PROJECTED ACTION TENDENCIES ON THE HAND TEST: A MEASURE OF BODY IMAGE

by Barbara Ann Wright

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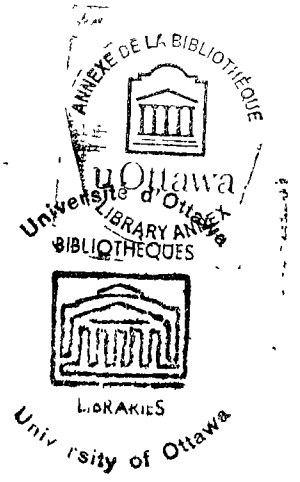

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CURRICULUM STUDIORUM

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INTRODUCTION

As the popularity of the behaviorist and functionalist psychologies declined in the middle twentieth century, attention swung back to the importance of the individual's uniqueness. In time, self perception, the basic stratum of self concept became a major variable in all psychological considerations. Such perception of self includes not only one's conscious attitudes about oneself but also those perceptions of and feelings about one's body which develop in the earliest years and endure throughout life. Since these perceptions and feelings are in large part the result of the socialization process, they are direct manifestations of the child's reactions to this process. This developmentally early part of self concept is referred to as body image. It is never fully conscious and in the normal individual it seeps deeper into the unconscious as one grows and acquires an ever increasing array of external contacts and concerns.

One of the major contributors to body image theory was Paul Schilder whose experimental and clinical investigations provided revolutionary insights into the convergence of neurophysiological and psychosocial functions in the development and maintenance of body image. Among his basic

postulates was the following: action tendencies are direct manifestations of body image and as such reflect the basic stratum of personality.

With reference to this postulate, the present study sought to validate, as a body image measure, a test that purports to measure intrapersonal and interpersonal action tendencies. The study entailed comparing this test with known measures of body image. Also the test has been demonstrated to yield a predictive measure of aggressive behavior through consideration of certain constellations of the projected action tendencies it elicits. Since overt aggressive action tendencies are among those action tendencies that are normally subjected to extensive, early socialization, a secondary interest of the present study was to investigate the quality of those action tendencies that have been found to provide a prognosis of overt aggressiveness. More specifically the study sought to contribute some clarification of the basic dynamics of aggressive acting out; to examine whether it is an underdevelopment of normal controls on aggressive acting out or the presence of a critically high level of covert hostility rendering normal controls inadequate, that subtends a character trait of pronounced aggressiveness. To this end, factor analysed measures of overt and covert hostility were considered in relation to this predictive measure.

To investigate the two general issues cited above, an experimental study using normal adult subjects was undertaken. It is reported according to the following schedule.

The first chapter presents a survey of body-image literature relevant to the study and concludes with an elaboration of the specific hypotheses indicated by the literature reviewed.

The second chapter describes the experimental design employed to test these hypotheses.

The third chapter presents the statistical results and a discussion of them with reference to the design and the theoretical assumptions of the study. Finally, implications of the over all results are considered.

Attention is now turned to the review of the literature.

CHAPTER I

REVIEW OF THE LITERATURE

This survey of Body-image literature and aggression studies was drawn from neurology and psychology. Special attention was given to 'hand studies' considered relevant to the present research project. The review is presented in three parts: selected neurological studies of Body-image, selected psychological studies of Body-image, and selected studies of aggression. The chapter concludes with the development and statement of the hypotheses that arose from this survey.

1. Selected Neurological Studies of Body-image

Neurological references to Body-image appear as early as the sixteenth century, and in the eighteenth century, Bonnier[1] explicitly stated the urgent need for Body-image research. In the early twentieth century, the German neurologist, A. Pick[2] proposed that man evolves a 'spatial image of the body'. He defined it as the individual's inner repres-

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1 P. L. Bonnier, "Aschematic", Revue Neurologie, Vol. 54, 1905, p. 605-621, quoted in S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 4.

2.A. Pick, "Storung der Orientierung am eigenen Korper", in Psychologische Forschung, Vol. 1, 1922, p. 303-315, quoted by S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 4.

entation of his body as it appears to him consciously. Pick held that this spatial image arises gradually from the integration of all the individual's past sensory experiences. He also noted that the image restructures itself in accordance with changes in the body structure but that its quality of persistence, such as is present in phantom limb phenomena, makes this restructuring a slow process.

Henry Head[3] modified and expanded Pick's theory in his formulation of a sensorimotor postural model, which is composed of a body schema and postural impressions.

Head defined the body schema as the unit of past and present sensory experiences organized in the sensory cortex to form the picture or model which the individual has of his body. He described it as an integration of discrete schemas which are the units of sensory impressions localized on the body surface. In opposition to Pick, Head contended that the body schema is maintained at a pre-cognitive level and that only in cases of special impressions does it emerge into consciousness. He claimed that the schemas are constantly evolving in accordance with the body's continual flow of sensory impressions.

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3 Henry Head, Studies in Neurology, London, University Press, quoted by Paul Schilder, The Image and Appearance of the Human Body, New York, International Universities Press, 1950, p. 11-17.

Head stated that the sense of location in space is given by postural impressions which arise from the tactile and kinaesthetic sensations. By repeated experiences, these impressions form postural sets or norms for all the body areas and become integrated as the motor model of the body. The discrepancy between the postural norm and the current position of the body constitutes the measured postural change which provides the individual with awareness of his location and with tendencies for appropriate postural movements.

On the basis of his observations of phantom limb cases, which he believed resulted from the endurance of the postural impressions after sensory stimulation has been lost, Head contended that the postural impressions are the most essential aspect of the postural model.

Head did not explain exactly how the postural model comes into existence other than positing an 'internal source' which registers the incoming sensory impulses. And, although he recognized a process of interaction between the postural model and the psychological processes such as judgment, he did not elaborate these. However, his concept of the postural model and interpretation of its significance for the perception of the body functioning in relation to motility, localization, tactile stimuli and the phantom limb phenomenon, constitutes the first comprehensive theory of Body-image.

Paul Schilder[4], in his expansion of Head's postural model concept, has presented, what is to date the most important research in this area.

He defined Body-image as the "tridimensional image everybody has about himself"[5], and he conceptualized the three dimensions involved (biological, neurological and psychological) as interdependent factors in a single unit. He described its functioning as both perceptive and expressive and he elaborated it as follows:

> Shortly after conception, the organism begins to experience tactile, thermal, pain and postural impressions, which are recorded and stored in the sensory cortex. These impressions may arise into consciousness but usually remain in the unconscious, where they form an organizational model of the body.[6]

Schilder accepted much of Head's theory concerning the perceptive aspects of Body-image and he described Head's concept of 'internal source', as the ego: a unit of biological and psychological processes that provides the energy and drive of life[7]. He held that it was the a priori structure of personality and he described its functioning as follows:

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4 Paul Schilder, The Image and Appearance of the Human Body, New York, International Universities Press, 1950.

5 Ibid., p. 11.

6 Ibid., p. 27.

7 Paul Schilder, The Image and Appearance of the Human Body, p. 67.

> The ego always confronts its objects, one of which is the body. In images, thoughts, feelings, percepts, I always intend an object. The ego is the precondition of all intendings of objects.[8]

As such it conforms to Freud's "bodily ego" or libido.[9] However, Schilder rejected Freud's theory that man's ultimate goal is total tension reduction, contending instead that human drives operate on the principle of constructive evolution. He saw man as tending outward to encounter the environment and pointed to Body-image distortions, that result from sensory deprivation, as proof that correct orientation depends on continuous, lively experience with external reality. Consequently, Schilder posited motility as the most essential characteristic in developing body concept. He expressed it this way:

> I can voluntarily move it (the world), it is in a particular way subjected, subordinated to me. But in turn, I cannot escape the pain that comes from my body. I am subjected to it. (...) For a creature who could not move, body and world would be completely identical.[10]

Schilder held that motility must be understood as operating at various levels between the extremes of total,

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8 Paul Schilder, Medical Psychology, New York, International University Press, 1923, p. 299.

9 Sigmund Freud, The Ego and the Id, London, Hogarth Press, 1927, p. 31.

10 Paul Schilder, Medical Psychology, p. 299.

reflexive movement and the quality of action required for complex abstractive thought. He defined the motility level[11] at which an act occurs in terms of the amounts of cortical involvement necessary to derive its action plan. Schilder endorsed Liepman's theory that all but the most biologically dictated action is preceded by an action plan. He summarized it in these words:

> Every action is based on an anticipatory plan. This anticipatory plan has a specific structure. It not only contains the final aim, but also comprises the insight into the single actions which are necessary for the actualization of the plan.[12]

Schilder stressed that the action plan appears only as an intention, an "undeveloped psychic knowledge"[13], coupled with an instinctive insight as to the goal of the intention. He noted that many acts that are volitional appear to be reflexive, and he attributed this appearance to habituation. He gave as an example, emotional expression.

Schilder held that emotion is a social phenomenon: "Emotions and expressions are never present in a solitary person. It is an act in the real or imagined community"[14].

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11 Paul Schilder, Image and Appearance of the Human Body, p. 62.

12 Ibid., p. 50.

13 Ibid., p. 51.

14 Ibid., p. 62.

Thus he considered that emotional expression was modified by all the psychological and sociological influences that impinge on the person and could, therefore, never occur at a purely reflexive level. He explained that the action plan of an emotional expression must be formed at a cortical level commensurate with the social complexities of the stimulus situation. However, by repetition of the same situation or same class of situations, a set pattern of interpretation and response evolves. The action plan then becomes simplified to a mere mobilization of the appropriate response set, with the consequence that response delay is shortened to the point that the expressive movement appears reflexive[15].

Schilder's description of expressive movements as manifestations of Body-image is particularly important for the present study. He explained his concept as follows:

> Every emotion is either connected with expressive movements or at least with impulses towards them. Every emotion therefore changes the body-image. The body contracts when we hate, it becomes firmer, and its outlines towards the world are more strongly marked (...) we expand the body when we feel friendly and loving and the borderlines of the body-image lose their distinct character[16].

Schilder thus theorizes that Body-image as manifested in action tendencies is a reflection of the total personality.

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15 Ibid., p. 62.

16 Ibid., p. 210.

He summarizes it as follows:

> The deepest inner forces of the human mind, unit and part, integration and differentiation, find their immediate expression in the postural model of the body, which is the creation and creator of constructive and destructive tendencies.[17]

The foregoing review of neurological studies has surveyed the evolution of Body-image theory and has elaborated the current Body-image concept which affirms that Body-image, as manifested through action tendencies, is a direct reflection of the personality.

This research project is particularly concerned with the hand and its manifestations of a dimension of Body-image. Consequently, select neurological studies of the hand are included herein.

The work of Joseph Gerstmann,[18] the German neurologist of the 1920's, precipitated a trend of exploration into the importance of the hand in body image. Having observed a case of finger agnosia compounded with difficulties in arithmetical calculation and spontaneous writing, he conjectured that the syndrome was the result of a Body-image disorder. Much speculation and investigation ensued concerning the significance of the hand in Body-image and the possible.

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17 Paul Schilder, Medical Psychology, p. 299.

18 Joseph Gerstmann, "Problem of Imperception of Disease and of Impaired Body Territories with Organic Lesions. Relation to Body Schema and its Disorders", in Archives of Neurology and Psychiatry, Vol. 48, 1942, p. 890-913.

causal and/or historical relationship between finger agnosia and performance of specific skills.

Weber[19] studied the changes that occur in sensitivity after an amputation. He discovered that tactile sensitivity follows a gradient from most keen in the distal areas (particularly in the fingers and toes) to least sensitive in the proximal areas.

Teuber, et. al[20] discovered that after amputation, the gradience reorganizes itself. Haber[21] confirmed this, illustrating that this gradient reorganization invested the remaining stump of the amputated limb with increased sensitivity equivalent to that usually found only in the more distal areas. The author concluded that since this change occurs without any evident change in receptors, a direct and profound relationship between Body Image and tactile sensitivity is

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19 E. H. Weber, "Der Tastsinn und das Gemeingefuhl", in R. Wagner's Handworterbuch der Physiolgie, Vol. 3, Braunschweig, Vieweg, 1846, quoted in S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 11.

20 H. L. Teuber, H. P. Krieger and M. B. Bender, "Reorganization of Sensory Function in Amputation Stumps: Two-Point Discrimination", in Fed., Proc., Vol. 8, 1949, p. 156 quoted in S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 11.

21 W. B. Haber, "Effects of Loss of Limb on Sensory Function", in Journal of Psychology, Vol. 40, 1955, p. 115-123, quoted in S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 11.

indicated, and further, an especially sharp relation between Body Image and hand sensitivity is suggested.

Bender[22], in her double stimulation studies discovered that an individual's reactivity to sensory stimulation indicated definite dominance of body parts. The head was found to be the most dominant, the genitals next and the hands least dominant.

In setting this dominance pattern into a developmental frame of reference, Linn[23] explains the hypersensitivity of the hand as essential for the major task it has of making the world known to the individual. The hand-mouth fusion reveals how poorly the hand is differentiated from the mouth during the early stage of life. The stages immediately subsequent, however, are such that it is essential that the hand function chiefly in the role of efficient helper and protector of other more vulnerable areas of the body. The author concludes that the hand must have acute sensitivity, to accurately aid in identifying the world to the individual

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22 K. B. Bender, M. A. Green and M. Fink, "Patterns of Perceptual Organization and Simultaneous Stimuli", in Archives of Neurology and Psychiatry, Vol. 72, 1954, p. 233-244.

23 L. Linn, "Some Developmental Aspects of the Body Image", in International Journal of Psychoanalysis, Vol. 36, 1955, p. 36-42, quoted by S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 14.

while simultaneously, it must yield dominance to those areas of the body which it will protect. Consequently, there must be a lapse of time in reactivity with the hand following on such areas as the head and genitals in its reactivity to stimulation.

Wittreich and Grace[24] discovered that people tolerate distortion most easily to those aspects of the body about which they are secure. The parts of the body which cause the individual extensive anxiety receive more conscious attention and consequently, distortion of them is systematically rejected and resisted to a point. Thus hands and legs which are taken for granted by most people, distort easily. The authors also discovered that females, probably because of cultural emphasis on physical beauty in women, display more conscious concern with body and thus show greater resistance to distortion than do males.

Brain physiology indicates that tactile sensibility interacts with other sensory functions and that it is also interdependent in cortical representation. Well established evidence of cortical localization, has emphasized the importance of hand activity in development. Wolff has said of this:

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24 W. J. Wittreich, and M. Grace, Body Image Development, Unpublished Progress Report of the Office of Naval Research, p. 17, quoted in S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 38-39.

"It is largely due to the hand's two functions; prehension and touch, that man obtains the capacity of cognition and thought."[25]

Although, as the child develops, gesture is replaced by language as the principal means of expression, gesture remains an accompaniment to words throughout life. In speaking of the expressiveness of hands, Wolff comments as follows:

> As the most mobile and most sensitive and expressive part of the body, it is no wonder that through its functional specificity, as well as through its representation in the brain it reflects every single emotion that the individual experiences. The hand is a seismograph of the emotional reactions.[26]

The above studies have indicated that the hand possesses the highest order of sensitivity and that in the process of maturation, it gradually comes to possess lesser dominance than some other body areas. These phenomena indicate the primary importance of the hand in making the world known to the individual and also the necessity of the hand functioning as chief protector of other more vulnerable aspects of the body. The hand and motor activity of the hand, are chief concerns in both the formation and maintenance of Body-image, and can thus be considered one of the most fruitful and fertile areas in the study of personality.

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25 Charlotte Wolff, The Human Hand, New York, Alfred A. Knopf, 1942, p. 22.

26 Ibid., p. 23.

2. Selected Psychological Studies of Body-image

Body-image is one of the major areas of psychological research. This section cites those studies that have relevance for this study.

One of the researchers who recognized the validity of using representations of the hand to elicit unconscious attitudes about the self, was Werner Wolff.[27] Although his self-confrontation studies were concerned with expressive movement, they yield many direct applications for Body Image. Wolff discovered that if a photograph of an individual's profile or hands was obtained without his knowledge and if this photo was placed with those of other people and shown to the individual, he would not be able to recognize the picture of his own body parts. If asked to describe imaginatively the possible personality traits of the various persons possessing the hands pictured, he was more extreme (usually more favourable) in his description of pictures of his own body parts than those of others. However, if the subject was conscious that the picture was of him, he was controlled and censoring in his judgments, displaying little of his more intense emotional attitudes. Thus Wolff concluded that re-

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27 Werner Wolff, The Expression of Personality, New York, Harper and Brothers, 1943, in S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 29-30.

presentations of the hand constitute a valid measure of the body attitude dimension of self concept and that these attitudes can be obtained more successfully by unconscious rather than conscious eliciting.

Fisher and Cleveland[28] have conducted a series of research projects to investigate the body-boundary perception dimension of Body-image. They defined Body-image this way:

> Body image is a term which refers to the body as a psychological experience, and focuses on the individual's feelings and attitudes towards his own body. It is concerned with the individual's subjective experience with his body and the manner in which he has organized these experiences. The assumption is that as each individual develops he has the difficult task of meaningfully organizing the sensations from his body which is one of the most important and complex phenomena in his total perceptual field. (...) The manner in which the individual accomplishes this difficult task becomes one of the primary dimensions in his overall system of standards for interpreting the world. The body image is literally an image of his own body which the individual has evolved through experience.[29]

They have based their body image theory on the premise that personality development is dependent on the internalizing of attitudes and characteristics of the significant figures in one's early environment. These internalizations

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28 S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, xi - 420 p.

29 Ibid., p. x

become structured to form "functional directive systems".[30]

Fisher and Cleveland established the pre-eminent position of body in this internalization process as follows:

> There are factors growing out of the process which result in the body as an experienced object being psychologically "close" to the collectivity of internalized systems that constitute the "I" or"self" than are objects exterior to the body. This as we shall attempt to explain, results in the individual's perceptions of his body mirroring the characteristics of the internalized systems to a greater degree than do his perceptions of more exterior things.[31]

In justification of their position, the authors cite two facts. First, the child's initial interpersonal experiences are the result of his demands for attention to his bodily sensations and it is his body that initially sustains the response forthcoming from the environment, or the lack of it. Thus the body has primacy of inclusion in the internalization matrix. Secondly, it is the body that delimits the space that becomes established as self as opposed to the rest of space which is non-self. Thus the body wall is established as basic in the differentiation of self. Fisher and Cleveland elaborate their formulation further as follows:

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30 Seymour Fisher and Sidney E. Cleveland, Body Image and Personality, New York, D. Van Nostrand, 1958, p. 349.

31 Ibid., p. 350-351.

> (...) because the body is so uniquely close to and bound up with the internalized object systems, the manner in which it is experienced is to an unusual degree a replication of these systems. (...) The idea that attributes of the internalized systems are readily transformed into modes of body perception is supported too by the unusual frequency with which body-image disturbances accompany neurotic and psychotic symptomatology or develop as a result of ego-involving stress.[32]

Fisher and Cleveland have limited themselves to the investigation of the boundary dimension of body image. They accept the general definition of boundary as a discontinuity between areas or a separation between things that are distinguishable. They also sidestep the many complexities inherent in such a definition (discontinuity may be vague; time, purpose and vantage point of the observer may alter the cite of the boundary) by utilizing as their definition of body boundary, the operational one involved in their experiment. Their definition is based on certain characteristics of ink-blot responses which have been shown to be significantly linked with classes of body experiences and will be elaborated in the report of their investigations.

However, in an attempt to formulate a literary definition of body boundary and having made reference to cases of psychopathology and organicity in which arbitrary and bizarre assignment of body boundary occurs, Fisher and Cleveland say

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32 S. Fisher and S. E. Cleveland, Ibid., p. 352-353.

that "It is likely that the body wall is a primary reference point that serves to keep the boundary within certain limits".[33] They also accent the fact that for the young child, whose most meaningful experiences center around the mouth and stomach, the body boundary would tend to encompass an area interior to the body surface. As the child develops, his perception of his body boundary approaches the body surface. The authors hold that this experience occurs at a differential rate for the various body areas and that this rate differs from person to person. However, they contend that with adulthood, this boundary "reaches its maximum of regular contour at a locus identified with the body wall".[34] And in focusing on the quality of the perception of one's body boundary, the authors have this to say:

> Degree of boundary definiteness of the (organized interior systems) may be equated with the degree to which the relationship between the self and the prototype for the internalization helped to make the world look meaningful and capable of being dealt with effectively. It is hypothesized that the boundaries one ascribes to one's body reflect the predominance of either poorly or well-bound internalizations.[35]

From their observations and psychological testing of rheumatoid arthritic men, the authors observed that such a

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33 S. Fisher and S. E. Cleveland, Ibid., p. 348.

34 Ibid., p. 348.

35 Ibid., p. 354.

patient has a need to see his body boundary as tough, resilient and enclosing. Content analysis of their Rorschach protocols yielded a sharp dichotomy in the boundary perceptions they assigned to images; an accumulation of images whose boundaries were perceived as definite, tightly structured, firm, resistive and impenetrable; and a minimum number whose boundaries were perceived as indefinite, loosely structured, weak, yielding and penetrable.

Since arthritics are known to be particularly concerned with inhibiting anger, the authors considered that the muscle stiffness of the arthritic might be a function of his personality dynamics; his need to inhibit unacceptable hostile impulses and a need to make the body exterior tough and resistent. They generalized this consideration to the possibility that for any individual, perception of his boundaries might be a function of his body concept and that such perceptions might dichotomize into an emphasis on boundary definiteness and firmness versus boundary perceived as vague and penetrable.

To investigate these possibilities, the authors devised a unique Rorschach scoring system, which would allow for a consistent check of various Body-image hypothese. They grouped the Rorschach responses of their arthritics into two large qualitative categories. The first contained responses referring to precepts in which definiteness of structure,

substance, surface qualities and encasing qualities were assigned to the bounding periphery of the ink-blot image, i.e., man in suit of armour; log covered with moss; mine shaft. They referred to such precepts as 'Barrier responses'. The second major category was composed of these precepts in which emphasis was given to boundary weakness, fragility, penetrability and lack of internal substance, i.e., bottomless abyss, person bleeding, body cut open, X-ray picture. Such precepts were termed 'Penetration of Boundary responses'.

Using the above mentioned categories as criteria classifications, the authors devised a scoring system. Each Barrier response was given a one point score and the total of such responses in a protocol constituted the Barrier score. The Penetration of Boundary score was assessed in like manner.

In establishing the reliability of their scoring system, the authors found that the average interscorer reliability[36] of five independent scorers, using the protocols of the original group of arthritics was .92 for the Barrier responses and .91 for Penetration of Boundary responses. Although variance in ability to learn the scoring system is

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36 S. Fisher and S. E. Cleveland, Body Image and Personality, p. 64.

evident from the range of interscorer correlations, (.82 - .97) for the Barrier score and (.83 - .99) for the Penetration of Boundary score, the authors found that careful training and good motivation made possible interscorer correlations in the .90's.

Since both scoring categories were found to correlate significantly with the Rorschach response total, Westrope[37] arbitrarily limited protocols to twenty-five responses, by selecting the first 3 responses of cards one through five, and the first 2 responses of the last five cards. Using this method no Barrier score was based on a total larger than twenty-five responses. Five records had 19 responses and eight were in the range of 20 - 23. Thus the controlled Barrier scores for the group were derived from response totals clustered in the range 20 - 25. Westrope reports that when response total is controlled subjects with high Barrier scores do not significantly exceed subjects with low Barrier scores, in response total[c]. Checking the influence of verbal productivity, intelligence and Beck's Rorschach determinents, var-

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37 M. R. Westrope, "Relations Among Rorschach Indicies, Manifest Anxiety, and Performance Under Stress", in Journal of Abnormal and Social Psychology, Vol. 48, 1953, p. 515-524, quoted by S. Fisher and S. E. Cleveland, Body Image and Personality, p. 66-68.

c Since the present study uses only the Barrier score, Penetration of Boundary details are not reported henceforth.

ious authors[38,39,40,41] found that none of the three exerted a significant influence of the body-boundary scores.

Fisher and Cleveland[42] checked the stability of the scoring norms by administering a group Rorschach (set at twenty-four responses) to three successive groups, totalling two hundred college students, with approximately equal sex representation. Correlating the scores of these three groups, the median Barrier score was found to be consistently four; the mean was 2.1 and the range was 0 - 12. The authors concluded to the stability of the Barrier score in various comparable groups.

They also observed that body-boundary norms established on individually administered Rorschachs (response total

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38 L. Appleby, The Relationship of a Rorschach Barrier Typology to Other Behavioral Measures, Ph.d., Dissertation, University of Houston, 1956, quoted in S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 68-69.

39 R. R. Blake and J. S. Mouton, "Personality Factors Associated with Individual Conduct in a Training Group Situation", in Human Research Training Laboratory Monograph No. 1, Austin, Texas, University of Texas Press, 1956, quoted S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 69.

40 K. Ware, S. Fisher and S. E. Cleveland, "Body Image Boundaries and Adjustment to Poliomyelitis", in Journal of Abnormal and Social Psychology, Vol. 55, 1957, p. 88-93, quoted by S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 70.

41 Westrope, Op. Cit.,

42 S. Fisher and S. E. Cleveland, Op. Cit., p. 70-71.

set at twenty-four responses) were comparable to those established on group administered ones. The authors concluded that if the response total is controlled, there is no significant difference between scores obtained from group or individually administered Rorschachs.

To establish the validity of the body-boundary scores, Fisher and Cleveland formulated two hypotheses: first, that individuals whose psychosomatic symptoms involved body exterior would conceive of their body walls as defensive and protective; second, that those with psychosomatic symptoms involving the body interior would conceive of their body walls as easily penetrable.[43] The authors found the following trends: those individuals whose psychosomatic symptoms involved the body exterior tended to score above the median Barrier score. Those individuals whose psychosomatic symptoms involved the body interior tended to score below the median Barrier score. The findings were the reverse for the Penetration of Boundary scores. These results allowed the authors to make the generalization that some clinical groups form a natural dichotomy in body-boundary scores elicited from their Rorschachs.

To establish the relationships between body-boundary scores and normal behavior, the authors obtained group Rorschachs

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43 Ibid., p. 73-75.

from eighty-three college students, twenty-five women and fifty-eight men.[44] Subjects were asked for a definite number of responses, thus equalising the response total throughout the group. The total consisted of three responses for cards 1, 2, 3, and 8; and two responses for the other six cards. Other tools of the experiment included a Checklist Inventory of body sensations and symptoms that the individual had already experienced. The authors hypothesized that individuals whose body-boundary score was above the median Barrier score, would have experienced more symptoms and sensations of the exterior areas of their bodies (muscles, skin, etc.,) than would subjects falling below the median Barrier score. The reverse results were hypothesized for Penetration of Boundary scores. Findings indicated that the Barrier score confirmed the hypothesis in part, whereas the Penetration score held true only in extreme or abnormal cases. At the time, the authors decided to use only the Barrier scores in subsequent research. Later, however, they were able to establish the function and value of this score.

Since the phantom limb phenomenon is held to be a

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44 Ibid., p. 84-90.

pure form of Body-image distortion, Haber[45,46] sought to investigate the validity of the body-boundary scores by studying amputees who were experiencing phantom limbs. He related their body-boundary scores to their drawings, which depicted how they were experiencing the phantom limb. It was assumed that those who are able to retract the phantom sooner have a better body boundary concept and that such subjects would therefore, in their drawings, incorporate the phantom into the stump as opposed to those with poor body boundary perception, who would draw the phantom outside or detached from the stump. The author, thus hypothesized that amputees with inside-stump drawings would have higher Barrier scores than those with outside-stump drawings. The hypothesis was confirmed, thus further confirming the Barrier score as a valid Body-image measure.

Fisher and Cleveland found that their body-boundary measurements related only minimally to the individual's act-

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45 W. B. Haber, "Effects of Loss of Limb on Sensory Functions", in Journal of Psychology, Vol. 40, p. 955, p. 115-123, as quoted in S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 97-99.

46 --------, "Observations on Phantom Limb Phenomena", in Archives of Neurology and Psychiatry, Vol. 75, 1956, p. 624-636, quoted in S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 97-99.

ual body structure.[47]

To establish the level of consciousness from which the body-boundary responses are elicited, Bills[48] compared the body-boundary scores and the Index of Adjustment and Values measures of college students. When he divided his sample into two groups: one composed of twenty-eight students whose scores were at least one Standard Deviation above the Mean and the other composed of twenty-eight students whose scores were at least one Standard Deviation below the Mean, the results yielded only a chance relationship between the body-boundary scores and the Index. The author attributed this to the fact that the Index is a self-concept measure derived from conscious, verbal report of self-attitudes whereas the body boundary scores are elicited indirectly and unconsciously. He thus concluded that body-boundary measures constitute an unconscious measure of Body-image.

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47 M. J. Cheatham, Sheldon's Somatotypes and the Projective Techniques, Doctoral Dissertation, Western Reserve University, 1953, quoted by S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, p. 110.

48 R. E. Bills, "Self Concept and Rorschach Signs of Depression", in Journal of Consulting Psychology, Vol. 18, 1954, p. 135-137, quoted by S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 112-113.

Brodie[49] used the body-boundary measure as a predictor of response to stress. He found that people with high Barrier scores were controlled and guarded in expression while low Barrier people were impulsive and uninhibited. He found also that people with high Barrier scores rated situations more stressful than did people with low Barrier scores. However, they also manifested a greater drop in anxiety during the total session than did the low Barrier people.

Fisher and Cleveland's extensive, explorative work provided them with many clues as to the traits they could expect to find in individuals of varying degrees of body boundary definiteness. The normal person with high boundary index tended to be an independent person with a definite value system, well defined goals and "forceful striving ways of approaching tasks (...) not easily diverted by stress or obstacles from goal attainment (...) a facility for expressing tension by attacking and shaping the environment to make it conform to the individual's internalized standards".[50] They held that high barrier people showed relatively greater self-steering behavior than did low barrier people. One of the specif-

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49 C. W. Brodie, The Prediction of Qualitative Characteristics of Behavior in Stress Situations, Using Test-Assessed Personality Constructs, Unpublished Doctoral Dissertation, University of Illinois, 1959, quoted by S. Fisher and S. E. Cleveland,"A Further Appraisal of the Body Boundary Concept", in Journal of Consulting Psychology, Vol. 27, 1963, p. 62-74.

50 Ibid., p. 117-118.

ic hypotheses that evolved from these observations was one concerning the ability to express anger outwardly when frustrated. In a stressful, frustrating situation, the individual is thrown into an approach-avoidance conflict. The authors hypothesized that, given the choice of expressing anger outwardly or inwardly, the high barrier individual directs anger outwardly.

To examine this hypothesis, Fisher and Cleveland applied their body boundary scoring system to the Rorschach protocols of sixty-nine Harvard students,[51] whose tests were selected on the basis of psychological testing, psychiatric interviews and stress-inducing situations. While blood pressure measures were being taken, the students were instructed to repeat digits and perform various mathematical calculations in their head. Mistakes elicited, from the examiner, berating comments designed to mobilize intense anger in the subjects. Ten minutes after the experiment concluded, each subject was asked in private interview to describe his thoughts and feelings during the time that the problems were being presented. These comments were recorded and submitted to independent raters for assessment of the reaction to frus-

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51 D. H. Funkenstein, S. H. King, M. A. Droletter, "The Direction of Anger During a Laboratory Stress-Inducing Situation", in Psychosomatic Medicine, Vol. 16, 1954, p. 404-413, as quoted in S. Fisher and S. E. Cleveland, Body Image and Personality, New York, Van Nostrand, 1958, p. 133-134.

tration; anger directed outwardly to the examiner or inwardly in the form of anxiety and self-blame. Fisher and Cleveland[52] found that the twenty-one students assessed as directing anger outwardly were significantly different from the twenty-one assessed as directing anger inwardly. Thirteen of the twenty-one who directed their anger outwardly were above the median score on the authors' body boundary measure while only six of the twenty-one assessed as directing their anger inwardly were above this median. The value was 5.6 for this distribution significant at the .02-.01 level. Thus Fisher and Cleveland accepted the findings as supporting their hypothesis that the high Barrier person directs anger outwardly.

Edwin E. Wagner[53] sought to investigate the unconscious aspects of personality by eliciting responses to pictures of hands. Of this possibility he said:

> (...) prototypal action tendencies will be projected into pictures of hands. (...) In the development of the human organism the ongoing, reciprocal, feed-back relationship between the brain and the hand make it likely that perceptions and cognitions of semi-structured pictures of hands will mirror significant perceptual-motor tendencies in the subject.[54]

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52 Ibid., p. 134

53 Edwin E. Wagner, The Hand Test: Manual for Administration, Scoring and Interpretation, Akron, The Mark James Co., 1962, 62 p.

54 Ibid., 62 p.

To investigate this possibility Wagner designed the Hand Test, a projective, diagnostic technique. Wagner describes the three postulates underlying the Hand test as follows:

> It is posited that: (1) human behavior is organized; (2) stimulus-specific perceptions of unstructured stimuli must, in some way, reflect higher order behavioral tendencies; (3) responses to hands in ambiguous poses indicate these hierarchical organizations and are particularly amenable to a classification scheme which is psychologically and diagnostically useful.[55]

The test consists of 10 small cards each containing a drawing of a hand, to which the subject is asked to respond by describing what the hand could be doing. The combination of structured stimuli in relatively unstructured poses allows for variation of responses but within well defined limits.

Responses are scored with reference to four major scoring categories each with several subclasses. The first category, Interpersonal Responses, refers to tendencies to overt behavioral encounters with other people. However, if interpersonal activity is blocked it can be inferred that these tendencies find gratification in fantasy representation. Since interpersonal behavior is both assertive and dependent, this category refers to the appropriate modulation of action tendencies, and the category includes responses of Affection, Dependence, Communication, Exhibitionism, Direction and

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55 Wagner, Op. Cit., p. 1.

Aggression.

The second major category, Environmental Responses contains responses indicating the individual's readiness to encounter and deal with the impersonal aspects of living. As such it thus refers to biological vitality as well as the establishment and maintenance of constructive productivity levels. It consists of responses indicating Activity and Passivity.

The third major category, Maladjustive Responses refers to difficulties in completing action tendencies because of subjectively experienced inner weakness and/or external prohibition. Subsumed in this category are responses of Tension, Cripple (crippling) and Fear.

The fourth major category, Withdrawal Responses, refers to action tendencies that have been interfered with to the extent that the individual's subjective feelings of stress have seriously restricted his interpersonal and impersonal involvements. Consequently, tendencies to withdraw from and abandon life roles are operative. The withdrawal category is composed of Description (where investment extends only to recognition of a type of hand on the card); Failure, (where the subject refuses to be involved); and Bizarre, (responses in which the withdrawal tendencies have led to arbitrary and distorted evaluations).

In focusing interest on one specific aspect of per-

sonality variables closely related to action tendencies, Wagner established an Acting-Out Ratio,[56] henceforth in this study referred to as the AOR. It resulted from the combining of the individual's score on various response scales, and is designed to predict aggressive acting out. This prediction is not of specific motor tendencies but rather of a tendency to act in an aggressive way of any kind. The AOR is obtained by algebraically subtracting the sum of (Affection, Communication, Dependence and Fear responses) from the sum of (Direction and Aggression) responses.[57]

Wagner subsequently dropped Fear responses from the AOR on the basis that as fear reactions intensify, ego defences are weakened and thus the tendency for aggressive acting out is increased. Consequently Wagner holds that fear, rather than deterring aggressive acting out can actually facilitate it.

Reliability of the Hand Test[58] was obtained by first selecting one hundred protocols, proportionately and at random, from the total pool of the 1,020 protocols of the normative sample. Reproduced copies of each protocol were dis-

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56 Wagner, Op. Cit., p. 26.

57 Wagner, Op. Cit., p. 26-27.

58 Ibid., p. 18-20.

tributed to three graduate students who scored the tests independently.

The normative population of 1,020 included four hundred and fifty normals. There were 50 pilots, half of them flight pilots and half of them bomber pilots. Their over-all mean age was 30.8, S.D. 4.9. They included fifty college males and fifty college females. Their[59] over-all mean age was 19.2, S.D. 4.9. The fifty college nurses included had a mean age of 18.3, S.D. .5. There were also one hundred high school students, fifty of each sex, with an over-all mean age of 16.2, S.D. 1.1 and a group of fifty children, with twenty-five of each sex, with an over-all mean age of 10.7, S.D. 3.7.

The Maladjustive and Withdrawal scores combine to create a Pathology classification. Since this score was found to distribute itself continuously over the 100 protocols, it provided a meaningful, quantitative summary score and was consequently used to establish a split-half coefficient of reliability.

The Spearman-Brown split-half (odd-even) reliability using the Pathology score for cards I, III, V, VII, IX to cards II, IV, VI, VIII, and X was for the three judges, A, .85; B, .84; and C, .85 for the individual scorers. Correla-

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59 Ibid., p. 18.

tion between scorers were A+B, .86; A+C, .96; and B+C, .92.

Percentage agreement between the three scorers was defined as perfect identity on any of the fifteen specific scoring categories for each response on all the 100 protocols. Errors of commission or ommission were counted as mistakes. The final percentage represented the total number of agreements divided by the total number of scorable responses, multiplied by 100 to eliminate decimals. Percentage agreement figures were A+B, 80%; A+C, 78%; B+C, 83%. Inspection of the protocols indicate that the disagreement was not serious and occurred mostly within, rather than between major scoring categories.[60]

The author indicates that the sample selection had some biases: at the time of testing all subjects were living in Ohio, thus introducing possible regional variables; number of individuals in some of the sample groups were small, thus rendering them not truly representational; and all dimensions of normalcy and pathology are not represented by the limited variety of sample groups.

A second scoring system has been devised by Barry Bricklin and Zygmunt A. Piotrowsky.[61] They have reorganized

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60 Ibid., p. 18.

61 Barry Bricklin, Zygmunt A. Piotrowsky and Edwin E. Wagner, The Hand Test, Springfield, Charles C. Thomas, p. 6-22.

Wagner's four major scoring classes, composed of various combinations of the fifteen subclasses, into eleven categories: Aggression, Directs, Fear, Affection, Communication, Dependence, Exhibition, Crippled, Active Impersonal, Passive Impersonal, and Description. Since this scoring system is employed in the present study, it is elaborated in full below.

Aggression refers to responses implying aggression, domination or active seizure of another organism or object.

Directs includes responses connoting direct influence on another person, perceived as being in an inferior position.

These first two categories both imply interpersonal activity, where the individual seeks to impose his will on another and where the imposer is seen as enjoying a position of relative superiority to his victim. Both categories imply a tendency to actively take advantage of other people and they involve action tendencies brought to their completion with little concern for the wishes or rights of others.

The Fear category refers to responses that imply fear of attack. The aggressor may be another person or the victim's own hand (masochism). This category also includes responses where one controls another but where the primary and principal concern is clearly to ward off physical attack. Responses implying denial of aggression, are actually aggress-

ive impulses denied manifestation because the individual fears retaliation. Thus they are included in this scoring category as are responses implying attempts to control one's conscious aggressive tendencies. All Fear responses involve action tendencies that are blocked from completion through fear of possible retaliatory behavior.

The Affection category includes all responses expressing a positive emotional attitude; affection or an affectionately benevolent attitude. These action tendencies are undertaken and completed primarily in desire to co-operate and consequently share in affectional exchange.

Communication responses refer to action tendencies concerned with interpersonal communication in which one's audience is perceived as superior or at least of peer status with the communicator. There must be a strong inference that the communicator needs his audience more than the audience needs him. The action tendency must imply that the communicator's dominant goal is to "get his point across".

The Dependence category includes response in which completion of the action tendency depends upon the benevolence of others. The dependence may imply a healthy need, an obsequious, subjugating urge or a cloying manipulative technique in which the implication is that the individual is owed the assistance and protection he demands.

These last four categories have all entailed action

tendencies of an interpersonal nature, where there is a definite motive to cooperate either through fear of attack, desire for social communication and affection, or protection and assistance. All of these responses, require some delay of reactivity and consideration of the feelings of others. Consequently, all four categories, Fear, Affection, Communication and Dependence, curtail impulsive aggressive acting-out.

Exhibitionism responses refer to action tendencies, whose primary goal is to exhibit the self. Although an audience is usually implied, this factor is of secondary import. Exhibitionism includes the display of self entailed in entertainment media as well as other forms of ostentatious exhibiting of the self.

Crippled responses refer to the responses in which the hand is impaired. Such responses relate to feelings of inferiority. Like guilt, these feelings of inferiority can lead to aggressive acting out. However, this is not normally the major or primary result of such feelings. Consequently it is not considered as aiding acting out.

The Active Impersonal category refers to those responses where action tendencies are concerned with impersonal activity and one's success in its performance. Completion of these action tendencies is not dependent on other individuals.

Passive Impersonal responses are those in which the

hand retains kinesthetic associations although it undergoes no change of location, and may even submit to external forces.

Description responses include all those where no action or kinesthetic associations are elicited and the response merely describes the figure-ground relationships in the card.

Wagner's[62] Tension subclass of responses are included in various Bricklin-Piotrowsky categories, depending on whether the tension implies dependency or impersonal activity. Those responses indicating that the tension is the result of an attempt to block and control aggressive activity, are interpreted by Bricklin and Piotrowsky[63] as a blocking of action tendency through fear of retaliation and are consequently included in the Fear category.

Bricklin, et. al., refer to acting out as a subject's "behaving in such a way as to bring him to the attention of others (police, court, school authorities, guidance clinics, psychiatrists, etc.,) as a result of overt aggressive behavior".[64]

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62 Wagner, Op. Cit., p. 6.

63 Bricklin, et. al., Op. Cit., p. 6-22.

64 Bricklin, et. al., Op. Cit., p. 4.

It is assumed that the probability of aggressive acting-out increases as dominating and aggressive tendencies come to outweigh attitudes of social cooperation.

Bricklin and Piotrowsky have transformed Wagner's Acting-Out Ratio into an Acting-Out Score which is obtained by subtracting the sum of responses in Fear, Affection, Communication and Dependence from the sum of responses in the classes of Aggression and Directs, i.e., Sum (Aggression Directs) - Sum (Fear Affection Communication Dependence).[65] Thus a comparison is made between a subject's readiness for aggressive overt behavior with his sense of social cooperation and/or fear of retaliation that might result if he aggressed.

The validity of the acting out score was tested by the method of "known" groups in the Jefferson study.[66]

The adult population used defined an acting-out group and a non-acting-out group. The acting-out group consisted of fifty-nine male penitentiary inmates with a mean age of 30.8, S.D. 11.1 who constituted a known acting-out group, seventeen (ten males and seven females) hospitalized psychiatric patients with a mean age of 31.8, S.D. 15.7 in whom tendencies to act out were established by two clinicians who in-

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65 Ibid., p. 30-31.

66 Bricklin, Zygmunt R. Piotrowsky and Edwin E. Wagner, Op. Cit., p. 27-36.

dependently assessed their clinical records.

The non-acting-out group was composed of twenty-eight male and twelve females, normals with a mean age of 26.6, S.D. 10.4 the greater majority of whom were professional middle class individuals.

A third group of non-acting-out individuals was added to represent a passive, lower intelligence group. This group consisted of twenty male indigents with a mean age of 53.6, S.D. 10.3.

Comparison of the mean acting-out score for each of the two groups yielded a chi square of 39.77 significant beyong the .001 level of probability. Of the acting-out group, 79% obtained an acting-out score of 1 or larger while only 25% of the non-acting-out group had an acting-out score of 1 or larger.

Closer perusal of the data indicated that mean total numbers of responses varied among different groups but was apparently not correlated with acting-out tendencies. As indication of this, the normal and acting-out hospital cases had the highest mean number of responses but were significantly different on their acting-out scores; while the inmates and acting-out hospital groups were significantly similar on their mean acting-out score but differed considerably in mean response total.

A second important discovery was that the individual's raw scores indicated the total storehouse of a particular

score on a specific category derived meaning from cross group comparisons. However, it was clearly evident that it was the percentage values of each category that indicated how important any particular type of action tendency is in the individual's psychic life.[67]

In relating the Hand Test to the standardised Rorschach, Bricklin and Piotrowsky point out that the constant use people make of their hands plus the amount of intrapersonal activity performed by the hand suggests that more of the associations given to representations of hand involve readily activated action tendencies than do associations to inkblots.[68]

Secord and Jouard[69] have investigated the Body Cathexis dimension of Body attitudes. They define Body Cathexis as "the degree of feeling of satisfaction or dissatisfaction with the various parts or processes of the body". Cathexis does not refer to the psychoanalytic concept of cathexis as the amount of instinctual energy invested but rather to the strength of feeling, what ever its source, associated with specific body areas.

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67 Ibid., p. 27-34.

68 B. Bricklin et al., Op. Cit., p. 90.

69 P. F. Secord and S. M. Jouard, "The Appraisal of Body Cathexis and the Self", in Journal of Consulting Psychology, Vol. 17, No. 5, 1953, p. 343-347.

The authors state that "the body cathexis is believed to be integrally related to the self concept, although identifiable as a separate aspect thereof". On the basis of this relationship, they hypothesize that: feelings about one's body and self are similar when measured on similar scales; that negative feelings about the body are associated with anxiety in the form of preoccupation with injury, disease or pain and further that such negative feelings are linked with feelings of insecurity. Part of the testing of these hypotheses involved the correlation of the Body Cathexes test, (a forty-three item list of body parts to which the subject is asked to respond by rating his degree of satisfaction or dissatisfaction with each item, along a five point scale) with the Maslow Security-Insecurity Investory and a Body-Anxiety Index, derived from the eleven items most negatively cathected by normative groups of each sex taken separately. (The Body Cathexis Test is described fully in the section on test description.) Both correlations were significant at the .01 level of significance, thereby confirming the negative ratings of the Body Cathexis Test as a measure of anxiety concerning body functioning and of insecurity generally. The authors also noted, in comparing the Body Cathexis Test and a Self Cathexis self-reporting test, that both tests tend to cathect in the same direction, indicating that the two cathexes covary. These findings also contribute to the establishment

of the construct validity of the Body Cathexis Test.

In another study, comparing the Body Cathexis Test with self ratings of sizes of body parts and with actual measurement of these sizes,[70] the authors noted that body attitudes elicited by the Body Cathexis Test were to a certain degree influenced by the deviation of these various parts in an individual from his concept of the cultural normative sizes for the parts.

In relating somatic complaints to the Body Cathexis Test, Johnson[71] attributed the extensive symptom reporting of nurses and their low Body Cathexis scores, to their interest and vocational familiarity with illness.

These last three studies have indicated that the Body Cathexis Test reflects bodily attitudes and as such constitutes a measure of a body-image dimension.

Another test which has also contributed to Body-image measures is the Hypochondriasis scale of the Minnesota Multiphasic Personality Inventory,[72] "a measure of abnormal concern about bodily functions". It is a thirty-three item list

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70 S. M. Jouard and P. F. Secord, "Body Cathexis and the Ideal Female Figure", in Journal of Abnormal and Social Psychology, Vol. 50, No. 2, 1955, p. 243-246.

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

72 G. Dahlstrom and G. Schlager Welsh, An MMPI Hand Book: A Guide to Use in Clinical Practice and Research, Minneapolis, University of Minnesota, 1960, p. 53.

of physical complaints of all body areas including generalized aches and pains, specific complaints of all areas of the body, peculiar sensations, as well as a few items concerning general health and functioning.

High scorers have been found to show abnormal concern with physical symptoms, even when these symptoms are counterindicated. Interpretation of the scale allows for particular attention to the psychological implications of various symptoms and it suggests that high scoring people tend to have an egocentric, hysterical character structure.

3. Selected Studies of Aggression

Since aggression and hostility are two of the specific aspects of body image that this study will consider, this section concerns itself with a review of the literature of aggression, anger and hostility, considered pertinent to this present study.

Buss[73] considers that the crucial concern in assessing the quality and direction of hostile acts is the "nature

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73 Arnold H. Buss, The Psychology of Aggression, New York, John Wiley and Sons, Inc., 1961, x-307p.

of the reinforcing consequences that affect the occurrence and strength of aggressive responses". As opposed to Freudian[74] emphasis on the instinctual source of aggression and in opposition to Dollard[75] who defined aggression as "an act whose goal response is injury to another organism", which implies knowledge of the individual's intent, Buss contends that it is the class of reinforcers that determines the quality and direction of one's hostile responses.

Buss defines aggression as "a response that delivers noxious stimuli to another organism".[76] The term 'attack' is presented as being synonymous with aggression. Buss in his analysis of aggressive behavior, focuses on the classes of reinforcers that affect aggressive behavior. He holds that aggression subsumes a variety of responses which he groups in two major categories. The first, angry aggression, is reinforced by the victim's pain. The second, instrumental aggression, is reinforced by the acquisition of an extrinsic reinforcer or cessation of noxious stimulus, but not the victim's discomfort. It is assumed that these two categories

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74 Sigmund Freud, Collected Papers, Vol. 4, London Hogarth Press, p. 81.

75 J. Dollard, L. W. Doob, N. E. Miller, O. H. Mowrer and R. R. Sears, Frustration and Aggression, New York, Yale University Press, 1939, p. 1.

76 Buss, Op. Cit., p. 1.

frequently function simultaneously.

Buss elaborates the variety of responses to aggression along two dimensions. The first dimension, organ systems, refers to the main organs employed in aggressing and these include the physical aggressive response, defined as assault by means of a body part. A second category of the same system, verbal aggression is the presentation of noxious stimulus by vocal representation and includes labelling a victim as aversive and unwanted (rejection); and threat, where a representation symbolizes, substitutes for, and anticipates subsequent attack.

The second continuum is defined in terms of the quality of the interpersonal involvement in the aggressive response and here Buss[77] subsumes four major categories, direct, indirect (verbal/physical), active and passive.

Buss differentiated anger and hostility from aggression. Anger, he defined as an emotional reaction with prominent autonomic and skeletal-facial components.[78] It is characterized by wide spread physiological activity and an energizing or drive property in that the physiological arousal seems to enhance the energy directed to the response. Anger is one of the drive states that can precipitate aggression. However, he holds that there is aggression without anger, i.e.,

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77 Ibid., p. 1-9.

78 Ibid., p. 9

rage reaction.

Buss defines hostility as follows:

> an attitudinal response (...) an implicit verbal response involving negative feelings (ill will) and negative evaluations of people and events. It is neither instrumental nor antonomous but rather an interpretation which is an observation and labelling activity.[79]

It is implied verbal in that it becomes symbolized and is thus available for verbalization. However, if it remains only on the implicit level, the presence of hostility can only be inferred from aggressive activity.

Hostility in aggressive attack (physical and/or verbal) can be deduced from the connotation of vengeance and is inferable when the reinforcer is injury to the victim. However, in many aggressive responses, hostility is absent.

Hostility, like anger, is an emotional reaction. It can be interpreted as a conditioned anger response, devoid of the autonomic and postural aspects of anger. Anger elicits, in addition to the anger reaction, the passive (observation and labelling) interpretation of the stimulus. Consequently, anger promotes hostility and in turn hostility promotes a high reactivity to anger. In combination, anger and hostility promoted an aggressive response.

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79 Ibid., p. 12

In opposition to Bergler's[80] differentiation of the expression of aggression in normals and neurotics, Buss[81] holds that the neurotic, because of his frequent feelings of rejection and frustration with his own inadequacy, is likely to be more hostile than the normal individual.

Buss, in surveying psychosomatic literature as related to aggression and hostility concludes that patients with neurodermatitis exhibit a very high index of suppressed, inwardly directed anger with resultant depression. Copious studies confirm that patients with arthritis, ulcerative colitis, peptic ulcer and migraine headache, display intense resentment. And amongst hypertensive patients, whose core problem is a passive-aggressive conflict, covert hostility, particularly in the form of resentment, is extremely high.[82]

In presenting a test that would adequately investigate his theoretical formulations, Buss, in collaboration with Durkee,[83] constructed the Buss-Durkee Hostility Inventory.

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80 E. Bergler, "Differential Diagnosis Between "Normal" and "Neurotic" Aggression", in Quarterly Review of Psychiatry & Neurology, Vol. 1, 1946, p. 1-5.

81 Buss, Op. Cit., p. 210.

82 Ibid., p. 221-244.

83 A. H. Buss, Ann Durkee and M. Baer, "The Measurement of Hostility in Clinical Situations", in Journal of Abnormal and Social Psychology, Vol. 52, 1956, p. 84-86.

This Inventory was an attempt to establish more refined measures of aggression and hostility. Selection of items was on the assumption that hostile behavior must be differentiated from aggressive behavior if such a measure was to have any relevance when related to directionality of aggression. Consequently, these two authors established two major categories. The first, Hostility, included items indicating Resentment and those referring to Suspicion. The second major category, Aggression included five subclasses, Assault, Indirect Aggression, Irritability, Negativism and Verbal Hostility. A Guilt subclass was added so that the authors could study the influence of guilt on the expression of behavior that is often inhibited.

Buss and Durkee[84] took three precautions to minimize the irrelevant and contaminating variable of social desirability. First, they assumed that the socially undesirable state already existed and simply elicited how it was expressed. The authors thus sought to minimize the value judgments associated with hostility. Secondly they provided justification for the occurrence of aggression, this being designed to reduce the subject's defensive and guilt reactions. Thirdly, they used idioms, which as indicated by their popular usage, many people easily apply to themselves.

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84 Arnold H. Buss, The Psychology of Aggression, New York, John Wiley and Sons, Inc., 1961, p. 170-171.

After anonymous group administration of the initial 105 item Inventory to 85 male and 74 female college students, an item analysis performed on the data yielded 75 items, 66 for hostility and 9 for guilt. These 75 items were grouped as follows: ten on the Assault scale; nine on the Indirect Aggression scale; ten on the Irritability scale, five on the Negativism scale; eight on Resentment scale; ten on the Suspicion scale; thirteen on the Verbal Hostility scale and nine on the Guilt scale.

The results of group administration of this final 75 item Inventory,[85] yielded product-moment correlations for women that did not exceed .50 and only two for the men were above .50, indicating that for both sexes the eight scales tapped at least partially independent classes of behavior.

Application of the Thurstone centroid method was used to abstract two factors from each correlation matrix (one for each sex), and the axes for men and women were rotated to the same oblique, simple structure so that the factor loadings of the two sexes would be comparable. It was arbitrarily established that only factors with a loading of .40 or more would be considered meaningful. Two factors appeared.

The first factor was defined by Resentment and Suspicion for men and by Resentment, Suspicion and Guilt for wo-

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85 Ibid., p. 173.

men. The second factor was defined by Assault, Indirect Aggression, Irritability and Verbal Hostility for both sexes, with the addition of Negativism for women. However, both Guilt and Negativism had positive loadings on their respective factors for men and the sex differences just mentioned were slight. The same axes were used for both males and females, consequently, the similarity of factor loading suggested that the factor structure was stable.

With the extraction of Negativism, these two factors paralleled an attitudinal and a motor component. When Irritability was accepted as an "Enduring disposition to become angry"[86] it became obvious that the Inventory taps aggression, anger and hostility separately. Factorial evidence confirms that the Inventory differentiates aggression from hostility. The first factor referred to aggression turned inward or blocked, and the second factor referred to the directing of aggression outward.

Test-retest check of reliability, after a five week interval, with application of the product-moment correlation yielded .82 for the summary score.

Several sets of norms for college populations have been amassed and the data established that there are no regional differences and that the scores are slightly higher

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86 Idem, Ibid., p. 175.

when the Inventory is administered anonymously.

To test the success of their methods of minimizing the variable of social desirability, the 66 hostility items of the final Inventory were scaled for social desirability, using the method of successive categories.[87] Judgments made by 85 male and 35 female college students were elicited. The inter-sex similarity observed in the judgment made possible the pooling of these judgments. Also a college group that had previously taken the Inventory, 62 men and 58 women were asked to judge the items. In this way the authors determined the probability of endorsement of these hostility items. Product-moment correlation for men was .27 and for women .30 and when these correlations were compared to those quoted by Edwards .87 which he found in his study of social desirability as an important variable in inventory studies,[88] they accepted that social desirability had been relatively less contaminating in their work than in that of Edwards, and they attribute this to the style they employed in item construction. To confirm this attribution Buss systematically varied styles of item construction while holding item

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87 Idem, Ibid., p. 179-180.

88 A. L. Edwards, The Relationship Between The Judged Desirability of a Trait and the Probability that the Trait will be Endorsed", in Journal of Applied Psychology, Vol. 37, 1953, p. 90-93.

content constant. When these items were checked for social desirability and endorsement, Buss was able to establish that item style accounted for variation in frequency of endorsement ranging from 26 to 48 per cent; and that it further accounted for significant effects on social desirability.

To confirm and investigate the factors reported by Buss and Durkee,[89] Bendig[90] treated the data from Inventories of two college groups, one composed of 218 students and one of one hundred and fifty-one students. He extracted two oblique traits. The first Covert Hostility, arose from 22 items from the Irritability and Guilt subscales. The second, Overt Hostility was a combination of 14 items from the Assault and Verbal Hostility scales. Retest reliability for the Covert Hostility trait was .72 and for Overt Hostility .76, with the Kuder-Richardson Formula 20.

New groups of college students were tested and the resultant data yielded retest reliability coefficients as follows: for men on Covert Hostility .77; on Overt Hostility .70, with an intercorrelation of .40; and for women Covert Hostility .73; Overt Hostility .67, with intercorrelation of .44.

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89 A. Buss, Op. Cit., p. 174-175.

90 A. W. Bendig, "Factor Analytic Scales of Covert and Overt Hostility", in Journal of Consulting Psychology, Vol. 26, 1962, p. 200.

Further, Bendig[91] discovered two second order factors through his factor analysis and intercorrelation of the Covert and Overt factors with three scales of the MMPI (Extraversion, Emotionality and Friendliness). Extraversion loaded high on the Overt Hostility factor. Emotionality and Covert Hostility correlated highly (r of .71) but Emotionality and Overt Hostility yielded only a .07 correlation. Therefore, the author concluded that those subjects who are extraverted tend to be overtly hostile. This was confirmation of the author's supposition that the first factor tendencies of subtle covert expressions of aggression were associated with the guarded, closed quality of the paranoid subjects who tend to show Covert Hostility but do not necessarily display high overt hostility. Bendig further discovered that Covert Hostility and Emotionality formed a syndrome separate from the correlated factors of Emotionality and Overt Hostility.

Since this study will concern itself in part, with the explorative technique of Buss, his theory of aggression, anger and hostility is accepted as an exponent of current thought in this dimension of personality and the aggression

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91 A. W. Bendig, "A Factor Analysis of Scales of Emotionality and Hostility", in The Journal of Clinical Psychology, Vol. 17, No. 2, issue of April, 1961, p. 189-192.

and hostility measures of this study will include Covert Hostility and Overt Hostility as assessed in the Buss-Durkee Inventory.

Bendig[92] thus concluded that the Covert and Overt Hostility scales could be used as measures of hostility and its directionality.

Summary and Conclusions

This review of the literature commenced with a brief sketch of the evolution of the Body-image concept in neurology. Special attention was given to Schilder's postulation that action tendencies of the Body-image reflect the total personality including the many psychological and sociological ramifications. Particular emphasis was also given to the hand whose action tendencies were held to be the most sensitive in this reflection, by virtue of its wide cortical representation, hypersensitivity and chief role it plays in orientation. It was also noted that representations of the hand, can be used as stimuli for obtaining body attitudes and further that unconscious eliciting is more effective than conscious eliciting.

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92 A. W. Bendig, "Factor Analytic Scales of Covert and Overt Hostility", in Journal of Consulting Psychology, Vol. 26, 1962, p. 200.

The psychological studies reviewed included a description of the body-boundary concept as well as the technique for measuring this dimension of body-image. This measuring process suggested that the cumulation of ink-blot images that emphasize boundary properties, (Barrier responses) is a characteristic of the active, striving, goal-oriented individual, who also has a tendency to express anger outwardly. Two self-reporting measures were reviewed, the Body Cathexes test, a scale of attitudes towards one's body and the Hypochondriasis scale of the Minnesota Multiphasic Personality Inventory, a symptom reporting scale. Included was a review of the Hand Test, a projective technique which purports to elicit action tendencies which reflect personality variables, as for example, the AOR ratio which is held to yield a prognosis of the individual's tendency to act out aggressively. And finally, a three-fold hostility theory was presented with a description of its measuring instrument, the Hostility Inventory, which examines the quality and directionality of hostile feelings.

This literature survey suggested the following conclusions: that Body-image, through its action tendencies, reflects the total personality; that the hand is the body area most sensitive in this reflection; and that hostility must be conceptualized as three-fold, with directionality and other qualitative differences being dictated by the reinforcers

available for the manifestation of the hostility.

4. Development and Statement of Hypotheses

The hypotheses for the present study were evolved from the following facts established in the literature reviewed. Body-image constitutes the individual's experiences with his body as well as his feelings and attitudes towards his body per se and towards his body as a social object. Action tendencies are a manifestation of Body-image and thus are a reflection of the total personality. The hand is a body area that effectively yields action tendencies which reflect Body-image. Pictures of hands are effective stimuli for eliciting Body-image data. Pictures of hands are effective stimuli for obtaining a measure of the individual's tendencies to aggressive acting-out. Finally, hostility data is made more meaningful if it is interpreted in terms of its directionality.

The question arose as to whether a Body-image measure could be obtained from a projective test in which drawings of hands were used as stimuli to elicit unconscious action tendencies. The Hand Test is a projective test in which drawings of hands are used to elicit action tendencies of both an intrapersonal and interpersonal quality. Consequently, the question was revised to the following: will scores on the Hand Test constitute a measure of Body-image?

To examine this question it was decided to compare the individual's scores on the Hand Test to his scores on other measures of Body-image, i.e., scores on the Body Cathexis Test, Fisher and Cleveland's Barrier measure on the Rorschach, and on the Hypochondriasis Scale of the Minnesota Multiphasic Personality Scale. For such a comparison to be made it was necessary to establish how many of the Hand Test categories could be expected to yield discriminating measures of Body-image and how the selected categories could be most effectively and efficiently manipulated.

Since the Bricklin-Piotrowsky scoring system has been used for most of the Hand Test validation studies, this system was selected for the present study.

In surveying the eleven categories, six were found to yield distinct and discriminating measures of interpersonal action tendencies which reflect the individual's interpersonal attitudes. These categories were Aggression, Direct, Fear, Affection, Communication and Dependence. Five categories were excluded for the reasons given below. Cripple refers to responses in which there is no action tendency; rather the individual projects his feelings of inferiority by attributing physically incapacitating qualities to the hand. Exhibitionism includes responses in which inference rather than the action tendency itself, reflects an exhibitionistic trait. As such, it was not considered a sufficiently reliable measure. The Active and Passive only yield measures of intrapersonal

impersonal action tendencies. Although these two categories reflect habit patterns they were not found to be particularly discriminating. Finally, Description does not yield action tendencies. The individual's attitudes reflected by the six selected categories are influenced by sociological, psychological and organic influences in his personality. These influences are reflected in his Body-image and thus manifested in his action tendencies.

Since Bricklin and Piotrowsky's composite score, the Acting-Out Score is composed of the six categories selected and further since the Acting-Out Score (henceforth referred to as the A.O.S.) has been submitted to extensive investigation, it was viewed as the most effective and efficient way of summarizing Hand Test scores and it was chosen as the experimental measure of Body-image for the present study. The A.O.S. equation [(Aggression Direct) minus (Fear Communication Affection Dependence)] compares the individual's socially compliant tendencies and controls to his tendency to immediate, directive-aggressive behavior. Thus a high A.O.S. indicates that the individual is able to exercise directive-aggressive action tendencies despite socially compliant attitudes. A particularly high score reflects a lack of social control over immediate, directive-aggressive behavior. Conversely, a low score reflects the individual's greater tendency to socially complying actions than to directive-aggressive behavior while a very low score indicates that his socially

complying activities delay or smother his directive-aggressive acting out. It was assumed that the median would represent an optimal cut-off score to dichotomize high and low A.O.S. scoring groups.

In considering which Body-image measures could be employed in a validation investigation of the A.O.S., attention was given to Ruth Wylie's theories on discriminant validity. In her comprehensive and excellent critical review of research concerned with self concept, she has this to say about research methods into the unconscious aspects of self-concept:

> In particular there is a unique and difficult requirement of discriminant validity for this type of measure which has received little or no recognition: if one is to say that a certain projective response or score represents an unconscious attitude towards the self, one must prove not only that S holds this attitude but that he is unaware of it. At the very least one should check to see whether the same attitude might be consciously present, as inferred from a self-report.[93]

Consequently, three measures of Body-image were selected: the Fisher and Cleveland Barrier score which is an unconscious measure, the Body Cathexis Test and the Hypochondriasis scale of the M.M.P.I., both of which are conscious reports of one's body attitudes. It was considered that reliability would be enhanced by eliciting two rather than one measure of conscious body attitudes.

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93 Ruth C. Wylie, The Self Concept: A Critical Survey of Pertinent Research Literature, University of Nebraska Press, 1961, p. 251.

It is reported that high Barrier scores are usually obtained by striving, energetic, self-steering individuals who tend to handle stress by trying to forcefully shape the environment to serve their needs and for expressing their anger outwardly. Individuals obtaining low Barrier scores tend to react in the reverse manner. Consequently, the individual with a high Barrier score can be expected to obtain a correspondingly high A.C.S. Similarly, the individual with a low Barrier score can be expected to obtain a low A.C.S. Thus an hypothesis was formulated in null form as follows: there is no significant difference in Barrier scores between high and low A.C.S. scoring groups.

The individual obtaining a high Body Cathexis score is described as excessively concerned with physical injury and disease. Further such a person is said to display a marked degree of general anxiety and insecurity. Conversely the individual obtaining a low Body Cathexis score is reported to show a lack of concern about his body function and appearance. It is also indicated that generalized anxiety and insecurity are not markedly noticeable in his behavior. The individual with high A.C.S. tends to immediate, direct, overt involvement with the social environment rather than to

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d See page 26.

e See page 41.

inhibitory, compliant tendencies and delaying of reactivity through preoccupation with somatic concerns and feelings of insecurity and anxiety. The individual with a low A.O.S. tends to delayed and indirect reactivity often as a result of his fear of incurring social rejection. Consequently the individual obtaining a low Body Cathexis score can be expected to obtain a high A.O.S. In contrast, the individual obtaining a high Body Cathexis score can be expected to obtain a low A.O.S. Thus a second hypothesis was formulated in null form as follows: there is no significant difference in Body Cathexis scores between high and low A.O.S. scoring groups.

The Hypochondriasis scale (Hs.) of the M.M.P.I. is reported to relate to preoccupation with body function and symptoms and that individuals obtaining high scores are egocentric, demanding, passive-aggressive personalities.[f] The individual obtaining a low A.O.S. delays reactivity and emphasizes socially compliant activity often through his desire for affection and benevolent aid, which desire overshadows all other desires, and becomes the exclusive goal in his life pattern. Consequently, the individual obtaining a high Hs. score can be expected to obtain a correspondingly low A.O.S. Thus a third hypothesis was formulated in null form as follows: there is no significant difference in Hs.

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f See page 43.

scores between high and low A.O.S. scoring groups.

Bricklin and Piotrowsky devised the A.O.S. as a prognostic measure of aggressive acting-out and validated it as such by administration of the Hand Test to various known groups, i.e., groups known to have a tendency to act out aggressively and groups known to have little tendency to act out aggressively. A secondary concern of the present study was to investigate the explanation these authors give for the success of the A.O.S. as a prognostic measure of aggressive acting-out. They have said:

> The major determinant of aggressive overt behavior would seem to rest on an underdevelopment of socially cooperative attitudes rather than an overdevelopment of aggressive attitudes. (...) However, it is true that (...) the quality, intensity, and frequency of activation of aggressive attitudes undoubtedly play crucial roles in social behavior as well as does the lack of social attitudes.[94]

In an effort to contribute to the clarification of the major determinant of aggressive behavior, it was decided to study the individual's A.O.S. with reference to his scores on two rigorously factor analyzed scales: the Overt Hostility Scale and the Covert Hostility Scale of the Buss-Durkee Hostility Inventory. Within the context of Buss' theory of aggression, anger and hostility, 'aggressive attitudes'[g] would be a misnomer. Buss would refer to the quality implied

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94 B. Bricklin, Zygmund A. Piotrowsky and Edwin E. Wagner, The Hand Test, p. 88.

g See page 45-46.

in the term, as a hostile attitude. He views aggression as an immediate, negative, emotional experience and hostility as an enduring negative attitude. He holds that action tendencies reflect negative attitudes, thus hostile attitudes. However when the hostile attitude is reinforced by the drive state involved in an anger reaction, the hostile attitude has greater propensity for being mobolized as an expression of aggression. He refers to those hostile attitudes that tend to be reinforced by anger as overt hostile attitudes while he refers to those hostile attitudes that are not reinforced with the anger drive state, as covert hostile attitudes.

Thus in translating the theoretical postulates underlying the A.O.S. into those terms employed by Buss, what is being suggested is that aggressive, overt behavior results from an underdevelopment of social compliant attitudes rather than an overdevelopment and accumulation of hostile attitudes. Further aggression is more central in the personality where tendencies to aggressive acting-out are pronounced. Thus in considering the A.O.S. in reference to the above mentioned Covert and Overt Hostility Scales, the literature suggested that the individuals with a high A.O.S. should not necessarily obtain a high Covert Hostility score since his aggression is not considered to arise from an abundance of hostile attitudes. Further although the individual with a high A.O.S. should not necessarily obtain a high Overt Hostility score, the authors

suggest that a high A.O.S. is usually found in the context of a relatively intense and frequently acted-out tendency to overt aggressiveness. A high Overt Hostility score would not be expected in the context of a low A.O.S. However, since these assumptions have not been tested experimentally, it was decided to compare the individual's A.O.S. to his Covert and Overt Hostility scores. Consequently, a fourth hypothesis was formulated in null form as follows: there will be no significant difference on the Covert and Overt Hostility scales between high and low A.O.S. scoring groups.

In summary, the major hypothesis was formulated in null form as follows: there is no significant difference in Body-image indicies between high and low A.O.S. scoring groups, even when categorized according to directionality of hostility. The four null sub-hypotheses were formulated as follows:

1) There is no significant difference in Barrier scores between high and low A.O.S. scoring groups.

2) There is no significant difference in Body Cathexis scores between high and low A.O.S. scoring groups.

3) There is no significant difference in Hypochondriasis scores between high and low A.O.S. scoring groups.

4) There is no significant difference on the Covert and Overt Hostility scales between high and low A.O.S. scoring groups.

This chapter has reviewed the literature of neurology, psychology and aggression, that was considered relevant to the present study. The chapter concluded with a presentation of the hypotheses which arose from this literature review. The next chapter presents the experimental design used to test these hypotheses.

CHAPTER II

EXPERIMENTAL DESIGN

This chapter presents the design used to test the hypotheses developed in the previous chapter. It is divided into the following sections: description of sample, description and administration of tools testing conditions and testing schedule, scoring and initial treatment of data and finally, statistical operations.

A pilot study on a sample of ten females of equivalent age, schooling, occupation and general environmental background preceded the study. Generally the procedure consists of one group administration of five tests to 106 subjects, which yielded five sets of data on each subject. When incomplete or incorrectly marked tests were removed, there were ninety-four correctly, completed test batteries. Scoring was done independently by three psychologists. Means, medians and percentages were computed. Scores were then collected into above and below median groups for each test, the median being that of the sample on the particular test under consideration. Resulting trends were then submitted to statistical operations to establish similarity of sample and normative groups, interscorer reliability, test reliability and statistical significance by means of chi squares.

1. Description of Sample

This section describes the experimental sample, with reference to age, vocation and three body image dimensions. A questionnaire was administered to the sample to elicit information that could effect this design.

The ninety-four completed, five-part test batteries obtained from an original sample of 106 batteries, constituted the sample. Fifteen batteries were excluded for the following reasons: eleven for incompleted tests; three for defacement, and one for incorrect system of responding.

The experimental sample was composed of female, graduate nurses; thirteen of whom were members of religious orders. Forty-three per cent of the sample was enrolled in a public health nursing course and fifty-seven per cent in nursing education. All were attending a general course in introductory psychology.

The mean age, as computed from the ages given in the Questionnaire, was 27.2 with a standard deviation of 6.07. The median was 25.1 and the age ranged from twenty-one to fifty years. The eighty-one lay subjects of the sample, had a mean age of 26.8 and the range was from twenty-one to fifty years. The thirteen religious had a mean age of 30.0 and a range of 24-35. Inspection of Table I indicates that the religious cluster about the mean. It was thus concluded that the two parts of the sample, the lay and religious, were well

TABLE I.-

Age: Frequency, Mean, and Range for Ninety-Four Nurses

	F	M	R	F	M	R	F	M	R
Lay	81	26.8	21-50	60	23.7	20-28	21	35.7	29-52
Religious	13	30.0	24-35	4	25.5	20-28	9	32.0	29-52
Combined	94	27.2	21-50	64	23.8	20-28	30	34.6	29-52

TABLE II.-

Symptoms Reported on Questionnaire

		Frequency	%
Dermatitis		21	22.3
Arthritis		3	03.1
Colitis		0	00.0
Stomach		9	09.
Energy:	High	25	26.6
	Average	67	71.3
	Low	2	02.1

integrated in terms of age distribution.

Table II indicated that of the four specific diseases, dermatitis was endorsed by twenty-one people or 22.3% of the sample. Also, the characteristic of a high energy level was endorsed by twenty-five subjects, or 26.6% of the sample. Investigation of the possible relationship between high energy level and dermatitis, revealed that only forty per cent of the endorsers of dermatitis also reported having a high energy level.

This section has indicated the number of test batteries retained after defacements, incompletions and incorrectly answered protocols were removed. The sample was defined and the Questionnaire refining this definition was discussed. It was indicated that no significant relationship had been established between the various disease entities and different energy levels.

2. Description and Administration of Tools

This section will supplement the description of the tools given in the first chapter. Standardized instructions as well as instructions for the present study are presented.

A Questionnaire was presented immediately prior to testing. It was a modification of that presented by Vertuca.[95] (See Appendix 2 for format). The purpose in presenting the questionnaire was to elicit information, vital for defining the experimental population and also to check on the validity of a questionnaire of this sort for eliciting Body-image information.

To obtain the Barrier responses, the ten Rorschach cards were presented in standardized consecutive order. Each subject was provided with a test form (See Appendix 2 for test form format). Prior to projecting the first card, the following instructions were given: "You are going to be shown on the screen, a series of cards. There is a figure on each card. You are to imagine three things the figure could represent. Write the three things you think it might be in the three spaces provided opposite the letter A." Similar instructions were given prior to the projection

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95 S. Vertuca, Relation Between Assured Measures of Body Image, Ottawa, Unpublished Doctoral Dissertation, University of Ottawa, 1961.

of each card, with special reference being made to the specific card being projected. Each card was projected for one minute. This time allotment had been established during the pilot study, and other individual testing, as being sufficient to develop and record the three required responses, but not sufficiently long to cause boredom or distraction. Test forms were collected immediately after the administration of card J.

The Buss-Durkee Hostility Inventory appeared on a three page form of clearly printed, mimeographed sheets 8½ x 11 inches in size. To the right of the items was a two column series of symbols, signifying True (T) and False (F). As soon as all of the test forms had been distributed, the following instructions were presented: "This form contains a series of statements. You will find that some of these statements apply to you and some do not. You are to consider each item carefully. If it applies to you, circle the T for True. If you consider that the statement does not apply to you, circle the F for False. If you find a statement that partly applies to you, or applies to you only on certain occasions, decide whether the statement is more characteristic of you than it is untrue about you. If it is more characteristic, circle the T. If it is more untrue than it is characteristic of you, circle the F. Are there any questions?" When no questions were solicited, this statement was

added, "There is no time limit, but try to work quickly." Test forms were collected immediately after the last person had completed her form.

The Hand Test consists of ten cards, three by five inches in size. The first nine cards each contain a drawing of a hand, whose structure is such as to convey a third, as well as first and second dimensional effect. These specific drawings were chosen because of the optimal frequency with which they were found to yield responses of action tendencies. The cards are presented consecutively, in standardized order and position. The subject is presented with the following request: "What does this hand look like it might be doing?" If the subject does not appear to understand the instructions the following additional comment is given: "What do you think the person who owns these hands might be doing? Tell me as many things as you can think of." The author indicates that as long as no specific response is solicited, the instructions may be altered to further elaborate the type of response required. The subject may hold the card in any position he chooses. There is no standardized time limit."

Clearly mimeographed forms, on paper 8½ x 11 inches in size were distributed immediately prior to the administration. (See Appendix 2 for form format). Immediately prior to the projection of the first card, the experimenter gave the following instructions: "You are going to be shown

some pictures of hands on the screen. You are to decide what you think the hand might be doing and write your response on the form you have. You are to think of three things each hand could be doing. Therefore, you have been given room for three responses for each of the pictures you will see. The first card was then projected and the following statement made: Look at the card and think of three things it could be doing. Write your three answers in the three spaces opposite the letter A. The same instructions were given immediately prior to the projection of each card, but with special reference being made to the specific card being projected. Each card was projected for one minute, as timed by a stop watch. Immediately prior to the projection of the tenth card, these instructions were given: "As you will see, the next card you will be shown is blank. You are to look at the card, and imagine a hand on it, and imagine what that hand might be doing. Write your answer in the first line opposite the letter J. Then look at the card again and think of something else it could be doing, and write your answer in the second line opposite J. Go through the process three times, until you have three responses, indicating three different things the hand you see could be doing. If you concentrate, you will be able to imagine a hand on the card. The time limit of one minute had been established in the pilot study. One minute was held to be long enough to devel-

op and record the three responses required, but not so long as to produce boredom or distraction. Test forms were collected immediately on conclusion of card J.

The forty-six item Body Cathexes Test was presented in a clearly mimeographed, two page form on paper 8½ x 11 inches in size. The items were listed on the left side of the page. Opposite each item there was a series of numbers from one through five. (See Appendix 2 for test form format). Subsequent to the distribution of test forms, the instructions that appear at the top of the first page were read through slowly and emphatically by the experimenter. They are as follows:

> Below there are forty-six items followed by numbers 1-5. You are asked to encircle the number which best represents your feelings towards each of these items, according to the following scale.
>
> 1. I have strong positive feeling about my (...item).
> 2. I have moderate positive feeling about my (...item).
> 3. I have no feelings one way or the other about my (...item).
> 4. I have moderate negative feelings about my (...item).
> 5. I have strong negative feelings about my (...item).
>
> toes 1 2 3 4 (5)
>
> This person by encircling the 5, has indicated that he has strong negative feelings towards his toes.

The experimenter concluded with the comment: "If you do not

understand what you are to do, please raise your hand and ask now, so that you will be able to do your best in completing the inventory. When the experimenter was assured that all members of the group understood exactly what she was to do, the following comment was presented: "There is no time limit, but try to work quickly". Test forms were collected immediately the last person had completed the Inventory.

The Minnesota Multiphasic Personality Test, Hypochondriacal scale appeared on a clearly printed, mimeographed, two page form, 8½ x 11 inches in size. (See Appendix I for test form format). The statements were presented on the left side of the page. To the right of them was a double column of T's and F's symbolizing True and False. After the test form had been distributed, the following instructions were given: "As you see, these sheets contain a series of statements. You are to read each one, decide whether or not it applies to you. If the item applies to you circle T, which stands for True. If the statement does not apply to you, circle F, which stands for False." The example at the top of the test form was then read and explained briefly. This comment was then presented in conclusion of the instructions: "There is no time limit. Work carefully." Test forms were gathered immediately after the last person had completed the form.

3. Testing Conditions and Testing Schedule

Testing was done in a small university auditorium which provided optimal ventilation and acoustics. Lighting could be dimmed to provide ideal conditions for simultaneous viewing of projected slides and recording of responses in writing. A Graphex Constellation slide projector with automatic and manual controls was provided and it functioned smoothly throughout testing. A microphone was also provided. A stop watch was used to time the exposure of the test cards. Test forms and new, sharpened, rubber-tipped pencils were placed in convenient stacks, ready for distribution.

The testing schedule is now presented. The subjects arrived at nine o'clock in the morning, assuming that they were to attend a weekly lecture in general psychology. However, on entering the auditorium, the monitor assigned specific seats to the subjects, mentioning that they were to do something different that day. When the subjects had settled comfortably, the experimenter was introduced to them. The experimenter then gave a very brief motivating talk, giving emphasis to the fact that all of the research data would remain anonymous. The experimenter spoke from the stage, using the microphone.

The experimenter then began the testing by announcing that each person would be given a test form and a pencil. The subjects were asked to keep the form as it was

handed to them, i.e., face down. It was also requested that the subjects maintain silence from the time the forms were distributed until they were completed. They were told that a brief relaxation period would be given after each test. After the questionnaire forms were distributed, the experimenter gave the instructions, through the microphone in a clear, articulated manner. It was also added that the subjects were not to put names, initials or other identification marks on the forms. When the questionnaires had been completed, the experimenter asked the subjects to turn the forms face down again and note the red number in the lower right hand corner on the back of the form. Above it was a small tab with the same number on it. The subjects were instructed to remove this tab and keep it and to place this number in the lower right hand corner of all subsequent forms. The tab was to ensure that the subject did not forget or confuse his number. The Questionnaires were then collected by four monitors.

The second form presented was the record blank for the Rorschach responses. The subject was reminded to first clearly print his number in the lower left corner on the back of the form. Subjects were then told that the next part of the project involved slides that would be projected on the screen which was then pulled down from the left of the stage. It was also indicated that the lights would be

dimmed to facilitate viewing but that there would be sufficient light for them to record their answers. The lights were turned down for a moment to illustrate that this was so. There was general verbal assent that they could see adequately. The experimenter then moved to the projector in the center of the auditorium floor. Instructions for the test were given there immediately prior to projecting the first slide. Assignment of seats had eliminated obstructions in viewing the screen. The third through sixth forms were the Buss Durkee Hostility Inventory, the Hand Test, which required projecting of cards on the screen, the Body Cathexes Test and finally the Hypochondriacal scale of the Minnesota Multiphasic Personality Inventory. In each situation, test forms were distributed and were kept face down until the experimenter commenced the instructions and relative silence was preserved from the time of the distribution of the forms until they were collected again, which ensured a greater degree of independent responding.

On completion of the final test, the experimenter thanked the subjects for their earnest participation in the project and they were dismissed. Immediately the subjects had left the auditorium, the monitors and experimenter collated the test batteries. This allowed for quick selection of those completed test batteries, in which the required response system had been employed. This completed the testing schedule.

4. Scoring and Initial Treatment of Data

This section describes the scoring methods applied to the various experimental tools and the initial mathematical treatments to which the raw data was submitted.

The Hand Test was scored according to the Bricklin-Piotrowsky system. Scoring consisted of placing to the right of each response, the symbol representing the category illustrated by the response. After the protocol was scored, the number of symbols of each category was then computed and the A.O.S. established. The response totals were found to be unequal, despite test instructions that were meant to yield a response total of 24.40 from each subject, which total was identical with that of the Bricklin-Piotrowsky normative group of normals. The procedure now presented was employed to establish equivalence across the normative and experimental groups. The mean response total of the normative group, 24.40, was divided by the mean response total of the experimental group, 26.00. The resultant quotient was .938. Each variable for each subject in the experimental group was then multiplied by .938.

The A.O.S. was the composite score selected to represent the Hand Test, thus only the A.O.S. was given further consideration. For the normative group of 32 middle class normals, composed of 20 men and 12 women, having a mean age of 26.6 with a standard deviation of 10.4, Bricklin and Piotrowsky

report a mean A.O.S. of -3.22 with a standard deviation of 1.10 and a median A.O.S. of -2.00 for a range (- 18 to - 4). As indicated in Table III the present study yielded a mean A.O.S. of -2.00 with a standard deviation of 1.10, and a median A.O.S. of -2.10, in a range of Acting-Out Scores (- 19.71 to - 9.38). The proximity of the mean and median values suggest that the A.O.S. distribution tended to be normal in character.

Bricklin and Piotrowsky do not report reliability coefficients of correlation. However Wagner reports those he established on his Pathology score. He employed the Spearman-Brown split-half (odd-even) method, comparing the Pathology scores for cards 1, 3, 5, 7, 9, to those for cards 2, 4, 6, 8, 10. Reliability coefficients for internal consistency, for the three scorers were .85; .84; .85. Inter-scorer reliabilities were .86; .96; .92.

Since the Pathology score is not included in the scoring system employed in the present study, reliability investigation had to be established on another composite score. The A.O.S., in addition to being a meaningful, quantitative summary score, was found to distribute itself continuously over the 94 protocols. Consequently, the A.O.S. was selected as the score on which to compute reliabilities. To establish internal consistency, the Spearman-Brown split-half (odd-even) reliabilities were obtained by comparing the Acting-Out Scores for

TABLE III .-

Range, Mean, Median: for 94 nurses on A.O.S., Barrier, Body-Cathexis, and Hs Scale

	A. O. S.	Barrier	Body-Cathexis	Hypochondriasis
Range	-19.71 - 9.38	0-8	1.4 - 4.0	0.0 - 23
Mean	-2.00	3.3	2.59	5.70
S. D.	1.10	1.42	.14	3.92
Median	-2.10	3.4	2.61	5.75

cards 1, 3, 5, 7, 9, to those on cards 2, 4, 6, 8, 10. Two sets of scores were considered: scores for the total 94 protocols established by one scorer and score for 51 of these ninety-four protocols established by a second scorer.

The A.O.S. reliabilities for internal consistency were .85 for the first rater and .83 for the second rater. Inter-scorer correlation, as computed by the Pearson product-moment correlation[96] for the Acting-Out Scores from 51 protocols, was .88 with a standard deviation of 1.01.

To investigate the possible influence of chance factors on the above correlation a 't' test of significance[97] was calculated. The agreement between judges was accepted as adequate. Since it was thus established that the scoring system could be interpreted with consistency and similarity by these two raters, it was accepted that the scores of the total 94 protocols established by one of the raters would represent an accurate scoring of the A.O.S. of the Hand Test.

In surveying the Rorschachs of the experimental group, from which Barrier scores were to be drawn, it was noticed that the instructions had failed to elicit from the subjects, an equivalence of response total for each card. Such an equival-

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96 $$r^2 = \frac{[N\Sigma XY - (\Sigma X)(\Sigma Y)]^2}{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2}$$

97 $$t = r\sqrt{\frac{N-2}{1-r^2}}$$

ence was considered essential since it has been established that total Barrier response is affected by total response total.[h] To establish equivalence of response total for each subject on each stimulus card, the first step was to draw up a table illustrating the number of responses each individual actually gave to each of the ten stimulus cards. In obtaining the additional responses needed to fulfill the required response total, selection was made according to Westrope's selection schedule, i.e., three responses for cards I through V and two responses for cards VI through X, totalling 25 responses. Since Westrope established that within the response total range (20-25) the total Barrier response is not affected by total response, all protocols yielding twenty to twenty-five acceptable responses, after the Westrope alterations had been made, were retained. This raised the number of acceptable protocols from 47 to 76.

In establishing the accuracy of the two scorers ability the two psychologists were given three sample protocols from Fisher and Cleveland's Body Image and Personality to score. The scores given by these authors was taken as criterion. The two scorers practised scoring these protocols until their scores showed 99% agreement with the criterion scores. Three further protocols from the same book were then

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h See page 20.

scored independently by each rater and the relation of their scores to the criteria was 98% for one rater and 96.5% for the other. The two raters then independently scored 55 of the 94 experimental protocols. The over-all average on inter-scorer correlations reported by Fisher and Cleveland for five scorers was .92. The present study yielded an interscorer Pearson product-moment correlation of .96 with a standard deviation of 5.8, as computed on the above mentioned fifty-five protocols. Consequently, it was accepted that these two raters could interpret the scoring system with consistency and similarity. Thus only one of the two raters scored the remaining thirty-nine experimental protocols.

To establish the efficiency of the Westrope schedule in equating responses in this present study the mean Barrier of each of seven response-total groups were considered. Table IV indicates that for the group in which each subject gave exactly 25 responses, the mean Barrier was 3.3. This mean Barrier total was therefore taken as the criterion measure in considering the mean Barrier of the other response total groups. For the group in which subjects gave 25-30 responses the mean Barrier total was 3.25. For the group in which subjects gave 26-30 responses the mean Barrier was 3.25. For the group in which each subject gave 24 responses the mean Barrier was 3.0. For the group in which each subject gave 23 responses the mean Barrier was 3.3. For the group in which

TABLE IV.-

Barrier Totals and Means for Various Response Totals

	Categories							Totals
Response Total	21	22	23	24	25	25-30	26-30	21-30
Subjects in Group	3	7	8	10	11	36	47	76
Barrier Total	13	23	27	30	36	117	153	246
Barrier Mean	3.3	3.3	3.4	3.0	3.3	3.3	3.3	3.3

each subject gave 22 responses the mean Barrier was 3.0. For the group in which each subject gave 21 responses the mean Barrier was 3.3. No subject gave twenty responses although nineteen subjects gave less than twenty responses, the lowest response total being 17. The proximity of the mean Barrier of each of the response-total groups to the mean Barrier of the criterion group, indicates that the variance in response total within the range 20-25 did not have a significant affect on the production of Barrier responses.

Fisher and Cleveland report a mean Barrier score of 4.1 and a median Barrier of 4.0 with a range 0-12. Vertuca[98] reports a median Barrier of 3.3 with a range 0-10 for a group of 153 subjects, and for a second group of 140 subjects he reports a median of 3.6 with a range of 0-10. The present study yielded a mean Barrier score of 3.3 with a standard deviation of 1.42, a median Barrier of 3.4 and a range 0-8. The proximity of the mean and median suggest that the Barrier scores are normally distributed throughout the experimental sample and the relation of these scores to the two above mentioned criterion measures suggests that the experimental findings are reliable.

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98 S. Vertuca, Relation Between Assured Measures of Body Image, Ottawa University, Unpublished Doctoral Dissertation, 1960.

Fisher and Cleveland accept their consistent findings of a mean barrier of 4 among normals and their over-all inter-scorer reliability of .92 for five judges as indications of the internal consistency and stability of their scoring system. Gaston and McConnell[99] report test-retest reliability over eight weeks of .90 for one rater and .88 for another rater. In the present study, the Spearman-Brown split-half, (odd-even) correlation comparing the Barrier scores on cards I - V with those on cards VI - X, was .65, which indicates reliability of the experimental scores.

Scoring of the Body Cathexis Test consists of summing the ratings given to the items, divided by 46, the number of items. The authors of the test have suggested the following schedule as a means of eliminating the artifacts arising from response set: elimination of frequencies equal to or more than 32 in category four; frequencies equal to or more than 28 in category five; frequencies equal to or more than 24 in category five when accompanied by a frequency of less than 2 in category one and two combined. It is pointed out that this selection reduces the split-half reliabilities of the various subscores. In the present study, application of the response set did not result in the rejection of any protocols which suggests that response set was not a significant factor in the performance of the experimental group.

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99 P. G. Gaston and O. L. McConnell, "Stability of Rorschach Penetration and Barrier Scores Over Time", in Journal of Consulting Psychology, Vol. 26, p. 104.

Secord and Jouard[100] report a mean of 3.46 with a standard deviation of .401, as established on a group of 43 female college students. The present study yielded a mean and median of 2.6 with a standard deviation of .14.

Secord and Jouard report a split-half reliability coefficient in the range (.72 - .83). Johnson[1] reports a test-retest reliability coefficient of .72, over an eight week period. In the present study the Spearman-Brown split-half (odd-even) correlation was .84, which indicates a good order of internal consistency.

The Hypochondriasis scale of the M.M.P.I. was scored by means of a manual scoring key. The mean score was 5.70 with a standard deviation of 3.92. The median was 5.75 and the range (0-23). M.M.P.I. norms are quoted for scale totals in which the K correction factor has been included. Hathway and McKinley[101] report a mean K of 12.5. The formula for the final Hs. total is (Hs. - .5K). Thus the mean Hs. score of the experimental group is 11.95. Hathway and McKinley present a normative Hs. range (8-30) which places the experimental group in the low average range.

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100 P. F. Secord and S. M. Jouard, "The Appraisal of Body Cathexis and the Self", in Journal of Consulting Psychology, Vol. 17, 1953, p. 343-347.

i See page 44.

101 S. R. Hathway and J.C. McKinley, Manual of the Minnesota Multiphasic Personality Inventory, New York Psychological Corporation, 1951, p. 7.

For groups of 40 - 47 normals, given the individual form of the total M.M.P.I. over time periods ranging from three days to one year Hathway and McKinley[102] report test-retest reliability of .80. On a hundred normals with retesting after a week, using individual and group forms alternately, Cottle[103] reports a reliability coefficient of .81. The present study yielded a Spearman-Brown split-half (odd-even), reliability coefficient of .787.

The Buss Durkee Hostility Inventory was scored by the application of manual scoring keys. Since normative data has not been gathered in full for the two experimental scales, (the Covert and Overt hostility scales), norms for the four scales from which these two arose was considered. Thus six scoring scales were applied: Covert, Overt, Assault, Irritability, Verbal Hostility and Guilt.

Buss[104] presents two sets of norms for college women who took the test anonymously. Those established at Indiana University yield the following means and standard deviations

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102 S. K. Hathway and J. C. McKinley, "A Multiphasic Personality Schedule I. Construction of Schedule", in Journal of Psychology, 1940, Vol. 10, p. 249-254.

103 W. C. Cottle, "Card Versus Booklet Forms of the M.M.P.I.", in Journal of Applied Psychology, 1950, Vol. 34, p. 255-259.

104 A. Buss, The Psychology of Aggression, New York, John Wiley, 1961, p. 176-177.

respectively: Assault: 3.3, S.D. 2.3; Irritability: 6.1, S.D. 2.8; Verbal Hostility: 6.8, S.D. 216; Guilt: 4.4, S.D. 2.3. A second set of norms established 104 college women at Washington State University produced the following means and standard deviations: Assault: 3.1, S.D. 1.9; Irritability: 5.4, S.D. 2.5; Verbal Hostility: 5.8, S.D. 2.6; Guilt: 4.6, S.D. 2.2. As indicated in Table V, the present study yielded similar means and standard deviations: the proximity of the experimental data to that of the two normative groups, indicates reliability of the experimental data. Since the Covert and Overt scales are drawn directly from the four scales just discussed, reliability was assumed from them also.

As indicated in Table V, the present study yielded a mean Covert score of 9.57 with a standard deviation of 3.88. The median Covert score was 9.63. The mean Overt score was 5.87 with a standard deviation of 2.99 and the median Overt score was 5.81.

As reported in the first chapter, Buss established reliabilities for college women on the two experimental scales were as follows: Covert .73, Overt .69. The intercorrelation of the two scales was .44 indicating a relative lack of interrelation of the two scales.[12]

The present study yielded Spearman-Brown, split-half, (odd-even) reliabilities for the Covert and Overt scales of .84 and .83 respectively indicating good internal consistency.

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12 See page 52.

TABLE V.-

Range, Mean, and Median of Hostility Scales for Ninety-four Nurses

	Covert Hostility	Overt Hostility	Assault	Irritable	Verbal Hostility	Guilt
Range	0 - 18	0 - 13	1 - 8	1 - 10	1 - 12	0 - 9
Mean	9.57	5.87	3.51	5.22	6.82	4.55
S. D.	3.88	2.99	1.58	2.12	3.03	2.10
Median	9.63	5.81	3.28	5.43	6.15	4.92

This section has presented the scoring method applied to each test as the mean, standard deviation, median, range and reliability arising from the obtained scores. This data was related to that of normative samples. The next section will describe the statistical treatment.

5. Statistical Treatment

The following procedure was applied to each set of test data: after the range, frequency, mean and median had been computed, the raw scores of the test were grouped into high and low categories. The median obtained by the experimental subjects on the test was used as the cutting score. This process was completed for each of the five variables.

It was established that the theoretical frequencies[105] were sufficient for the application of the chi-square. Since it was necessary to assess the independent variability of each of the five variables in the sample population, it was decided to apply the chi-square.[j]

This final section has indicated the statistical treatment that was applied to the experimental data.

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j $\chi^2 = \dfrac{N(AD - BC)^2}{(A+D)(C+D)(A+C)(B+D)}$

105 L. Dayhaw, Manual Statistique, Ottawa, University of Ottawa, p. 373-404.

This chapter has presented the experimental design used to test the hypotheses of the study. The Design was reported under five headings: description of the sample, description and administration of tools, testing conditions and testing schedule, scoring and initial treatment of data, and lastly, the statistical operations.

The next chapter will present the statistical results and a discussion of them.

CHAPTER III

PRESENTATION AND DISCUSSION OF RESULTS

This chapter presents the statistical results and a discussion of them with reference to the design and to the theoretical basis of the study. The chapter is divided into two sections: presentation of results, and discussion of results.

1. Presentation of Results

This first section presents the statistical results of the study.

Ninety-four sets of protocols were evaluated for A.O.S., Body Cathexis, Hypochondriasis, Covert and Overt scores and 75 sets of protocols for Barrier scores.

As indicated in Table VI the first chi-square examined the possible relation between the A.O.S. and the Barrier. The A.O.S. median of -2.1 and the Barrier median of 3.4, separated a 2 x 2 chi-square as follows: Cell A contained 21 frequencies, Cell B, 23, Cell C, 14, and Cell D, 17. N. totalled 75.

The resultant chi-square was .0481, without significance at the .01 level of confidence, utilizing one degree of freedom. The P corresponding to this chi-square value is between .90 and .80.

This result indicates that there is no significant relationship between the A.O.S. and the Barrier scores and

TABLE VI.-

Chi-square results of the Barrier, Body Cathexis, Hypochondriasis, Covert and Overt Scores

	Chi-Square	P	Chi-Square Significance
A.O.S.			None
Barrier	.0481	.90 to .80	None
Body Cathexis	.9755	.50 to .30	None
Hypochondriasis	.1533	.70 to .50	None
Covert	.000705	.98 to .95	None
Overt	.0178	.90 to .80	None

further that there is hardly any chance interrelation of them. Thus the null hypothesis of independence must be retained.

The second chi-square examined the possible relation between the A.O.S. and the Body Cathexis data. The median A.O.S. of -2.1 and the Body Cathexis median of 2.6, separated the cells as follows: Cell A contained 30 frequencies, Cell B, 23, Cell C, 19, and Cell D, 22. N. totalled 94.

The obtained chi-square was .9755. The P corresponding to this value is between .50 and .30. The null hypothesis cannot therefore, be rejected.

The third chi-square examined the possible relation between the A.O.S. and the Hypochondriasis data. The median A.O.S. of -2.1 and the Hs. median of 5.75, separated the cells as follows: Cell A contained 25 frequencies, Cell B, 28, Cell C, 21, and Cell D, 20. N. totalled 94.

The obtained chi-square was .1533. The P corresponding to this value is between .70 and .50. The null hypothesis cannot therefore, be rejected.

The fourth chi-square examined the possible relation between the A.O.S. and the Covert Hostility data. The median A.O.S. of -2.1 and the Covert Hostility median of 9.6, separated the cells as follows: Cell A contained 27 frequencies, Cell B, 26, Cell C, 21, and Cell D, 20. N. totalled 94.

The obtained chi-square was .0007 5. The P corresponding to this value is between .98 and .95, thus the null hypothesis cannot be rejected.

The fifth chi-square application examined the possible relation between the A.O.S. and the Overt Hostility data. The median A.O.S. of -2.1 and the median Overt Hostility score of 5.8, separated the cells as follows: Cell A contained 29 frequencies, Cell B, 24, Cell C, 23, and Cell D, 18. N. totalled 94.

The obtained chi-square was .0178. The P corresponding to this value is between .90 and .80. Consequently, the null hypothesis cannot be rejected.

The results of the fourth and fifth chi-squares indicated that no significant relationship existed between either of the hostility measures and the A.O.S. It was considered that the A.O.S. might be related to some type of composite measure to these two. Thus two further chi-squares were computed, comparing the A.O.S., in the first instance to the (Covert minus Overt) measures, and in the second to the (Covert plus Overt) measure.

Ninety-four sets of protocols were considered in relating the two composite measures of the hostility scales to the A.O.S. and the results appear in Table VII.

The sixth chi-square examined the possible relation between the A.O.S. and the (Covert-Overt) data. The median A.O.S. of -2.10 and the 3.12 median of the (Covert-Overt), separated a 2 x 2 chi-square as follows: Cell A contained 33 frequencies, Cell B, 30, Cell C, 18, and Cell D, 23. N. totalled 94.

The obtained chi-square was .00240. The P corresponding to this value is between .98 and .95, which indicates that there was no significant relationship between the (Covert - Overt) and the A.O.S.

The seventh chi-square examined the possible relation between the A.O.S. and the Covert + Overt) measure. The median A.O.S. of -2.10 and the 15.07 median of (Covert + Overt), separated the cells in this manner: Cell A contained 27 frequencies, Cell B, 26, Cell C, 18, and Cell D, 23. N. totalled 94.

The obtained chi-square was .459. The P corresponding to this value is between .50 and .30, which indicates that there was no significant relationship between the A.O.S. and (Covert + Overt).

When it was noted that no significant relationship had been found between any of the three known body image measures and the A.O.S., it was decided to examine the validity of these three known measures, by ascertaining if they were

TABLE VII.-

Chi-square Results of the (Covert-Overt) and (Covert + Overt) Measures

	Median	Chi-square	P	Chi-square Significance
A.O.S.	-2.10			
Covert-Overt	3.12	.00240	.98 to .95	None
Covert Overt	15.07	.45924	.50 to .30	None

yielding measures of similar personality dimensions. Theoretical frequencies were established as sufficient and the chi-square method was applied.

In relating the Body Cathexis and Hs. data, 94 sets of protocols were considered and in relating the Barrier to the Hs. and Body Cathexis data, 75 sets of protocols were used. Results using one degree of freedom, appear in Table VIII.

The eighth chi-square examined the possible relation between the Barrier and Body Cathexis data. The median Barrier of 3.4 and the Body Cathexis median of 2.6, separated a 2 x 2 chi-square as follows: Cell A contained 18 frequencies, Cell B, 17, Cell C, 22, and Cell D, 18. N totalled 75.

The obtained chi-square was .0956. The P corresponding to this value is between .80 and .70. Therefore it was concluded that no significant relationship had been established between the Barrier and Body Cathexis data.

The ninth chi-square examined the possible relation between Hs. and Barrier data. The median Hs. score of 5.75 and the median Barrier of 3.4 separated the cells as follows: Cell A contained 17 frequencies, Cell B, 22, Cell C, 18, and Cell D, 18. N totalled 75.

The obtained chi-square was .00343. The P corresponding to this value is between .98 and .95, indicating that no significant relationship had been established between the Hs. and Barrier data.

TABLE VIII.-

Chi-square Results of Known Body-image Measures: Barrier, Body Cathexis, Hypochondriasis

	Median	Chi-square	P	Chi-square Significance
Barrier	3.4			
Body Cathexis	2.6	.0956	.80 to .70	None
Hypochondriasis	5.75	.0034	.98 to .95	None

The tenth chi-square examined the possible relation between the Body Cathexis and Hs. data. The median score of 2.61 for the Body Cathexis and 5.75 for the Hs. scale, separated the cells in this manner: Cell A contained 25 frequencies, Cell B, 24, Cell C, 22, and Cell D, 23. N. totalled 94.

As indicated in Table IX, the chi-square was .0426. The P corresponding to this value is between .90 and .80, which indicates that no significant relationship existed between the Body Cathexis and Hs. data.

All ten chi-squares assumed one degree of freedom.

Inspection of the data indicated that neither the religious subjects, nor any specific age group or symptom-reporting group constituted a meaningful trend.

This section has presented the statistical results of the study. The final section consists of a discussion of these results with reference to the design and the theory subtending the study. General implications of the study are also cited.

2. Discussion of Results

This section presents a discussion of the statistical results with reference to the experimental design employed and to the theoretical assumptions on which the study was based.

TABLE IX.-

Chi-square Results of Body Cathexis and Hypochondriasis

	Median	Chi-square	P	Chi-square Significance
Body Cathexis				
Hypochondriasis	5.75	.0426	.90 to .80	None

The chi-squares cited in the previous section indicates that the study failed to establish any significant relation between the A.O.S. and three known measures of body image, the Barrier modification of the Rorschach, Body Cathexis Test and Hypochondriasis scale of the M.M.P.I. Similarly the study did not establish any significant relation between the A.O.S. and the Covert and Overt Hostility measures, even when composite scores of these two measures, (Covert - Overt) and (Covert+ Overt) were considered. Consequently none of the five null hypotheses could be rejected.

The chi-squares computed to test the validity of the three known body image measures, were notable for the almost total lack of even chance relationship between them. This result suggests that the three measures did not tap the same aspects of personality. Further the data gave no evidence of differentiation in terms of the method by which it was obtained, i.e., conscious and direct as opposed to indirect and projective. Such a differentiation would have contributed to the discriminant validity of the tests, in that an unconscious measure cannot be termed such if it cannot be demonstrated that such a measure could not be elicited by a direct, conscious method.

Attention is now turned to a discussion of the chance relationships obtained since it is possible that a study with another population and/or a different experimental design might clearly deny or reject any of these relationships.

Among the body image measures, the Body Cathexis showed the greatest chance interdependence with the A.O.S. and the Barrier, the least.

In considering the A.O.S. as a possible hostility measure, a greater interrelationship was found between the A.O.S. and the Overt Hostility scale than between it and the Covert Hostility. Further when the composite measures of the two scales were considered, the (Covert + Overt) showed a greater chance relation to the A.O.S. than did the (Covert - Overt) or either the Covert or Overt considered separately. These results question the possibility that a tendency to aggressive acting out, as measured by the A.O.S., is dependent on insufficient control of overt aggressive tendencies rather than a critically high level of covert hostility.

Possible explanations for the results obtained are now considered. When graphs for the six experimental measures were plotted the following curves resulted: the A.O.S. had a slight leftward skew; the Body Cathexis was platykurtic; the Hypochondriasis was multimodal and the Barrier curve was leptokurtic. The scores of the various hostility measures each formed a normal curve. These findings suggest possible defects in the scoring systems that do not allow for continuous, consecutive class measures, or a lack of reliability of the items across the sample population. Certainly such a variety of curves tend to irreversibly mask the possible relationships in the data.

Although the mixture of normal and abnormal curves does not strongly suggest it, another possible explanation for the results obtained, was the sample population itself. In an effort to more clearly define the population the mean proportions of the various categories of the Hand Test were compared to those of the normative population. It was found that the experimental group exhibited a greater tendency to the aggressive, directive and communicative behavior and a lesser tendency to dependent and affectionate behavior than the normative sample. The means Hypochondriasis score for the experimental sample was in the low normal range according to the criterion measures. The mean Body Cathexis score for the experimental sample was also in the low normal range. Both these findings support the literature which suggests that normally nurses tend to exhibit less emotional involvement and preoccupation with their bodies than does the normal woman. In contrast to these results the low normal mean Barrier score obtained by the experimental group suggests that the experimental subjects are less directive and actively self-steering than the normal individual. These results are not supported by other experimental data nor by clinical evidence. None of these trends suggest that the experimental population was abnormal to the point that the quality of the sample could account for the results obtained.

The testing schedule was also considered in studying the results. It had been feared that the administration of all the tests in one session would engender a response set. The results suggest a trend in the opposite direction. Further when each of twenty-six sets of protocols were examined qualitatively, each of twenty-four of the sets was found to have been answered in a consistent direction.

Finally attention was given to the theory subtending the study as a possible explanation for the results obtained. However no evidence was found to support or reject the theoretical assumptions of the study.

Thus the present study did not establish any significant relationship between the experimental variable, the A.O.S. and three measures of Body-image, the Barrier modification of the Rorschach, the Body Cathexis Test and the Hypochondriasis Scale. Further no significant relationship was established between the A.O.S. and two measures of hostility, the Covert Hostility Scale and the Overt Hostility Scale. Of the possible explanations for the results obtained the suggestion is that the lack of discriminant validity of test items, the quality of the various scoring systems and/or the combination of these scoring systems in this study, constitute the major contributing factors to the negative results obtained.

The foregoing discussion has considered the results of the present study with reference to the design employed and

the theoretical implications underlying the study. Several design difficulties were discussed as possible contributors to the statistically non-significant results.

Attention is now given to the summary of the study.

SUMMARY

The present study sought to validate the Acting-Out Score, (A.O.S.), of the Hand Test, as a measure of Body-image. For this purpose the A.O.S. was related to three known measures of Body-image: Fisher and Cleveland's Barrier modification of the Rorschach, the Body Cathexis Test and the Hypochondriasis Scale of the MMPI. The study also sought to examine the etiologic dynamics of aggressive acting-out by relating the predictive measure of aggressive behavior on the Hand Test, A.O.S., to two factor analyzed measures of hostility, the Covert Hostility and Overt Hostility Scales.

The sample consisted of 94 graduate nurses with a mean age of 27.7. A questionnaire eliciting vital data and a history of psychosomatic illnesses was presented to the subjects immediately prior to the administration of the six experimental measures.

Testing was completed in one session in a small auditorium providing ideal testing conditions. The tests were scored by three psychologists and the resulting data submitted to chi-square treatment. The results indicated that the study had failed to establish any significant relation between the A.O.S. of the Hand Test and any of the three known Body-image measures. Further, no significant relation had been established between the A.O.S. and the two measures of hostility.

It was suggested that possible main contributing factors to these findings were: a lack of discriminant validity among the test items, the possibility that the scoring systems did not provide measures in continuous and consecutive classes and/or the possible masking of relationships that resulted by combining these various scoring systems.

The study cannot be considered to have contributed to the fields of Body-image or Aggression.

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Wolff, Charlotte, The Human Hand, New York, Alfred A. Knopf, 1942, xvii-198 p.

A unique and stimulating text by a scientifically oriented and inciteful psychologist, which presented a Kretschmerian description of the morphological character of the hand and describes a method for assessing personality variables by scientific study of the hand surfaces.

Wylie, Ruth C., The Self Concept: A Critical Survey of Pertinent Research Literature, Nebraska, University of Nebraska Press, 1961, xiii-390 p.

A comprehensive evaluation of research techniques used in both phenomenological and nonphenomenological investigations of self-concept. Of special interest to the present project is the attention the author gives to discriminant validity in nonphenomenological studies.

APPENDIX 1

ABSTRACT

APPENDIX I

ABSTRACT OF

PROJECTED ACTION TENDENCIES ON THE HAND TEST: A MEASURE OF BODY IMAGE

The present study sought to provide a new measure of Body-image. Body-image was defined as the individual's perception of his body, plus his feelings and attitudes towards his body per se and towards his body as a social object.

The study was based on the following postulate of Paul Schilder: action tendencies are a direct manifestation of Body-image, and as such reflect the basic stratum of personality. It was hypothesized that the Hand Test which is purported to yield a measure of intrapersonal and interpersonal action tendencies would represent a measure of Body-image. Thus the Hand Test was compared to three known measures of Body-image: Fisher and Cleveland's Barrier modification of the Rorschach, the Hypochondriasis scale of the Minnesota Multiphasic Personality Inventory, and the Body Cathexis Test. Since those Hand Test scores considered relevant to Body-image are grouped in the composite Acting-Out

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Barbara Ann Wright, master thesis presented to the School of Psychology and Education, University of Ottawa, Ontario, June, 1964, vii - 102 p.

Score,(A.O.S.), this score was used to represent the Hand Test. Further, since the A.O.S. had been validated on known groups, as a measure of aggressive acting-out, the study also concerned itself with the quality of the negative feelings precipitating this aggressive acting-out; to discover if the tendency to aggressive acting-out is the result of insufficient controls of the tendency to overt aggressiveness or the result of a critically high level of covert hostility. To investigate this question, the A.O.S. was related to the factor analyzed Covert Hostility and Overt Hostility scales of the Buss-Durkee Hostility Inventory.

The experimental sample was composed of 106 graduate nurses, presently enrolled in nursing education and public health nursing courses at the University of Ottawa, whose mean age was 27.7, with a range from twenty-one through fifty years. Since involvement with psychosomatic symptoms is a relevant variable when considering Body-image measures, a Questionnaire, eliciting report of symptoms, was presented. It was found that symptom-reporting did not constitute a significant variable in defining the population.

The six experimental measures were presented in a one morning testing session, in a small well-lit and acoustically accurate auditorium. The subjects came to the auditorium expecting a usual weekly lecture in introductory psychology. Projective tests were presented by projecting the stimulus

cards by a Graphex Constellation slide projector on a screen 84" x 84".

Tests were taken anonymously and scored by three psychologists. The chi-square treatment was applied to the obtained data. The results indicated that no significant relationship had been established between the A.O.S. and any of the three Body-image measures. Further, no significant relationship had been found between the A.O.S. and either of the hostility measures. These over-all negative results appeared attributable to a lack of discriminant validity in the items, the possibility that the various scoring systems did not yield measures of continuous and consecutive classes and/or that the combination of these various scoring systems had masked any relationships that were obtained.

APPENDIX 2

QUESTIONNAIRE

- Age _____

- Religious _____ Lay _____

- Name your favourite sport, past or present. _____

- Do you or would you like to have cooking as a hobby? Yes _____, No _____.

- Would you characterize yourself as a person with High energy ? _____.

  Average energy ? _____.

  Low energy ? _____.

- Have you at any time had the following diseases:

  (a) Dermatitis (Inflammation of the skin)? Yes _____. No _____.

  (b) Arthritis (Inflammation of the joints)? Yes _____. No _____.

  (c) Ulcerative Colitis? Yes _____. No _____.

  (d) Stomach disturbances; Chronic or Acute, which required medical attention?

  Yes _____. No _____.

  (e) Other Diseases or Conditions? (Please specify)

  _____

  _____.

- Can you better visualize the Interior of your body or the Exterior? _____.

- Do you have better control and more active use of your body <u>interior</u> or your body <u>exterior</u>? _____.

- Would you characterize yourself as a person whose goals include getting to the top? Yes _____. No _____.

APPENDIX 2

HYPOCHONDRIASIS TEST FORM

If the statement applies to you circle (T)
If the statement does not apply to you circle (F)

1.	I am bothered by acid stomach several times a week.	T	F
2.	Parts of my body often have feelings like burning, tingling, crawling, or like "going to sleep."	T	F
3.	I am troubled by discomfort in the pit of my stomach every few days or oftener.	T	F
4.	There seems to be a fullness in my head or nose most of the time.	T	F
5.	I have a great deal of stomach trouble.	T	F
6.	The top of my head sometimes feels tender	T	F
7.	I have had no difficulty in starting or holding my bowel movement.	T	F
8.	I hardly ever feel pain in the back of the neck.	T	F
9.	I am troubled by attacks of nausea and vomiting.	T	F
10.	I have never vomited blood or coughed up blood.	T	F
11.	I am very seldom troubled by constipation.	T	F
12.	I have a good appetite.	T	F
13.	I am about as able to work as I ever was.	T	F
14.	I am in just as good physical health as most of my friends.	T	F
15.	During the past few years I have been well most of the time.	T	F
16.	My sleep is fitful and disturbed.	T	F
17.	I feel weak all over much of the time.	T	F
18.	I am neither gaining nor losing weight.	T	F
19.	Often I feel as if there were a tight band about my head.	T	F
20.	My hands and feet are usually warm enough.	T	F
21.	I am almost never bothered by pains over the heart or in my chest.	T	F
22.	I do not tire quickly.	T	F
23.	I seldom or never have dizzy spells	T	F
24.	I can read a long while without tiring my eyes.	T	F
25.	I have very few headaches.	T	F
26.	I hardly ever notice my heart pounding and I am seldom short of breath.	T	F
27.	I have few or no pains.	T	F
28.	My eyesight is as good as it has been for years.	T	F
29.	I wake up fresh and rested most mornings.	T	F

30.	I have little or no trouble with my muscles twitching or jumping.	T	F
31.	I have had no difficulty in keeping my blance in walking.	T	F
32.	I do not often notice my ears ringing or buzzing.	T	F
33.	I have numbness in one or more regions of my skin.	T	F

APPENDIX 2

BUSS DURKEE HOSTILITY INVENTORY TEST FORM

1.	I seldom strike back, even if someone hits me first.	T	F
2.	I sometimes spread gossip about people I don't like.	T	F
3.	Unless somebody asks me in a nice way, I won't do what they want.	T	F
4.	I lose my temper easily but get over it quickly.	T	F
5.	I don't seem to get what's coming to me.	T	F
6.	I know that people tend to talk about me behind my back.	T	F
7.	When I disapprove of my friends' behavior, I let them know it.	T	F
8.	The few times I have cheated, I have suffered unbearable feelings of remorse.	T	F
9.	Once in a while I cannot control my urge to harm others.	T	F
10.	I never get mad enough to throw things.	T	F
11.	Sometimes people bother me just by being around.	T	F
12.	When someone makes a rule I don't like, I am tempted to break it.	T	F
13.	Other people always seem to get the breaks.	T	F
14.	I tend to be on my guard with people who are somewhat more friendly than I expected.	T	F
15.	I often find myself disagreeing with people.	T	F
16.	I sometimes have bad thoughts which make me feel ashamed of myself.	T	F
17.	I can think of no good reason for ever hitting anyone.	T	F
18.	When I am angry, I sometimes sulk.	T	F
19.	When someone is bossy, I do the opposite of what he asks.	T	F
20.	I am irritated a great deal more than people are aware of.	T	F
21.	I don't know any people that I downright hate.	T	F
22.	There are a number of people who seem to dislike me very much.	T	F
23.	I can't help getting into arguments when people disagree with me.	T	F
24.	People who shirk on the job must feel very guilty.	T	F
25.	If somebody hits me first, I let him have it.	T	F
26.	When I am mad, I sometimes slam doors.	T	F
27.	I am always patient with others.	T	F
28.	Occasionally when I am mad at someone I will give him the "silent treatment."	T	F
29.	When I look back on what's happened to me, I can't help feeling mildly resentful.	T	F
30.	There are a number of people who seem to be jealous of me.	T	F
31.	I demand that people respect my rights.	T	F
32.	It depresses me that I did not do more for my parents.	T	F
33.	Whoever insults me or my family is asking for a fight.	T	F
34.	I never play practical jokes.	T	F

35.	It makes my blood boil to have somebody make fun of me.	T	F
36.	When people are bossy, I take my time just to show them.	T	F
37.	Almost every week I see someone I dislike.	T	F
38.	I sometimes have the feeling that others are laughing at me.	T	F
39.	Even when my anger is aroused, I don't use "strong language."	T	F
40.	I am concerned about being forgiven for my sins.	T	F
41.	People who continually pester you are asking for a punch in the nose.	T	F
42.	I sometimes pout when I don't get my own way.	T	F
43.	If somebody annoys me, I am apt to tell him what I think of him.	T	F
44.	I often feel like a powder keg ready to explode.	T	F
45.	Although I don't show it, I am sometimes eaten up with jealousy.	T	F
46.	My motto is "Never trust strangers."	T	F
47.	When people yell at me, I yell back.	T	F
48.	I do many things that make me feel remorseful afterwards.	T	F
49.	When I really lose my temper, I am capable of slapping someone.	T	F
50.	Since the age of ten, I have never had a temper tantrum.	T	F
51.	When I get mad, I say nasty things.	T	F
52.	I sometimes carry a chip on my shoulder.	T	F
53.	If I let people see the way I feel, I'd be considered a hard person to get along with.	T	F
54.	I commonly wonder what hidden reason another person may have for doing something nice for me.	T	F
55.	I could not put someone in his place, even if he needed it.	T	F
56.	Failure gives me a feeling of remorse.	T	F
57.	I get into fights about as often as the next person.	T	F
58.	I can remember being so angry that I picked up the nearest thing and broke it.	T	F
59.	I often make threats I don't really mean to carry out.	T	F
60.	I can't help being a little rude to people I don't like.	T	F
61.	At times I feel I get a raw deal out of life.	T	F
62.	I used to think that most people told the truth but now I know otherwise.	T	F
63.	I generally cover up my poor opinion of others.	T	F
64.	When I do wrong, my conscience punishes me severely.	T	F
65.	If I have to resort to physical violence to defend my rights, I will.	T	F
66.	If someone doesn't treat me right, I don't let it annoy me.	T	F
67.	I have no enemies who really wish to harm me.	T	F
68.	When arguing, I tend to raise my voice.	T	F
69.	I often feel that I have not lived the right kind of life.	T	F

70.	I have known people who pushed me so far that we came to blows.	T	F
71.	I don't let a lot of unimportant things irritate me.	T	F
72.	I seldom feel that people are trying to anger or insult me.	T	F
73.	Lately, I have been kind of grouchy.	T	F
74.	I would rather concede a point than get into an argument about it.	T	F
75.	I sometimes show my anger by banging on the table.	T	F

APPENDIX 2

HAND TEST TEST FORM

(R)
Please
do not
write

A 1
2
3
B 1
2
3
C 1
2
3
D 1
2
3
E 1
2
3
F 1
2
3
G 1
2
3
H 1
2
3
I 1
2
3
J 1
2

APPENDIX 2

RORSCHACH BARRIER TEST FORM

(R)
Please
do not
write

A	1	
	2	
	3	
B	1	
	2	
	3	
C	1	
	2	
	3	
D	1	
	2	
	3	
E	1	
	2	
	3	
F	1	
	2	
	3	
G	1	
	2	
	3	
H	1	
	2	
	3	
I	1	
	2	
	3	
J	1	
	2	

APPENDIX 2

BODY CATHEXIS TEST FORM

Below there are forty-six items followed by numbers 1-5. You are asked to encircle the number which best represents your feelings towards each of these items, according to the following scale.

1. I have strong positive feeling about my (...item).
2. I have moderate positive feeling about my (...item).
3. I have no feelings one way or the other about my (...item).
4. I have moderate negative feelings about my (...item).
5. I have strong negative feelings about my (...item);

toes 1 2 3 4 (5)

This person by encircling the 5, has indicated that he has strong negative feelings towards his toes.

Now you do the following:

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

1. I have strong positive feeling about my (...item).
2. I have moderate positive feeling about my (...item).
3. I have no feelings one way or the other about my (...item).
4. I have moderate negative feelings about my (...item).
5. I have strong negative feelings about my (...item).

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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
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
health	1	2	3	4	5
sex-activities	1	2	3	4	5
knee	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