostrand, 1958, p. 111.

18 Secord, Op. Cit., p. 479-495.

19 Secord and Jourard, Op. Cit., p. 343-347.

body-image hypothesis as it related to a direct and indirect measure of body attitudes which should be further qualified.

The present study is considered to be exceedingly narrow in view of the vast amount of literature written on the subject of body-image. Schilder, on the basis of empirical observations of neurological and psychiatric cases, treats the theoretical and pathological implications of the body-image extensively.[20] A person derives his body concept, according to Schilder, from three distinct bases of experience: physiological, libidinal and sociological. The libidinal or emotional basis which reflects the attitudes and feelings about the body, is only partly responsible for the final structure of the body-image concept. It influences and in turn is influenced by the physiological and sociological experience, perceptions and phenomena. Thus, the body-image as conceived by Fisher and Cleveland and operationally followed in this study, does not adequately encompass the width and complexity of this concept. Similarly, the search for construct validity of the body-image in the DAP is exceedingly limited to the measures employed in this study.

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[20] Paul Schilder, The Image and Appearance of the Human Body, New York, John Wiley, 1950, 353 p.

This study has also limited its investigation to a "disturbance" in body-image as measured by the BIS scale. While sufficient experimental evidence has been obtained within this limited framework, further investigations should be carried out into the nature and breadth of the body-image concept.

In addition, two distinct measures of body attitudes and feelings from a college population of subjects within a certain age and education range has been attempted. The comparisons of attitudes and feelings of various bodily groups and pathology as it relates to the more precise meanings of body-image and body-image disturbance in drawings should also be investigated. Similarly, other measures of body attitudes and drawing judgments may shed light on the different levels and kinds of body-images and body-image disturbances seen in the DAP. A series of related, replicated, and original studies are in order before definite experimental conclusions and clinical interpretations can be derived from the body-image hypothesis of the DAP.

SUMMARY AND CONCLUSIONS

The present study was designed primarily to contribute to the investigation of the construct validity of Machover's body-image hypothesis regarding the DAP test. The Body-Image Disturbance (BID) scale was used as a measure of the amount of disturbance in a subject's body concept found on the DAP; and both direct and indirect measures of the subject's body attitudes and feelings were obtained by the use of the Body-Cathexis Test (BC) and the Homonyms Test (HT).

The major null hypotheses to be tested stated that the correlations between both the BC and BID scores and HT and BID scores of college students were not significantly different from zero. A secondary null hypothesis was also tested which stated that the correlation between BC and HT scores was not significantly different from zero.

The experimental procedure included a statistical analysis of the amount of score variability in both the subjects' productions over a time interval and judges' ratings of their productions. Computation and analyses of Pearson's "r" coefficients were derived from the total scores on the BC, HT and BID tests, and the results indicated that the intercorrelation coefficients were in the expected directions and statistically significant ($> .001$ level). The experimental hypotheses were rejected and this study was therefore said to

contribute some support to the construct validity of Machover's body-image hypothesis concerning the DAP.

In addition, this study suggested that at least for experimental verification, investigations of Machover's hypothesis should be focused on measured meanings and attitudes related to the body as such and distinguished from the self-concept.

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Fisher, Seymour and Sidney E. Cleveland, Body-Image and Personality, New Jersey, D. van Nostrand, 1958, xi-369 p.

This book contains theory and research pertaining to the body-image contributing to a personality theory. The authors' definition of body-image as it relates to the self-concept is operationally followed in the present study.

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Nichols, Robert C. and D.J.W. Stumpfer, "A Factor Analysis of Draw-A-Person Test Scores", Journal of Consulting Psychology, Vol. 26, 1962, p. 156-161.

A factor analytic study utilizing various scoring scales of the DAP test. The Body-Image Disturbance scale is analyzed as both a global and sign measure and helps the present study in reporting the nature and degree of construct validity in this scale.

Roback, Howard B., "Human Figure Drawings: Their Utility in the Clinical Psychologist's Armentarium for Personality Assessment", Psychological Bulletin, Vol. 70, 1968, p. 1-19.

This article reviews eighteen years of research findings on the DAP and concludes with the author's opinion concerning the value of the DAP in the clinical psychologist's test battery. The reviewer's assessment of the construct validity of Machover's body-image hypothesis is essential to the present study.

Schilder, Paul, The Image and Appearance of the Human Body, New York, John Wiley, 1950, 353 p.

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The original research into the Homonyms Test as a word-association technique. The tool and norms were followed in the present study.

Secord, Paul F. and Sidney M. Jourard, "The Appraisal of Body-Cathexis: Body-Cathexis and the Self", Journal of Consulting Psychology, Vol. 17, 1953, p. 343-347.

An article containing the original experiments done on the Body-Cathexis and Self-Cathexis test. Some of the tools and norms are followed in the present study.

Swensen, Clifford H., "Empirical Evaluations of Human Figure Drawings: 1957-1966", Psychological Bulletin, Vol. 70, 1968, p. 23.

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Trites, Ronald, Perceptual Differentiation of the Field as Related to Differentiation of the Perceived Self, unpublished doctoral thesis presented to the School of Psychology and Education of the University of Ottawa, 1965, ix-94 p.

An examination of perceptual differentiation as it relates to differentiation of the perceived self and body-image among male and female subjects. Essentially referred to for reliability norms of the BC test.

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A critical survey of research on the self-concept. The author's classification of "direct" and "indirect" measures of the self-concept was followed in the present study.

APPENDIX 1

THE BODY-CATHEXIS (BC) TEST OF BODILY SATISFACTION

APPENDIX 1

THE BODY-CATHEXIS (BC) TEST
OF BODILY SATISFACTION

Number _____

Age _____

Sex _____

Education _____

On the following pages are listed a number of things characteristic of yourself or related to you. You are asked to indicate which things you are satisfied with exactly as they are, which things you worry about and would like to change if it were possible, and which things you have no feelings about one way or the other.

Consider each item listed below and encircle the number which best represents your feelings according to the following scale:

1. Have strong feelings and wishes a change could somehow be made.
2. Don't like but can put up with.
3. Have no particular feelings one way or the other.
4. Am satisfied.
5. Considers myself fortunate.

Hair	1	2	3	4	5
Facial complexion	1	2	3	4	5
Appetite	1	2	3	4	5
Hands	1	2	3	4	5
Distribution of hair over body	1	2	3	4	5

Nose	1	2	3	4	5
Fingers	1	2	3	4	5
Elimination	1	2	3	4	5
Wrists	1	2	3	4	5
Breathing	1	2	3	4	5
Waist	1	2	3	4	5
Energy level	1	2	3	4	5
Back	1	2	3	4	5
Ears	1	2	3	4	5
Chin	1	2	3	4	5
Exercise	1	2	3	4	5
Ankles	1	2	3	4	5
Neck	1	2	3	4	5
Shape of head	1	2	3	4	5
Body build	1	2	3	4	5
Profile	1	2	3	4	5
Height	1	2	3	4	5
Age	1	2	3	4	5
Width of shoulders	1	2	3	4	5
Arms	1	2	3	4	5
Chest	1	2	3	4	5
Eyes	1	2	3	4	5
Digestion	1	2	3	4	5
Hips	1	2	3	4	5
Skin texture	1	2	3	4	5

APPENDIX 1

Lips	1	2	3	4	5
Legs	1	2	3	4	5
Teeth	1	2	3	4	5
Forehead	1	2	3	4	5
Feet	1	2	3	4	5
Sleep	1	2	3	4	5
Voice	1	2	3	4	5
Voice	1	2	3	4	5
Health	1	2	3	4	5
Sex activities	1	2	3	4	5
Knees	1	2	3	4	5
Posture	1	2	3	4	5
Face	1	2	3	4	5
Weight	1	2	3	4	5
Sex (male or female)	1	2	3	4	5
Back view of head	1	2	3	4	5
Trunk	1	2	3	4	5

APPENDIX 2

THE HONCNYN (HT) TEST OF BODILY CONCERN

APPENDIX 2

THE HOMONYM (HT) TEST OF BODILY CONCERN

acid	function	probe	strip
actor*	gag	pump	stump
acute	gall	quack	swell
arch	game*	rain*	sweet*
attack	gas	rash	system
back	glassy	rat*	tablet
bark*	graft	red	tan
bare	index	regular	tape
barn*	lamp*	run	tar*
heat	layer	scarlet	temperature
blotch	light*	scrape	tender
circulate	limb	side	tent*
colon	lining	sing*	tissue
collie*	middle	sling	treat
condition	mole	smart	trench
confine	nail	smear	trunk
contact	nap*	socket	trial*
continue*	navel	soup*	twist
contract	ooze	spotted	vessel
crisis	orchard*	spurt	visit
digit	organ	spread	vote*
enlarged	pair*	stain	vogue*
extract	part	stay*	waist
fiber	patient	still	win*
fish*	prize*	stitch	wrench

* "Neutral" words which are insterted for purposes of disguise and which are not scored.

APPENDIX 3

SCORING TABLE FOR [illegible] TEST

APPENDIX 3

SCORING TABLE FOR HOMONYMS TEST

This table lists the stimulus words and gives examples of body and non-body responses. Neutral words included during administration of the list are not scored and hence are not shown here.

H = homonym response
Non-H = non-homonym response

Stimulus word	H	Non-H
ACID	burn sour	hydrochloric base
ACUTE	appendix headache	obtuse crisis
ARCH	foot support	doorway coy
ATTACK	heart rape	fight
BACK	bone	front
BARE	skin nude	horse animal
BEAT	heart	whip
BLOTCH	blood	ink
CIRCULATE	blood	air
COLON	intestine	comma
CONDITION	ill	poor
CONFINE	sick pregnant	imprison enclose
CONTACT	lens touch	meet find
CONTRACT	pupil muscle	agreement expand
CRISIS	illness fever	emergency severe
DIGIT	finger	number
ENLARGED	heart swollen	photograph group
EXTRACT	medicine liver	take out vanilla
FIBER	nerve	cotton
FUNCTION	biology body	operate math
GAG	choke handerchief	joke
GALL	bladder stones	nerve France
GAS	death poison	car
GLASSY	eyed	smooth
GRAFT	skin	politics

Stimulus word	H	Non-H
INDEX	finger	book
LAYER	skin tissue	cake strata
LIMB	leg	tree
LINING	membrane	suit
MIDDLE	waist	center
MOLE	blemish	hill
NAIL	finger file	hammer head
NAVEL	stomach birth	boat officer
OOZE	blood secrete	mud
ORGAN	sex liver	music mouth
PART(often heard as HEART)	hair beat	auto section
PATIENT	doctor knife	calm dig
PUMP	stomach	water
QUACK	doctor medicine	duck fake
RASH	red strawberry	bold timid
RED	rash blush	blue
REGULAR	laxative period	irregular daily
ROOT	blood stocking	walk race
SCARLET	fever	red
SCRAPE	knee	scratch
SIDE	arm	back
SWING	arm broken	throw shot
SMART	hurt	chic
SOLAR	blood lipstick	dirt soil
SOCKET	eye joint	wrench electric
SPOTTED	fever	leopard
SPURT	blood	gush
SPREAD	disease legs	bed feast
STAIN	blood dress	dark varnish
STIFF	leg limber	rigid limp
STITCH	operation	sew
STRIP	clothes tease	land paper
STUMP	arm	tree
SWELL	bump enlarge grow	fine great expand
SYSTEM	circulate	numbers
TABLET	aspirin	paper

APPENDIX 3

Stimulus word	H	Non-H
TAN	sun beach	brown color
TAPE	adhesive	scotch
TEMPERATURE	fever normal	heat warm
TENDER	sore	kind
TISSUE	healthy	paper
TREAT	illness	Dutch
TRENCH	mouth	dig
TRUNK	body	suitcase
TWIST	wrist torture	torsion turn
VESSEL	blood	boat
VISIT	physician hospital	friends aunt
WAIST	line slender	spoil product
WRENCH	ankle hurt	monkey pull

APPENDIX 4

THE FOURTEEN SIGNS OF THE BODY-IMAGE DISTURBANCE (BID) SCALE

APPENDIX 4

THE FOURTEEN SIGNS OF THE BODY-IMAGE DISTURBANCE (BID) SCALE

One penalty point is counted for each of the following signs found in the DAP.

1. Erasures
2. Transparency such that the figure defies the laws of perspective as regards the masking of objects when they are behind others.
3. Lack of any body part.
4. Nose indicated only by two nostril dots.
5. Mouth indicated only by a line.
6. One or more arms behind back.
7. Very crude or peculiar clothing.
8. Lack of breasts in the female figure.
9. Shading of the body.
10. Lack of margins and delimiting lines in the figure (e.g. cuffs, collar, hemline).
11. Figure markedly off balance.
12. Figure very small (less than one-half the length of the page).
13. Markedly unusual shading or elaboration of the crotch area.
14. Opposite sex drawn first.

APPENDIX 5

ABSTRACT OF

Body-Image Disturbance in the DAP and a Direct and Indirect Measure of Body Attitude

APPENDIX 5

ABSTRACT OF

Body-Image Disturbance in the DAP and a Direct and Indirect Measure of Body Attitude[1]

The present study attempts to contribute to the construct validity of Machover's body-image hypothesis of the DAP through a preliminary investigation into the theory and measurement of a subject's direct and indirect attitudes and feelings concerning his body as they might relate to a body-image disturbance measurement of the DAP. Specifically, the construct validity of the Body-Image Disturbance scale of the DAP as a measure of disturbance in body-image found in drawings is examined, and by inference Machover's body-image hypothesis, by correlating its scores with scores on a direct (Body-Cathexis test) and indirect (Homonyms Test) measure of body attitude. The importance of this topic stems in part from the belief that at least for experimental verification, research into Machover's body-image hypothesis might be focused on measured meanings and attitudes related to the body as such and as distinct from measurements of the self-concept.

The psychometric battery was operationally administered to 104 college students (51 males and 53 females) and the

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1 Robert A. Carom, doctoral thesis presented to the Faculty of Psychology of the University of Ottawa, Ontario, February 1969, vii-78 p.

experimental design included reliability measures of subjects' performances over a three-week interval, judges' ratings, and the statistical techniques used to verify the hypotheses.

The major hypotheses which state that the correlations between body-image disturbance scores found in the DAP and scores on both direct and indirect measures of body attitude were not significantly different from zero, were rejected at the .001 level. This finding contributes some support to this study's main focus. The correlations found were in the anticipated directions, such that low scores on the body-image disturbance scale of the DAP were more generally associated with low scores on the Homonyms Test indicating implied bodily anxiety or concern, and high scores on the Body-Cathexis Test indicating bodily satisfaction. In addition, female subjects in this study obtained significantly higher scores on the body-image disturbance scale of their drawings, than the male subjects, while no significant sex differences were found on the direct and indirect measures of body attitude. Influences of the experimental design on the sizes of the obtained correlations were discussed including the inference that the body-image disturbance measurement of the DAP might be more closely associated with conscious ratings of body attitude than to presumably unconscious, apperceptive measures of body attitude.

A minor hypothesis stating that the correlation between scores on a direct measure and scores on an indirect measure of body attitude was not significantly different from zero, was also rejected at the .001 level. The correlation found was in the expected direction such that high scores on the Body-Cathexis Test indicating bodily satisfaction were generally associated with low scores on the Homonyms Test indicating implied bodily anxiety or concern.