Order Number 9304699

Medical risk, perceived risk, and body anxiety in women attending a high-risk breast surveillance clinic

Manheimer, Joan, Ph.D.

City University of New York, 1992

U·M·I
300 N. Zeeb Rd.
Ann Arbor, MI 48106

MEDICAL RISK, PERCEIVED RISK, AND BODY ANXIETY IN WOMEN ATTENDING A HIGH RISK BREAST SURVEILLANCE CLINIC

by

JOAN MANHEIMER

A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

1992

This manuscript has been read and accepted by the Graduate Faculty in Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

6-29-92
Date

Chair of Examining Committee

June 29, 1992
Date

Executive Officer

Steven Tuber, Ph.D.

Laurence Gould, Ph.D.

Michael Moskowitz, Ph.D.

Supervisory Committee

The City University of New York

Abstract

MEDICAL RISK, PERCEIVED RISK AND BODY ANXIETY
IN WOMEN ATTENDING A HIGH RISK
BREAST SURVEILLANCE CLINIC

by

JOAN MANHEIMER

Advisor: Professor Steven Tuber

A disease whose cure can be as threatening as its potential consequences, breast cancer is a frightening spectre for many adult women. For women with family histories of the disease, this threat is often exacerbated by their increased medical risk of the disease and their personal experiences with it. Current research has frequently focused on developing a multi-factorial model to assess the degree of increased medical risk faced by these women. However, little work has been done on the psychological consequences of being at increased risk for such a potentially devastating disease.

This study examined the interplay among medical risk, perception of risk and body anxiety in a group of fifty-two women with a varied demographic profile who were enrolled in a surveillance clinic for women with family histories of breast cancer. The women fell into two distinct categories of increased medical risk for the disease and described a normal curve on a Likert scale measuring their perceptions of their risk of the disease. All subjects were given

Secord's Word Homonym Test as a measure of body anxiety. They were also given Rorschachs, which were scored using Fisher and Cleveland's Barrier and Penetration Scales as additional measures of body anxiety.

The study discovered strong relationships between a woman's perception of her risk of getting breast cancer and her anxiety about her body as measured by Secord's test: the more extreme her assessments of personal risk--in the direction either of certainty or denial--the more body anxiety was measured. In addition, the younger the woman at the time her mother was diagnosed with breast cancer, the more severe her body anxiety.

Fisher and Cleveland's scales, however, produced no significant data. The failure of these measures to achieve significant results may suggest that someone at risk for disease locates body anxiety differently than someone who actually suffers from a disease. Distinctions in medical risk, similarly, bore no significant relationship to measures of body anxiety, suggesting the extent to which anxiety about the disease is a subjective phenomena.

The study's results point to the importance of identifying and counseling those women whose anxiety about the disease is sufficiently severe that it is difficult for them to use information about prevention or treatment wisely. The study also suggests the extent of the impact of a mother's breast cancer on her daughter's life and therefore the advisability of offering counseling for young daughters of breast cancer patients.

Acknowledgements

I am deeply indebted to my dissertation committee for their contributions to this project: to Steve Tuber, for introducing me to the rigors and limitations of psychological research and for his energetic and enthusiastic mentorship of my work over the past four years; to Mike Moskowitz, for his challenging questions and consistently warm responsiveness; and to Larry Gould, for his initial enthusiasm about the idea and his support during the process of transforming idea into dissertation.

I am also extremely grateful to a medical community whose sensitivity to the psychological implications of disease not only made this dissertation possible, but, more importantly, made the experience of regular check-ups and mammagrams less frightening and therefore more likely for hundreds of women: to Dr. Michael Osborne, Dr. Daniel Miller, Dr. Tony Cahan, Marilyn Halper, Gladys Rosenthal, the entire staff at the Strang Clinic, and most especially, Dr. Kathryn Kash, whose generosity, enthusiasm, and support I can never repay.

I would also like to thank Dick Shindeldecker, whose statistical expertise never failed to dazzle and instruct; and Ilene Green, whose intelligence and good humor made difficult measures manageable. I want to pay tribute to my mother, Sylvia Ross Manheimer, whose pain was the occasion for this work. Finally, and most importantly, I would like to thank my husband, Stewart Gabel, whose love and

encouragement consistently puts a human face on the work whose rigors I am struggling to master.

Table of Contents

List of Tables

CHAPTER ONE

INTRODUCTION

Every woman in this country has a 7% chance of developing breast cancer in her lifetime (Kelly & Anderson, 1981). This risk is a source of some anxiety for most women, as the disease is potentially life-threatening. Breast cancer, however, is distinguished from other life-threatening diseases in that the cure is, for some women, as threatening as the disease itself. In our culture, the breast is a powerful sign of both the capacity to nurture and of female sexuality. Therefore, the fact that the cure for breast cancer always involves mutilating surgery and threatens the loss of the breast intensifies and complicates women's anxiety about the disease.

Women with a family history of breast cancer have an increased risk of disease: up to fifty per cent chance of being stricken in their lifetime. Increased genetic risk status is defined on the basis of several factors: the number of affected relatives, whether the relatives are first or second-degree, laterality, and pre- or post-menopausal onset (Anderson, 1972; Anderson & Badzioch, 1985; Kesey & Hildreth, 1983; Ottman et al., 1983). At the Preventive Medicine Institute/Strang Clinic, the site of this study, high risk is defined as having at least one first-degree relative affected with the disease.

It is not uncommon for women at high risk for breast cancer to manifest their concern with some anxiety about

their bodies. While this makes good intuitive sense, explanations for this focus are offered in the extensive literature on body image (Fisher, 1986; Fisher & Cleveland, 1968; Linn, 1955; Schilder, 1935). Schilder, for example, argued that the body image is a construct deriving from the individual's history of interpersonal relations. It follows, therefore, that breast cancer in one or more first-degree relatives would be imprinted in some way on an individual's body image, and the concerns expressed by women at risk reflect this.

Anxiety can cripple the lives of women at high risk for breast cancer. They can worry to the point where an 18-year-old girl,[1] who watched her mother die slowly and painfully from breast cancer, refused to let her boyfriend touch her breasts in the belief that such contact might give her the disease; a 35-year-old professional woman was unable to perform Breast Self-Examinations, even though she understood and credited their efficacy, because she could not bring herself to touch her breasts; a 45-year-old woman, whose younger sister died of breast cancer, came to her doctor seeking prophylactic mastectomies "cause if you get it, you dead"; and a 40-year-old woman whose mother died of breast cancer when she was two, refused, despite the urging of two surgeons, to undergo a recommended biopsy for a suspicious lump.

---

[1]This girl and the women described subsequently are all patients I interviewed either at Memorial Sloan-Kettering's High Risk Breast Surveillance Clinic or at The Preventive Medicine Institute/Strang Clinic.

But not all high risk women are riddled with anxiety. The monozygotic twin of a 42-year-old woman with breast cancer, whose chances of developing the disease were fifty percent, enlisted in a reputable surveillance program, expressed confidence in the efficacy of early intervention, and went on about her life. Such discrepant responses raise the question, what makes being at risk so threatening for some women and not for others?

This question was the focus of the present study. As described above, women at high genetic risk for breast cancer present a varied medical profile: there is a range of increased medical risk depending on the medical history of the afflicted relative, and even the same general risk category describes a range of human experience. A 40-year-old woman whose mother and grandmother both had unilateral, post-menopausal breast cancer and lived, shares the same assigned medical risk with a 40-year-old woman whose mother had unilateral, premenopausal disease and died (Anderson, 1977). The contrast between them becomes clearer when these descriptions are translated into experiential terms. The first woman could have watched her mother undergo a simple lumpectomy without radiation six years ago. Four years ago, her grandmother also had a lumpectomy, and both mother and grandmother are fine. The second woman could have lost her mother to breast cancer when she was four, at the height of Oedipal conflict, and could to this day be struggling with guilt and anxiety.

From the examples cited above, it is clear that

significant factors other than medically assigned risk enter into a woman's experience of being at risk for breast cancer. Much research has been done on the denial mechanisms which interfere with perceptions of risk and preventive health behaviors (Lee, 1989). Some researchers argue that perception of risk is an extremely labile concept, influenced by environmental cues (Johnson & Tversky, 1983). But there is convincing support for the understanding of risk perception as a stable concept and as an interactive factor contributing to anxiety (Easterling & Leventhal, 1989).

Conversations with women in high risk surveillance programs suggest that both their age at the time their relative was diagnosed and the outcome of the disease have a great impact on their sense of risk and on their anxiety. Women tend to be more anxious, the younger they are at the time of diagnosis and if the affected relative died.[2] There has been, however, no research to substantiate the impressions of clinicians in the field. This study intended to remedy this deficiency.

Statement of Purpose

While there has been voluminous research on the impact of breast cancer on a woman's life, very little work has been done on the effects of being at risk for breast cancer.

---

[2]Private conversations with numerous patients and with Drs. Daniel Miller, Tony Cahan, Michael Osborne, and Kathe Kash, physicians and psychologist, respectively, at the Memorial Sloan Kettering and Strang High Risk Breast Surveillance clinics.

This study was part of a larger, longitudinal study already in process at the Strang Clinic and Memorial Sloan-Kettering Hospital in Manhattan. The long-range study is examining factors contributing to compliance with surveillance recommendations in high- and normal-risk women. It is also attempting to determine the role of psychological and behavioral factors in the development of breast cancer. The larger study is recording demographic data and measuring such variables as stressful life events, depression, hardiness, available social supports, and anxiety in these women.

This study extended the concerns of the larger project to examine body anxiety and its relation to the experience of being at risk. It argued that a family history of breast cancer affects a woman's anxiety about her body. More specifically, it argued that a subject's age at the time of diagnosis and the outcome (did the subject's relative survive the disease?) are prime factors in influencing a subject's perception of her risk for breast cancer. In turn, it was argued that, while medical risk has little or no consistent relation to body anxiety, perception of risk is a significant indicator of body anxiety for these women.

CHAPTER TWO

LITERATURE REVIEW

This literature review surveys four main areas of interest. The first section explores the question of medical risk for breast cancer. While there is general agreement in the field as to what constitutes risk for breast cancer, there is some discrepancy as to the specific categories of risk and actual numerical risk assigned by various researchers. Such discrepancies arise because most studies reflect limited and discrete samples, so that the available data is circumscribed, and it is impossible to collapse the results of different studies.

The second section of this review explores the phenomena of perceived risk. A general consideration of what constitutes and influences perception of risk is followed by an effort to tailor the issue to the specific case of breast cancer.

The third section of this literature review addresses the general literature on breast cancer, with a focus on this study's concern with the psychological impact of the disease on a woman's family. In order to understand the impact of the mutilation or loss of the breast on the affected patient's relatives, this section first reviews the literature on the psychological meaning and significance of the healthy breast. Next, it examines relevant work on the impact of cancer on the family; and, finally, since most of the women at the Strang have at least an afflicted mother,

special attention is paid to the effect of a mother's illness or death on her daughter. This issue is particularly relevant since a major hypothesis of this study concerned the age of the subject at the time of the relative's diagnosis. Since only parents, siblings, or children are first-degree relatives, and since breast cancer rarely strikes before young adulthood, the younger the woman at exposure to diagnosis, the more likely the afflicted first-degree relative is a mother.

The final section of this review examines the literature on body image. The present study focuses particularly on the literature about the experience of body boundaries and body anxiety.

Within each section, both theoretical and empirical literature are reviewed.

Medical Risk for Breast Cancer

The question of risk is a complex and fascinating issue, particularly in the area of breast cancer where there is increasingly sophisticated knowledge and a fair amount of agreement about actual risk factors. Knudson and Kelly (1983) offered one of the first comprehensive discussions of risk factors for breast cancer. They listed eleven factors associated with risk: age, incidence of benign breast disease, family history, parity, previous breast cancer, diet, age at menarche, age at menopause, socioeconomic status, body size and weight, and ionizing radiation. Knudson and Kelly's (1983) discussion reminded us how

complicated a consideration of these factors can be. For example, they qualified the inclusion of benign breast disease on the list by citing the conclusions of recent studies which showed that benign breast disease is only a factor when either the disease is associated with atypia or is a gross cystic disease (cysts more than 3mm in diameter). Similarly, they pointed out that family history alone is not a significant measure without information about laterality, timing (pre- or post-menopausal), and incidence (one or more relatives, and first or second degree) of the disease.

Later researchers continue to refine our understanding of actual risk for disease. Gail et al. (1989) developed a method to estimate risk of developing the disease based on the following risk factors: age at menarche, age at first live birth, number of previous biopsies, and number of first-degree relatives with the disease. Pickle and Johnson (1989) criticized Gail et al.'s study for ignoring postmenopausal use of estrogen replacement therapy and alcohol consumption as significant risk factors. However, they praised Gail et al.'s model as offering one of the few multifactorial methods for determining risk. Pickle and Johnson explained that the younger a subject is at menarche, the older at first live birth, and the older at menopause, the older the individual's relative "breast tissue age," and therefore the higher risk factor for disease.

Levine, King, and Bloomfield (1989) cited Anderson and Badzioch's (1985, 1989) studies demonstrating high variability in risk for families of breast cancer patients:

> They found that first degree relatives of premenopausal breast cancer patients had a two- to threefold greater risk of breast cancer compared with control relatives; however, the risk was fivefold higher if the patients had bilateral disease, and ninefold higher if patients had both premenopausal and bilateral disease. Furthermore sisters of breast cancer patients whose mother was also affected, had a 50-fold excess risk. However, risk to relatives of patients with unilateral disease, whether pre- or postmenopausal, was only slightly above control values. (p. 529)

Kelly (1987) pointed out an additional complexity in calculating risk. The figures describing risk are cumulative lifetime figures, but at any one point in her life, a patient faces only a fraction of her lifetime risk. Therefore, for example, an elderly woman with no particular risk factors would have used up some of her lifetime risk and would face less than the average 7% chance of getting the disease.

Age is of particular interest in determining genetic risk, since there is some evidence to suggest that this risk diminishes with age. A recent study (Roseman, Straus, & Shorey, 1990) suggested that after age sixty, the chances of getting breast cancer for a woman with a strong family history of the disease are no different from that of women with no family history.

The Strang Clinic, where this study was conducted, has a High Risk Surveillance Program, which incorporates

approximately 330 patients. Women qualify for the program if they have a first-degree relative with pre-menopausal, bilateral breast cancer, or two or more first degree relatives with breast cancer, or a mother and maternal grandmother with breast cancer. Women in the Strang High Risk program fall into two general categories of increased risk based on the most comprehensive available data (Anderson, 1977; National Cancer Institute, 1984). The higher increment, representing a risk of 30-50%, includes all subjects with at least one first-degree relative with premenopausal, bilateral disease. The lower increment, representing a risk of 7-29%, includes all other patients enrolled in the High Risk clinic.

Perceived Risk for Breast Cancer

While there is a fair amount of agreement about what constitutes an individual's medical risk for breast cancer, the question of perceived risk is a very different matter. While the highest risk an individual can carry for breast cancer is 50%, a number of women in the Strang and Memorial Sloan-Kettering Clinics have estimated their risk as being 70%, 80%, and even 90%.

The Health Belief Model, developed in the 1950's by Hochbaum, Kegeles, Leventhal, and Rosenstock (Rosenstock, 1974a), offers a useful context in which to understand risk perception. The model recognizes the perception of susceptibility to disease as one important factor in determining adherence to preventive health behaviors. The

theoretical underpinnings of the model derive from the work of Kurt Lewin and emphasize the perceptual world of the subject over the physical environment in determining action. The Health Belief Model (HBM) argues that, upon some triggering clue, beliefs about susceptibility to disease interact with beliefs about the severity of disease, and this, in turn, leads the individual to take action. In turn, beliefs about the availability and efficacy of various possible courses of action determine which action will, in fact, be undertaken.

The HBM has been supported by a number of studies (Rosenstock, 1974b) and elaborated to suggest that rather than there being a linear relationship between the variables involved, the model describes a threshold level between a given variable and a preventive health behavior (Rosenstock, 1974b). These studies, however, have been mostly retrospective in design, and this raises the question of whether reported beliefs have been adjusted to fit action in accordance with theories about cognitive dissonance (Rosenstock, 1974b). There have also been questions raised about the generalizability of HBM's significance, since social class plays such an important role in shaping beliefs (Calnan & Rutter, 1986).

Alternative models which offer an explanation for health behaviors include Fishbein and Ajzen's Theory of Reasoned Action and the concept of Health Locus of Control (Calnan & Rutter, 1986). Fishbein and Ajzen argue that behavior under conscious control is determined by an

interaction between private beliefs regarding action and normative beliefs, or the perception of how salient others believe we should behave. Health Locus of Control theory argues that those who locate control of their lives internally (as opposed the those who attribute control to some external force) are more likely to engage in preventive health behaviors.

For the purposes of this study, the Health Belief Model calls attention to the question of perceived severity of disease as a possible significant interactive factor with risk perception in determining an individual's response to being at risk for breast cancer. It is well established that cancer in general is always perceived as an extremely serious disease (Haefner & Kirscht, 1970; Kirscht, Haefner, & Rosenstock, 1966). More specifically, there is little question that women believe breast cancer to be a very serious disease (Calnan & Rutter, 1986; Stillman, 1977). The Health Belief Model argues that perception of severity has a curvilinear relation to behavior. When the perception of severity is either very low or very high, maladaptive behavior seems to result. The model suggests the likelihood of maladaptive behavior for all women at high risk of breast cancer and lends urgency to this study's attempt to tease out the variables which heighten anxiety to the point where a subject cannot think clearly about her medical situation and therefore is less likely to act in her own best interests (Rosenstock, 1974a).

Knudson and Kelly (1983) reminded us that the quality

of the experience of having a cancer member in the family can affect the perception of risk:

> For some the memories are terrifying; for others the pain and hard work of caring for a cancer patient is ongoing. Relatives of cancer patients are, therefore, less likely to be reassured by what others might consider a low or moderate risk. (p.18)

There is a large body of research focusing specifically on the perception of risk. Christina Lee (1989), in a study comparing smokers' and non-smokers' estimations of the risks of smoking, observed that smokers' ratings of risk were lower than those of non-smokers' and that their estimates of their own risks were lower still. The effect was larger for young smokers than older ones, all of which testifies to the denial mechanisms which interfere with preventive health behaviors. Weinstein (1984), in a more general study, examined the attitudes of 405 college students toward various health risks. He found that by and large the students were realistic about hereditary risk factors, pessimistic about environmental risk factors, and excessively optimistic about their own actions and psychological attributes. Weinstein argued that these attitudes suggest a reason why risks that are thought to be controllable are likely to evoke unrealistic optimism about individual susceptibility. Weinstein's work would lead us to expect that a woman's estimation of her risk for breast cancer would be fairly realistic and, therefore, underlines one question motivating this study: what factors contribute

to unrealistic perceptions of breast cancer risk?

There is some disagreement about whether risk perception is a stable or labile concept for the individual. Johnson and Tversky (1983) conducted a number of studies in which they demonstrated that exposure to a story about tragic death could increase an individual's perception of the danger involved in specific situations such as fire. From their studies, they argued that negative affect can increase an individual's estimation of risk. Therefore, they conclude that perceived risk is an unstable judgment, highly influenceable by environmental cues. But, as Easterling and Leventhal (1989) pointed out, it is not clear whether the increased risk perception observed by Johnson and Tversky was the result of the affect aroused by the stories they used or of some other factor, for example, the reminder in the stories of one's limited control over one's destiny. They further distinguished between the task set by Johnson and Tversky, the estimation of probable danger to the population at large, and the assessment of personal risk.

Easterling and Leventhal (1989) argued that risk perception is labile when either the risk is unfamiliar or one's risk undergoes change (as, for example, when one gets a disease). They argued that judgment of risk is otherwise a fairly stable concept. Easterling and Leventhal's study explored the relationship between worry about cancer and judged risk of cancer in 54 women who had previously been treated for breast cancer and 81 women with no history of

the disease. Their conclusions suggest that worry is a function of situational cues, such as a visit to a doctor or any symptom which reminds the patient of her vulnerability and mortality, and not of judged cancer risk. They did find a Risk x Symptom interaction which they argued could significantly predict worry about any serious illness. Their study suggests the possibility that the relationship between perceived risk and body anxiety might be complicated by health factors having nothing to do with breast cancer.

Breast Cancer: The Breast

The attention commanded by breast cancer in the medical community is largely due to its status as a life-threatening disease, but breast cancer has psychological implications that distinguish it from other major threats to the lives of American women. The breast in our culture has powerful social and psychological meaning. As Lacey and Birtchnell (1986) observed, the breast is a symbol of both nurturance and femininity. Mary Weitzel Gibbons, in a history of the nude (1978), described the development of the ideal female figure from the broad-hipped, large-bosomed goddess in early African societies, representing the interrelatedness of generativity and nurturance, to the contemporary narrow-hipped, large-breasted centerfold. Through the multiple changes of fashion, the importance of the female breast as a sign of value for the culture has remained unchanged. Freud (1957) reminded us that the breast is the first love object and therefore the model for all future love objects:

> At a time at which the first beginnings of sexual satisfaction are still linked with the taking of nourishment, the sexual instinct has a sexual object outside the infant's own body in the shape of his mother's breast. It is only later that the instinct loses that object, just at the time, perhaps, when the child is able to form a total idea of the person to whom the organ that is giving him satisfaction belongs. As a rule the sexual instinct then becomes auto-erotic, and not until the period of latency has been passed through is the original relation restored. There are thus good reasons why a child sucking at his mother's breast has become the prototype of every relation of love. The finding of an object is in fact a refinding of it. (p.88)

Freud's suggestion that the breast is a prototype for future significant human relations was developed in the writings of Melanie Klein. Klein (1975) offered the most elaborate, and some would argue, most extreme, discussion of the importance of the breast to human development in the psychological literature. According to Klein, in supplying nourishment and the occasion for intimacy, the breast forms the basis for the infant's belief and trust in safety and goodness in life. It is also, as the source of early frustration, the infant's first object of rage and hostility. For Klein, the breast is symbolically incorporated into the child's psychic structure: the introjected breast becomes the kernel of the superego.

Following Freud's understanding of psychic structure, but positing significant psychological development much earlier than did Freud, Klein viewed the baby as filled with both loving and aggressive tendencies, expressed through oral and, later, anal and urethral fantasies of destruction visited on the mother's body. According to Klein, the gratification of being fed stimulates cannibalistic fantasies of destruction of and control over the loved object; the child projects its urge to destroy onto the mother and therefore fears retribution in kind. Klein argued that the young child has to struggle with the forces of its own imagined destructiveness and its needs and desire to love. Resolution of this conflict is central for all future development.

Klein insisted on the significance of the fantasy of destruction and rebirth. She reminded us that it is essential that the mother survive the child's destruction of her:

> I should like to add that it is essential for a favourable development of the desire for knowledge that the mother's body should be felt to be well and unharmed. It represents in the unconscious the treasure-house of everything desirable which can only be got from there; therefore if it is not destroyed, not so much in danger and therefore not so dangerous itself, the wish to take food for the mind from it can more easily be carried out. (1975, p. 241)

According to Klein, this drama is most intense for the

female child. The little boy's envy of all the mother possesses and destructive fantasies toward her are mitigated by his possession of a penis, but the little girl has no such attribute to offset the intensity of her feelings. Therefore, her need to make restitution for the imagined harm and fear of retribution are that much more powerful (Klein, 1937; Silverman, 1987). Klein's thinking suggest a possible basis for the anxiety experienced by women with a family history of breast cancer. If we accept for the moment Klein's theories, then breast cancer condenses and recapitulates the oral sadistic fantasies of the child run amuck. If this were the case, concern about body integrity would hardly be a surprising result.

Klein's theories have not, of course, received universal acceptance. Some theorists question such emphasis on the centrality of the breast to human development. According to Klein, any child who wasn't breast fed is likely to suffer developmental compromise, but Balint (1969) emphasized the mother-child interrelationship rather than its vehicle:

> The relationship that 'oral dependence' tries to describe is <u>not</u> a one-sided dependence, but an 'inter-dependence': libidinally, the mother is almost to the same extent dependent on her baby as the baby is on her; neither of them may have this particular form of relationship and the particular satisfaction independently from the other. Though oral aspects constitute an important part of the whole phenomenon,

> there are various other factors present, and it is difficult to assess with certainty which is the most important. Furthermore, the mother's breast, the counterpart of the child's mouth, is about as often as not excluded by present-day nursing fashion--in most cases without seriously interfering with the mutual interdependence which, in my opinion, is the decisive factor in this relationship. (p.163)

Other criticisms of Klein came from developmentalists who argued that the child is incapable of projection and introjection at the age at which Klein posited a whole psychic drama based on these capabilities (Mahler, 1961; Piaget, 1972). Mahler, for example, who also viewed resolution of the conflict between loving and destructive feelings toward the mother as critical for the future development of the child, placed this conflict later in life. Mahler (Mahler, Pine, & Bergman, 1975) described what she called the "rapprochement crisis" as occurring between 18 and 24 months and beyond, and as resulting optimally in the capacity for libidinal object constancy.

While these criticisms have validity, Klein's paradigm may still be useful as a means by which to think about some of the psychological consequences of breast cancer for the victim's close relatives.

Breast Cancer: The Affected Family

While volumes have been produced about the impact of breast cancer on the afflicted woman, extremely little has

been written about the impact of the disease on the woman's family. And what has been written tends to reflect a family-systems rather than a psychodynamic point of view. A number of writers have remarked on the serious implications for family members of a member's cancer (Kelly, 1987; Lichtman et al., 1984; Wellisch, 1979). They have described the acute stress on the family that the illness entails, the painful and often mutilating course of the illness, and the powerful impact of the illness' resolution (whether positive or negative) on individual family members. Lichtman et al. (1984) viewed the mother's breast cancer as a threat to the mother-daughter relationship. They posited that problems with children are more likely to develop with poor prognosis, more severe surgery, poorer psychological adjustment and, to a lesser extent, more difficulties with radiation or chemotherapy. Like most writers in the field, they focused on relatively short-term effects, but the present study argues that breast cancer can pose a lifelong problem for relatives of the affected woman.

Breast Cancer: Mother Illness/Mother Death

Because this study argues the significance of age in determining the impact of a breast cancer diagnosis, its concerns are likely to focus on women whose mothers have breast cancer: the younger the woman at the time of a first-degree relative's diagnosis, the more likely the relative is a mother. In addition, most of the women in this study had a mother with breast cancer. Therefore, it

is important to consider the particular dynamics of being the daughter of a breast cancer patient. Winnicott, in Playing and Reality (1971), like Klein, recognized the importance of the psychic destruction of the parent for the development of the child's sense of self. In Winnicott's delightful lexicon, the caretaker must allow the child to kill her and must survive the attack; that is, the child achieves a knowledge of herself and her mother by enjoying her mother's survival of her own murderous rage. A question raised by this study is what happens to the resolution of this rage in the child when the caretaker's survival ise threatened or when the caretaker in fact doesn't survive?

Since breast cancer is known to have a genetic component, for a patient's daughter, her mother's disease and possible death are painful not only in themselves, but in what they forecast for her own life. As Grandstaff (1976) pointed out, a breast cancer patient is often concerned for her daughter's future; and the daughter, in turn, is often particularly frightened of the possibility of breast cancer and mastectomy. Other clinicians who work with breast cancer patients and their families have commented on similar phenomena. Patricia Kelly (1981, 1987) described the ways in which the mother's life often influences the expectations and hopes of her daughter. Kelly reminded us that if a girl's mother has had breast cancer, the image of female adulthood for this daughter often includes the dangers of a disfiguring and life-threatening disease. The necessary identification with the

mother is liable to be fraught with irresolvable conflict and is likely to bring forth troublesome psychic solutions: for example, some daughters have such difficulties with their mother's suffering that they feel that their not getting breast cancer would be a betrayal of their mothers (Kelly, 1987).

Most writers would agree that a mother's illness or death has a significant impact on the life of her child. One important factor shaping that impact is the age of the child at the time of the event. Lawrence Kutner (1989) described the differing needs of a preschooler whose response to parental illness may include magical thinking and some confusion (he recalled a five-year-old who imagines an operation as comparable to a knife fight) and an adolescent whose need to separate from the family may be in serious conflict with feelings of responsibility and concern for the sick parent. Similarly, Cohen and Wellisch (1978) suggested the importance of gauging not only the family's developmental level (i.e., enmeshed, cut-off, or well-differentiated, cf. Bowen, in Guerin, 1976) but each individual member's developmental level in counseling families of cancer patients: "Death, illness, and fantasies about separation and loss carry very different meanings at different ages" (p.563).

Winnicott (1965) told of the very different responses of three brothers to the death of their mother. The oldest boy was six at the time of his mother's death, and he simply mourned her as the mother he loved. The youngest was four

months old, and although he needed some help in talking about his mother's death when he was four years old, he developed an excellent relationship with his stepmother whom he called "mother." The middle son, however, who was three years old at the time of the loss, became, as a result of the developmental issues with which he was struggling at the time of the tragedy, what Winnicott termed "a psychiatric casualty."

Bifulco, Brown, and Harris (1987) pointed out the classic studies of Brown et al. who argued that loss of mother before the age of eleven, either by death or by separation of a year or more, is an important vulnerability factor for depression. Their own studies suggested that the loss of a mother, either by death or separation, before the age of seventeen is associated with an increased risk for clinical depression.

Bifulco, Brown, and Harris (1987), discussing the variable results obtained by research into the impact of mother loss, reminded us of the number of intervening factors between mother loss as a child and adult symptomatology, including such factors as social class, intervening severe life events, and adequate alternative support for the child. While there has been a range of opinion about the significance of any particular age in determining the impact of loss, there has been almost universal agreement that age is a major factor in making such a determination. It makes sense, therefore, to expect that the age of the daughter at the time of her mother's

diagnosis will be a significant factor influencing the daughter's distress. Whether the mother survives the disease and what is lost is the mother's breast or whether the child also loses the mother, breast cancer is inevitably a prelude to mourning. And age is an issue, also, in the mourning process. There has been considerable theoretical disagreement about the age at which a child achieves the capacity to mourn. A number of theorists have argued that the child has no capacity to mourn at all (Deutsch, 1937; Fleming & Altshul, 1963; Rochlin, 1965; Wolfenstein, 1966, 1969). They have claimed that the child does not have the ego capacity to sustain the powerful affect of loss and the repeated demands for reality testing detailed by the mourning process as described by Freud and others. Mahler (1961) saw the child's grief as remarkably shortened since the ego cannot sustain itself without prompt defensive actions against object loss.

Bowlby (1961) and Furman (1964) took exception to the standard psychoanalytic position that children cannot mourn before adolescence. Bowlby initially argued that mourning can occur as early as six months. Anna Freud challenged this notion, but argued for the concept of death as early as age two. Furman argued that the child needs to have reached the phallic stage of object representations and to have the support of a consistent adult in order to mourn.

Current infant research (Stern, 1986) has suggested support for those theoreticians who argue for earlier capacities in children, but present knowledge has been

insufficient to resolve the conflict about the beginnings of the capacity to mourn. Still, the disagreement has highlighted the importance of the daughter's age at the time her mother is stricken with a potentially fatal disease.

While the process of mourning has been described differently by different theorists (Abraham, 1924; Bowlby, 1980; Fenichel, 1945; Freud, 1963/1917; Loewald, 1962), most writers have agreed on the importance of time as a factor in mourning and on the considerable individual variability in the resolution of loss.

The literature on breast cancer and mother illness and loss has suggested that the loss with which this study is concerned is liable to be traumatic, and traumatic loss has been believed by classical theorists to trigger identification with the aggressor (A. Freud, 1936; S. Freud, 1923a, 1923b). Following in this tradition, Blum (1987) argued that a traumatic situation mobilizes aggression and sadomasochistic fantasies in the victim; rather than experiencing the traumatic event, she or he imagines perpetrating it. From responsibility for the lost breast to fear of reprisal in kind is a short psychic step (Freud, 1963/1917; Klein, 1987). It is as the result of such reasoning that this study posits that a family history of breast cancer is likely to result in considerable body anxiety.

Body Image: Theory

This study hypothesizes that the close relative of a

with anxiety about the intactness of her own body. Further, this study hypothesizes that the daughter of a breast cancer patient might feel anxiety about the integrity of her body through an imaginative identification with a mother who has undergone mastectomy or, alternatively, through an intrapsychic reprisal of early sadistic fantasies both directed against the mother and projected onto her. Since our bodies are the medium through which we first come to know and understand the world and the vehicles through which we must reach out to the world the whole length and breadth of our lives, it makes intuitive sense to expect that a major life event would be writ large upon the body. However, there has been ample theoretical, empirical, and clinical support for expecting concern about one's own body integrity to follow from a close relative's mutilating surgery.

The concept of body integrity is one aspect of a much larger and more complicated issue: body image. As many theorists have remarked, the concept of body image has some of the properties of a confusing topological problem: like one side of a moebius strip, it is both inner and outer simultaneously (Fisher & Cleveland, 1968; Greenacre, 1958; Hunt & Weber, 1960; Mahler & McDevitt, 1982; Schilder, 1935). Schilder (1935), for example, reminded us that the hands are the outside world for the parts of the body they touch. As Fisher and Cleveland (1968) pointed out, body image is a difficult developmental accomplishment since the body is both the subject and the object of perception.

Torras de Bea (1987) reminded us of the body's varied involvement in the development of symbolic capability--"as a subject, while at the same time being a tool of sensorimotor performance and an object of experimentation" (p. 175). According to some theorists, the very contradictions inherent in the child's experiences of her body lead to the essential demarcation of self and world:

> Quite different is the effect of the perceptual experience when the infant touches his body. Here two sensations simultaneously yield an experience, and this may arise very early in life, perhaps even in the intrauterine state.... Coming in touch with its own body elicits two sensations of the same quality and these lead to the distinction between the self and the not-self, between body and what subsequently becomes environment. In consequence this factor contributes to the processes of structural differentiation. Delimitation between the self-body and the outer world, the world where the objects are found, is thus initiated. (Hoffer, 1950, p. 19)

The difficulties that beset the young child's exploration of her body--in what relation is the body to the self?--also beset theorists' discussions of the body image concept. The terms "body image," "body schema," "body percept," and "body concept" are often used interchangeably in the literature and different writers often have radically different concepts of the same term. As Gallagher (1986) pointed out, this has often led to important conceptual

confusion. Gallagher argued that the problem focuses on the extent to which "the body is experienced as an intentional object of consciousness" (p. 541). She pointed out that the same terms are used, for example, to describe physiological functioning; a conscious mental representation of the body; a neurophysiological map in the brain; an unconscious image; and an organization of thoughts, feelings, and experiences. Gallagher argued that this terminological hodgepodge has undermined the validity of much experimental work on body image, by fudging the issue of consciousness. If body image is usually a pre-reflective phenomena, as Gallagher asserted, then experiments that call the subjects' attention to their experiences of their body will, by definition, produce questionable results.

Gallagher addressed this confusion of terminologies by distinguishing body image from body schema. The former she defined by a series of conditions:

> The concept of the body image includes, first, the body as it is perceived in my immediate consciousness. Second, the body image includes my conceptual construct of the body, informed by my immediate consciousness of my body and by my intellectual understanding (mythical or scientific) of the body. Third, the body image includes my emotional attitude and feelings about my body. Conscious feelings about the body, sometimes straight-forward and sometimes indirect and symbolic, may be motivated by conscious or unconscious experience. The body image, therefore, is a complex

> phenomenon with at least three aspects: perceptual, cognitive, and emotional. (pp. 545-546)

Body schema, on the other hand, she defined as "a non-conscious performance of the body--i.e., a performance that is not an intentional object present to my consciousness" (p. 548). Gallagher's distinction may create more problems than it solves: Gallagher responded to the confusion about consciousness and body image by making body schema an unconscious phenomena while allowing some unconscious motivation for the construction of body image; but her solution is as confusing and troublesome as the initial problem. Gallagher's category "body image" still includes a range of disparate phenomena which invite confusion for both theorist and experimenter similar to that she is seeking to resolve. It also slights unconscious feelings about one's body. Gallagher did, however, draw attention to and illuminate a terminological tangle that muddies the literature.

Mayer and Eisenberg (1982) have similarly noted the confusion surrounding attempts to define and measure what they called "body self-concept." In an attempt to isolate various aspects of the concept that could then be measured, they distinguished actual body perception (which includes body state, developmental changes, nondevelopmental changes, bodily behaviors, and perceived others' responses to body), from body attitudes and affects and from ideal body conception. While their breakdown may be useful for the development of discrete body scales, they brought us no

closer to a resolution of the problem of consciousness as outlined by Gallagher.

Since most authors define their own terms, and since there is a fair amount of agreement about basic properties of body image among various theorists, it is possible somewhat to circumvent this definitional tangle. However, it may be important to consider that the difficulty in defining terms in the field is symptomatic of the difficulties that consideration and experience of the body has presented to the mind since the time of Aristotle.

Paul Schilder, whose The Image and Appearance of the Human Body (1935) is a classic in the field, reminded us that while body image may be a mental phenomenon, it has its basis in physiological reality. Lesion patients first dramatized the existence of a body image by demonstrating the disparity between their bodies and their images of their bodies. Schilder described a number of such patients: there was the patient who could not touch his knee on command, but was able easily to relieve an itch on the knee; that is, his conscious schema of his body was limited, but his reflexes commanded a more accurate body image. There were the numerous amputees who felt pain or other sensation in the limb which has been removed; their images of their bodies preserved themselves intact for a time after the operation which had left them in a different and unknown body. Schilder described localized lesions which result in anagnosias, or the inability to perceive one's own defects, a result similar to that produced by repression. Schilder's

understanding of the physiological basis for the body image suggests that the phenomena may provide an avenue for a fuller understanding of the mind-brain relationship: "There are cortical layers which are of importance for the building up of the body-image and for the differentiation between right and left" (1935, p, 28). In general, Schilder's work reminds us of the complex interweaving of physiological and psychological functioning.

Oliver Sacks is another writer who has reminded us of the physiological basis for body image. Sacks is an author who has made a reputation on the peculiarities of body image suffered by a variety of lesioned or injured patients. He described a patient who could not recognize the bodies of others and therefore, literally, mistook his wife for a hat (Sacks, 1985). Sacks (1984) also told the story of a patient whose leg was not included in his image of his body and whose attempts to get "the strange leg" out of his bed ended him repeatedly on the floor of his hospital room, in a state of frustration and befuddlement. Sacks' writing has powerfully evoked the fragility of the human body and the bizarre and poignant results when some part of it is damaged. His writing has also reminded us of the fragility and flexibility of the image of the body through which we live in and act on the world around us.

Most writers in the field have recognized body image as a developmental phenomena (Hoffer, 1950; Linn, 1954; Mahler & McDevitt, 1982; Schilder, 1935; Tausk, 1933; Torras de Bea, 1987; among others), and many have recognized its

beginnings in the infant's interaction with the parents. Torras de Bea (1987) went so far as to argue that the child's body schema begins before birth as a preconception in the minds of the parents. Mahler (1975) described the development of identity as a process rooted in the body: according to Mahler, the work of distinguishing between self and other begins with the shift in cathexis from internal organs (particularly from the abdominal organs) to the periphery of the body. Echoing Hoffer (1950), Mahler and McDevitt (1982) emphasized the importance of early physical contact between mother and infant:

> The importance of libidinization of the baby's body by the earliest contact perceptual ministrations of the mother has been emphasized by Hoffer (1950). The sensoriperceptive interchange not only helps differentiation and thus eventually separation-individuation, but seems to be a sine qua non of the earliest sense of the body self as entity. This in fact seems to be the condition on which the feeling of "being alive" rests. (p.833)

According to Mahler and McDevitt, the child builds up her earliest self-schema from her awareness of her own inner states and from the care she receives from the libidinal object.

All of these theorists have built on the basic understanding of body image, laid down by Schilder (1935), who argued that the body image is a dynamic construct, in constant flux through projection, identification, and

constant flux through projection, identification, and appersonization,[3] and built up by physiological and perceptual stimuli in the context of social contacts:

> The child takes parts of the bodies of others into its own body image. It also adopts in its own personality the attitude taken by others towards parts of their own bodies.... The building-up of the body-image is based not only upon the individual history of an individual, but also on his relations to others. The inner history is also the history of our relations to other human beings. (p.137)

Psychoanalytic writers have focused less on social interaction in the development of body image and more on intrapsychic dynamics. Most have begun with Freud's (1923a) somewhat puzzling description of the ego as "first and foremost a bodily ego; it is not merely a surface entity, but is itself the projection of a surface" (p. 16). For Freud, the two-edged characteristic of the body, that it is both an object and a subject of perception, lead it to play a significant role in bringing about the differentiation of the ego from the id. In offering an analogy between the ego and the cortical homunculus of the anatomists, Freud seemed to be suggesting something of a one-to-one correspondence between body features and ego structure. Most theorists have followed Freud in insisting on the important

---

[3]Schilder uses the term "appersonization" to mean the opposite of projection, or the appropriation of characteristics of others to the self.

psychoanalytic theorists, however, have elaborated on and refined Freud's basic schema.

Following on the work of Hartmann, Kris, and Loewenstein, and on the work of Hoffer, Linn (1954) argued for an early stage in the development of body image corresponding to what Hoffer (1950) called the "mouth ego." Linn looked at the neurological investigations of Bender and his colleagues as offering support for a theory of body image as a developmental phenomenon. Bender tested subjects with simultaneous cutaneous stimulation of non-symmetrical body parts and from the reports of subjects, established a hierarchy of dominance for body parts with face and genital areas as the most and hands as the least dominant. Linn explained the prominence of face and genital responses and the lack of prominence of hand responses in Bender's experiments by postulating that the dominance hierarchy reflects a face-hand or genital-hand fusion, representing regression in states of confused consciousness.

Linn postulated that the infant's first experience of the world is the triangle: face, hand, breast. When the infant loses the breast, she attempts to substitute the hand for the lost source of food and comfort. Linn argued that at this stage, the infant's awareness of her hand is subsumed in her experience of relief from oral tension. As Linn stated, "At each step, the hand as the explorer and tension-relieving organ holds second place in the field of attention to the newly discovered body part."

Over time, from these experiences of the loss of the

breast and the limited adequacy of the substitution, the infant learns of the distinction between the world and self; that is, she learns about her boundaries, and further learns that she herself can be divided into face and hand. Linn hypothesized that the process of self-discovery continues in a similar fashion between other body parts and the hands. Support for his theory can be found in the fact that in states of regression, the individual often experiences fusion of the body parts (Linn, 1954).

Scott (1948), in an article reviewing the conception of body image as described in the fields of embryology, neurology, psychiatry, and psychoanalysis, argued that a consideration of the relationship between body and mind or psychic ego is not a useful formulation, but instead, an example of splitting that may not be ego-syntonic. Scott's review of the work in various fields emphasized the role of libidinal and aggressive drives, ambivalence, and the mechanisms of defense in the process of the development of the body image.

Cohen (1984) argued that both the self and body image should not be viewed as actual fixed structures but as compromise formations between certain wishes and perceived dangers. The wishes and dangers belong not only to the child but to the mother as well. Cohen recognized, along with certain developmentalists (Mahler, 1975), that the child's earliest experiences of the self derive from patterns of bodily relatedness that are shaped by the mother's needs.

The psychological importance of body schemas is revealed in a variety of clinical phenomena: a patient who developed schizophrenic ideation following his receiving a heart transplant (Castelnuovo-Tedesco, 1978), or the onset of a psychotic or depressive break foreshadowed by a radical change in body schema (Torras de Bea, 1987). Reich argued that the individual's personality conflicts are expressed in patterns of muscle tonus which in turn influence the ways in which the individual experiences both the self and others (Fisher and Cleveland, 1968).

There is universal agreement that body image is an important component in the way we come to know and understand our world. Schilder (1935) reminded us that in many cultures, the system of numeration bears a close relation to body parts; he went on to suggest that a possible source of our decimal system is the practice of counting on our fingers. Schilder also insisted that body and world experiences are closely correlated: "One is not possible without the other" (p. 123).

Body Image: Body Anxiety

As suggested by the literature reviewed above, the body is not only a significant boundary between the self and the world, it is also, as it is knowable, the problem over time of defining a boundary between the self and the world. Fisher and Cleveland (1968), in a series of studies, focused on boundary phenomena as the significant component of body image. Beginning with studies which correlated locus of

disease with perception of body boundary stability, they have developed a theory which correlates various aspects of personality with the experience of one's body boundaries. They have distinguished two general kinds of responses to one's body: a Barrier response, which expresses clarity about boundaries, and a sharp focus on the body exterior: skin, striate musculature, and the vascular components of these systems; and a Penetration response, which expresses a sense of the body as vulnerable or weak and which focuses on the internal viscera.

Having developed the Barrier and Penetration concepts to distinguish between patients with different loci of disease, Fisher and Cleveland went on to compare physiological distinctions between individuals with significantly different levels of boundary definitiveness. They found that persons with definite boundaries (high Barrier Scores) tended to channel excitation to skin and musculature (i.e., outer layers of the body) while those with less definite boundaries channeled excitation to interior sites.

In still later studies, Fisher and Cleveland distinguished personality styles and behavior on the basis of boundary definitiveness. Those persons with greater boundary definitiveness tended to be more highly motivated, more interested in interaction with others, more autonomous and more persistent in the face of frustration. In contrast, those individuals with less boundary definitiveness were more suggestible and more interested in

activities which did not require human interaaction. A good illustration of this contrast is offered by the fact that high Barrier subjects were attracted to fields involved with human behavior, such as psychology or anthropology, while low Barrier subjects preferred more impersonal fields like chemistry or physics. Subsequent studies have suggested further relationships with for example, choice of dress, cognitive styles, and patterns of body perception. Fisher and Cleveland made strong claims for the significance of their measure: "We conceive of the Barrier score as an index which represents in condensed form the history of a long sequence of boundary transactions" (p. 313). Fisher and Cleveland's Barrier Score, therefore, offers one significant measure of body anxiety.

While there are many measures which tap conscious body image (e.g., Cash & Brown, 1987; Mayer & Eisenberg, 1982), Secord (1953) developed the only measure other than Fisher's that I was able to find which taps unconscious body concerns. Secord approached the issue of body anxiety somewhat differently from Fisher. Secord's interest was primarily in solving one of the problems which plagued Jung's probing of the unconscious through word associations. Secord addressed himself to the difficulty that since each word association was subject to differing interpretations, there was no way to treat individual associations objectively. Secord devised a method to solve this problem while placing no limitation on the individual being tested. His use of homonyms provides an objective measure of word

association production without hindering the imagination of the testee; and the variable he chose to measure with his test was body anxiety.

Like most writers in the field, Secord recognized that what he called "body cathexis" is a significant anchor for the individual's sense of self. He conceived of body cathexis as both a conscious and unconscious phenomena and as a measure of concern about the safety, intactness, and acceptability of the body. Secord devised his Word Homonym test to tap and measure the unconscious dimension of body concerns.

Summary

As the preceding pages have suggested, breast cancer is a familial as well as a personal phenomenon. Having a first-degree relative with breast cancer places a woman at increased risk for the disease. How much of an increase depends upon several factors: how many and which relatives are affected, and whether the disease(s) is (are) pre- or post-menopausal, uni- or bi-lateral. Medical risk, however, may or may not have a profound impact on a woman's experience. Her perception of risk is likely to be influenced by factors other than current medical knowledge. Among these are her age at the time of her relative's diagnosis and the outcome of the disease: did her relative live or die?

Theorists from the fields of physiology, neurology, experimental, cognitive, and psychoanalytic psychology agree

that experiences with significant others create and maintain one's sense of one's body. It was the basic assumption of this study that the experience of having a close relative suffer from breast cancer will be manifest in body anxiety.

Hypotheses

Since medical risk categories describe such a wide range of personal experience, this study asserted that it is possible to be at increased risk for breast cancer and not feel body integrity as particularly threatened. For example, a woman with a mother and grandmother both affected by breast cancer, both doing well after treatment for the disease, may feel no particular heightened anxiety as a result of her family history. Therefore this study hypothesized that (1) medical risk will not predict to body anxiety.

On the other hand, the study hypothesized that (2) perceived risk for breast cancer will predict body anxiety. A woman's perception of her risk of disease should bear some relationship to her anxiety about her body's integrity. More specifically, the study hypothesized that (a) high and low perceptions of risk will correlate with severe body anxiety. High perception of risk suggests the presence of anxiety about the disease. Low perception of risk in women enrolled in a high risk screening program suggests denial used as a defense, which, in turn, suggests the presence of strong underlying anxiety.

Since a moderate perception of risk represents a

realistic assessment for these women, it is expected that women with such a perception will be better adjusted to their history and less concerned about the vulnerability of their bodies. Therefore, this study hypothesized that (b) a moderate perception of risk will correlate with low body anxiety.

This study further hypothesized that (3) age at diagnosis and outcome will predict body anxiety. More specifically, the study expected that (a) the younger the woman at the time of diagnosis, the higher her body anxiety. Since breast cancer attacks a visible and particularly meaningful part of the anatomy, its impact on the family of the victim is hypothesized as strong. Since the presence of the disease is likely to be invisible or subtle and its cure is likely to be dramatic and mutilating, it is hypothesized that the experience will be particularly difficult for younger girls to understand and assimilate. This is particularly true given the historical moment of this study. If these women were young girls at the time of diagnosis, the first-degree relative affected was almost certainly their mother and the treatment, almost certainly radical mastectomy. (Lumpectomy has been accepted as treatment of choice for some breast cancers only in the last decade, Holland & Rowland, 1987). Therefore, what these women saw or sensed as young girls is a particularly disfiguring operation: radical mastectomy not only removes the breast, it scrapes tissue to the bone and carves out part of the armpit as well.

While hypothesizing particular responses for particular age groups will have to await a subsequent study, if age does have a significant effect on body anxiety, it might make sense to look at a breakdown of ages into pre-operational and post-operational stages of development (Piaget, 1962), since causation and gender identity are particularly vulnerable issues for the pre-operational child.

Since negative outcome is likely to increase anxiety about the disease while positive outcome may temper such anxiety, it was further hypothesized (b) that the death of the affected relative(s) will correlate with body anxiety.

Medical risk will be assigned to one of two high risk categories on the basis of the best available data (National Cancer Institute, 1984). Perception of risk will be rated on a five-point Likert scale that scores the subject's estimate of her chances of getting breast cancer from "Not at all Likely " to "Extremely Likely." Body anxiety will be measured by Fisher and Cleveland's (1968) Barrier Scale on the Rorschach and by Secord's (1949) Word Homonym Test. These measures are described in detail in the following section.

CHAPTER THREE

METHODS

Setting

This study was conducted at the Preventive Medicine Institute/Strang Clinic, which was located on East 34th Street and in 1990 moved to East 72nd Street in Manhattan. The clinic runs, among other programs, a High Risk Surveillance Breast Cancer program. This study supplemented a long-range study already in process at the Strang Clinic and at Memorial Sloan-Kettering Hospital. The long-range study is attempting to ascertain factors which contribute to compliance with preventive health behaviors in women at risk for breast cancer. It is also attempting to determine the role of psychological and behavioral risk factors in the development of breast cancer. The larger study is recording demographic data and measuring such variables as stressful life events, depression, hardiness, anxiety, and available social supports for women in the study. In focusing on questions of body integrity, this study suggested a possible supplemental area of investigation for long-term research.

Subjects

Subjects were randomly selected from the women who participate in the High Risk program at the Strang. Women are eligible for participation in the program if they have either one first-degree relative with premenopausal, bilateral breast cancer; two or more first-degree relatives

with breast cancer; or a mother and maternal grandmother with breast cancer. The program includes instruction in breast self-examination and regularly scheduled appointments for physical examination, mammography, and genetic counselling. The program presently enrolls approximately 330 women, who are either referred by physicians or self-referred. Since the program is free and since the clinic has been publicized through radio, television, and newspaper coverage and advertising, the population presents a varied demographic profile.

Women in the program can be divided into two risk increments: the higher risk (30-50% lifetime chance of disease) category includes all women with at least one first-degree relative with premenopausal, bilateral cancer. The lower risk increment (7-29% lifetime risk of breast cancer) includes all other women in the program. Medical risk in the program breaks down into a roughly two-to-one split between the lower risk and the higher risk increments, with approximately 200 women at lower risk and 100 women at higher risk.

The participants in the program have been polled on their perception of risk as a part of the larger study described above. Of the 114 women who have responded to a questionnaire thus far, the perceived risk has the following distribution among the five possible categories of response: 14.3% or 17 of the women estimate that their chances of getting breast cancer as "Extremely Likely"; 25% or 28 women say that it is "Very Likely"; 33% or 37 women record

responses of "Moderately Likely"; 24.1% or 28 women say it is "Somewhat Likely"; 1.8% or 2 women record responses of "Not at all Likely"; and 1.8% or 2 women did not respond.

Since the population in the program spans a range of both medical and perceived risk, this study contacted woman as they made their appointments for the high risk clinic and chose the first fifty-two who consented to participate. Demographic information was compiled on those women who refused to consent and evaluated for possible sample bias.

Procedures

When High Risk patients called for an appointment, they were told to expect a call from the present investigator asking them to participate in a psychological study. Unless the patient refused to participate, the investigator then followed up with a phone call. Since most of the patients at the clinic are aware that it is a research as well as a treatment facility and since many have been apprised of the likelihood that they would be asked to participate in future studies, the patients contacted were probably somewhat prepared for this request. Regardless, they were assured of (a) the voluntary nature of the study, (b) the lack of consequences to their medical care should they refuse to participate, (c) the willingness and availability of the investigator to provide help with any problems that might have arisen as a result of the study, (d) the probable amount of time required for their participation in the study, and (e) the confidentiality of all information

obtained throughout the study. When the patient was willing to participate, an appointment was set up with them for testing, preferably on the same day as their clinic appointment.

At the time of the appointment, the investigator met privately with the patient for approximately an hour. During that time, any demographic information missing from the patient's record was collected, including the patient's age at the time of her relative's diagnosis and the outcome of the disease. The subject was then asked to describe her perception of being at risk for breast cancer on a five-point Likert scale: Not at All Likely, Somewhat Likely, Moderately Likely, Very Likely, and Extremely Likely. Finally, the subject was administered a Rorschach and a Secord Word Homonym Test. Throughout the testing session, the investigator monitored the subject's reactions and, when appropriate, offered reassurance or future counselling. All subjects were reminded that the results of individual tests are strictly confidential; in addition, they were told that once the study is complete, a summary of the general findings would be made available to them.

Measures

In addition to demographic data, the response to a question about perceived risk of breast cancer and assigned medical risk and two standardized instruments to measure anxiety about the body and concern about body integrity were used during a one-hour testing session. For both

instruments, validity, reliability, and norms for special populations have all been established.

The Rorschach, scored by Fisher and Cleveland's Barrier Score Scale.

Fisher and Cleveland (1968) have argued that Rorschach responses can be interpreted to offer an accurate picture of the subject's sense of her body integrity. They have devised a scoring system which delineates two types of scores on the Rorschach: Barrier scores and Penetration scores. Since Penetration scores have been found to have questionable reliability (Fisher, 1980), this study relied on the Barrier score exclusively. Barrier scores are given for responses on the Rorschach which denote a sense of boundary or barrier: clothing, buildings, or other enclosing structures, or anything which conceals or contains would be given a barrier score. According to Fisher and Cleveland, Barrier scores indicate a clarity about or concern with body boundaries. Mean Barrier scores derived from studies using this scale typically fall into the 7-9 range (Fisher, 1986).

Previous research with this measure has established inter-rater reliability coefficients in the high .80's and .90's for both Penetration and Barrier scores. Test-retest reliabilities average in the .70's (see Fisher, 1986, 1970; Fisher & Cleveland, 1968, for a more detailed analysis). Since Barrier and Penetration scores vary in relation to the total number of responses (R), the study controlled for R

statistically.

In the long run, the information gathered from these tests should provide a useful addenda to the data being collected for the larger study, which seeks to isolate behavioral and psychological risk factors which contribute to the development of breast cancer[4]. For the purposes of this study, Barrier scores were considered one measure of anxiety about body integrity and were compared between the two medical risk groups for significant differences. They were also correlated with the subjects' own estimations of their risk.

Secord Homonym Word-Association Test.

Secord (1953) devised a word-association test consisting of 100 items. Seventy-five of these are homonyms for body parts or processes (e.g. colon or graft) or might elicit bodily responses (e.g., "acid," which elicited body response "sour" and non-body response "hydrochloric"); the remaining 25 are neutral words interspersed randomly among the homonyms. The test measures body concern or anxiety with high body scores reflecting either such anxiety or, in a minority of cases, narcissism.

---

[4]Since Fisher and Cleveland's (Fisher, 1986; Fisher & Cleveland, 1968) research has discovered a relationship between higher Barrier scores and the incidence of breast cancer, one particular area of interest for future research would be an examination of the Barrier scores of those women in this study who do, over time, develop breast cancer. If Fisher and Cleveland's discovery holds true for a prospective study, Barrier scores might have use as a prognostic tool in the future.

The list is read aloud at five-second intervals and the subject is asked to write down their first association to each item. Blanks or failures to respond are handled by the following correction formula:

$$Hc = H + B\,[h/100 - B]$$

where Hc is the corrected homonym score, H is the original homonym score, and B is the number of blanks. Split half reliabilities for the test fall in the range of .70's to .80's. Tests for objectivity of scoring yielded inter-rater reliabilities in the .90's (Secord, 1953).

A body concern score for each subject was determined by scoring the body response to the homonym test and summing the results. Since Barrier scores measure the individual's sense of body integrity and low Barrier scores reflect concern about the integrity of the body, this study anticipated a correlation between high scores on the homonym test and low Barrier scores on the Rorschach.

Data Analysis

Since all subjects were tested for a Barrier score and a Homonym score, the first analysis undertaken was a simple correlation analysis to check the relation between H and B, ensuring that these scores reflect different measures of the same variables. It was presumed that a low Barrier score and a high Homonym score would be correlated with high body anxiety. Therefore, an analysis of the relation between Barrier and Homonym scores for the population was expected to demonstrate an inverse relation between the two scores

for each subject.

There was good reason (see above, II. Subjects) to expect that the distribution of all variables in this study would be normal. In any case, this study tested all variables to determine distribution and normalized distribution when necessary.

Once these operations were complete, the study undertook to test three main hypotheses:

1. Medical risk does not predict to body anxiety.

Women were assigned to two categories of medical risk. If they had a first-degree relative with premenopausal bilateral breast cancer, they were assigned to the higher risk category. All other subjects were assigned to the lower risk category. Mean Barrier scores and Homonym scores were calculated for each category and compared. It was expected that there would be no significant difference between the two categories.

2. Perceived risk predicts body anxiety.

   a. High and low perceptions of risk are associated with high body anxiety.

   b. Moderate perception of risk is associated with low body anxiety.

Women who answered the Perception of Risk question as Extremely, Very, or Not at All Likely were compared to women who responded either that it is Moderately or Somewhat Likely that they will develop breast cancer in their

lifetimes. It was hypothesized that the former group would have significantly lower Barrier scores and higher Homonym scores than the latter group.

3. Age at diagnosis and outcome predicts body anxiety.
    a. The younger the woman at the time of diagnosis, the higher her body anxiety.
    b. Death of the affected relative is associated with higher body anxiety.

To test all of the above hypotheses, the study used simultaneous solution regression. The regression examined the independent effects of medical risk, perceived risk, age of exposure, and outcome on body anxiety as measured by the Barrier and Homonym scores. In line with the understanding of the effect of breast cancer described in the Literature Review, it was expected that age of exposure and outcome would account for most of the variance in body anxiety.

Since this study looked at five variables with fifty subjects, it was expected that the power distribution of results lie between .50 and .80 (Welkowitz, Ewen, & Cohen, 1982).

Significance

This study, in exploring the relationships among medical risk for breast cancer, perceived risk, and body anxiety, targets those women in high risk categories in special need of counselling. More specifically, it may be used to identify, before there is a crucial diagnosis,

those women whose concerns about the disease are so severe that they may be unable to comply with recommended medical procedures (e.g., monthly breast self-examinations or biopsy for a suspicious lump). With such identification, educational and counselling programs could be designed to help these particular women become able to take better care of themselves.

In a larger context, this study seeks to offer insight into the powerful impact of a mother's disease on the life of her daughter and to suggest the need for early intervention for children of breast cancer patients.

CHAPTER FOUR

RESULTS

Before testing the study's hypotheses, it was first necessary to answer a number of potentially confounding questions: (a) Do the demographic characteristics of the sample skew the results in any way? (b) Are there any significant differences between those women who agreed to participate in the study and those who, for various reasons, did not? (c) Among those women who participated, did the different conditions under which they were tested have any significant impact on the results of these tests? (d) Was the inter-rater reliability on the dependent measures sufficiently high?

Sample

Potential demographic distinctions among subjects were examined using Chi squares and ANOVA's when appropriate. Data were collected on all subjects on the following variables: geography, ethnicity, religion, marital status, age, education, and occupation. Age was the only one of these variables which accounted for any significant differences on the independent or dependent variables in the study; and when covaried in a regression model, age did not account for significant differences in any of the dependent variables. Therefore, none of the demographic distinctions among subjects had significant impact on any of the results of this study. A description of the breakdown of

demographic data by individual category follows:

Geography.

The overwhelming majority (47 or 90.4%) of subjects lived in New York state; 5 or 9.6% lived in New Jersey. Most subjects lived in either Manhattan (18 or 34.6%) or Brooklyn (8 or 15.4%). The limited variability in geographic location suggested that further statistical procedures were inadvisable.

Ethnicity.

The overwhelming majority (47 or 90.4%) of subjects were white. 4 or 7.7% were black and 1 or 1.9% were Hispanic. Since the sample was almost uniform along this dimension, it made little sense to undertake further statistical tests.

Religion.

27 or 52% or subjects did not reveal their religion. Of those that did, 11 or 21% were Catholic, 4 or 8% were Protestant, 7 or 13% were Jewish, and 3 or 6% had no religion. Religious differences, however, did not account for any significant differences on any of the independent or dependent variables (see Table 1).

Marital Status.

The subjects described a fairly balanced sample: 15 or 28.8% were single, 24 or 46.2% were married, 5 or 9.6% were separated, 2 or 3.8% were divorced, and 6 or 11.5% were widowed. The different categories of marital status accounted for no significant differences on any of the other variables (see Table 2).

Table 1

Subject's Religion Compared with All Variables

Variable	Chi square	df	p
Medical risk	5.46	6	.48
Perception of risk	7.15	12	.84
Outcome	3.89	4	.42

Variable	df	Sum of squares	Mean square	F	p
Age at diagnosis	3	121.38	40.46	0.17	.91
Error	20	4816.10	240.80		
Corrected total	23	4937.49			
Number of first-degree relatives affected	3	0.30	0.10	0.21	.88
Error	20	9.53			
Corrected total	23	9.83			
Number of second-degree relatives affected	3	1.46	0.48	0.19	.90
Error	20	50.49	2.52		
Corrected total	23	51.95			

Table 1 continued

Variable	df	Sum of squares	Mean square	F	p
Subject's age minus mother's age at diagnosis	3	748.04	249.34	0.48	.70
Error	20	10458.57	522.92		
Corrected total	23	11206.62			
Homonym score	3	41.15	13.71	0.20	.90
Error	20	1400.93	70.04		
Corrected total	23	1442.09			
Barrier score[a]	3	0.06	0.02	2.01	.14
Error	20	0.20	0.01		
Corrected total	23	0.27			
Penetration score[a]	3	0.02	0.00	0.71	.55
Error	20	0.24	0.01		
Corrected total	23	0.27			

[a]Since both Barrier and Penetration scores vary significantly according to number of responses, all Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

Table 2

Subject's Marital Status Compared with All Variables

Variable	Chi square	df	p
Medical risk	8.38	8	.39
Perception of risk	24.98	16	.07
Outcome	5.87	4	.20

Variable	df	Sum of squares	Mean square	F	p
Age at diagnosis	4	1459.12	364.78	1.93	.12
Error	46	8675.30	188.59		
Corrected total	50	10134.42			
Number of first degree relatives affected	4	2.11	0.52	1.89	.12
Error	46	12.86	0.28		
Corrected total	50	14.98			
Number of second-degree relatives affected	4	2.89	0.72	0.47	.75
Error	46	71.02	1.54		
Corrected total	50	73.92			

Table 2 continued

Variable	df	Sum of squares	Mean square	F	p
Subject's age minus mother's age at diagnosis	4	797.53	199.38	0.39	.81
Error	46	23244.98	505.32		
Corrected total	50	24042.51			
Homonym score	4	419.87	104.96	1.96	.11
Error	46	2466.55	53.62		
Corrected total	50	2886.42			
Barrier score[a]	4	0.01	0.00	0.24	.91
Error	46	0.77	0.01		
Corrected total	50	0.79			
Penetration score[a]	4	0.02	0.00	0.46	.76
Error	46	0.58	0.01		
Corrected total	50	0.60			

[a]Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

Age.

The subjects ranged in age from 28 to 80, with a mean age of 49.06. The distribution of subjects across the range of ages was fairly normal. There were significant differences on a number of variables in relation to the subject's present age: Number of First-Degree Relatives Affected, Outcome, and Age at the Time of Diagnosis (see Table 3). However, when the subject's age was covaried in a regression model, it did not account for any significant variance on the dependent measures (see Table 4).

Education.

Subjects' educational levels ranged from elementary to postgraduate with a fairly even distribution among the five categories: high school, less than college, college, graduate school, and postgraduate. Nine subjects or 17.31% had a high school education, 10 subjects or 19.23% had less than a college education, 16 or 30.77% had a college degree, 11 or 21.15% had gone to graduate school, and 6 or 11.54% were post graduate. Differences in Educational Level did not, however, account for significant differences on any of the independent or dependent variables (see Table 5).

Occupation.

The subjects described a range of occupations from white to blue collar workers: 19 or 37% of subjects participating in the study were professional or technical workers, 12 or 23% were managers or administrators, 4 or 8% were sales workers, 12 or 23% were clerical workers, 3 or 6% were service workers, and 2 or 4% revealed no occupation

Table 3

Subject's Age Compared with All Variables

Variable	Pearson *r*	*p* > |R| under Ho Rho = 0
Medical risk	-.27	.05
Perception of risk	.23	.09
Outcome	.44	.001
Age at diagnosis	.65	.0001
Number of first-degree relatives affected	.57	.001
Number of second-degree relatives affected	-.24	.08
Subject's age minus mother's age at diagnosis	-.08	.56
Homonym score	-.25	.07
Barrier score[a]	-.01	.92
Penetration score[a]	.17	.22

[a]Barrier and Penetration scores are reported and computed as percentages of the *R*'s in the corresponding record.

Table 4

Impact of Subject's Age on the Three Dependent Variables

Variable	Parameter estimate	t for Ho: Parameter = 0	p > |T|	Std error of estimate
Dependent variable: Homonym Score				
Medical risk	-0.94	-1.02	.31	0.92
Perception of risk	-2.28	-2.39	.02	0.95
Outcome	0.28	0.11	.91	2.55
Age at diagnosis	-0.18	-1.91	.06	0.09
Subject's age minus mother's age at diagnosis	0.00	0.02	.98	0.12
Dependent Variable: Barrier Score[a]				
Medical risk	-0.01	-0.97	.33	0.01
Perception of risk	0.01	0.69	.49	0.01
Outcome	-0.04	-1.01	.32	0.04
Age at diagnosis	-0.00	-0.00	.99	0.00
Subject's age minus mother's age at diagnosis	-0.00	-0.02	.98	0.00

Table 4 continued

Dependent Variable: Penetration Score[a]

Variable	Parameter estimate	t for Ho: Parameter = 0	p > |T|	Std error of estimate
Medical risk	-0.01	-1.24	.22	0.01
Perception of risk	0.00	0.06	.95	0.01
Age at diagnosis	-0.00	-0.31	.75	0.00
Outcome	0.04	1.09	.28	0.04
Subject's age minus mother's age at diagnosis	0.00	0.35	.72	0.00

[a]Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

Table 5

Subject's Educational Level Compared with All Variables

Variable	Chi square	df	p
Medical risk	8.21	8	.41
Perception of risk	8.88	16	.91
Outcome	3.89	4	.42

Variable	df	Sum of squares	Mean square	F	p
Age at diagnosis	4	1643.74	410.93	2.23	.08
Error	46	8490.67	184.58		
Corrected total	50	10134.42			
Number of first-degree relatives affected	4	1.06	0.26	0.88	.48
Error	46	13.92	0.30		
Corrected total	50	14.98			
Number of second-degree relatives affected	4	2.87	0.71	0.47	.76
Error	46	71.04	1.54		
Corrected total	50	73.92			

Table 5 continued

Variable	df	Sum of squares	Mean square	F	p
Subject's age minus mother's age at diagnosis	4	2242.78	560.69	1.18	.33
Error	46	21799.72	473.90		
Corrected total	50	24042.51			
Homonym score	4	185.09	46.27	0.79	.53
Error	46	2701.32	58.72		
Corrected total	50	2886.42			
Barrier score[a]	4	0.00	0.00	0.13	.97
Error	46	0.78	0.01		
Corrected total	50	0.79			
Penetration score[a]	4	0.01	0.00	0.34	.84
Error	46	0.58	0.01		
Corrected total	50	0.60			

[a]Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

outside the home. Despite this range in occupations, however, differences in Occupational Status did not account for significant differences on any of the independent or dependent variables (see Table 6).

In summary, the subjects in the sample were overwhelmingly from New York and white; and they describe a range of religions, marital states, ages, educational levels and occupations. From the statistical procedures described above, it is clear that the only demographic variable which had a significant impact on any of this study's independent or dependent variables was Subject's Age, and when Subject's Age was covaried in a regression model with other variables on the three dependent variables--Homonym Score, Barrier Score, and Penetration score--Subject's Age had no significant impact on any of the three. Therefore, the demographic differences among subjects in the sample can be said to have no significant bearing on the results of this study.

Participation in Study

Next, it had to be determined if there were any significant differences between those women who agreed to participate in the study and those who did not. Chi squares were performed on all the discontinuous demographic variables and ANOVA's on all the continuous demographic variables by various participation groups to determine that the 52 subjects who participated in this study did not differ significantly in geography, religion, marital status,

Table 6

Subject's Occupation Compared with All Variables

Variable	Chi square	df	p
Medical risk	4.79	8	.77
Perception of risk	11.71	16	.76
Outcome	0.96	4	.91

Variable	df	Sum of squares	Mean square	F	p
Age at diagnosis	4	927.04	231.76	1.17	.33
Error	44	8750.63	198.87		
Corrected total	48	9677.67			
Number of first-degree relatives affected	4	1.19	0.30	1.22	.31
Error	44	10.80	0.24		
Corrected total	48	12.00			
Number of second-degree relatives affected	4	1.87	0.46	0.29	.88
Error	44	71.10	1.61		
Corrected total	48	72.98			

Table 6 continued

Variable	df	Sum of squares	Mean square	F	p
Subject's age minus mother's age at diagnosis	4	1287.66	321.91	0.63	.64
Error	44	22662.17	515.05		
Corrected total	48	23949.83			
Homonym score	4	84.37	21.09	0.34	.84
Error	44	2713.37	61.66		
Corrected total	48	2797.75			
Barrier score[a]	4	0.00	0.00	0.07	.99
Error	44	0.73	0.01		
Corrected total	48	0.74			
Penetration score[a]	4	0.02	0.00	0.46	.76
Error	44	0.56	0.01		
Corrected total	48	0.59			

[a]Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

age, education, or occupation from those 15 subjects who refused to participate, those 13 subjects who cancelled appointments, or from those 6 subjects who did not participate for other reasons (see Table 7).

In contrast, a Chi square measuring the relationship between Ethnicity and Participation Group was significant (Chi square = 20.18, $p < .01$); however, since most of the cells in the Chi square were sparse, the test is not a reliable one. The Somers' D, a more reliable measure for this data, shows a maximum of 12% reduction in uncertainty about group participation on the basis of ethnicity, which is fairly small. Therefore, any conclusion that ethnicity was a significant determinant of group participation would probably be erroneous.

Conditions of the Testing

Once it was established that there were no significant demographic differences between those who participated in the study and those who did not, the next question to be addressed concerned the impact of the different testing conditions on the results. Out of the 52 women who participated in the study, 14 participated under unusual circumstances (i.e., were tested before their appointments or considerably after their appointments or with babies in the room or had a suspicious finding). The remainder of the women in the study, 38 women, were tested alone in a room immediately following a normal checkup. There was, however, no significant difference between these two groups on any of

Table 7

Participation Status Compared with Demographic Variables

Variable	Chi square	df	p
Geography	90.09	96	.65
Ethnicity	20.18	9	.01
Religion	0.55	2	.76
Marital status	9.911	12	.62
Education	2.911	3	.40
Occupation	5.604	3	.13

Variable	df	Sum of squares	Mean square	F	p
Age	3	1286.51	428.83	2.51	.06
Error	82	14006.57	170.81		
Corrected total	85	15293.08			

Participation group by ethnicity	Value	ASE
Somers' D C/R	0.128	0.202
Somers' D R/C	0.043	0.069

the independent or dependent variables except Age (see Table 8); and as already stated (see Table 4), Age does not account for significant differences on any of the dependent variables. Therefore, neither participation in the study nor condition of participation significantly affected the study's results.

Inter-Rater Reliability: Homonym Score, Barrier Score, and Penetration Score

The final question to be determined before examining the data generated by the study was the reliability between raters on the three scales used by the study: Secord's Word Homonym and Fisher and Cleveland's Barrier and Penetration scales. Inter-rater reliability for the Homonym Score was $K = .93$. Inter-rater reliability for the Barrier Score was $K = .92$; and inter-rater reliability for the Penetration Score was $K = .93$. Inter-rater reliability, therefore, is sufficiently high so as not to compromise the results of the data.

Relationships Among Homonym, Barrier, and Penetration Scores

Once it was clear that demographic distinctions, nature of participation in the study and inter-rater reliability did not significantly affect the study's results, it was necessary to test hypotheses about the interrelation of the study's three dependent measures. It was assumed, from Fisher and Cleveland's work, that the Barrier and Penetration scores measured the same phenomenon; and it was

Table 8

Circumstances of Participation[a] Compared with Other Variables

Variable	t	df	p > |T|
Age at diagnosis	-0.45	49	.65
Number of first-degree relatives affected	0.34	49	.73
Number of first-degree relatives affected	0.39	49	.69
Subject's age minus mother's age at diagnosis	-0.15	49	.87
Homonym score	0.87	49	.38
Barrier score[b]	-0.67	49	.50
Penetration score[b]	1.17	49	.24
Age	-2.05	50	.04

Variable	Chi square	df	p
Medical risk	2.76	2	.25
Perception of risk	2.81	4	.58
Outcome	0.51	1	.47
Geography	28.28	32	.65
Ethnicity	0.60	3	.89
Religion	2.46	4	.65

Table 8 continued

Variable	Chi square	df	p
Marital status	0.98	4	.91
Education	4.32	5	.50
Occupation	3.38	6	.76

[a]38 women participated under standard circumstances, 14 under unusual circumstances.

[b]Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

therefore expected that relations between Barrier Score and Penetration Score would be inverse and significant. It was hypothesized that the Fisher and Cleveland Barrier and Penetration Scales would tap the same or similar dimensions of body anxiety as that tapped by Secord's Word Homonym Test. It was therefore expected that the relationship between Barrier Score and Homonym Score would be significant and inverse and that there would be a positive correlation between Penetration Score and Homonym Score.

However, in a challenge to Fisher and Cleveland's theoretical framework, the relationship between Barrier Score and Penetration Score was not significant (r = -.25, p < .07, n.s.). Similarly, the relationship between Barrier Score and the Homonym Score was not significant (r = .01, p < .22, n.s.); and the relationship between Penetration Score and the Homonym Score was likewise not significant (r = -.16, p < .23, n.s.). Therefore, the assumption that the three scales measure the same or similar dimensions of body anxiety was not supported by the data.

Medical Risk

Next, we turn to the issue of Medical Risk, one of the major independent variables distinguishing subjects in the sample.

Distribution.

Subjects fell into one of two categories of Medical Risk, with 39 or 75% of subjects in category 1, moderately elevated risk, and 13 or 25% of subjects in category 2,

highly elevated risk. Since the study was interested in the relationship between the objective fact and the subjective state of being at risk for breast cancer, a comparison of Medical Risk categories and Perception of Risk categories was undertaken. There was no significant difference between the two categories of Medical risk on the Perception of Risk variable (Chi square = 6.20, df = 38, p = .62, n.s.), therefore suggesting a meaningful disparity between objective and subjective measures of risk.

As a Measure of Body Anxiety.

This disparity is further maintained by the comparison undertaken between Medical Risk categories and the dependent measures of body anxiety: the Homonym Score, the Barrier Score, and the Penetration Score. As was hypothesized, the relationship between Medical Risk and each of three measures of body anxiety was not significant (see Table 9 or Table 16).

Perception of Risk

The next variable whose significance had to be determined was the Subject's Perception of Risk of getting breast cancer.

Distribution.

Subjects described a normal curve for the Perception of Risk variable (Maximum Deviation, KS-D = 10%). Five subjects or 9.6% of subjects considered their risk of getting breast cancer as Extremely Likely, 13 subjects or 25% considered it Very Likely, 16 subjects or 30.8%

Table 9

Subject's Medical Risk Compared with Body Anxiety Measures

Variable	t	df	p > |T|
Homonym score	-0.44	36.3	.65
Barrier score[a]	-0.27	15.9	.78
Penetration score[a]	-0.13	23.2	.89

[a]Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

considered it Moderately Likely, 15 subjects or 28.8% considered it Somewhat Likely, and 3 subjects or 5.8% considered it Not at All Likely. This range of responses suggested the presence of some unknown factors accounting for such variability in perceptions of risk among a group whose actual risks, according to the Medical Risk variable, were much more homogenous.

To understand further the nature of a subject's perception of her risk, the study looked at the relationship between a subject's perception and other variables. First, to get a rough indication of relationships, a series of Pearson correlations were undertaken among all the independent and dependent variables. With this measure, the Perception of Risk variable showed a significant positive correlation with the number of responses on the Rorschach and a significant negative correlation with the Homonym Score (see Table 10).

Compared with Body Anxiety.

It was hypothesized that Perception of Risk would predict body anxiety. This proved correct only for the Homonym variable ($r = -.36$, $p < .01$). There was no significant relationship found between Perception of Risk and Barrier Score or between Perception of Risk and Penetration Score.

However, when other statistics, Chi squares and ANOVA's, were used, this finding of significance was thrown into question, and another significant finding, between Perception of Risk and a measure of the difference between a

Table 10

Perception of Risk Compared with All Variables

Variable	r	p > |R|: Rho = 0
Medical risk	.05	.71
Outcome	-.06	.66
Age at diagnosis	.14	.30
Number of first-degree relatives affected	.15	.27
Number of first-degree relatives affected	-.00	.99
Subject's age minus mother's age at diagnosis	-.24	.09
Homonym score	-.36	.00
Barrier score[a]	.12	.37
Penetration score[a]	.04	.77
Number of responses	.38	.00

[a]Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

subject's present age and her mother's age at diagnosis, was revealed (see Table 11). Leaving aside for the present the question of age[5], let us examine the relationship between Perception of Risk and measures of body anxiety more closely.

Considering the possibility that the significant relationship between Perception of Risk and Homonym Score, suggested by the Pearson finding, was not a linear relationship and having hypothesized a significant distinction between Extreme and Moderate Perceptions of Risk, the subjects were then divided into two Perception of Risk categories: 0 = Moderate Perception of Risk (i.e., Moderately or Somewhat Likely) and 1 = Extreme Perception of Risk (i.e., Extremely, Very, or Not at All Likely). This regrouping yielded a significant difference between the two categories on the dependent variable, Homonym Score (see Table 12). Extreme perceptions of risk had a 7% higher Homonym Score than Moderate perceptions of risk. Thus, for the Homonym Score, the hypotheses that (a) High and low perceptions of risk will be associated with high body anxiety, and (b) Moderate perception of risk will be associated with low body anxiety were supported. On the other hand, there was no significant difference on either Barrier Score or on Penetration Score between these two groups.

While Perception of Risk predicted neither Barrier

[5]This will be discussed in detail later in this chapter.

Table 11

Perception of Risk Compared with All Variables

Variable	Chi square	df	p
Medical risk	6.20	8	.62
Outcome	4.43	4	.35

Variable	df	Sum of squares	Mean square	F	p
Age at diagnosis	4	639.73	159.93	0.76	.55
Error	47	9844.01	209.44		
Corrected total	51	10483.74			
Number of first-degree relatives affected	4	0.60	0.15	0.48	.75
Error	47	14.83	0.31		
Corrected total	51	15.44			
Number of second-degree relatives affected	4	2.50	0.62	0.41	.80
Error	47	72.32	1.53		
Corrected total	51	74.82			

Table 11 continued

Variable	df	Sum of squares	Mean square	F	p
Subject's age minus mother's age at diagnosis	4	10230.57	2557.64	8.68	.0001
Error	47	13842.34	294.51		
Corrected total	51	24072.92			
Homonym score	4	516.50	129.12	2.56	.05
Error	47	2372.11	50.47		
Corrected total	51	2888.61			
Barrier score[a]	4	0.12	0.03	2.27	.07
Error	47	0.66	0.01		
Corrected total	51	0.79			
Penetration score[a]	4	0.05	0.01	1.16	.34
Error	47	0.55	0.01		
Corrected total	51	0.61			
Number of responses	4	3463.55	865.89	8.66	.0001
Error	47	4696.96	99.93		
Corrected total	51	8160.51			

[a]Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

Table 12

Risk Categories Compared with Body Anxiety

Variable: Homonym Score				
Risk Category	N	Mean	SD	Standard error
0	31	28.78	7.07	1.27
1	21	33.47	7.44	1.62

Variances	t	df	p > |T|
Equal	-2.29	50	.02

Variable: Barrier Score[a]				
Risk Category	N	Mean	SD	Standard error
0	31	0.39	0.13	0.02
1	21	0.33	0.10	0.02

Variances	t	df	p > |T|
Equal	1.73	50	.08

Table 12 continued

Variable: Penetration Score[a]

Risk Category	N	Mean	SD	Standard error
0	31	0.16	0.10	0.01
1	21	0.18	0.12	0.02

Variances	t	df	p > |T|
Equal	-0.62	50	.53

[a]Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

Score nor Penetration Score on the Rorschach, there was a strong correlation between Perception of Risk and Number of Responses on the Rorschach (see Tables 10 and 11). The more unlikely the subject found her chances of getting breast cancer, the more responses she produced on the Rorschach, thus reversing what common sense might anticipate. However, when Perception of Risk categories were collapsed into two groups of Moderate and Extreme risk perception, the significant relationship with Response number did not hold and the relationship reversed direction: that is, the more extreme perceptions of risk had the higher mean response numbers (t = -.85, p < .39, n.s.). A closer examination of data, however, resolved the seeming contradiction and threw into question the initial finding of significance.

Upon closer examination of the original Perception of Risk categories, it became clear that the three subjects who described their risk as "Not at All Likely" were wholly responsible for the initial significant finding; that is, their unusually high Response numbers (25, 59, and 81) were what accounted for the significant inverse relationship between Perception of Risk and Response Number. It would, therefore, be necessary to procure a larger sample of such women before any reliable conclusions could be drawn about their number of responses.

Time 1 Data.

Serendipitously, this study had access to Perception of

Risk data at an earlier time for 44 of the 52 subjects.[6] This, in turn, raised two interesting questions: 1) Was Perception of Risk stable over time? or what was the relationship between the two data sets? and 2) Did Time 1 data also predict significantly any of the dependent variables? While there was a significant association between Time 1 and Time 2 data (Chi square = 22.95, p = .02), there was only a 75% agreement in classification between the two sets of data, or K = .5; so that the association was not very strong.

When subjects' earlier perceptions of their risks for getting breast cancer were examined further, Time 1 data had no significant relationship with Age at Diagnosis or with any measure of body anxiety: with scores on the Homonym Test, with Barrier Scores, or with Penetration Scores (see Table 13). Therefore, a subject's Perception of her Risk of getting breast cancer only predicted significantly to one measure of body anxiety, the Homonym Score, and only when that anxiety was tapped at the same time that risk perception was queried.

Age at Diagnosis

The next variable to be investigated was the subjects' Age at Diagnosis. The study was interested in how a woman's age at the time her mother was diagnosed as having breast

[6]From now on, the Perception of Risk data collected in this study will be designated Time 2 data to distinguish it from this earlier information, Time 1 data.

Table 13

Time 1 Perception of Risk Compared with Age at Diagnosis and Measures of Body Anxiety

Variable	df	Sum of squares	Mean square	F	p
Age at diagnosis	2	869.96	434.98	2.15	.12
Error	43	8702.23	202.37		
Corrected total	45	9572.20			
Homonym score	2	232.36	116.18	2.11	.13
Error	43	2367.06	55.04		
Corrected total	45	2599.42			
Barrier score[a]	2	0.05	0.02	1.85	.16
Error	43	0.64	0.01		
Corrected total	45	0.69			
Penetration score[a]	2	0.00	0.00	0.03	.97
Error	43	0.55	0.01		
Corrected total	45	0.55			

[a]Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

cancer affected her sense of her body. Therefore, the distribution of the age variable was first tested to ensure a normal distribution.

Distribution.

The subjects' ages at the time of their mothers' diagnoses ranged from 4 to 60 and described a normal curve (Maximum Deviation, KS-D, = 2.3%).

Compared with Body Anxiety.

Next, correlations were undertaken to determine the relationship between a subject's age at diagnosis and the three measures of her anxiety about her body. The relationship between Age at Diagnosis and Homonym Score was inverse and significant ($r = -.34$, $p < .01$). However, the relationship between Age at Diagnosis and either the Barrier Score or the Penetration Score was not significant (see Tables 14 and 16). Therefore, the hypothesis that the younger the woman at the time of diagnosis, the higher her body anxiety was supported by the Homonym Test but not by the other two measures of body anxiety.

Outcome

The last of the original hypotheses to be tested concerned the effect of the outcome of the relative's cancer on the subject's body anxiety. The study first determined that both conditions of this variable had an adequate representation from the sample population.

Table 14

Age at Diagnosis Compared with Body Anxiety

Variable	r	p > |R|: Rho = 0
Homonym score	-.34	.01
Barrier score[a]	.05	.71
Penetration score[a]	.06	.65

[a]Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

Distribution.

Fifteen subjects or 28.8% had first-degree relatives who survived their cancers. Thirty-seven subjects or 71.2% had first-degree relatives who died from their breast cancers. While the distribution was skewed, both cells were sufficiently large to validate the use of appropriate measures.

Compared with Body Anxiety.

Since the study was concerned with relationship between a subject's body anxiety and her relative's outcome from the disease, t-tests were undertaken comparing the two Outcome categories with each of the three measures of body anxiety. Although it was hypothesized that the death of the affected relative would be associated with higher body anxiety, the relationship between Outcome and each of the three measures of body anxiety was not significant (see Tables 15 and 16). Therefore, whether the relative(s) did or did not survive her (their) cancer had no significant impact on a subject's anxiety about her body as measured by the Homonym, Barrier, or Penetration scales.

Number of Affected Relatives

As mentioned earlier, in the course of this study, several additional hypotheses were formulated. One concerned the relationship between family incidence of the disease and body anxiety. It was hypothesized that family incidence would not necessarily have any relationship to a subject's body anxiety. In order to investigate this

Table 15

Outcome Compared with Body Anxiety

Variable	t	df	p > |T|
Homonym score	0.11	50.0	.90
Barrier score[a]	1.35	50.0	.18
Penetration score[a]	-1.33	50.0	.18

[a]Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

Table 16

All Independent Variables Compared with Measures of Body Anxiety

Dependent variable: Homonym Score				
Variable	Parameter estimate	*t* for Ho: Parameter = 0	*p* > |T|	Std error of estimate
Medical risk	-3.14	-1.01	.32	3.12
Perception of risk	-2.00	-1.78	.08	1.12
Outcome	0.70	0.27	.78	2.59
Age at diagnosis	-0.19	-2.02	.05	0.09
Number of first-degree relatives affected	-1.15	-0.51	.61	2.27
Number of second-degree relatives affected	0.25	0.23	.82	1.14
Subject's age minus mother's age at diagnosis	0.00	0.04	.96	0.11

Table 16 continued

Dependent Variable: Barrier Score[a]

Variable	Parameter estimate	t for Ho: Parameter = 0	p > |T|	Std error of estimate
Medical risk	0.05	1.03	.30	0.05
Perception of risk	0.02	1.41	.16	0.01
Outcome	-0.02	-0.64	.52	0.04
Age at diagnosis	0.00	1.08	.28	0.00
Number of first-degree relatives affected	-0.01	-0.46	.64	0.03
Number of second-degree relatives affected	-0.02	-1.03	.30	0.02
Subject's age minus mother's age at diagnosis	0.00	0.80	.42	0.00

Table 16 continued

Dependent Variable: Penetration Score[a]

Variable	Parameter estimate	*t* for Ho: Parameter = 0	*p* > |T|	Std error of estimate
Medical risk	0.00	0.02	.98	0.04
Perception of risk	-0.00	-0.56	.58	0.01
Outcome	0.02	0.72	.47	0.03
Age at diagnosis	0.00	0.18	.85	0.00
Number of first-degree relatives affected	-0.05	-1.59	.12	0.03
Number of second-degree relatives affected	-0.00	-0.37	.71	0.01
Subject's age minus mother's age at diagnosis	-0.00	-1.25	.22	0.00

[a]Barrier and Penetration scores are reported and computed as percentages of the *R*'s in the corresponding record.

hypothesis, numbers of first- and second-degree affected relatives were tabulated for each subject; and the distribution of these numbers throughout the sample was determined.

Distribution--First-degree Relatives.

Thirty-seven or 71.2% of the subjects had one first-degree relative affected, 13 or 25% had two first-degree relatives affected, and 2 subjects or 3.8% had three first-degree relatives affected.

Distribution--Second-degree Relatives.

Twenty-three subjects or 44.2% had no second-degree relatives affected, 18 or 34.6% had one, 6 or 11.5% had 2, 3 or 5.8% had three, 1 or 1.9% had four, and 1 or 1.9% had six. Therefore, the sample demonstrated a range in numbers of both first- and second-degree relatives.

Compared with Body Anxiety.

In order to test the hypothesis that family incidence of disease does not predict levels of body anxiety, the study looked first at numbers of first-degree relatives and numbers of second-degree relatives in a multiple regression on each of the measures of body anxiety: Homonym Score, Barrier Score, and Penetration Score. The multiple regression yielded support for the study's hypothesis in that neither the number of first-degree relatives affected nor the number of second-degree relatives affected had a significant relationship with any of the dependent measures (see Table 16). Next, the possibility that it was incidence alone and not immediacy of relationship that was significant

was considered. However, when the two categories of affected relatives were collapsed, there was still no significant relationship between numbers of affected relatives and any of the dependent variables (see Table 17). Therefore, the hypothesis that family incidence of disease does not predict body anxiety was supported by the data.

Subject's Present Age vs. Mother's Age at Diagnosis

Another additional hypothesis that was generated during the course of this study concerned the relationship between the subject's present age and her mother's age at the time of her diagnosis with cancer. It was hypothesized that the closer a woman was in age to her mother's age at diagnosis, the higher her level of body anxiety.

In order to test this hypothesis, the study first investigated the distribution of this variable.

Distribution.

The differences between the subject's present age and the mother's age at diagnosis ranged from -20 (the subject is twenty years older than the mother was at diagnosis) to 30 (at the time of her diagnosis, the mother was thirty years older than the subject's present age). The range of differences described a normal distribution.

Compared with Body Anxiety.

To test the hypothesis, this variable was then correlated with each of the measures of body anxiety.

Table 17

Numbers of Affected Relatives Compared with Body Anxiety

Variable	r	p > |R|: Rho = 0
Homonym score	-.05	.71
Barrier score[a]	-.18	.19
Penetration score[a]	-.25	.07

[a]Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

Despite the fact that there was anecdotal evidence[7] supporting the hypothesis, the correlations yielded no significant relationship between the difference between the subject's present age and mother's age at diagnosis and any of the dependent variables (see Tables 18 and 16). Therefore, a daughter's proximity in age to her mother's age at diagnosis is not a reliable predictor of body anxiety on any of the measures utilized in this study.

However, there was a significant relationship between this age difference and the subject's perception of her risk of getting the disease ($F = 8.68$, $p < .00$, see Table 11). The closer in age the subject was to her mother's age at diagnosis, the more unlikely she rated her chances of getting breast cancer, exactly the opposite of the relationship common sense might suggest and therefore raising the strong possibility that some form of denial is at work.

Summary of Results

Despite hypotheses to the contrary, there were only two independent variables which significantly predicted any of the dependent variables: Perception of Risk and Age at Diagnosis significantly predicted performance on the Homonym Test. With significant relationships between Perception of Risk and Homonym Score and Age at Diagnosis and Homonym Score, a simultaneous regression was undertaken to test the

[7]Interviews with subjects at the Strang Clinic and at Memorial Sloan-Kettering Hospital.

Table 18

Subject's and Mother's Age Differential Compared with Body Anxiety

Variable	*r*	*p* > |R|: Rho = 0
Homonym score	.07	.59
Barrier score[a]	.10	.46
Penetration score[a]	-.19	.17

[a]Barrier and Penetration scores are reported and computed as percentages of the *R*'s in the corresponding record.

associations between these independent predictors. The independent relationships between these two significant variables was more clearly visible when they are regressed together (Model F = 4.88, R-square = .23, see Table 19). Perception of Risk and Age at Diagnosis together accounted for approximately 23% of the variance on the Homonym Score.

In contrast, none of the independent variables significantly affected the other two measures of body anxiety. In the absence of any simple relationships, a simultaneous regression was used to test whether any associations among independent predictors would reveal differences among partial regressions. None of the independent variables predicted Barrier Score. Similarly, none of the independent variables predicted Penetration Score (see Tables 19 and 16).

Table 19

Body Anxiety Compared with Risk Category, Age at Diagnosis, and Outcome

Dependent variable: Homonym Score

Model F value: 4.88

R-square: .23

Adjusted R-square: .18

Variable	Parameter estimate	t for Ho: Parameter = 0	p > |T|	Std error of estimate
Medical risk	5.32	2.67	.01	1.99
Age at Diagnosis	-0.19	-2.83	.00	0.06
Outcome	-1.03	-0.47	.63	2.16

Table 19 continued

Dependent variable: Barrier Score[a]

Model F value: 1.40

R-square: .08

Adjusted R-square: .02

Variable	Parameter estimate	t for Ho: Parameter = 0	p > |T|	Std error of estimate
Medical risk	-0.05	-1.43	.15	0.03
Age at diagnosis	0.00	0.60	.54	0.00
Outcome	-0.04	-1.00	.32	0.03

Table 19 continued

Dependent variable: Penetration Score[a]

Model F value: 0.62

R-square: .03

Adjusted R-square: -.02

Variable	Parameter estimate	t for Ho: Parameter = 0	p > |T|	Std error of estimate
Medical risk	0.00	0.27	.78	0.03
Age at diagnosis	0.00	0.26	.79	0.00
Outcome	0.04	1.15	.25	0.03

[a]Barrier and Penetration scores are reported and computed as percentages of the R's in the corresponding record.

CHAPTER FIVE

DISCUSSION

In order to investigate the relationship between the experience of being at risk for disease and body anxiety, this study looked at 52 women with family histories of breast cancer. The study questioned the relationships among an individual's medical risk of disease, her own perception of her risk, her age at the time of her mother's diagnosis, her relatives' morbidity, and her anxiety about her body. During the course of this investigation, additional questions suggested themselves: Does the family incidence of the disease have any impact on a woman's experience of her body? In other words, would a woman whose mother and two sisters all had breast cancer have a different experience of her body than a woman whose mother alone was affected? It was hypothesized that family incidence alone would not account for differences in anxiety.

After hearing from a number of women that they had particular anxiety when they neared the age that their mother had been when she was diagnosed, it was hypothesized that the smaller the difference between mother's age at diagnosis and the daughter's present age, the greater the daughter's body anxiety. Finally, since the Rorschachs of many of these women seemed, on a cursory inspection, to contain a large number of Penetration responses, it was decided to score for Penetration responses, even though the Penetration scale has proved less reliable than the Barrier

scale. The hypothesis in this case was that the more extreme perception of risk, the younger the age at diagnosis, and the death of the affected relative would all correlate with a high Penetration score.

Despite anecdotal and logical support, only one of these additional hypotheses was supported by the data: family incidence, as predicted, had no significant relationship to body anxiety. However, the difference between the subject's present age and her mother's age at diagnosis did not predict any of the measures of body anxiety used in the study, and the Penetration score had no significant relationship to any independent (or dependent) variable. Therefore, this discussion will largely be confined to the initial hypotheses driving the study, though the implications of the results of the three additional hypotheses will be considered in suggestions for further study and the conclusions. To recap, this study hypothesized the following:

1. Medical risk predicts body anxiety.
2. Perceived risk predicts body anxiety:
    a. High and low perceptions of risk are associated with high body anxiety.
    b. Moderate perception of risk are associated with low body anxiety.
3. Age at diagnosis and outcome predicts body anxiety.
    a. The younger the woman at the time of diagnosis, the higher her body anxiety.
    b. Death of the affected relative is associated with

higher body anxiety.

Medical Risk and Perception of Risk

The Strang Clinic, the site of this study, has an aggressive educational program for all its high-risk patients that includes sessions with a genetic counselor during which they receive the most current data on their particular chances of getting the disease based on an analysis of their genograms. Despite the fact that all subjects in this study had received this information, there was no significant relationship between medical risk and perception of risk among the study's subjects.[8]

Either subjects didn't remember what they had been taught about their actual chances of getting the disease or their concerns about the disease were so powerful that the objective data lost significance for them. The fact that assignment to one or the other category of medical risk had no impact on any measure of body anxiety offers some support for the latter conclusion: the objective measure of concern had no discernible effect on the subjects' visceral experience of themselves.

Similarly, other objective measures--such as family incidence of the disease, or even more particularly the number of first-degree relatives afflicted, and outcome--bore no significant relationship to measures of body

[8]This suggests the advisability of altering the Strang's educational format, perhaps tailoring programs especially to an individual's perception of risk.

anxiety. This is suggestive of the extent to which being at risk for breast cancer is a subjective phenomena, where the individual's experience is mitigated by a number of psychological factors that the "bare-bones" data of her case neither measures nor alleviates.

On the other hand, it is possible that Medical Risk categories are, at present, too gross a measure to provide significant information about a subject's experience. There has not yet been developed a multifactorial model which takes into account the full range of traits that make up an individual's risk.[9]

Interestingly, the one factor that had the most significant impact on a subject's perception of her risk was the difference between her present age and her mother's age at the time of diagnosis. The closer in age to her mother's age at diagnosis, the more unlikely the subject estimated her chances of getting the disease. This finding could be useful in identifying those subjects whose anxiety levels would be likely to interfere with their reception of educational information.

The Homonym Test

As was hypothesized and discussed above, categories of Medical Risk did not predict scores on the Secord (1949) Word Association Homonym Test. However, Perception of Risk

[9]The geneticist and epidemiologist at the Strang are currently at work developing such a model for this population.

categories did predict scores on the test. The more body anxiety revealed by the Homonym test, the more likely the individual tested perceived her risk of getting breast cancer as extremely high. When the Perception of Risk categories were grouped according to either Moderate perception of risk or Extreme perception of risk, the relationship was even more striking. The two groups scored significantly differently on the Homonym Test. As was expected from both common sense and a review of the literature (e.g., Rosenstock, 1974b), subjects whose notions of risk were less realistic and more extreme tended to be more anxious about their bodies than were women whose notions of risk accorded more with reality. Women who either saw themselves as in imminent danger or, conversely, who despite participation in a high-risk program denied all danger tended to reflect deep concern about their bodies on Secord's measure.

As was hypothesized, age at mother's diagnosis also predicted to Homonym score. The younger the woman at the time of her mother's diagnosis, the more body anxiety she revealed on Secord's test. Given that body image is regarded by many theorists (Fisher & Cleveland, 1968; Hoffer, 1950; Mahler & McDevitt, 1982; Torras de Bea, 1987) as a developmental phenomenon and given the girl's tendency to identify with her mother (Kelly, 1987; Schilder, 1935), it makes sense that the younger a girl was when she experienced the trauma to her mother's body, the harder she would find it to assimilate this trauma and maintain an

experience of her body as relatively secure.

The only hypothesis regarding the Homonym test that did not prove true was the expected relationship between Outcome and this measure of body anxiety. While it was expected that the death of the mother would correlate with increased body anxiety, no such relationship was discovered. The absence of such a relationship, however, may be explained by the fact that the Outcome category as reflected in this data does not distinguish between immediate and long-term survival: a woman whose mother was diagnosed with breast cancer at age 50 and died of a recurrence at age 80 is not distinguished here from a woman whose mother was diagnosed at age 34 and died six months later, even though we might logically expect that, all else being equal, for the former woman, the experience of breast cancer is much less threatening than for the latter. Similarly, in this data set, a woman whose mother had a relatively pain-free course of the disease is not distinguished from someone whose mother suffered metastases to the bone and brain and lingered for some time in pain before dying. What this clearly calls for is more refined data that would distinguish the length of time between diagnosis and outcome and which would offer some measure of the subjective experience of the mother's death.

Rorschach

All hypotheses to the contrary, and despite a large body of research which uses and validates Fisher and

Cleveland's (1968) Barrier and Penetration scales, neither of these correlated significantly with any independent measures in the study. There are a number of ways of understanding this result, and all indicate the usefulness of further study.

There may have been something about the testing situation which interfered with the validity of the results. It may be, for example, that a Rorschach administered immediately after a medical examination that itself was a source of anxiety would yield more homogenous data about body anxiety than would have been the case if the test had been administered at a different time. This does not explain, however, why there would not have been a comparable impact on the Word Association test.

Perhaps the assumption of the investigator that Secord's test and Fisher and Cleveland's scales measured the same phenomenon was in error. In fact, it is likely that what Secord defined as body anxiety and concern about body boundaries are different concepts. Most theorists now regard body image as a multifaceted experience which no one measure can encompass (Fisher, 1986). The Barrier and Penetration scales may measure some body image dimension other than that affected by the anxiety of being at risk for breast cancer. A replication of this study, utilizing additional measures of body image, would be helpful in clarifying this point.

There may be some unknown factor which mitigates the Barrier and Penetration scores in this study. There may be

something particular to breast cancer which invalidates or complicates these scales. The Fisher and Cleveland scales are based, to some extent, on a distinction between interior and exterior body experiences. Fisher and Cleveland regard breast cancer as an "exterior cancer" as opposed to cervical or stomach cancer, for example (Fisher & Cleveland, 1968); but a psychodynamic understanding of the breast (Freud, 1905; Klein, 1975) might suggest that breast cancer is a more complex phenomenon than such a categorization suggests. The number of ways in which the psyche and the culture define the breast suggests a threat to its integrity as a more complicated boundary phenomenon than a threat to the integrity of an arm or a leg, for example.

It is possible that the Rorschach is not the best measure to pick up subtle differences in the experience of being at risk for breast cancer. The Rorschach scales might be able to discriminate between grosser categories: for example between the women in this study and women with no family histories of breast cancer.

Thinking further along these lines, the most interesting and suggestive explanation for the lack of significant findings on the Rorschach lies in the possibility that the experience of being <u>at risk</u> for disease is significantly different from the experience of <u>having</u> a disease. Much of the data supporting Fisher and Cleveland's work compares various <u>states</u> or disease categories. For example, the study including breast cancer, referred to above, compares patients with "exterior" cancer to those

with "interior" cancer and elicits significant results. But perhaps the experience of potential illness, of being at risk for disease does not similarly tap boundary experiences.

A further test of sample data lends some support to this distinction. Thinking, perhaps, that the Barrier and Penetration scales were not sufficiently sensitive measures of boundary experience, I took a look at another measure of relation between the self and the outside world. Using the Mutuality of Autonomy scale (MOA; Coates and Tuber, 1988), I compared data on the Perception of Risk variable. I scored the first five Moderate-perception-of-risk Rorschachs and the first five Extreme-perception-of-risk Rorschachs on the Urist MOA scale, hoping to find a significant difference between the two groups. However, no such difference existed (see Appendix C). Measures of boundary experiences between self and world do not seem to tap into the distinctions in subjective experiences among these women.

There is additional data in this study which further elaborates this line of thought. While the Barrier and Penetration scales yielded no significant results in the study, the Rorschach did produce significant data in the form of number of responses. Women who denied their risk of getting breast cancer most vehemently also produced the highest number of responses on the Rorschach. While the numbers are too small to be significant, these results suggest some measure of global anxiety underlying the denial. This finding further supports the notion that the

experience of being at risk for disease taps sources of anxiety other than those concerning the body's boundaries.

Perhaps, then, someone without disease locates body anxiety differently than someone suffering a disease. Perhaps the experience of being at risk drives concerns about what is going on within the body rather than at the body's boundaries. The fantasy could concern the nature of the body's interior rather than the relationship between that interior and the outside world. Further work on the characteristics of fantasies about cancer might help clarify this possibility.

The above discussion describes potential conceptual difficulties with the study's use of the scales. There may also be problems with the measures themselves. For one thing, the scoring criteria for both Barrier and Penetration scores are somewhat arbitrary. For example, Barrier scores are awarded all living things thought to possess distinctive or unusual skins, but why Siamese cats should be included in this category is not clear. Similarly, scores are awarded for container or container-like shapes, but a "bubble" seems as likely to bespeak a sense of fragility as a sense of enclosure. Penetration scoring is likewise problematic. No score is awarded unless damage is explicit, so "Two men shooting at each other" would not be scored even though there may be a very clear picture of body damage in the mind of the respondent.

This latter example points to another problem with the scales: they are extremely dependent on the sensitivity of

test administration. The example above illustrates the importance of a careful inquiry; however, inquiry dictated by the requirements of the scale risks "leading the witness" and distorting results. More important, according to Fisher and Cleveland's criteria, you may only score one Barrier and one Penetration score per response. Unfortunately, they don't define what constitutes a single response on the Rorschach and different theorists have different definitions of R (cf. Exner, 1974; Klopfer, Ainsworth, Klopfer, & Holt, 1954; Rapaport, Gill, & Schafer, 1968). Therefore, while inter-rater reliability on any one research project may be relatively high, reliability among distinct projects with potentially distinct assumptions about what constitutes R may be extremely low.

Furthermore, the basic premise upon which Fisher and Cleveland established their scales is open to question. The unconscious projection of the image of a mask on a blot may as well suggest a sense of vulnerability about boundaries as the capacity to erect them. Similarly, a woman's ability to perceive a vagina in a blot may as well reveal a comfort with and appreciation of her own genitals as a sense of vulnerability. That is, both these scales isolate phenomena from the Rorschach and risk the distortion inherent in focusing on information in a protocol taken out of context.

There are, of course, criticisms to be made of the Homonym Test, as well. Its scoring system, too, can be accused of arbitrariness. For example, Secord scores "stocking" as a body response to "run," but does not score

"walk." While I tried to correct such arbitrary distinctions (see Appendix A), the scoring system is still open to some question. Nonetheless, the Homonym Test is a much simpler tool than the Barrier and Penetration scales and is therefore vulnerable to fewer instances of questionable judgment.

Serendipity

Fortuitous access to Time 1 data on Perception of Risk for 44 of the 52 subjects addresses some issues not initially anticipated in this study. First, since there was not reliable agreement between the two data sets, it suggests that Easterling and Leventhal (1989) were mistaken, at least in this instance, in arguing that Perception of Risk is a stable phenomenon across time (see Chapter 1). The fact that Time 2 Perception of Risk data had significant relationships to some measures of body anxiety and that Time 1 data did not further suggests that the changes in Perception of Risk over time are not insignificant.

Second, the data has serious implications for the Health Belief Model's capacity to anticipate the use of preventive health behaviors. Since the Health Belief Model is predicated on an interaction between risk perception and belief about disease severity (Rosenstock, 1974a), the instability of risk perception suggested by the serendipitous findings of this study raises questions about the usefulness of the Health Belief Model over time.

Limitations of the Study

Some limitations of the study have been mentioned earlier: the lack of data discriminating Outcome information and the lack of adequate information to determine the reason why the Rorschach scales did not yield significant results. In addition, it would be interesting to look at data on paternal relatives affected with the disease, since incidence on the father's side of the family may have a psychological effect on the subject even though there is no known medical effect. The presence or absence of sisters may be another significant factor in body anxiety that this study did not take into account. One subject, in response to a question about her perception of risk, observed, "I know I'm going to get it. My mother and both grandmothers got it, and I don't have any sisters." Her remark is suggestive of an interaction between family incidence and the presence of a sibling to "use up" some of the risk, as if someone but not necessarily everyone in the subsequent generation has to carry the mother's burden.

The study is further limited by the absence of a control group of women with no increased risk. Since the incidence of breast cancer is increasing in this culture, since all women are at some risk of the disease, and since there are indications that most women take this risk fairly seriously, it would be interesting to determine if women with a family history of the disease differed significantly either in body anxiety or the determinants of that anxiety from women with no such history. This information could be

of considerable value for those planning educational programs for both groups of women.

Another limitation of the study is that it did not discriminate between women whose mothers had mastectomies and women whose mothers had less disfiguring treatments (lumpectomy, radiation, chemotherapy, or some combination).[10] Without such discrimination, the usefulness of the data over time is limited, since increasingly less radical treatments are the present treatments of choice.

Implications for Future Study

The questions raised by the results of this study call for a number of future studies: an attempt to replicate this study with additional data, further information about outcome, information about siblings and paternal incidence of disease, and additional measures of body anxiety. This study also suggests the necessity for further tests of the Fisher and Cleveland (1968) scales. A comparison of these subjects with subjects at risk for another disease, for example, ovarian cancer, might determine whether the difficulty lies with a characteristic of breast cancer. Comparisons between diseased groups and those at risk for disease should clarify whether the scales are simply not sensitive enough to pick up information about physical

[10]Some such discrimination is implicit in the Age at Diagnosis variable, since any woman who was treated for breast cancer more than 10 or 15 years ago was almost sure to have had a mastectomy.

potentialities.

The significant relationship discovered in this study between age at diagnosis and body anxiety also merits further study. It would be useful further to discriminate this measure: does the incidence of maternal disease during particular developmental stages or crises have greater impact on a young woman's experience of her body? For example, does a mother's breast disease during the resolution of the Oedipal crisis have a greater affect on her daughter's body image than a comparable experience at the onset of puberty? While such a study presents numerous design difficulties, its conclusions could have particular import for our understanding of the inter-generational transmission of trauma.

Conclusion

The results of this study suggest the importance of subjective experiences of risk and therefore the necessity of understanding how such experiences are formed and maintained over time. Further, the study suggests that young girls are at particular risk for psychological sequelae from their mother's breast cancer and, therefore, the advisability of offering preventive counseling to the female children of breast cancer victims.

Homonym Score Rules:[12]

1. Don't score filler words, even for blanks.

2. Formula for blanks: Hc = H + B [H / 100 - B] where Hc is the corrected homonym score, H is the original homonym score and B is the number of blanks.

3. If illegible, consult with me.

4. Score food. E.g., treat--sweet, score. Fiber--diet, cereal, or oats, score. If something could be food, but prompt doesn't suggest it, don't score: e.g., quack--duck or graft--avocado.

5. Score clothes H. Score layer--clothes. Score stain--clothes. Lining--silk, score.

6. Don't score emotions except patient--therapist, because response implies disease model of mental illness. Score red--rage, because body response is implied.

7. If could be both animal and human body and animal body is not clearly preferred, score H.

8. If crossed out and legible, score subject's decision, not the initial response.

9. Navel--button, score H.

10. Run--down, don't score.

11. Swell--enlarge, score.

12. Don't score condition--shape.

13. Do score waist--line, H. Do score waist--none, H. Don't score waist--not.

14. Score contact--touch. Score contact--sports.

15. Don't score crisis--critical or acute--chronic.

16. Score run--move or walk.

17. Score strip--poker. Score strip--search.

18. Score attack--hurt.

---

[12]The following are my addenda and corrections to Secord's scoring rules. They either clarify issues Secord does not address (e.g., no. 8) or attempt to make his rules more consistent (e.g., no. 16).

20. Score gas--mask.
21. Don't score extract--take out.
22. Don't score limb--break.
23. Score swell--enlarge or expand.
24. Don't score scrape--scratch or cut.
25. Score condition--reflex.
26. Score middle--spread.
27. Acid--LSD, score. Acid--lemon, score.
28. Score stump--limb.
29. Don't score smear--vaseline.
30. Score gag--order.
31. Spread--jam or peanut butter, score.
32. Probe--thermometer, score.
33. Temperature--measure, don't score.
34. Acute--benign, score.
35. Nail--bed, score.
36. Smear--blotch, don't score.
37. Stitch--cut, score H.
38. Wrench--tear, score.

Appendix B-
Barrier and Penetration Scoring
pages 124-128

Additional Rules for Barrier and Penetration Scoring[14]

Barrier and Penetration Scoring:

General Rules:

1. Score B and P on the basis of how you would score the Rorschach: if you would score two percepts separately (even if you'd bracket them), you can score B and/or P for each.

2. If two percepts have the same determinants, don't give two B or P scores. For example, on Card 8, if subject sees both furry bears and furry cats, and there is nothing to distinguish the scoring of the percepts, only give one Barrier score.

3. Don't score additional responses that come up on inquiry; do score if the inquiry elaborates an original response. (It's a judgment call, and it may be difficult at times.)

4. If the subject gives a percept and loses it on inquiry or immediately retracts it, score. E.g., "Did I say 'fuzzy bear'? I don't see it."

5. Score, if appropriate, anything that's going to or about to happen, since concept is present even if qualified. E.g., "Half frozen to death" or "about to die," score P. "Melting water," score P.

6. If subject gives alternative responses, one scoreable and one not, score.

7. Score populars, e.g., Bowtie on Card III, B.

8. When someone misspeaks, score intended meaning.

B and P scores:

9. Bears coming out of hibernation: B for coming out of hibernation, no B for bear, P for coming out.

10. Embryo: no P and no B.

11. Bat that comes out of a cave: Score P, not B, unless cave is clearly present in percept.

12. Penis: no B and no P.

13. Two bloody animal skins: score P and B.

---

[14]The following were added to Fisher's criteria to address issues he ignores (e.g,. no. 5) and to clarify ambiguity (e.g., no. 30).

B scores:

14. Score clothing and accoutrements as part of people wearing them, so person wearing fur coat and hat would bet one B and not two.

15. Score knights and ice skaters B because of implied accoutrements.

16. Do not score women taking a bath, unless tub is mentioned explicitly.

17. Do not score homeland B; do score cities, towns.

18. Score book, B.

19. Score towers, B.

20. Don't score reflection when body of water isn't specified.

21. Don't score totem pole, B.

22. Don't score statue, B.

23. Don't score hill or mountain, B.

24. Score map, B.

26. Score colored spots, B.

27. Score umbilical cord B as container. Score fallopian tubes, B. score uterus B; score ovaries B; score testicles B.

28. Don't score lungs or heart B unless specific reference is made to these organs as containers of air or blood.

29. Score continent, B.

30. Wings on fairy or angel are like hair on person, therefore no B score; but wings on a bear would get a B score.

31. Decorations or emblems, score B.

32. Score sidewalk B.

33. Score bearskin B even if hair is not mentioned. Do not score Scottie or bear. In general score beetle, sea horse, and any other scaled or hard-shelled creature. Score camel and gorilla. Score snake or reptile. Score any animal whose fur is made into coats: e.g., possum, racoon, squirrel, rabbit.

34. Score coral B.

35. Shrimp or shell fish as food, no score unless shell is mentioned explicitly.

36. Shells with nothing in them, score B.

37. Drum, score B.

Penetration scores:

38. Anything that's missing something, P, so that tree trunk with no top, P; part of pelvis missing, P; tree stump, P.

39. Score smoke, P.

40. Score shadow or shadowlike, P; do not score silhouette.

41. Do not score veins and muscles, ribs, etc. P unless some mention or implication or penetration of body covering.

42. Bones or fossils, no P unless mention is made of deterioration or penetration that produced them, so wishbone in turkey, not P and fossil, not P. Skeleton, not P.

43. Do not score unless body damage is explicit, so that, e.g., two men choking somebody, not scored.

44. Christ on the Cross, score P.

45. Death, score P.

46. Blood, score P.

47. Cloud or cloudlike, score P.

48. Fire, score P; fireworks, score P.

49. Missing a limb, and inside of the body, both P.

50. Singing talking, breathing ,not P.

51. Space ship exhaust, P.

Appendix C

Moderate Percept. of Risk	Extreme Percept. of Risk
1. Card II. 2 Card III. 6 Card IV. 5 Card V. 3 Card VII. 1,2 Card VIII. 6,3 Card IX. 7	1. Card II. 3 Card III. 1 Card IV. 6 Card VII. 3 Card VIII. 3 Card IX. 3,3 Card X. 3,3
2. Card III. 1 Card VII. 1 Card VIII.2	2. Card I. 2 Card III. 5 Card VI. 6 Card VII. 1. Card VIII. 6 Card IX. 6 Card X. 2,3
3. Card II. 2 Card III.2 Card VIII. 6	3. Card I. 4 Card II. 6, 2 Card III. 2,4 Card V. 2 Card VI. 6 Card VII. 1/3,2 Card VIII. 4 Card IX. 4 Card X. 2,2,1
4. Card I. 3 Card II. 2 Card III. 1 Card VII. 5,2 Card IX. 7	4. Card I. 2 Card II. 2 Card III. 2 Card VII. 1 Card VIII. 2
5. Card II. 2 Card III. 2 Card VII. 3 Card VIII. 3	5. Card II. 6,2 Card III. 2 Card VII. 3,1 Card VIII. 2

REFERENCES

Abraham, K. (1924). A short study of the development of the libido, viewed in the light of mental disorders. In Selected papers on psychoanalysis. London: Hogarth.

Anderson, D. E. (1972). A genetic study of human breast cancer. Journal of the National Cancer Institute, 50, 1029-1034.

Anderson, D. E., & Badzioch, M. (1985). Risk of familial breast cancer. Cancer, 56, 383-387.

Anderson, D. E., & Badzioch, M. D. (1989). Combined effect of family history and reproductive factors on breast cancer risk. Cancer, 63, 349-353.

Balint, M. (1969). The basic fault. New York: Brunner/ Mazel.

Benedek, T. (1949). The psychosomatic implications of the primary unit: mother-child. American Journal of Orthopsychiatry, 19, 642-654.

Benjamin, J. (1988). The bonds of love: Psychoanalysis, feminism, and the problem of domination. New York: Pantheon Books.

Bergsma, D., et al. (eds.). (1972). Contemporary genetic counseling. Proceedings of a Symposium of the American Society of Human Genetics. Birth Defects: Origin Article Series, 9.

Bifulco, A. T., Brown, G. W., & Harris, T. O. (1987). Childhood loss of parent, lack of adequate parental care and adult depression: A replication. Journal of Affective Disorders, 12, 115-128.

Blum, H. P. (1987). The role of identification in the resolution of trauma: The Anna Freud memorial lecture. Psychoanalytic Quarterly, 56, 609-627.

Bowen, M. (1976). Theory in the practice of psychotherapy. In P. J. Guerin, (Ed.), Family therapy: Theory and practice. New York: Gardner Press.

Bowlby, J. (1961). Processes of mourning. International Journal of Psychoanalysis, 42, 317-340.

Bowlby, J. (1980). Loss: Sadness and depression. New York: Basic Books.

Calnan, M., & Rutter, D. R. (1986). Do health beliefs predict health behaviour? An analysis of breast self-

examination. Social Science Medicine, 22, 673-678.

Cash, T., & Brown, T. (1987). Body image in anorexia nervosa and bulimia nervosa: A review of the literature. Behavior Modification, 11, 487-521.

Castelnuovo-Tedesco, P. (1978). Ego vicissitudes in response to replacment or loss of body parts: Certain analogies to events during psychoanalytic treatment. Psychoanalytic Quarterly, 47, 381-397.

Castelnuovo-Tedesco, P. (1981). Psychological consequences of physical defects: A psychoanalytic perspective. International Review of Psycho-analysis, 8, 145-154.

Chodorow, N. (1978). The reproduction of mothering: Psychoanalysis and the sociology of gender. Berkeley: University of California Press.

Coates, S., & Tuber, S. (1988). The representations of object relations in the Rorschachs of extremely feminine boys. In Lerner, H. D., & Lerner, P. M., Primitive mental states and the Rorschach (pp. 647-664). New York: International Universities Press.

Cohen, M. W., & Wellisch, D. K. (1978). Living in limbo: Psychosocial intervention in families with a cancer patient. American Journal of Psychotherapy, 32, 561-571.

Cohen, S. J. (1984). The sense of defect. Journal of the American Psychoanalytic Association, 34, 47-67.

Deutsch, H. (1937). Absence of grief. Psychoanalytic Quarterly, 6, 12-22.

Dinnerstein, D. (1976). The mermaid and the minotaur: Sexual arrangements and human malaise. New York: Harper & Row.

Dolan, B., Birtchnell, S., & Lacey, J. H. (1987). Body image distortion in non-eating disordered women and men. Journal of Psychosomatic Research, 31, 513-520.

Earle, E. (1979). The psychological effects of mutilating surgery in children and adolescents. The Psychoanalytic Study of the Child, 34, 527-546.

Easterling, D., & Leventhal, H. (1989). Contribution of concrete cognition to emotion: Neutral symptoms as elicitors of worry about cancer. Journal of Applied Psychology, 74, 787-796.

Eigenbrode, C. R., & Shipman, W. G. (1960). The body image barrier concept. Journal of Abnormal and Social

Psychology, 60, 450-452.

Evans, A. M., Love, R. R., et al. (1985). Factors associated with active participation in a cancer prevention clinic. Preventive Medicine, 14, 358-371.

Exner, J. E., Jr. (1974). The Rorschach: A comprehensive system (Vol. 1). New York: John Wiley and Sons.

Fenichel, O. (1945). The psychoanalytic theory of neurosis. New York: Norton.

Fisher, S. (1965). The body image as a source of cognitive sets. Journal of Personality, 33, 536-552.

Fisher, S. (1986). Development and structure of the body image (Vols. 1-2). Hillsdale, NJ: Lawrence Erlbaum Associates.

Fisher, S., & Cleveland, S. E. (1968). Body image and personality. New York: Dover.

Fisher, S., & Fisher, R. (1963). Body image boundaries and patterns of body perception. Journal of Abnormal and Social Psychology, 65, 255-262.

Fitts, S. N., Gibson, P., Redding, C. A., & Deiter, P. J. (1989). Body dysmorphic disorder: Implications for its validity as a DSM-III-R clinical syndrome. Psychological Reports, 64, 655-658.

Fleming, J., & Altschul, S. (1963). Activation of mourning and growth by psychoanalysis. International Journal of Psychoanalysis, 44.

Freud, A. (1966). The ego and the mechanisms of defense (rev. ed.). Madison, CT: International Universities Press. (Original work published 1936)

Freud, S. (1923a). The ego and the id. New York: W. W. Norton & Co.

Freud, S. (1923b). Beyond the pleasure principle. New York: W. W. Norton & Co.

Freud, S. (1957). Three essays on the theory of sexuality. New York: Basic Books.

Freud, S. (1963). Mourning and melancholia. In General psychological theory. New York: Collier. (Original work published 1917)

Furman, R. A. (1964). Death and the young child: Some preliminary considerations. Psychoanalytic Study of the Child, 19.

Gail, M. H., Brinton, L. A, et al. (1989). Projecting individualized probabilities of developing breast cancer for white females who are being examined annually. Journal of the National Cancer Institute, 81, 1879-1886.

Gallagher, S. (1986). Body image and body schema: A conceptual clarification. Journal of Mind and Behavior, 7, 541-554.

Garner, D. M., & Garfinkel, P. E. (1979). The eating attitudes test: An index of the symptoms of anorexia nervosa. Psychological Medicine, 9, 273-279.

Gibbons, M. W. (1978). The history of the nude in art. Unpublished lecture, Vassar College, Poughkeepsie, NY.

Gilligan, C. (1982). In a different voice: Psychological theory and women's development. Cambridge, MA: Harvard University Press.

Goin, M. K. (1982). Psychological reactions to surgery of the breast. Clinics in Plastic Surgery, 9, 347-354.

Grandstaff, N. W. (1976). The impact of breast cancer on the family. Frontiers of Radiation Therapy Oncology, 11, 146-156.

Greenacre, P. (1952). Pregenital patterning. International Journal of Psychoanalysis, 33, 410-415.

Greenacre, P. (1956). Re-evaluation of the process of working through. International Journal of Psychoanalysis, 37, 439-444.

Greenacre, P. (1958). Early physical determinants in the development of the sense of identity. Journal of the American Psychoanalytic Association, 6, 612-627.

Greenson, R. R. (1954). The struggle against identification. Journal of the American Psychoanalytic Association, 2, 200-217.

Greer, S., & Morris, T. (1975). Psychological attributes of women who develop breast cancer: A controlled study. Journal of Psychosomatic Research, 19, 147-153.

Greer, S., & Morris, T. (1978). The study of psychological factors in breast cancer: Problem of method. Social Science and Medicine, 12, 129-134.

Grossman, W. I. (1982). The self as fantasy: Fantasy as theory. Journal of the American Psychoanalytic Association, 30, 919-937.

Guerin, P. J. (Ed.). (1976). Family therapy: Theory and practice. New York: Gardner Press, Inc.

Haefner, D., & Kirscht, J. (1970). Motivational and behavioral effects of modifying health beliefs. Public Health Report, 85, 478-484.

Hallal, J. (1982). The relationship of health beliefs, health locus of control, and self concept to the practice of breast self-examination in adult women. Nursing Research, 31, 137-142.

Haward, L. R. C. (1987). A body-barrier scale for psycho-medical research. Medical Science Research, 15, 539-540.

Hoffer, W. (1950). Development of the body ego. Psychoanalytic Study of the Child, 5, 18-24.

Holland, J., & Rowland, J. (1987). Patient rehabilitation and support. In Harris, J., Hellman, S., Craig, I., & Kinne, D. W. Breast diseases. Philadelphia: J. B. Lippincott Company.

Hunt, V. V., & Weber, M. E. (1960). Body image projective test. Journal of Projective Technique, 24, 3-10.

Johnson, E., & Tversky, A. (1983). Affect, generalization, and the perception of risk. Journal of Personality and Social Psychology, 45, 20-31.

Jordan, J. V. (1984). Empathy and self boundaries. In Work in progress. Stone Center for Developmental Services and Studies (No. 16).

Jourard, S. M., & Secord, P. F. (1955). Body-cathexis and the ideal female figure. Journal of Abnormal and Social Psychology, 50, 243-246.

Kelly, P. (1987). Risk counseling for relatives of cancer patients: New information, new approaches. Journal of Psychosocial Oncology, 5, 65-79.

Kelly, P. T., & Anderson, D. E. (1981). Familial breast cancer: New data show fewer risks for some sisters and daughters. In Your patient and cancer (pp. 25-33).

Kelsey, J. L., & Hildreth, N. G. (1983). Breast and gynecologic cancer epidemiology. Boca Raton, FL: CRC Press.

Kirscht, J. (1974). Research related to the modification of health beliefs. Health Education Monographs, 2, 455-469.

Kirscht, J., Haefner, & Rosenstock. (1966). A national study of health beliefs. Journal of Health and Human Behavior, 7, 248-254.

Klein, M. (1975). Love, guilt and reparation and other works, 1921-1945. New York: The Free Press.

Klopfer, B., Ainsworth, M. D., Klopfer, W. G., & Holt, R. R. (1954). Developments in the Rorschach technique (Vol. 1: Technique and Theory). New York: Harcourt, Brace, Jovanovich.

Knudson, A. G., & Kelly, P. T. (1983). Genetics and cancer. Current Problems in Cancer, 7, 15-41.

Kohut, H. (1978). The search for the self: Selected writings of Heinz Kohut: 1950-1978. Madison, CT: International Universities Press.

Koocher, G. P. (1986). Coping with a death from cancer. Journal of Consulting and Clinical Psychology, 54, 623-631.

Kushner, R. (1988). Coping with breast cancer: What health professionals can do to help. Cancer Bulletin, 40, 370-3.

Kutner, L. (1989, January 26). Parent & child: A parent's illness looks bigger when you're small. The New York Times, p. C8.

Lacey, J. H., & Birtchnell, S. (1986). Body image and its disturbances. Journal of Psychsomatic Research, 30, 623-631.

Lee, C. (1989). Perceptions of immunity to disease in adult smokers. Journal of Behavioral Medicine, 12, 267-277.

Levine, E., King, R., & Bloomfield, C. (1989). The role of heredity in cancer. Journal of Clinical Oncology, 7, 527-540.

Levy, S., Herberman, R., Lippman, M., & d'Angelo, T. (1987). Correlation of stress factors with sustained depression of natural killer cell activity and predicted prognosis in patients with breast cancer. Journal of Clinical Oncology, 5, 348-353.

Lhermitte, J. (1955). Some developmental aspects of the body image. International Journal of Psychoanalysis, 36, 36-42.

Lichtman, R. R., Taylor, S. E., et al. (1984). Relations with children after breast cancer: The mother-daughter

relationship at risk. Journal of Psychosocial Oncology, 2, 1-19.

Linn, L. (1955). Some developmental aspects of the body image. International Journal of Psychoanalysis, 36, 36-42.

Loewald, H. (1962). Internalization, separation, mourning, and the superego. Psychoanalytic Quarterly, 31.

Lynch, H., et al. (1984). Genetic predisposition to breast cancer. Cancer, 53, 612-622.

Mahler, M. (1961). On sadness and grief in infancy and childhood. Psychoanalytic Study of the Child, 16, 332-351.

Mahler, M. S., & McDevitt, J. B. (1982). Thoughts on the emergence of the sense of self, with particular emphasis on the body self. Journal of the American Psychoanalytic Association, 30, 827-848.

Mahler, M. S., Pine, F., & Bergman, A. (1975). The psychological birth of the human infant: Symbiosis and individuation. New York: Basic Books.

Maiman, L., & Becker, M. (1974). The Health Belief Model: Origins and correlates in psychological theory. Health Belief Monographs, 2, 336-353.

Martindale, B. (1987). Huntington's choarea: Some psychodynamics seen in those at risk and in the responses of the helping professions. British Journal of Psychiatry, 150, 319-323.

Mayer, J. D., & Eisenberg, M. (1982). Body concept: A conceptualization and review of paper-and-pencil measures. Rehabilitation Psychology, 27, 97-105.

McConnell, O. L., & Daston, P. G. (1961). Body image changes in pregnancy. Journal of Projective Techniques, 25, 451-456.

National Cancer Institute. (1984). SEER: Surveillance, Epidemiology, and End Results Program: Cancer, incidence, and mortality in the United States, 1973-81. (National Technical Information Service, PB 85-155486). Bethesda, MD: U.S. Department of Commerce.

Nuehring, E., & Barr, W. (1980). Mastectomy: Impact on patients and families. Health and Social Work, 51-59.

Osborne, M., & Crowe, J. (1988). The identification of enhanced risk patients and their management in a special surveillance breast clinic. SRPS, 4, 75-86.

Ottman, R., King, M. C., Pike, M. C., et al. (1983). Practical guide for estimating risk for familial breast cancer. Lancet, 2, 556-558.

Parkes, C. M. (1972). The emotional impact of cancer onpatients and their families. The Journal of Laryngology and Otology, 89, 1271-1279.

Piaget, J. (1962). Plays, dreams and imitation in childhood. New York: W. W. Norton.

Pickle, L. W., & Johnson, K. A. (1989). Estimating the long-term probability of developing breast cancer. Journal of the National Cancer Institute, 81, 1854-1855.

Rapaport, D., Gill, M. M., & Schafer, R. (1968). Diagnostic psychological testing. New York: International Universities Press.

Rochlin, G. (1965). Griefs and discontents. Boston: Little Brown.

Roseman, D. L., Straus, A. K., & Shorey, W. (1990). A positive family history of breast cancer: Does its effect dminish with age? Archives of Internal Medicine, 150, 191-194.

Rosenstock, I. (1974a). Historical origins of the Health Belief Model. Health Education Monographs, 2, 328-335.

Rosenstock, I. (1974b). The Health Belief Model and preventive health behavior. Health Education Monographs, 2, 354-386.

Rutledge, D. N., & Davis, G. T. (1988). Breast self-examination compliance and the Health Belief Model. ONF, 15, 175-9.

Sacks, O. (1984). A leg to stand on. New York: Harper and Row.

Sacks, O. (1985). The man who mistook his wife for a hat and other clinical tales. New York: Summit Books.

Sanger, C. K., & Reznikoff, M. (1981). A comparison of the psychological effects of breast-saving procedures with the modified radical mastectomy. Cancer, 48, 2341-2346.

Schafer, R. (1968). Aspects of internalization. Madison, CT: International Universities Press.

Scherg, H. (1987). Psychosocial factors and disease bias in breast cancer patients. Psychosomatic Medicine, 49,

303-312.

Schilder, P. (1935). The image and appearance of the human body: Studies in the constructive energies of the psyche. Psyche Monographs, 4. London: Kegan Paul, Trench, Trubner & Co.

Schilder, P., & Wechsler, D. (1935). Short communication: What do children know about the interior of the body? International Journal of Psychoanalysis, 16, 355-360.

Scott, W. C. M. (1948). Some embryological, neurological, psychiatric, and psycho-analytic implications of the body scheme. International Journal of Psycho-Analysis, 29, 141-155.

Secord, P. F. (1949). The Homonym Word Association Test. Unpublished dissertation.

Secord, P. F. (1953). Objectification of word-association procedures by the use of homonyms: A measure of body cathexis. Journal of Personality, 21, 479-495.

Secord, P. F., & Jourard, S. M. (1953). The appraisal of body-cathexis: Body-cathexis and the self. Journal of Consulting Psychology, 17, 343-347.

Silverman, D. K. (1984). New perspectives on development and their implications for psychoanalytic treatment. Psychoanalytic Psychology, 1, 257-267.

Silverman, D. K. (1987). Female bonding: Some supportive findings for Melanie Klein's views. Psychoanalytic Review, 74, 201-215.

Stefanek, M. E. (1990). Counseling women at high risk for breast cancer. Oncology, 4, 27-37.

Steinberg, M., Juliano, M. A., & Wise, L. (1985). Psychological outcome of lumpectomy versus mastectomy in the treatment of breast cancer. American Journal of Psychiatry, 142, 34-39.

Stern, D. (1985). The interpersonal world of the infant: A view from psychoanalysis and developmental psychology. New York: Basic Books.

Stillman, M. J. (1977). Women's health beliefs about breast cancer and breast self-examination. Nursing Research, 26, 121-127.

Tausk, V. (1933). On the origin of the "influencing machine" in schizophrenia. Psychoanalytic Quarterly, 2, 519-556.

Thomas, V. G. (1989). Body-image satisfaction among Black women. Journal of Social Psychology, 129, 107-112.

Torras de Bea, E. (1987). Body schema and identity. International Journal of Psychoanalysis, 68, 175-184.

Ward, S. E., Leventhal, H., & Love, R. (1988). Repression revisited: Tactics used in coping with a severe health threat. Personality and Social Psychology Bulletin, 14, 735-746.

Weinstein, N. D. (1984). Why it won't happen to me: Perceptions of risk factors and susceptibility. Health Psychology, 3, 431-57.

Wellisch, D. K. (1979). Adolescent acting out when a parent has cancer. International Journal of Family Therapy, 1, 230-241.

Wellisch, D. K. (1981). Family relationships of the mastectomy patient: Interactions with the spouse and children. Israeli Journal of Medical Science, 17, 993-996.

Williams, W. R., & Osborne, M. P. (1987). Familial aspects of breast cancer: An overview. In Harris, J., Hellman, S., Henderson, I. C., & Kinne, D. (Eds.). Breast diseases. Philadelphia: J. B. Lippincott.

Winnicott, D. W. (1965). The maturational processes and the facilitating environment: Studies in the theory of emotional development. New York: International Universities Press.

Winnicott, D. W. (1971). Playing and reality. New York: Tavistock.

Wolfenstein, M. (1966). How is mourning possible? Psychoanalytic Study of the Child, 21, 29-123.

Wolfenstein, M. (1969). Loss, rage, and repetition. Psychoanalytic Study of the Child, 24, 432-460.