Body Image and Habit Change in Religious Women

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Loyola University Chicago

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BODY IMAGE AND HABIT CHANGE
IN RELIGIOUS WOMEN

by

Sr. Cel Brocken, CSJ

A Dissertation Submitted to the Faculty of the Graduate School
of Loyola University in Partial Fulfillment of
the Requirements for the Degree of
Doctor of Philosophy

July
1969
ABSTRACT

Body image variables of religious women (N=190) were studied before and after change from traditional to contemporary habit. Body boundary was measured by Holtzman Inkblot barrier and penetration scores; body satisfaction by the Secord and Jourard Body Cathexis Scale; and acceptance of body parts by Holzberg and Plummer's test. The 50 items obtained from the first testing were factor analyzed by using a principal axes solution with varimax rotations. The factor loadings clearly defined several body satisfaction dimensions: body build related to hips and thighs; legs; and four factors relating presenting aspects of the face. Acceptance of body parts loaded on several factors with those body parts which Holzberg and Plummer claim to be normally of more concern to women than to men. Body boundary was analyzed by comparing a group who chose to remain in the traditional habit (N=17) with a closely matched group who changed habit. An analysis of variance of barrier and penetration scores revealed no significant differences between no change and change habit groups at the time of the first or second testing. A statistically significant difference (p .01) was found within the change habit group—a significantly higher barrier score after habit change. This substantiates earlier findings that fluctuations in body boundary result with a shift in the usual way of experiencing one's body.
Sr. Cel Brooken, CSJ, was born in Hodgkins, Illinois, November 4, 1928.

She graduated from Murray High School, St. Paul, in June, 1946, and entered the novitiate of the Sisters of St. Joseph, La Grange, Illinois, September, 1946. She received the degree of Bachelor of Science, *summa cum laude*, from Loyola University, February, 1955. She received a Master of Arts in Speech Pathology from Northwestern University, November, 1961. She is a member, and holds clinical certification in the American Speech and Hearing Association.

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CHAPTER I

INTRODUCTION

The broad area of concern in this dissertation is body image. The particular focus is on the relationship between body image and clothing. The context within which the relatedness of body image to clothing choice is explored is the current adaptation of religious women. Various groups of Sisters are in transition from a more traditional to a more contemporary style of living, including radical change of dress. Some of these women may now choose either to remain in the traditional habit, to modify it somewhat, or to wear contemporary styles. Because the traditional religious habit is such an extreme type of clothing, the decision to change to contemporary styles, as well as the actual wearing of something so drastically different, ought to provide an opportune situation to study the relationship between body image variables and clothing. Thus, the specific end in view in preparing this dissertation is twofold: (a) to explore the body image variables that may be factors in the decision to wear traditional or contemporary dress; (b) to explore the effect of an abrupt and extreme change in dress on these body image variables.

The main issues needing clarification and delineation are the specific body image variables being studied, and the specific
instruments selected to measure these variables.

Body image has been variously defined, with differing emphases on conscious versus unconscious aspects. Head (1920), for example, puts it in terms of body schema, a standard model of the body against which all subsequent body experiences are unconsciously registered. Brain (1962) stresses the conscious nature of body image, as it is provided by somatic impulses. Freud (1927) also maintains that "the conscious ego is first and foremost a body ego." Schilder (1964) thinks of body image as a composite of conscious and unconscious perceptual levels. It is Schilder's definition that is adapted for the purpose of this study. Body image is the "picture of our own body which we form in our mind, that is to say, the way in which the body appears to ourselves." The experimental task becomes one of isolating, defining, and measuring variables of body image. A review of the literature and a pilot study conducted for the purpose of evaluating several ways of assessing body image led to the decision to study the following variables: (a) the degree of differentiation of body boundary, as measured by the Barrier and Penetration scores on the Holtzman Inkblot Technique (1958); and (b) the degree of satisfaction with body parts, as measured by Secord and Jourard's Body Cathexis Scale (1953); and acceptance of body parts, especially those parts which may be designated as being of more concern either to women or to men, as measured by Holzberg and Plummer (1964). As will be seen in the review of related litera-
ture, the concept of body boundary, especially as it relates to Barrier and Penetration scores, has received a substantial and impressive amount of study. The concept of degree of satisfaction with body parts is not nearly as well defined, comprehensive summaries of related findings and/or theoretical formulations have not been made. The Body Cathexis Scale has not been the object of study to demonstrate its formal psychometric adequacy, e.g., in terms of scoring objectivity and test-retest reliability. However, the concept of satisfaction with body parts has consistently appeared in studies of body image, and the notion is of basic concern. It merits further critical study. Even less has been achieved regarding the study of acceptance of those body parts that allegedly are of particular concern either to women or to men.

This literature, too, will be reviewed, but it is important to state here that since the body parts of more concern to women are those very parts that have increased visibility with change from traditional to contemporary habit, this variable is pertinent to the research and deserving of further study.

Although specific hypotheses could be advanced in terms of the twofold purpose of the study, this would constitute a somewhat fragmented approach. It would entail considering each body image variable and/or related instrument individually, and the end result would be a string of conclusions whose interrelatedness would be difficult to ascertain. It was judged that factor analysis would provide the most parsimonious method of interpreting a num-
ber of body image variables, as well as allowing (a) a comparison of subjects who chose to remain in the traditional habit with subjects who chose to change to contemporary styles; and (b) a comparison of pre- and post-habit change scores of those subjects who changed to contemporary styles.
CHAPTER II

REVIEW OF THE RELATED LITERATURE

The issues related to body image have assumed increasing significance in the study of normal and abnormal behavior since the impetus given to the area by such neurologists as Head and Schilder. Psychologists have been interested in the relationships between body image and such functions as motor action, affect, perception, and cognition. In 1963, the International Congress of Psychology sponsored a symposium on "The Body Percept." In the Introduction to the volume that grew out of that symposium, Werner (1965) summarizes several central notions on which the contributors were in agreement, and which reflect areas of current concern.

(a) The nature of the body image is dynamic; it possesses an ever-changing character. (b) There is a common stress on the interdependence of the characteristics of the person as a bodily entity and the characteristics of the world around him. (c) There is a real value in studying personality through the avenue of body schemata and their expression. (d) The body problem is a fertile ground for the study of development, that is, the study of differentiation of bodily experience, of increasing distancing between self and the world.

With these general notions in mind, and Schilder's definition
of body image serving as the particular viewpoint, the related literature will be reviewed in four sections: (a) body image and clothing, (b) body boundary as measured by the Holtzman Inkblot Technique, (c) satisfaction with body parts, as measured by the Body Cathexis Scale, and (d) acceptance of body parts, as measured by the Body Parts Acceptance Test. A final section will summarize differences between the proposed study and similar efforts.

**Clothing and Body Image**

Head once stated, "... the postural model of the body reaches to the tip of the feather in a woman's hat." Psychoanalytic writers, e.g., Garma (1949) and Flugel (1950), have particularly stressed the close relationship between clothes and other body decorations, and body image. According to their interpretations, clothes gain the same significance as parts of the body, and may have the same symbolic meanings.

Tate (1967) selects some of Flugel's comments on the psychological implications of clothing that are relevant to the wearing of a traditional religious habit. He says of people generally, and she applies to religious women particularly, that persons who habitually wear somber colors consider themselves to be persons of great seriousness, especially, moral seriousness. In similar moral tones, unusual bulk or volume of clothing indicates distrust of the human body, it conceals body lines, thus making the body "safer." Voluminous clothing also signifies aloofness. Since clothing is an extension of the skin, thick clothing keeps one out
of touch with others. Persons who habitually wear a great amount of clothing are not approachable in a personal way.

Schilder (1964) takes a position that clothes are only a method of transforming the body image. He stresses that our body image is in a continuous process of enlargement and we enjoy these changes in it. We play with the enlargement of our body image, through clothing, decoration, etc. He states:

A full understanding of the psychology of clothes is of course not possible when we only consider the postural model of the body of one individual; we must consider also the interrelations between the diverse schemas of the body. We identify ourselves with others by means of clothes. We become like them. By imitating their clothes we change our postural image of the body by taking over the postural image of others. Clothes can thus become a means of changing our body image completely (Schilder, 1964, p. 204).

Actually, this thinking does coincide with the religious reasons given for wearing a conventual habit. However, as interesting as these theoretical formulations are, very little empirical investigation has been undertaken to substantiate them.

Some studies have been made of body decoration in the form of tatoos. Hawkins and Poppleston (1964) maintain that the tattoo signifies the stereotyped masculine attributes of physical strength and psychological aggressiveness, and the observers perceive the implications the wearer intends. Mosher, Oliver, and Dolgan (1967) found that prisoners with tattoos had significantly higher Barrier scores and lower Body Cathexis scores than prisoners without tattoos. They find it hard to explain why prisoners
would have such high Barrier scores in view of the positive correlates of high Barrier scores. They suggest that perhaps it is because their subjects were less serious offenders. As a matter of fact, other "unlikely" subjects have also been found to have high Barrier scores. As Fisher and Cleveland state:

It is possible for an individual to be clinically schizophrenic and yet maintain well-articulated boundaries. Exploratory efforts to understand this paradox have suggested that paranoid delusions or feelings of grandiosity may somehow supply a disorganized person with a sense of prominence and importance in the world which permit him to continue to experience himself as differentiated and bounded. The question remains whether a boundary so maintained is the equivalent of that found in nonpsychotics (Fisher & Cleveland, 1968, p.393).

This is the sort of question under present scrutiny, that is, to what extent, even in a nonpsychotic, does something like a traditional religious habit constitute part of the body boundary and perhaps create a "false positive" Barrier score. Compton’s (1964) study addresses itself to this point.

Compton hypothesized that women with indefinite body boundary concepts might attempt to define their boundaries through clothing choices. She found that preference for saturated colors and strong figure-ground contrasts were negatively related to Barrier scores. Preferences for warm colors and large patterns were positively related to Penetration scores. She suggests that clothing may provide a defense for women with weak body boundaries, providing a minimum constancy in new situations.
Fisher and Cleveland (1958) have long been interested in the boundary aspect of the body image concept. They have studied the degree to which individuals differ in their experience of the boundary regions of their bodies as articulated and definite, that is, the degree to which individuals perceive their body boundaries as clearly setting them apart from the environment. They have developed an index, the Barrier score, to measure boundary definiteness. Barrier score is based on the number of images produced in response to an ink blot series; responses which are characterized by peripheries with protective, containing, or decorative qualities, e.g., a cave with rocky walls, a woman in a fancy costume. They also have defined a Penetration score as an index of the degree to which the individual regards his boundaries as readily penetrable, e.g., a mashed bug, a person bleeding. Fisher (1963, 1968) has reviewed a series of studies which cross-validated and extended previous findings concerning the relationship of body image boundary definiteness to various levels of behavior. Some of the behavioral correlates of well differentiated boundaries have been shown to be: patterning of body sensation; differences in body exterior vs interior physiological reactivity; high achievement; goal orientation; self-determination; and alert readiness for interaction with others. It is also claimed that boundary differentiation has important relationships to stress tolerance and patterns of psychopathology.

Body Boundary

Fisher and Cleveland (1958) have long been interested in the boundary aspect of the body image concept. They have studied the degree to which individuals differ in their experience of the boundary regions of their bodies as articulated and definite, that is, the degree to which individuals perceive their body boundaries as clearly setting them apart from the environment. They have developed an index, the Barrier score, to measure boundary definiteness. Barrier score is based on the number of images produced in response to an ink blot series; responses which are characterized by peripheries with protective, containing, or decorative qualities, e.g., a cave with rocky walls, a woman in a fancy costume. They also have defined a Penetration score as an index of the degree to which the individual regards his boundaries as readily penetrable, e.g., a mashed bug, a person bleeding. Fisher (1963, 1968) has reviewed a series of studies which cross-validated and extended previous findings concerning the relationship of body image boundary definiteness to various levels of behavior. Some of the behavioral correlates of well differentiated boundaries have been shown to be: patterning of body sensation; differences in body exterior vs interior physiological reactivity; high achievement; goal orientation; self-determination; and alert readiness for interaction with others. It is also claimed that boundary differentiation has important relationships to stress tolerance and patterns of psychopathology.
Claimed correlates of Barrier and Penetration scores have not gone unchallenged. Eigenbrode and Shipman (1960) failed to replicate the boundary distinction between psychosomatic patients with interior as opposed to exterior symptoms. Eigenbrode and Shipman criticize Fisher and Cleveland's reference to boundaries as definite and protective on the grounds that these two features are not necessarily related. They suggest scoring the other end of the dimension as well, e.g., a minus for soft surface things. They also question scores of equal weight for containers and defensive coverings.

Hirt, Ross, and Hurtz (1967) have attempted a more rigorous test of the hypothesis that individuals with body-exterior reactions perceive their body boundary as more definite than those individuals with body-interior reactions. They examined the theoretical construct postulated by Fisher and Cleveland which relates perception of body boundary with site of disease. They believe that a more critical test of the construct validity of the psychosomatic relationship requires the comparison of several groups with body-interior disease sites against several groups having body-exterior disease sites. What has previously been done is the comparison of one body-interior disease group against one body-exterior disease group. In their comparison of four such groups, they found no differences between the groups in body-boundary perception. Two alternate explanations are presented: problems in subject selection, and uncontrolled sources of various other fac-
tors. The authors found it very difficult to find subjects whose medical histories clearly reflected that the body-disease site had always been internal or external. The authors examined psychopathology as an uncontrolled source of variance. When an index of psychopathology was treated as a covariant, the groups did show significant differences in body-boundary perception. The possibility is raised that the differences previously reported between single groups were due to differences in psychopathology, rather than to body-boundary perception.

Shipman (1965) also challenges some of Fisher's findings on the psychological as well as the physiological level. Shipman investigated several claims that persons with high Barrier scores exceed those with low Barrier scores on measures of activity level, achievement drive, independence, need to complete tasks, suggestibility, direction of anger, and adaptation to stress. Shipman found significant differences in achievement drive and adaptation to stress only.

Actually, what Fisher, et al, have been saying is that boundary definiteness is reflected in the projections one makes to the peripheries of ink blot stimuli. They have had to assume the burden of the proof that just such a phenomenon does occur. Mednick (1959) and Wylie (1961) have criticized the assumption that Barrier and Penetration scores represent measures of body image, as such. Perhaps these scores represent cognitive or perceptual operations that merely reflect how one deals with ink blots!
Fisher and Cleveland maintain that there are several lines of evidence that substantiate their body image conceptualization. First, boundary scores predict various levels of body behavior, e.g., the ability to cope with body disablement; patterns of phantom sensations after amputation; differential size judgments assigned to left and right sides of the body. Moreover, boundary scores correlate with anxious concern about the body, but do not correlate with indices of general anxiety. Second, boundary scores are not consistently related to indices having cognitive or perceptual style connotations, e.g., intelligence, verbal productivity, Gottschaldt figure judgment, speed of figure-ground alterations or authoritarianism.

Several studies have recently given more direct and convincing demonstration of the body image foundation of the Barrier score. Fisher and Fisher (1964) confirmed their hypothesis that if the Barrier score actually does reflect body experience, then the more definite an individual’s boundaries, the more perceptually prominent should be the boundary sectors of his body, namely, skin and muscle.

The most significant evidence that body image variables are indeed represented in Barrier scores, are the studies in which boundary attributes have been monitored during the course of intense modifying and altering experiences. Cleveland (1960) demonstrated a firming up and defining of body image boundary in recovering schizophrenics. McConnell and Daston (1961) studied
pregnant women and found a significant decline in the Penetration score, post-delivery. Reitman and Cleveland (1964) studied boundary alterations consequent upon sensory isolation. Schizophrenics showed increased tactile sensitivity and a decreased concept of body size following isolation. Just the reverse was found with non-psychotics. It was speculated that for the schizophrenics, sensory isolation seemed to provide a non-threatening pattern of stimuli which fostered more realistic body boundaries.

Fisher and Renik (1966) have demonstrated that the body image boundary can be altered by manipulating the manner in which an individual distributes his attention to his body. Subjects who focused their attention on the boundary regions of their bodies increased their Barrier scores significantly more than did those who did not alter their pattern of body attention. In their discussion, Fisher and Renik state that their findings indicate the possibility of altering the boundary and perhaps other body image dimensions, by procedures which cause the individual to shift his usual ways of experiencing his body. As Fisher and Cleveland state:

Apparently, fluctuations in boundary attributes do offer promise as indicators of certain kinds of modification of the individual. At this point one can only conjecture whether boundary fluctuations represent initiating forces in change processes or whether they are subsidiary effects (Fisher & Cleveland, 1968, p. 393).

The twofold purpose of the present research addresses itself to this very question. What degree of body boundary differentiation
enters into the decision to relinquish the traditional habit? What body boundary fluctuations occur when something as reinforcing as the traditional habit is removed?

**Holtzman Inkblot Technique (HIT)**

Buros (1965) describes the HIT generally in terms of a well-standardized, psychometrically sophisticated instrument, an inkblot technique developed expressly to correct some of the deficiencies of the Rorschach. The HIT provides an adequate measure of Barrier and Penetration scores. Holtzman (1958, 1961) included these two factors as two of the 22 variables measured by his test. He qualified his initial rationale for including Barrier and Penetration scores because Fisher and Cleveland's scoring system seemed arbitrary to him at several points. He felt justified, however, in incorporating these two variables in the HIT, and anticipated some refinement of the Barrier and Penetration variables as a result of the standardization of the HIT. Interestingly enough, he did not later (1966) find the need to revise these two variables.

In the standardization of the HIT, the following reliability coefficients were obtained for Barrier and Penetration. When the average scoring consistency of these measures was tested, intrascorer values of .90 for Barrier and .87 for Penetration were obtained; interscorer values were .84 for both Barrier and Penetration. Unlike Fisher and Cleveland, Holtzman included both clinical and normal groups in his standardization studies. Odd-
even reliabilities and standard errors of measurement ranged from a low of .41 with a S.E. of 1.4 for housewives, to a high of .90 with a S.E. of 1.1 for fourth graders. Test-retest reliability of .51 for Barrier and .34 for Penetration was obtained in a three month interval using eleventh graders.

Fisher and Cleveland (1968) report nine studies which show that Barrier and Penetration can be scored with high objectivity, instances in which interscorer agreement has been in the high .80's and .90's. They also report seven test-retest reliability studies with values ranging from .40 to .89, five of the seven being above .77.

Body Satisfaction

The verbal reports of bodily feeling have always been recognized for their clinical utility. How happy one is with one's body, how satisfied or dissatisfied with its various parts and functions, has always been considered a basic attitude underlying one's attitude toward the self, as Fenichel said, "... the nucleus upon which the ego structure is built." We have seen, for example, that Fisher and Cleveland relate anxiety over bodily concerns with degree of boundary definiteness, based on responses to a projective technique. Secord and Jourard (1953) developed a Body Cathexis Scale which is a self report inventory yielding a measure of conscious verbal attitudes about the body. They hypothesized that feelings about the body are commensurate with feelings about the self, when both are appraised by similar scales.
Their Body Cathexis Scale has appeared consistently in reported studies throughout the past fifteen years, periodically reaffirming the notion that a person cathects his body to the same degree as his self-concept along the dimension of satisfaction, e.g., White and Wash (1965).

Why will a subject report that he is satisfied or dissatisfied with a given body part? A body part may be evaluated from many viewpoints, some scalable and some not, e.g., shape, color, size, weight, attractiveness to others. One of the first hypotheses tested and confirmed was that size is a correlate of body cathexis (Jourard & Secord, 1954). A further refinement of that finding was that cathexis ratings varied with the extent of deviation of the subject's measured size from a self-rated ideal size (Jourard & Secord, 1955). Magnussen (1958) and Calden, et al., (1959), each replicated Jourard and Secord's work with male subjects, and also found that satisfaction varied with discrepancy between measured and self-rated ideal size. A similar study (Arkoff & Weaver, 1966) of Japanese-American and Caucasian-American college students highlighted the role of culturally determined ideal size and yielded comparable results.

Kurtz (1966) has conducted several studies pertinent to this review. He has provided support for the construct validity of a global body attitude; and has studied the relationship of global body attitude to sex, body size, and body build. Three separate body attitudes corresponding to Osgood's three attitudinal dimen-
sions (Evaluation, Potency, and Activity) were measured by the Semantic Differential on 30 different body concepts, such as "size of my arms," "color of my hair." The sum of the judgments on the three adjective scales for each dimension of the Semantic Differential were summed separately for each concept to obtain an item score. Then the 30 item scores were summed for each person and the total sum was treated as an index of how a person felt about the over-all appearance of his body. High generalizability coefficients were obtained on all three factors of the Semantic Differential, giving support to the idea that one can generalize from attitudes toward specific aspects of the bodily appearance to a hypothesized universe of observations, the global body attitude.

**The Body Cathexis Scale**

Secord and Jourard define body cathexis as the degree of feeling of satisfaction or dissatisfaction with the various parts or processes of the body. On the Body Cathexis Scale, the subject is asked to indicate on a 5-point scale, the strength and direction of feeling which he has about each of various parts or functions of his body. The scale consists of 44 items, e.g., facial complexion, waist, energy level. The body cathexis score is obtained by summing the ratings for each individual on the total number of body items, and dividing by the total number. An anxiety-indicator score is obtained by summing the ratings for each individual on the 11 items most negatively cathexed by the group.

Secord and Jourard found that mean body cathexis ratings for
body parts were significantly correlated with self-cathexis scores, a projective homonym test of anxious body concern, and with Maslow's test of psychological security-insecurity. They report split-half reliability coefficients for the scale at .78 and .83. They add that this may be regarded as more impressive than reported because subjects displaying the most consistency were removed from the sample. High scores on the scale are viewed as indications of a certain narcissism or anxiety due to insecurity and/or compensation for low self-esteem; low scores are seen as indications of overcontrolling and use of denial, (Secord, 1953).

Recently, the Body Cathexis Scale has been reported as successfully discriminating such groups as hospitalized and non-hospitalized subjects (Jaskar & Reed, 1963); alcoholics with differing levels of sobriety (White & Gaier, 1965); Japanese-Americans and Caucasian-Americans (Arkoff & Weaver, 1966); tattooed and nontattooed prisoners (Mosher, et al, 1967); and medical inpatients whose dissatisfaction was concerned with parts of the body affected by illness, and those patients whose negative body image was found to be correlated with clinical evidence of psychopathology (Schwab & Harmeling, 1968).

Acceptance of Body Parts

One aspect of the research utilizing the Body Cathexis Scale which is pertinent to this study is the focus on the sex differential. Female subjects have been reported to have significantly lower body cathexis scores than male subjects (Jourard & Remy, 1959).
Arkoff & Weaver, 1966; Schwab & Harmeling, 1968). In contrast to these findings, Kurtz (1966) using the Semantic Differential found that his female subjects had a more positive evaluative attitude toward their bodies than his male subjects. However, there seems to be general agreement that women have a more clearly differentiated notion of what they like or dislike about their bodies than do men (Jourard & Remy, 1957; Kurtz, 1966; McClelland & Watt, 1968).

The greater general bodily concern of females, and especially their greater concern over certain body parts, merits consideration in a study of body image variables of religious women. Holzberg and Plummer (1964) devised a simple Body Parts Acceptance Test. Each subject is asked to separate twenty body parts into two approximately equal lists, one indicating the parts with which he is satisfied, and the other showing the parts with which he is dissatisfied. Thirteen professionals (mostly psychologists) had agreed unanimously that eight of the parts are more feminine, and seven of the parts are more masculine. The scores are the number of female, male, and total parts the subject lists under "satisfied." McClelland and Watt (1968) have used this same technique endorsing the rationale that normal females are concerned with body parts which deal essentially with the appearance of the body, that is, its presenting aspects (face, hips, legs, etc.). McClelland and Watt compared both male and female, normal and schizophrenic groups. They found that normal females are more concerned
with their bodies generally than normal males and schizophrenic females. Normal females are also more concerned in particular about their female (appearance) parts than their male (strength) parts.

Differences between the Proposed Study and Similar Efforts

This study extends the research in four areas related to body image: clothing-choice, body boundary, body satisfaction, and acceptance of body parts of particular concern to the respective sexes. The general difference between this and similar efforts is the utilization of a naturally occurring life experience involving essentially normal subjects. The hope, then, is to explore more persisting body attitudes, as well as temporary fluctuations, as opposed to the rather short term variations in body states which characterize many of the other studies.

The exploration of the relationship between body image and clothing is unique in this study because the situation involves a choice of clothing that is strikingly different from the choices the subject has been habitually making. This is in contrast to Compton's (1964) study, for example, in which, presumably, the subject acts in line with her usual clothing choices. The present advantage is that the radical nature of the change in dress in terms of body coverage and bulk of clothing, should provide a condition extreme enough to surface and intensify bodily feelings. This applies to each of the three body image variables being explored. What degree of body boundary differentiation enters into
one's choice of clothing? What is the role of clothing as a means of defining or reinforcing body boundary? What changes in body satisfaction occur with increased visibility of body parts, especially those parts that are normally of more concern to women?

Thus far, the strongest argument for the validity of the concept that boundary definiteness is reflected in Barrier and Penetration scores has been the monitoring of boundary attributes during intense modifying and altering experiences. However, these experiences have been atypical, e.g., recovering schizophrenics, women post-delivery, subjects in sensory isolation. Even the more natural experience of asking subjects to focus their attention on boundary regions does not tap the more habitual, long-term body attitudes. This present study capitalizes on a shift in the usual ways of experiencing one's body that is more encompassing and more permanent. A second extension of body boundary research is the consideration of the question whether boundary fluctuations as indications of certain kinds of modification in the individual are initiating forces in change processes, or subsidiary effects.

As has been indicated, both concepts, body satisfaction, and acceptance of specific body parts need further study, in themselves, and in relation to better defined variables like body boundary. The present study adds to both aspects of that research.

One of the by-products of the study is a more objective look at some of the religious goals intended by wearing a traditional habit. That is, psychologically, what happens to the religious
woman's body image? Is the habit used to reinforce weak body boundaries? Do the rules of modesty somehow neutralize basically normal female concerns?
CHAPTER III

METHOD

Subjects

Volunteer subjects were solicited from two religious communities who had a General Chapter in summer, 1968. (A General Chapter is the law-making body of a religious community, and each community has been directed by Vatican Council II to hold a special General Chapter for the express purpose of renewal and adaptation.) These two communities were selected because they legislated substantial changes in their habitual manner of dress, and because each Sister was given the freedom to choose the type of habit she would like to wear, traditional, modified, or contemporary. For purposes of definition, the traditional habit is described as ankle-length skirt, wrist-length sleeves, several folds of material, and the headdress completely covers the head and neck. A modified habit has mid-calf-length skirt, less material than the traditional habit, and the headdress bares the neck and a small amount of hair surrounding the forehead. A contemporary habit is controlled for color and style, but the pattern is a contemporary style—skirt, dress, or jumper, of popular length. If a headdress is worn, it only partially covers the head.

As many Sisters as possible were tested before the changes
were designated to begin. This was a difficult task because it was impossible to determine which communities holding a General Chapter would actually legislate changes fitting the requirements of the study. Once the changes were legislated, the time lapse between the passed legislation and the day set for it to go into effect, was quite short. Actually 50.5% of the subjects were tested before the date set for habit change; 30% were tested within the following three weeks.

Because it became impossible to test all the subjects before the date designated for change of habit, the partial control over an important variable was lost. Here, and elsewhere in the explanation of the quasi-experimental design, appeal will be made to the principle set forth by Campbell and Stanley (1963). They give a comprehensive treatment of the sources of internal and external invalidity in the interests of the best possible experimental design. At the same time they encourage the pursuit of those studies which are impossible to submit to strict experimental design, and yet are worth doing. They stress the importance of knowing which specific variables the quasi-experimental design fails to control so that one is aware of competing interpretations of the data.

One of the means that might have been used in this study to counter the number of uncontrolled factors would have been the use of a control group, that is, volunteers from a comparable community also just having completed a General Chapter, but not of-
ffering their Sisters the option to change their religious habit. Unfortunately, such a group was not readily available.

In order to minimize the interaction effect of requesting pertinent personal information on the testing, no personal information was requested until the completion of the re-testing. At that time, the subjects completed a form requesting pertinent personal information, which included such variables as age, nationality, number of years since reception of the habit, highest level of education completed, current occupation and length of time in current occupation. Questions were also directed to the incidence of physical defects, chronic illnesses, and previous psychiatric or psychological help. Sisters were also asked to write which option regarding habit change they were currently following, and if this involved a change in habit since the first testing. A further area of questioning concerned changes in life style (other than habit change) since August, 1968, that were not common to the rest of the Sisters in their community.

The information obtained from this questionnaire is summarized in the following table, ($N = 190$).
### Table 1

Summary of Personal Data Requested of Subjects after Posttest

<table>
<thead>
<tr>
<th>Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range</td>
<td>21-75</td>
</tr>
<tr>
<td>Median age</td>
<td>37</td>
</tr>
<tr>
<td>Median number of years since reception of habit</td>
<td>18</td>
</tr>
<tr>
<td>Highest level of education completed:</td>
<td></td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>60%</td>
</tr>
<tr>
<td>Master's degree</td>
<td>28%</td>
</tr>
<tr>
<td>Current occupation: Teacher</td>
<td>90%</td>
</tr>
<tr>
<td>(60% of these were at the elementary level)</td>
<td></td>
</tr>
<tr>
<td>Subjects listing physical defects, e.g. hearing loss</td>
<td>9%</td>
</tr>
<tr>
<td>Subjects listing chronic illness, e.g. arthritis</td>
<td>37%</td>
</tr>
<tr>
<td>Subjects listing previous psychiatric or psychological help</td>
<td></td>
</tr>
<tr>
<td>(50% of these reported a duration of less than four months)</td>
<td>9%</td>
</tr>
<tr>
<td>Subjects who had changed habit at the time of posttesting</td>
<td>91%</td>
</tr>
<tr>
<td>Changes in life style (other than habit change) since August, 1968; (the one change reported had to do with small group living, e.g., in an apartment)</td>
<td>9%</td>
</tr>
</tbody>
</table>

**Tests**

A lengthy discussion of the tests has been presented in the review of the related literature. What is given here is presented as a short summary given in terms of what is relative to procedure.

The Holtzman Inkblot Technique is a series of 90 inkblots designed to yield the projective-expressive responses of the origi-
inal Rorschach blots plus greater objectivity and precision. The distinct advantages are a larger number of blots; parallel forms, A and B; one response to each blot, which holds the total number of responses constant; more objective scoring; and percentile norms for a variety of populations. The two features advantageous to this study are the parallel forms and the facility of group administration. Holtzman, et al, (1961) have shown that the parallel forms, A and B, are markedly similar in every respect. Directions for group administration have been included since the test was devised (Holtzman, et al, 1961) and subsequent group methods have been presented, (Swartz & Holtzman, 1963). The more recent directions for group administration stress clarification of areas used; use of determinants, especially color and shading; reinforcement of instructions; and standard timing. It was decided to follow the original directions since only the two variables, Barrier and Penetration, were to be scored for the study. The standard timing employed by Swartz and Holtzman with their college population was not feasible for this study which includes a wide range of ages. However, the periodic reinforcement of instructions suggested by Swartz and Holtzman was added to the original method. Group administration is possible through the use of slides. Kodaslides of Form A are available commercially, and through the personal courtesy of Dr. Holtzman, Kodaslides of Form B were also made available for this study.

The Body Cathexis Scale is a self-report inventory used as a
verbal conscious measure of one's evaluation of one's own body structure and organization. The subject is presented a list of 44 body parts and functions which he is asked to rate on a 5-point scale of satisfaction-dissatisfaction.

The Body Parts Acceptance Test is also a self-report, verbal conscious measure of one's evaluation of one's own body. It differs from the Body Cathexis Scale in that the list of 20 body parts includes parts which are presumed to be of particular concern to either men or women. Moreover, in contrast to the Body Cathexis Scale which conceivably allows the subject to rate all parts on either end of the satisfaction continuum, the Body Parts Acceptance Test forces the subject to evaluate approximately half of the parts on either end, that is, half positively and half negatively. The interest, of course, lies in which parts, those normally of concern either to men or women, are listed under each heading. Originally this test was administered by presenting the subject with a pile of 20 cards, each bearing the name of a body part and asking him to separate the cards into two approximately equal piles: (1) parts of my body with which I am satisfied, and (2) parts of my body with which I am dissatisfied. For the purpose of this study, the subjects were asked to write out two approximately equal lists.

Procedure

The following brief comments were made to the subjects prior to testing:
I want to thank you for volunteering for this research project. Obviously, it's of personal benefit to me, since it is part of my doctoral dissertation. Hopefully, the results will also be of benefit to your community and to you personally. The only explanation I'll give you now is that it's an attempt to evaluate current efforts towards renewal and adaptation. What I'll ask of you is a two-hour session now and another two-hour session five months from now. Two or three months after that, I'll be back to give you a fuller explanation of the research, trends of general results, and also some personal results. Everything you do will be completely anonymous.

Each subject drew a number to use for identification purposes. Each subject then placed her number in a blank envelope, sealed it, and signed her name on the outside. These envelopes were kept by the examiner and redistributed for use again at the posttesting. All testing sessions were held in small groups in the Sisters' own convent settings.

Kodaslides 1-25 of the Holtzman Inkblot Technique, Form A, were projected on a screen, and subjects used the standard record form with miniature outlines of the blots to record their responses. The following instructions were given:

You will be shown a series of inkblots, each of which will be projected on the screen before you for a minute or so. Using your imagination, write down in the space provided a description of the first thing the blot looks like or reminds you of.

Include in your description the particular characteristics or qualities of the inkblot which are important in determining your responses—that is, what about the blot made it look that way? Give as complete an answer as you can in the time available.

None of these inkblots has been deliberately drawn to look like anything in particular. No two people see exactly the same things in a series of inkblots like these. There are no right or wrong answers.
After the presentation of slides 4 and 9, the following reinforcement was given:

Remember to write down a description of the first thing the blot looks like or reminds you of. Include in your description the qualities of the inkblot which are important in determining your responses, that is, what about the blot made it look that way?

The Body Cathexis Scale and the Body Parts Acceptance Test were administered as paper and pencil tests (see Appendix). The instructions for each were given orally:

Body Cathexis Scale:
Below are listed a number of things characteristic of yourself. You are asked to indicate which things you are satisfied with exactly as they are, which things you worry about and would like to change if it were possible, and which things you have no feelings about one way or the other. Consider each item listed below and encircle the number that best represents your feelings according to the following scale:

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

Body Parts Acceptance Test:
Separate the following body parts into two approximately equal lists:

1 Parts of my body with which I am satisfied
2 Parts of my body with which I am dissatisfied

The posttest followed the same procedure, except that Form B of the Holtzman Inkblot Technique was given. After the battery of posttests was finished, the form requesting personal information was completed.
Method of Analyzing the Data

The Holtzman Inkblot Technique was scored for Barrier and Penetration. Four scorers worked independently; only one of them, the Examiner, knew the purpose and nature of the study. The other three scorers were all teachers, experienced in the thorough methodical ways of a good test scorer, highly motivated to careful, consistent performance. The scoring manual provides adequate detailed instructions and numerous examples and was used as the basis for the initial training sessions conducted by the Examiner. Each protocol was scored by at least two scorers; all differences were resolved through discussion, confirmed by a third opinion, the Examiner acting as the final arbiter. To secure greater objectivity and consistency, all protocols were scored for Barrier first, and then for Penetration. All protocols were scored, pre- and posttest, before any analysis was done. The Body Cathexis score was obtained by summing the ratings for each individual on the 44 body items, and dividing by 44. The three-part body parts acceptance score was obtained by adding the number of female, male, and total number of body parts under "satisfied."

As was stated in the Introduction, it was decided that the most appropriate and parsimonious method for treating the data would be factor analysis. A principal axes solution with varimax rotations was used. The 50 variables included were the Holtzman Barrier and Penetration scores; ratings from 44 body parts from the Body Cathexis Scale, and a Body Cathexis score; and three
scores from the Body Parts Acceptance Test; total number of parts accepted, total number of female parts accepted, total number of male parts accepted.

It was then necessary to rotate each orthogonal solution to the criterion of simple structure. Oblique hand graphical rotations were taken until the closest possible approximation to simple structure was obtained. Only the factor analysis of the pretest battery was completed for the purposes of this dissertation. Although a factor analysis of the posttest battery would be the logical completion of the study, time and the extensiveness of the dissertation were both factors contributing to the decision to limit the treatment of the data. The second factor analysis is now in process and will be reported in a follow-up study.

A small group (N=17) of subjects chose to remain in the traditional habit. These subjects were matched as closely as possible on all pertinent variables with subjects who had changed to a contemporary habit. The two variables given first importance for matching purposes were age and number of years since reception of the habit. Matching for level of education and level of teaching received secondary consideration. None of these subjects reported physical defects or previous psychiatric or psychological help; the majority reported some type of chronic illness. None of the subjects reported having experienced any other change in lifestyle other than habit change. Table 2 summarizes the data describing the 17 subjects forming the no change habit group as
compared to the 17 subjects matched to form the change habit group.

Table 2
Summary of Personal Data Describing No Change- and Change Habit Groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>No Change Habit</th>
<th>Change Habit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Range</td>
<td>27-70</td>
<td>27-71</td>
</tr>
<tr>
<td>Median Age</td>
<td>56</td>
<td>57</td>
</tr>
<tr>
<td>Median Number of Years since Reception of Habit</td>
<td>39</td>
<td>38</td>
</tr>
<tr>
<td>Level of Education:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Master's Degree</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Doctor's Degree</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Level of Teaching:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>High School</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>College</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

In order to compare subjects who changed habit with those who did not, a score was computed for each subject on each factor. This score was simply the sum of the scores each subject made on the three items which loaded the heaviest on each respective factor. It was necessary to transform the scores from the Body Parts Acceptance Test so that they would be directly comparable with the scores from the Body Cathexis Scale. t tests were then calculated.
for the difference between the means of the two groups on each factor.

Because body boundary scores did not appear on any of the factors, Parrier and Penetration scores were considered separately. An analysis of variance for a two factor experiment having repeated measures in the same elements was done (Winer, 1962). In this way, comparison between treatment combinations at different levels of factor A involve differences between groups as well as differences associated with factor A. On the other hand, comparisons between different levels of factor B at the same level of A do not involve differences between groups.
CHAPTER IV

RESULTS AND DISCUSSIONS

The discussion of each set of results will immediately follow the presentation of the results. The first part of this section will deal with the factor analysis of the data from the first testing. These test data include scores on body boundary, body satisfaction, and body parts acceptance. The second part will present the comparison of those subjects who chose to remain in the traditional habit (no change habit group) with those who chose to change to a contemporary habit (change habit group). This comparison is based on a composite score computed for each factor. The third part will also present a comparison of those subjects who chose to remain in the traditional habit with those who chose to change to a contemporary habit. This comparison is based on body boundary scores—Barrier and Penetration—and is made in terms of both first testing and re-testing.

Factor Analysis

Table 3 lists the name and code number of each variable used. The intercorrelations between the 50 variables are presented in Table 4. Table 5 contains the unrotated principal axes solution. Tables 6 and 7 show the final transformation matrix and the corresponding cosine matrix. The final oblique rotated factor
matrix is presented in Table 8. The means and standard deviations for all variables are given in Table 9.

A description and interpretation of the factor structure obtained in the first testing follows immediately. In order to simplify the presentation of the results, only the factor loadings having an absolute value greater than .30 will be included in this section. The letter designation used to identify the factors is purely arbitrary and in no way affects the interpretation of the structure.

**Factor A**

<table>
<thead>
<tr>
<th>Tests</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>31. Hips</td>
<td>.66</td>
</tr>
<tr>
<td>45. Weight</td>
<td>.56</td>
</tr>
<tr>
<td>9. Thighs</td>
<td>.54</td>
</tr>
<tr>
<td>12. Waist</td>
<td>.44</td>
</tr>
<tr>
<td>21. Body Build</td>
<td>.44</td>
</tr>
<tr>
<td>5. Appetite</td>
<td>.38</td>
</tr>
<tr>
<td>47. Total Body Cathexis Score</td>
<td>.31</td>
</tr>
<tr>
<td>49. Body Acceptance Female (EAp)</td>
<td>.30</td>
</tr>
</tbody>
</table>

Factor A represents that dimension of body satisfaction and body parts acceptance that has to do with bulk, or size, of body, particularly as it focuses on the hip and thigh aspects of body build. The emphasis on bulk or size is indicated by the presence of such items as weight and appetite. It is interesting that the factor on which body build appears, is in the context of waist, hips, thighs, and appetite—a connection frequently experienced by female weight watchers. It is also noteworthy that this is the one factor on which the total body cathexis score appears. It
would seem that total body satisfaction, for females, is related to specific satisfaction with waist, hips, and thighs. It should also be noted that the presence of BAP score here supports Holzberg and Plummer's (1964) findings that hips and thighs are of more concern to females than males. Because the BAP score appears on several factors, it may be well to note once again how it is derived. There are a total of 20 body parts that the subject is asked to separate equally under two headings, "Parts of my body with which I am satisfied" and "Parts of my body with which I am dissatisfied." Eight of these body parts have been found to be of more concern to females than to males (Holzberg & Plummer, 1964). That is, in such a forced choice situation, women will not normally list the majority of these eight parts under the heading "satisfied." In view of what has been said, it is surprising that bust does not load heavier on this factor. Perhaps this is because it does not have as direct a relationship to weight, and/or because a large bust is desirable in our culture. It may be possible that a certain amount of denial is operating here, that is, that religious women would not register their concern about bust.

Factor B

<table>
<thead>
<tr>
<th>Tests</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Facial Complexion</td>
<td>.68</td>
</tr>
<tr>
<td>32. Skin Texture</td>
<td>.67</td>
</tr>
<tr>
<td>49. BAP</td>
<td>.46</td>
</tr>
</tbody>
</table>

Factor B substantiates Holzberg and Plummer's findings that skin texture and facial complexion are among two of the presenting
aspects of a woman's body that are of primary concern to her. The higher loading of BAp on Factor B than on Factor A implies that concern over the facial appearance is higher than over other body parts.

**Factor C**

<table>
<thead>
<tr>
<th>Tests</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>34. Legs</td>
<td>.69</td>
</tr>
<tr>
<td>11. Calves</td>
<td>.64</td>
</tr>
<tr>
<td>18. Ankles</td>
<td>.54</td>
</tr>
<tr>
<td>41. Knees</td>
<td>.46</td>
</tr>
<tr>
<td>26. Arms</td>
<td>.34</td>
</tr>
<tr>
<td>10. Wrists</td>
<td>.33</td>
</tr>
</tbody>
</table>

From Factor C, it is apparent that the extremities constitute a specific area underlying body satisfaction. For the female population, it is especially the legs--knees to ankles--that are of major importance. It would be interesting to compare a normal female population with this subpopulation of religious women. That is, how much of this finding reflects the anxiety precipitated by increased visibility of ankles to knees anticipated by women changing from ankle-length to contemporary-length skirts?

**Factor D**

<table>
<thead>
<tr>
<th>Tests</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>43. Eyelashes</td>
<td>.49</td>
</tr>
<tr>
<td>40. Eyebrows</td>
<td>.46</td>
</tr>
<tr>
<td>33. Lips</td>
<td>.31</td>
</tr>
<tr>
<td>39. Voice</td>
<td>.31</td>
</tr>
<tr>
<td>49. BAp</td>
<td>.31</td>
</tr>
</tbody>
</table>

It is not surprising to find eyelashes and eyebrows, as well as lips, occurring with BAp. These are three more of the present-
ing aspects of the body which are reported to be of more concern to normal females. The presence of voice is not as readily interpretable, until one realizes that just as truly as lips constitute a presenting aspect visually, so also does voice constitute a presenting aspect auditorily. It is difficult to explain why eyes do not load more heavily on Factor D, although they load more heavily here than they do on any other factor.

**Factor E**

<table>
<thead>
<tr>
<th>Tests</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Nose</td>
<td>.68</td>
</tr>
<tr>
<td>17. Nose Length</td>
<td>.63</td>
</tr>
<tr>
<td>22. Profile</td>
<td>.43</td>
</tr>
</tbody>
</table>

This is the third factor which has to do primarily with the face. Satisfaction with the basic dimension of profile is seen to be intimately related to the nose, particularly, nose length.

**Factor F**

<table>
<thead>
<tr>
<th>Tests</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>48. Body acceptance, total</td>
<td>.74</td>
</tr>
<tr>
<td>50. Body acceptance, male</td>
<td>.67</td>
</tr>
<tr>
<td>49. Body acceptance, female</td>
<td>.46</td>
</tr>
</tbody>
</table>

Factor F deals specifically with the concept of body acceptance. The total number of body parts with which one is satisfied contributes more to the dimension than whether those parts are normally more acceptable to males or females. Moreover, this sample of women conforms to the sample of normal women in McClelland and Watt's study (1968). That is, the body parts normally more acceptable to males would correlate more closely with the
total number of acceptable body parts. To put it another way, it is to be expected of normal women that they register more dissatisfaction with certain body parts (e.g., hips, thighs, facial complexion, etc.) because they are more critical about them. This finding has special implications for this study. It demonstrates that religious women have a concern about certain body parts similar to that of normal women.

**Factor G**

<table>
<thead>
<tr>
<th>Tests</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>23. Height</td>
<td>.51</td>
</tr>
<tr>
<td>24. Age</td>
<td>.47</td>
</tr>
<tr>
<td>28. Sex</td>
<td>.39</td>
</tr>
<tr>
<td>8. Fingers</td>
<td>.38</td>
</tr>
<tr>
<td>26. Arms</td>
<td>.34</td>
</tr>
</tbody>
</table>

This factor is very difficult to interpret. Perhaps it involves some of the more global aspects of one's body, e.g., age, height, sex, rather than specific body parts. Or perhaps this factor catches an underlying attitude towards the body that deals with those elements one is less able to modify in any way.

**Factor H**

<table>
<thead>
<tr>
<th>Tests</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>30. Hairline</td>
<td>.66</td>
</tr>
<tr>
<td>36. Forehead</td>
<td>.58</td>
</tr>
<tr>
<td>3. Hair</td>
<td>.44</td>
</tr>
<tr>
<td>37. Feet</td>
<td>.32</td>
</tr>
</tbody>
</table>

The items in Factor H are related to hair, except for feet which seems to be entirely unrelated. Actually, feet has a relatively low loading anyway. It is significant that hairline and
forehead contribute more to this factor than hair. The obvious question is whether this is peculiar to this subpopulation which consists of many members now wearing a modified headdress which uncovers the hair surrounding the forehead.

The loadings of the tests making up Factors I, J, K, and L, are relatively low. Moreover, the tests appear to be unrelated to each other in many instances. Therefore these factors will not be interpreted. Actually, only those factors whose eigen values are less than 1.00 in orthogonal solutions have been excluded from analysis. This criterion in the selection of factors is proposed by such authorities as Harman (1960).

Factor Analysis - General Comments

It is strange that Barrier and Penetration do not appear on any of the various factors. Actually, Penetration has a low loading on Factor I, but this factor has been eliminated from interpretation. It just does not seem likely that body boundary bears no relationship to body satisfaction. Perhaps it is a methodological difference that accounts in part for the lack of relationship between body boundary and body satisfaction in this study. That is, the two tests dealing with body satisfaction and body parts acceptance are direct, self-report responses, whereas Barrier and Penetration scores are based on responses to ink blot stimuli.

In their review of three attempts to develop a psychometrically sound inkblot technique, Kobler and Doiron (1968) quote Zubin
who holds a similar viewpoint. Zubin maintains that low correlations of the inkblot technique with outside criteria may well be due to the fact that the face value of scores derived from inkblots does not always serve as the basis for the interpretations but merely as the jumping-off-point for the interpretation.

The failure to demonstrate a relationship between body boundedness and body satisfaction, confirms the summary statement made by Kobler and Doiron (1968). As a result of their review, they concluded that the Holtzman has fared better when compared to cognitive, perceptual, and developmental measures than it has when related to personality questionnaires, ratings, behavioral measures, and differential diagnosis. Doiron himself (1968) has added evidence to the former part of this statement. In his study of cognitive correlates of body image he found several significant relationships between body image and problem solving efficiency measures, conceptual style, and incidental memory, in terms of complex interactions of barrier with penetration and sex.

Some interesting relationships between body satisfaction and body acceptance are seen, especially, BAp. These relationships all lend considerable support to Holzberg and Plummer's work. BAp appears in three of the factors and in those three factors, are seven of the eight body parts that Holzberg and Plummer list as parts often of concern to normal females. Only legs appears on another factor. Even the relationship of BAp to BAT is borne out in Factor F.
An inspection of the cosine matrix reveals several positive relationships between factors. It must be remembered that a negative cosine for the reference axes of the two hyperplanes indicates a positive relationship for the hyperplanes involved, and vice versa.

The fact that Factors A and C are positively related is understandable because the four items loaded most heavily on Factor C—legs, calves, ankles, and knees—are an extension downward from the hips and thighs concern in Factor A. The connection between Factors C and G is not so readily discernible. If the notion of extremities is carried from Factor C, two items from Factor G are related, i.e., fingers and arms. Height, too, is related to length of extremities. However, age and sex are misfits when the correlation between Factors C and G is interpreted in this context.

Factors B and E are positively related also. Once again, this relationship is easy to see—both factors deal directly with the face. Similarly, Factors E and H dovetail to present a more complete notion of the important elements in the profile.

Actually, the two common threads running through the eight factors are reinforced in the relationships between factors. That is, body satisfaction for religious women is primarily concerned with hips and legs; and with the many and varied presenting aspects of the face, particularly complexion, eyelashes and eyebrows, profile, and hairline.
Comparison of Subjects - Body Satisfaction

Seventeen subjects who chose to remain in the traditional habit were matched closely with 17 subjects who chose to change to a contemporary habit. A score was computed for each subject on each factor. This score was simply the sum of the scores obtained by each subject on three items which loaded the heaviest on each factor. For example, the three items which had the highest loading on Factor A were hips, weight, and thighs. A subject's score, then, for Factor A was the sum of her three scores on hips, weight, and thighs. On all but two of the factors the three highest items were all from the Body Cathexis Scale with scores ranging from 1 to 5. On two factors, B and F, the three highest items included scores from the Body Parts Acceptance Test which are not directly comparable to Body Cathexis scores. It was necessary, then, to transform these scores. BAP scores which ranged from 0 to 8 were transformed in such a way that a score of 8 would equal a score of 5, and a score of 0 would equal a score of 1. The linear transformation which accomplishes this is \( X' = X(.5) + 1 \). The linear transformation which accomplishes this for BAT scores (range from 0 to 20) is \( X' = X(.2) + 1 \); and BAM scores (range from 0 to 7) were linearly transformed by using the equation \( X' = X(.57) + 1 \).

t tests were calculated to test for the significance of the difference between the means of the scores obtained on each factor by the two groups. Only the difference between the means on Factor E was found to be statistically significant. This really
seems to be an accidental difference; it doesn't make sense, psychologically, why satisfaction with nose, nose length, and profile should discriminate between no change and change habit groups. (Table 10 contains the means, standard deviations, and t values for scores obtained by both groups on each factor.)

One area of interest to explore is differences in body image variables that may characterize those subjects who choose to change to contemporary habit in contrast to those who choose to remain in the traditional habit. That is, would there be some body image variables that would be a factor in that decision.

Based on the scores obtained before the subjects actually made or acted on that decision, it seems that there is no essential difference in body satisfaction and body acceptance in those Sisters who choose different types of clothing. One interpretation suggested is that wearing a uniform and extreme type of clothing levels differences in feelings of body satisfaction. A second reason that may be contributing to the fact that no differences were found between the two groups prior to change of habit, is the nature of the sample. All of these Sisters were volunteers, and out of 190, only 17 did not change habit. It is suggested that if all Sisters in a Community participated, there might well be some differences in the two groups formed on the basis of clothing choice.

**Comparison of Subjects - Body Boundary**

In the light of what has just been said about body satisfaction, it may not be surprising to find out that there were no
significant differences between the two groups in Barrier and Penetration scores in the first testing, i.e., scores obtained before subjects were free to change to contemporary styles. Nor were there any significant differences between the groups in Barrier and Penetration based on the posttest scores, i.e., after habit change had been made by one group. However, as the analysis of variance shows, there was a statistically significant difference within the change habit group. That is, several months after this group had changed from a traditional to a contemporary style habit, their posttest Barrier scores were significantly higher than their original Barrier scores. The means and standard deviations for Barrier scores are given in Table 11; the means and standard deviations for Penetration scores are given in Table 12. Table 13 shows the analysis of variance of Barrier scores; Table 14 shows the analysis of variance of Penetration scores.

These findings are compatible with and lend support to findings that Barrier score reflects body experience, and that boundary attributes can be monitored during the course of intense modifying and altering experiences. Thus, the study demonstrates Fisher and Renik's (1966) hypothesis that body boundary can be altered by procedures which cause the individual to shift his usual ways of experiencing his body. The removal of habitual extreme type of clothing, like a traditional habit, alters the way in which an individual distributes his attention to his body. Whereas the subjects in Fisher and Renik's study focused their atten-
tion on the boundary regions of their bodies via an experimental task, the subjects in this study focused their attention on the boundary regions of their bodies via a life experience.

Table 11
Means and Standard Deviations of Pre- and Posttest Barrier Scores

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest</th>
<th>Posttest</th>
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<tr>
<td></td>
<td>Mean</td>
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<tr>
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Table 12
Means and Standard Deviations of Pre- and Posttest Penetration Scores

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</tr>
</thead>
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Table 13
Analysis of Variance for Pre- and Posttest Barrier Scores of No Change and Change Habit Groups

<table>
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<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
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<td>Between Ss</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
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<td>5.31</td>
<td>.63</td>
</tr>
<tr>
<td>Ss w groups</td>
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<td>8.48</td>
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<tr>
<td>Within Ss</td>
<td>34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>32.49</td>
<td>9.91**</td>
</tr>
<tr>
<td>AB</td>
<td>1</td>
<td>20.13</td>
<td>6.14*</td>
</tr>
<tr>
<td>B x Ss w groups</td>
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<td>3.28</td>
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* p < .05.
** p < .01.

Table 14
Analysis of Variance for Pre- and Posttest Penetration Scores of No Change and Change Habit Groups

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</thead>
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<td></td>
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<td>A</td>
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<td>.55</td>
</tr>
<tr>
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<td>6.00</td>
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<td>Within Ss</td>
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<td></td>
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<td>B</td>
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<tr>
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CHAPTER V

SUMMARY

A natural occurring life experience was capitalized on as a means of studying the relationship between certain body image variables and clothing. Religious women were tested before they received the option to change to a contemporary style habit, and re-tested four to five months later. The specific purpose of the study was to determine the common factors involved in the measurement of the body image variables—body boundary, body satisfaction, and body parts acceptance; to explore any differences in these body image variables as they might be factors in the decision to wear traditional or contemporary dress; and to compare the no change habit and change habit groups to explore the effect of an abrupt and extreme change in dress on body image.

The tests used to tap the three body image variables were the Holtzman Inkblot Technique, the Secord and Jourard Body Cathexis Scale, and the Body Parts Acceptance Test by Holzb erg and Plummer. The 50 items obtained from the first testing battery were factor analyzed by using a principal axes solution with varimax rotations. Oblique hand graphical rotations were taken until the closest possible approximation to simple structure was obtained. Only a small group of subjects (N=17) actually chose to remain in the
traditional habit. These subjects were matched closely with subjects who had changed to a contemporary habit. In order to compare these two groups, a score was computed for each subject on each factor. Because body boundary scores did not appear on any of the factors, these scores were also used as another means of comparing the change habit and no change habit groups. This last comparison included re-test scores as well.

General findings may be summarized as follows:
1. The factor loadings of the final oblique matrix show a very clear structure, several factors plainly indicated. Generally, these factors define body satisfaction dimensions:
   a. Satisfaction with body build focuses on the hip and areas, particularly related to weight.
   b. Closely related to this area of body satisfaction are the extremities, especially the legs.
   c. Concern with presenting aspects of the face figure prominently in four separate dimensions: facial complexion; eyelashes and brows, lips and voice; nose, especially nose length and profile; and forehead and hairline.
2. Body acceptance loads on several factors. The other items also appearing on these factors support Plummer and Holzberg's findings of the body parts that are normally of more concern to women than to men.
   a. Evidence is also available that religious women have maintained a concern over certain body parts consonant
with that of most normal women (McClelland & Watt, 1968).  

3. Barrier and Penetration scores do not appear on any of the factors. It seems unlikely that there is no relation between body boundary and body satisfaction. Perhaps the explanation lies in the difference in the types of tests used, i.e., self-report inventory versus projective technique.

4. A comparison of no change habit and change habit groups based on first testing scores, computed for each factor of body satisfaction, shows no essential difference in these groups. Therefore the extent of body satisfaction, at least as defined and measured in this study, does not seem to enter into the decision to change or not change habit.

5. An analysis of variance of Barrier and Penetration scores reveals:

   a. No significant differences between no change and change habit groups in either Barrier or Penetration at the time of the first testing.

   b. No significant differences between groups four to five months after the option to change habit had been given.

   c. A statistically significant difference within the change habit group, that is, these subjects had a significantly higher Barrier score after habit change. This substantiates earlier findings that fluctuations in body boundary result when one experiences a shift in the usual way of experiencing one's body. It extends earlier research
to include a natural life experience involving longer duration than the previous laboratory experiments.
REFERENCES


Head, R. Sensory disturbances from cerebral lesions. Brain, 1911, 34, 187.


APPENDIX
BODY CATHEXIS SCALE

Instructions: Below are listed a number of things characteristic of yourself. You are asked to indicate which things you are satisfied with exactly as they are, which things you worry about and would like to change if it were possible, and which things you have no feelings about one way or the other. Consider each item listed below and encircle the number which best represents your feelings according to the following scale:

1. Have strong feelings and wish change could somehow be made.
2. Don't like, but can put up with.
3. Have no particular feelings one way or the other.
5. Consider myself fortunate.

<table>
<thead>
<tr>
<th>Item</th>
<th>Scale</th>
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<tbody>
<tr>
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<td>1-5</td>
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<tr>
<td>facial complexion</td>
<td>1-5</td>
</tr>
<tr>
<td>appetite</td>
<td>1-5</td>
</tr>
<tr>
<td>distribution of hair over body</td>
<td>1-5</td>
</tr>
<tr>
<td>nose</td>
<td>1-5</td>
</tr>
<tr>
<td>fingers</td>
<td>1-5</td>
</tr>
<tr>
<td>thighs</td>
<td>1-5</td>
</tr>
<tr>
<td>wrists</td>
<td>1-5</td>
</tr>
<tr>
<td>calves</td>
<td>1-5</td>
</tr>
<tr>
<td>waist</td>
<td>1-5</td>
</tr>
<tr>
<td>energy level</td>
<td>1-5</td>
</tr>
<tr>
<td>back</td>
<td>1-5</td>
</tr>
<tr>
<td>ears</td>
<td>1-5</td>
</tr>
<tr>
<td>chin</td>
<td>1-5</td>
</tr>
<tr>
<td>nose length</td>
<td>1-5</td>
</tr>
<tr>
<td>ankles</td>
<td>1-5</td>
</tr>
<tr>
<td>neck length</td>
<td>1-5</td>
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<tr>
<td>shape of head</td>
<td>1-5</td>
</tr>
<tr>
<td>body build</td>
<td>1-5</td>
</tr>
<tr>
<td>profile</td>
<td>1-5</td>
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<td>height</td>
<td>1-5</td>
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<tr>
<td>age</td>
<td>1-5</td>
</tr>
<tr>
<td>back view of head</td>
<td>1-5</td>
</tr>
</tbody>
</table>
**BODY PARTS ACCEPTANCE TEST**

**Instructions:** Separate the following body parts into two approximately equal lists:

1) parts of my body with which I am satisfied  
2) parts of my body with which I am dissatisfied

<table>
<thead>
<tr>
<th>parts</th>
<th></th>
<th>parts</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>lips</td>
<td>face</td>
<td>ears</td>
<td>eyebrows</td>
</tr>
<tr>
<td>skin color</td>
<td>skin</td>
<td>shoulders</td>
<td></td>
</tr>
<tr>
<td>back</td>
<td>eyelashes</td>
<td>elbows</td>
<td>hands</td>
</tr>
<tr>
<td></td>
<td>facial</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hips</td>
<td>fingers</td>
<td>teeth</td>
<td>hair on body</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>legs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>thighs</td>
</tr>
<tr>
<td>profile</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) **Parts of my body with which I am satisfied**  
2) **Parts of my body with which I am dissatisfied**
1. Identification Number: ________

2. Age: ________

3. Nationality: ________

4. Number of years since reception of habit: ________

5. Education: (Circle highest completed)
   - Grade School
   - High School
   - B.A.
   - M.A.
   - Ph.D.

6. Occupation: (Circle current occupation)
   - Teacher: Elementary  High School  College
   - Nurse;  Student;  Other (Please specify) ________
   - Administration:  Teaching  Nursing  Other
   - Number of years in current occupation: ________

7. List any physical defects you may have, e.g., cleft palate, disability due to polio, etc.

8. List any chronic illnesses you may have, e.g., arthritis, cardiac condition, etc.

9. Have you ever had any psychiatric or psychological help?
   - Yes ________  No ________
   - If yes, how long ago: ________; for how long: ________

10. List any changes (other than habit change) in your life style, since August, 1968, that is not common to most of the Sisters in your Community, e.g., living in an apartment:
11. Which option regarding habit change that was offered to you at the end of your Chapter, are you currently following:

___ traditional habit
___ modified habit
___ contemporary habit
___ ordinary women's clothing

12. If you have changed habit, was this before or after you were initially tested for this project:

(Complete one of the following statements)

I changed habit ____ weeks before I was initially tested.
I changed habit ____ weeks after I was initially tested.

13. (Check one of the following)

___ I believe Sisters should wear a distinctive habit, so that they can always be recognized as Sisters.
___ I believe Sisters should have the option of wearing ordinary women's clothing, although I would not care to wear ordinary clothing myself.
___ I believe Sisters should have the option of wearing ordinary women's clothing, and I would like to take this option myself.
Table 3

Code Number and List of Body Image Variables Included in Factor Analysis

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<th>Description</th>
<th>Code</th>
<th>Description</th>
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<td>Bust</td>
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<td>3</td>
<td>Hair</td>
<td>28</td>
<td>Sex (Male or Female)</td>
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<td>4</td>
<td>Facial Complexion</td>
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<td>Appetite</td>
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<td>Hair Line</td>
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<td>6</td>
<td>Distribution of Hair over Body</td>
<td>31</td>
<td>Hips</td>
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Table 4
Intercorrelations Between Body Image Variables

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Table 5 (continued)

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Table 10

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**p .01.
The dissertation submitted by Sr. Cel Brocken, CSJ, has been read and approved by members of the Department of Psychology.

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

__________________________
Date
Feast of I.C. of B.V.M.

__________________________
Signature of Advisor