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## Assessment of Erectile Dysfunction: Isolating Measures of High Discriminant Ability

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ASSESSMENT OF ERECTILE DYSFUNCTION:  
ISOLATING MEASURES OF HIGH  
DISCRIMINANT ABILITY

By

Paul Marc Camic

A Dissertation Submitted to the Faculty of the Graduate School  
of Loyola University of Chicago in Partial Fulfillment  
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Finally, a special tribute to my parents, Paul and Stella Camic who have always placed an important focus on my continued education.

## VITA

The author, Paul Marc Camic, is the son of Stella and Paul Camic. He was born on 8 June, 1955 in Boston, Massachusetts. He attended Medway Senior High School in Medway, Massachusetts and graduated from there with honors in 1973. He undertook his undergraduate work at Clark University in Worcester, Massachusetts, graduating in May, 1977. He completed his master's degree at Tufts University in Medford, Massachusetts. While at Tufts the author received a Graduate Fellowship for both 1978 and 1979.

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## CHAPTER I

### INTRODUCTION

In recent years there has been an increase in experimental and clinical studies which attempt to differentiate organic from psychogenic erectile dysfunction. The advent and development of increasingly more sophisticated medical equipment and psychological assessment instruments, with the potential of differentiation, has been a major factor contributing to this increase. Concomitant with these developments in the area of diagnostic differentiation has been an increase in treatment modalities for both psychogenic and organic dysfunctions.

A variety of psychological tests have been administered to males who suffer from erectile dysfunction in hopes of making an accurate diagnosis of either organic or psychogenic etiology (Derogatis and Meyer, 1979). Many of these tests are oriented toward a psychiatric treatment population (Kockett, Dittnar and Nosselt, 1975). Men with erection difficulties have not been shown to be mentally ill (Masters and Johnson, 1970). Herein lies a major problem with psychometric assessment; namely, that psychological instruments which are designed to assess mental illness are frequently employed to assess etiology of erectile dysfunction.

Erectile dysfunction is not a psychiatric illness. Organic erectile dysfunction is, quite specifically, a medical disorder requiring either surgical or pharmacological treatment to reverse.

Psychogenic erectile dysfunction is a problem which is often treated by behaviorally oriented psychotherapy (Renshaw, 1977; Segraves, 1978). This treatment approach specifically focuses on the dysfunction and makes no assumption of an underlying psychiatric disorder. Psychoanalytic theory predominates the theoretical literature while behavioral treatment techniques overshadow the clinical literature at the present time.

This discrepancy between theoretical and clinical writing has left significant questions unanswered. Although behavioral treatments often produce impressive results (Masters and Johnson, 1970; Green, 1978) there is not a well defined behavioral paradigm that explains these successes. The reverse appears to be true with the psychoanalytic school of thought. Here, theory is well developed, precise and specific. The treatment procedure is however, long term, excessively expensive and without remarkable results (Cooper, 1969). Neither the behavioral or psychoanalytic perspectives have contributed however, to important advances in assessment.

Assessment of erectile dysfunction has advanced greatly in the past decade. Once a problem primarily thought to be psychologically based, recent medical findings have determined a significant proportion of those males with the dysfunction to be organically impaired (Derogatis, 1974). A thorough psychiatric evaluation, sex history and appropriate laboratory tests do not always reveal the etiology of the dysfunction. In those cases where this evaluation succeeds in diagnostically differentiating etiology, it does so at a substantial cost, both in terms of medical personnel and financially.

### Purpose of Study

This study examines males who are experiencing erectile dysfunction of an organic and psychogenic nature. The primary purpose of this study is to identify the psychological characteristics of erectile dysfunction in human males, and to differentiate those characteristics in both organic and psychogenic individuals by use of two psychometric assessment instruments: the Millon Behavioral Health Inventory (MBHI) and the Brief Symptom Inventory (BSI) of the Derogatis Sexual Functioning Inventory.

The importance of this study is the use of a psychological instrument normed on a medical, rather than psychiatric population. The Millon Behavioral Health Inventory was designed specifically for behavioral medicine, medical and surgical populations to assess personality coping styles, psychosocial stressors, and psychogenic attitudes associated with an increase in the probability of psychosomatic pathogenesis that may complicate the course of treatment (Green, 1978; Millon, Green and Meagher, 1979; Millon, Green and Meagher, 1981).

A second important aspect of this study is to examine those organic patients who have elected penile prosthesis surgery for treatment to correct their erectile difficulty. These patients will be examined prior to surgery and at a post-surgery period to determine the reliability of the MBHI in predicting post-surgical adjustment. Hence, there are two areas of particular significance that this study addresses: First, it attempts to differentiate organic from psychogenic erectile dysfunction with a psychometric instrument. Secondly, with the same instrument, it attempts to assess the MBHI's reliability

in relation to predicting suitability for penile prosthesis surgery.

### Definition of Terms

A definition of terms relevant to this study appears in Appendix A.

### Hypotheses

The present study is designed to compare the ability of the MBHI, BSI and selected demographic data to differentiate organic from psychogenic erectile dysfunction. In addition, this study also examines the ability of the MBHI to act as a significant psychometric tool in assessing the organic dysfunctional patient's suitability for penile prosthesis surgery.

The following hypotheses are put forth in relation to the present investigation:

1. Age, race, religion, marital status, social class and duration of problem, as selected demographic variables, are related to etiology of dysfunction.
2. Identifiable personality styles exist which can diagnostically classify organically and psychogenically dysfunctional males at a statistically significant level.
3. Knowledge of selected personality styles, psychosocial attitudes and prognostic indices are potential predictors of post-surgical recovery for organic patients undergoing penile prosthesis surgery.
4. The MBHI is a useful psychometric instrument to assess

penile prosthesis surgery candidates.

Chapter One has provided an introduction to the study. Chapter Two reviews the historical development of assessing erectile dysfunction. This review encompasses the earlier theories of a pre-scientific period, the pioneering work of the early sexologists, psychoanalytic and behavioral theories of erectile dysfunction and, recent psychometric assessment procedures.

Chapter Three provides a detailed outline of the study and describes the settings of data collection. It also describes the subjects involved in the study on numerous dimensions including age, education, race, religion, marital status, social class and duration of dysfunction. This chapter also presents the design of the study and rationale for the data collection procedure.

Chapter Four reports the results of the study including the selection of variables and the statistical analysis.

Chapter Five discusses the results of the study, limitations and suggestions for future research.

## CHAPTER II

### REVIEW OF THE RELATED LITERATURE

#### Introduction

Chapter One included a rationale and brief outline of the study. In that chapter several issues were introduced involving the relationships between selected personality variables and the assessment of erectile dysfunction. While the ability to isolate measures of high discriminant ability between organic and psychogenic erectile dysfunction is the focal point of this research, it is important to consider this diagnostic issue within an historical context.

To accomplish this historical review the issue of erectile dysfunction is examined in several contexts including, antiquity and the pre-scientific period, the contributions of early sexologists and psychoanalytic theorists, behavioral and socio-cultural perspectives, and psychometric assessment.

A definition of impotence which is commonly accepted by both lay and professional individuals is one found in Webster's Seventh New Collegiate Dictionary (1970). Here impotence is defined as, "not potent: lacking in power, strength or vigor: inability to copulate, sterile." This definition provides a fairly broad range of applicability. It brings to mind a lackluster, weak and perhaps pathetic individual. This definition, from Webster's Dictionary, is included here to further illustrate the extent of misconception and misinformation about



impotency. The pronouncement that an impotent man is "sterile", as the definition states, is physiologically not correct. An impression is made that the male with an erectile disorder is lacking in masculinity, and that perhaps he is not completely a male.

The term, erectile dysfunction, has been advanced as a replacement for the word, impotence, because of its scientific accuracy and its less perjorative emphasis (Wagner and Green, 1981). The definition of erectile dysfunction which is used in this paper is the one preferred by the Sexual Behaviors Consultation Unit of the Johns Hopkins School of Medicine:

Inability to achieve or maintain an erection, prior to ejaculation, sufficient for penetration and completion of the sexual act. This definition includes loss of erection during coitus but prior to ejaculation.

According to the literature, the previous definition of impotence has its origins in antiquity. Unfortunately, the inaccuracy of this definition has led to misconceptions about its remediation throughout recorded history.

#### Antiquity and the Pre-Scientific Period

The problem of confusing impotence with masculine strength and vigor has pervaded recorded history. Attempts have been made to treat the male in order that he regain his lost potency. One of the earliest recorded treatment attempts is seen on a Babylonian cuneiform tablet dating to the eighth century B.C.:

If a man's potency comes to an end it is necessary to give him the strength that he has lost. The thing to do is behead a male partridge, but only a partridge for this purpose. Put its

blood into water, swallow its heart, and set that liquid out overnight. When the sun comes up you give it to him to drink and then he will get potency (Strage, 1980).

The search for an effective aphrodisiac may be mankind's greatest occupation (Cooper, 1971). The Greek physician, Dioscorides, the family physician of Anthony and Cleopatra, wrote in glowing terms about a plant called the satyrion:

This plant had a double bulbous root, as big as apples and red, but within, white as eggs. One ought to drink it in black wine if he will be with a woman, for they say that this doth stir up courage in the conjunction (Watson, 1958).

This claim was confirmed by Plutarch, Petronius and Pliny in various early medical texts. Modern botanists have not been able to identify this plant beyond placing it in the *Orchis* genus (Wickler, 1973).

Hippocrates, at approximately 400 B.C. suggested that constitutional elements were important in determining sexual vigor. Each man, he theorized, had certain internal capabilities and limits (Jones, 1919). Hippocrates also believed that excessive sexual activity left a man exhausted and cautioned against this. He also cited a preoccupation with business and lack of womanly attractiveness as causes of impotence (Hones, 1948).

These themes of constitutional factors, internal sexual capabilities and limits, and excessive sexual activity, first postulated by Hippocrates, are seen in the writings of later theorists which will be addressed in the next section of this chapter.

In other early perspectives the Greeks of Sparta viewed erectile dysfunction as a disorder of stimulation requiring direct genital flagellation in order to stimulate the sexual system (Hirschfeld,

1919). In Petronius' satirical novel, the impotent Encolpius is whipped on the genitals with quick, stinging strokes until the beneficial effect becomes observable (Hirschfeld, 1956).

The etiology of problematic sexual functioning was not significantly examined until much later in the mid-sixteenth century. At this time, what was later to be known as the Western world's best known aphrodisiac, was discovered in southern Europe. This aphrodisiac, an insect named *Cantharis Vesicatoria*, was shown to increase desire and lust in sexually dysfunctional males. In 1554 an Italian physician, Hieronimo Cardanus describes the effect of this pulverized shiny green beetle when applied to problems of potency:

In a moderate quantity it causes lust and the greatest erection of the penis; in larger quantities it excoriates the bladder and causes bloody urine (Benedek, 1973).

As late as 1886 Murrell's Manuel of Therapeutics still claimed that large doses of this insect were useful in treating erectile dysfunction, especially in elderly men (Strage, 1980). This was the last recorded report on the medical properties of the green beetle and its treatment for sexual disorders.

The Manuel of Therapeutics also lists two other aphrodisiacs; *nux vomica*, the active ingredient being strychnine, and yohimbine, the alkaloid extract of the bark of a West African tree. It has been theorized that these agents increase the sensitivity of the parasympathetic nervous system, which is involved in the mechanism of erection (Benedek, 1973). It was not until the middle part of this century that published reports dismissed the therapeutic effect of these substances. The studies performed were on the drug Afrodex

which contained both of the above mentioned ingredients and a small amount of testosterone. In double-blind studies it failed to reverse erectile disturbances (Bruhl and Leslie, 1963; Margolis and Leslie, 1966).

The pre-scientific period spanned nearly 1400 years lasting late into the nineteenth century. While this period of medical history did not offer accurate solutions to the problems of erectile dysfunction, it certainly was not a period without many attempts at a cure.

### Early Sexologists and Psychoanalytic Theory

The treatment of erectile dysfunction was for centuries dependent primarily on aphrodisiacs and witchcraft (Herman, 1968). More sophisticated theorizing about erectile difficulties was absent until the late nineteenth century. It was during this time that the then Chairperson of the Department of Neurology at the Universität Wien, Herr Professor Dr. Richard von Krafft-Ebing postulated a possible physiological reason for ejaculatory and erectile problems (Krich, 1964). Although psychologically and neurologically primitive, Krafft-Ebing charted a schema of sexual neuroses that identified ejaculatory and erection disorders as conditions of spinal afflictions of the cortex and psychosexual center (Krafft-Ebing, 1882).

This was the first significant attempt at integrating a psychological and physiological link between erectile difficulties and emotional problems. Krafft-Ebing tied mental reactions to changes in the structure of the nervous system. One of these mental reactions he wrote about is the fear of humiliation by a member of the opposite

sex. This fear, he believed often contributed to problems with erections (Krafft-Ebing, 1951).

This period saw additional advances in the study of psychophysiological interactions. The theory that all mental processes are tied to the central nervous system was further elaborated upon by Havelock Ellis (1906a). Writing to describe the function of chastity he adds:

...while the auto-erotic manifestations through the brain are of an infinite variety and importance, the brain and the sexual organs are yet the great rivals in using up bodily energy ... potency is impotence and impotence potency, for a high degree of energy, whether in athletics or in intellect or in sexual activity, is unfavourable to the display of energy in other directions. Every high degree of potency has its related impotency (Ellis, 1906d).

Ellis' description further promotes a modern misconception of impotency. The hypothesis offered by Ellis is related both to psychophysiological functioning and the concept of psychic energy. The implication is that every male has a specified amount of potency, if he chooses to use that potency in the sexual sphere. Conversely, one who is sexually active may lack potency in professional strivings. The idea of constitutional elements affecting sexual functioning was first addressed by Hippocrates, as was previously cited in this chapter. This constitutional theme is elaborated upon in the work of Sigmund Freud and others, and is addressed later in the chapter.

The leading German sexologist-physician and humanist of the early twentieth century, Magnus Hirschfeld, believed erectile dysfunction, like neuropathic masturbation, to be a frequent sign of a severe nervous disorder. Hirschfeld's life work included researching and

teaching normal and pathological sexual development. Although not a psychoanalyst, he drew heavily from Freud's theories of psychosexual development (Hirschfeld, 1919). His work was also the first to document the effects of alcohol on erectile capabilities. Through controlled experimentation he demonstrated that alcohol, taken either excessively or often, produced frequent erectile failure.

Prior to the nineteenth century erectile dysfunction was viewed as an imbalance of some substance within the male's physiological makeup. In the early twentieth century a prominent neuropsychiatrist and psychotherapist Wilhelm Stekel, in the most comprehensive study of its time, changed the emphasis of etiology, and thus its treatment. Stekel emphasized erectile dysfunction as a social disorder of the times and thus brought the study of the disorder into the social-psychological realm (Stekel, 1927a). Rather than continuing to view the male as lacking in power and vitality requiring the use of an aphrodisiac-like treatment, Stekel saw the opposing social pressures of love versus mercantilism as hindering the libido's energy. His definition of impotence:

A psychic loss of sexual power ... because of a lack of self worth and lowered feelings of self regard (Stekel, 1927a).

The study of erectile dysfunction then becomes a psychological phenomenon. The treatment changes from bugs and berries to psychoanalysis. Stekel saw impotence as a disorder associated with modern civilization. He likened impotence in the male and frigidity in the female to a society that had placed the desire for wealth above the desire for love. The environmental aspects of his theory took on additional

significance when augmented by his insights into intrapsychic functioning.

Stekel's bi-polar component of hatred, as being essential for every love, may have been his most significant contribution to the study of sexology (Stekel, 1927a). In over 120 case studies he details the preconscious and unconscious aspects of hates, which every individual, he contends, experiences as they love another. It is when the unconscious becomes preconscious and an intense conflict between libido and morals comes about, that impotence is an inhibition and acts as a form of protective function for the inner self (Strage, 1980; Wagner and Green, 1981).

Freud vacillated between categorizing *erectio deficiens* as an inhibition or as a symptom (Hinsie and Campbell, 1940); symptoms being more characteristic of pathological phenomena (Freud, 1926). For Freud, an inhibition is an expression of a restriction of an ego function. Inhibitions were caused, Freud postulated, if an organ's erotogenicity - its sexual significance - is increased. The ego then renounces these functions in order to avoid a conflict with the id (Freud, 1926, 1953; Jones, 1919). In the case of sexual impotence as an inhibition, the relinquishment of an erection avoids anxiety for the ego. The anxiety being caused by heterosexual coitus. Sandor Ferenczi, an early student of Freud, believed for a man who was impotent the substitute for copulation is a fantasy of returning into the mother's womb (Ferenczi, 1956). This fantasy is regressive and replaces the sex organ with the entire person. The underlying unconscious desire is a return, via the penis, to the womb. When this

fantasy fails, impotence occurs as a symptom of continued regression to a more infantile state (Freud, 1957). He states in an earlier translation (1910) that the function of the inhibition is to protect the individual from indulging in a symbolically incestuous relationship. This identification, Freud believed, was not likely to occur with a mistress or someone of lower social standing:

...to insure a fully normal attitude in love, two currents of feeling have to unite... the tender, the affectionate feelings and the sensual feelings... full sexual satisfaction only comes when he can give himself up wholeheartedly to enjoyment, which with his well brought up wife, for instance, he does not venture to do (Freud, 1937 (1963)).

Other psychoanalytic interpretations abound, including others by Freud himself. In later writings he supported constitutional factors such as heredity and endowment as being ascribed to a complex genetic basis of potency disturbances (Freud, 1953).

Jones (1919) and Abraham (1949) both eminent psychoanalysts, believe specific childhood fears of the father affect sexual potency. Abraham writes in detail about *ejaculatio praecox* while Jones focuses on *erectio deficiens*. Jones further elaborates by stating that a fear of castration, dating to the Oedipal period, by the father is prominent in the etiology of psychic erectile dysfunction. The child's fear of castration, if not resolved, is repressed and becomes unconscious. When the male is heterosexually stimulated a conflict develops; having heterosexual sexual desires is unconsciously equated with being in competition with the father for mother's love. Since the father was the victor during the Oedipal period and the male has internalized his castration anxieties, so now the adult unconsciously fears that a sexual pursuit of a female will result in a similar loss.



The same factors that make one homosexual also contribute to impotence with women (Fenichel, 1945). This argument advances psychoanalytic thinking and once again stresses castration anxiety as a primary aspect in the development of impotence (Menninger, 1935). Fenichel (1943) elaborates on what Freud (1910) and Jones (1919) have earlier postulated:

Impotence is based upon the persistence of an unconscious sensual attachment to the mother. No sexual attachment is completely attractive to the impotent male because the partner is never the mother.

Continuing with this, other psychoanalytic theorists have added that every partner, on some level, represents the mother and therefore every sexual attachment must be inhibited (Ferenczi, 1956; Gutheil, 1959).

In a more recent psychoanalytic appraisal of erectile dysfunction Allen (1962) redefines impotence as sexual aversion:

A complete lack of sexual desire or inability to have intercourse through psychical causes.

Although Allen does not supply any data he contends that many psychoneurotics are impotent. Included in this category are those that suffer from neurotic anxiety, perverts, fetish seekers, and those from excessively narrow religious families.

A more succinct psychoanalytic definition of erectile dysfunction is provided by Bieber (1974):

...psychopathology consists of aggregates of irrational beliefs and belief systems associated with expectations of injury or adverse effects followed by maladaptive reactions and behaviors that such beliefs generate.

The irrational belief system being that, some form of injury will occur

to either the male or his penis. The maladaptive response is impotence and the maladaptive behavior may be a withdrawal from sexual activity.

In a single case design using a psychoanalytic paradigm with a black male experiencing erectile dysfunction, Chipman (1978) discovered an underlying obsessional character structure and midlife depression. These, Chipman continues, are related to the patient's conflicts over rage at both early parental objects and the white world. Environmental influences of society (Stekel, 1927a, 1927b) are seen to interact negatively with this individual's psychic structure to reinforce his erectile difficulties. The author calls for further study into the problems of impotence for ethnic minorities within mainline American society. In this case example, white society acts as a superego force inhibiting adequate sexual expression for this patient.

Aside from psychoanalysis there have been many additional attempts at determining the cause of erectile dysfunction. In the mid-nineteenth century a leading American physician linked promiscuous intercourse with impotence and eventual death (Rush, 1830). Since that time a variety of personality factors have been suggested that may influence the development of erectile dysfunction. Feelings of inferiority and excessive sensitivity have been suggested as contributing to the problem (Gutheil, 1959). A supporting theory is put forth by Jacobs (1977) where impotent males are viewed as possessing a grandiose self object together with an increased reluctance on their wife's part to continue to pay tribute to this grandiosity. This grandiose self object is an unconscious defense mechanism these males

have developed to fend off feelings of inferiority and lowered self esteem. Hence, the development of erectile difficulties are in reaction to the pathological self esteem operations in these types of relationships (Lief, 1974).

Constitutional theorists other than Freud include those outside the psychoanalytic perspective. One theory, taking cultural factors into consideration concluded that a constitutionally determined low sexual need might indirectly produce impotence:

...a sensitive male who felt that he did not live up to the culturally demanded degree of manliness may certainly have difficulties sexually (Walker and Strauss, 1948).

Alfred Kinsey, writing in his landmark book on male sexual behaviors, stated that the response of an impotent patient to treatment would be limited by his sex drive. This sex drive, Kinsey went on to say, is inately determined and could not be significantly altered (Kinsey, Pomeroy, and Martin, 1948). Sex drive was also equated with the frequency of sexual activity (Kardiner, 1954). Drive, Kardiner believed, was constitutionally determined and therefore impotence was determined by sex drive and could not be adequately treated. In the only reported controlled study, a British psychiatrist demonstrated a constitutional difference between a group of impotent males and a control group of non-dysfunctioning males (Johnson, 1965). This researcher measured aspects of physique which he purported reflected relative degrees of masculinity. His conclusions stated that impotent males tended to be gynadromorphic. There were significant design and methodology flaws in this research however. Included in these are lack of a randomized design, failure to consider the effects

of a self selection process and small sample size. There continues to be no published support of Johnson's findings.

The psychological characteristics of erectile dysfunction vary with both the etiology and history of the problem (Renshaw, 1978; Maddock, 1980; Osborne, 1981). Secondary erectile dysfunction is defined by at least one previous successful coitus (Masters and Johnson, 1970a; Segraves, 1978). Males with this dysfunction have been reported as excessively shy, submissive, withdrawn and unduly sensitive to criticism, particularly relating to their physical appearance (el-Sanoussi, Coleman and Jaubei, 1959). The male's unconscious fear of erection is activated and used as a defense against his preoccupation with bodily parts (Sander, 1959). This description of the psychogenically dysfunctional male is however, similar to that of a homosexual male's psychological profile (Ferenczi, 1956). It offers little in and of a replicable methodology or specific advances in the understanding of personality development and coping styles in these individuals.

#### Behavioral and Socio-Cultural Perspectives

Although Masters and Johnson have published widely on the treatment of sexual dysfunctions (Masters and Johnson, 1965, 1970a, 1970b, 1979) they have written little about the psychological variables of their patients and research subjects. Many variables already mentioned such as lowered libido, poor self esteem, etc., have been proposed in relation to erectile dysfunction. A later contributor postulated that fear and anxiety are the major factors underlying this disorder

(Podolsky, 1953). Specifically, he lists fear of inflicting injury to the partner and worries over financial matters as the prominent concerns of the males. These clinical observations were not, unfortunately, subjected to experimental study where a control group would have been available.

Others have cited worry and fright as major causes of erectile dysfunction (Robinson, 1936; Vanderveldt and Odenwald, 1952). These fears include fear of sexual performing and masculine identity. For these individuals erectile failure confirms an already existing feeling of inferiority and sexual inadequacy (Zilbergeld, 1978). Emotional issues such as aversion to openness, fear of intimacy and lack of appropriate role models have been advanced as contemporary factors in male erectile dysfunction and marital failure (Pleck and Sawyer, 1974; Lewis, 1978). These concerns were examined in a participant observer study in which Lewis was the principle researcher. The results were tabulated after several observations of empirical workshops conducted by the author. Many men who experience a marital failure with no history of erectile dysfunction may also have difficulties with these emotional issues.

A major research effort, which is both methodologically and statistically thorough, confirmed the clinical impressions of the importance of anxiety engendered by female rejection and feelings of inadequacy (Cooper, 1969a). In this controlled experiment Cooper found significant levels of coital anxiety in 93 percent of a group of 49 males with erectile dysfunction. He distinguished two types of coital anxiety; "Early onset", where he attributed the individual to

be initially aware of his anxiety at the time of coitus, and "late onset" where the anxiety associated with coitus developed months or even years later. His analysis of specific anxieties revealed that fear of failure, fear of being seen as sexually inferior and fear of ridicule were the most frequently mentioned. Although anxiety and erectile failure might coexist in a high percentage of cases, Cooper was correct in stating that there is no conclusive proof of a cause and effect relationship (Cooper, 1969b).

In addition to anxiety and fear, sexual inhibition has been cited as a prominent psychological variable in the development of the dysfunction (Cooper, 1969b). He gives this definition of sexual inhibition:

An emotionally determined restraint from engaging in any type of sexual practice or experimentation which an individual feels desirous of and which he feels would be satisfying in, is due largely to culturally imbued taboos.

Sexual inhibitions were initially referred to by Freud in his discussions on the formation of the superego (Freud, 1933). Although Freud was not definite as to the categorization of erectile dysfunction as an inhibition or symptom, Cooper's definition of sexual inhibition mirrors that of Freud's, except for one significant point; the emotionally determined restraint Cooper refers to is culturally provoked, but for Freud it was an intrapsychic conflict. Cooper is borrowing psychoanalytic concepts from Freud and integrating those with the environmental theories of Stekel (1927a) in an attempt to create a meaningful understanding of impotence for clinicians of the latter part of this century (Cooper, 1971).

The cultural stereotypes of how men are supposed to perform leads to sexual inhibitions and eventually sexual dysfunction, according to James Tuthill writing in the Lancet (1955). He continues:

...faulty cultural patterns, which in a civilized society place restrictions on sexual intercourse and delay the natural development of sexual instinct ... create sexual failures through moral justification.

Tuthill's view that societal taboos were the primary cause of psychogenic dysfunction is supported by Margaret Mead (1939). Her anthropological research indicates that sexual disorders are extremely rare among males of the less developed South Pacific island cultures. This data lends support to the hypothesis that inhibited, socially conforming and less confident males tend to have a higher inclination toward erectile disturbances (el-Senoussi, 1959; Green, 1978). This also lends support to the sexual inhibition theory of Cooper (1969a, 1969b) and to Freud's initial view of impotence as an inhibition rather than a symptom.

Tuthill's and Cooper's findings were challenged by a study which examined 65 males referred for erectile difficulties between the ages of 17 and 61 years at the University of Liverpool Hospital (Ansari, 1975). The control group consisted of a non-impotent, psychiatric out-patient group matched for age. The results indicate that impotent individuals do not form a homogeneous population but can be classified into three fairly distinct groups which differ in age, marital status, libido, and duration of disturbance. Group One, Ansari reports, develops impotency because of anxiety in sexual situations. Group Two reacts to the sexual response and personality

of their partners and are similar to those individuals with an external locus of control. Group Three is more of a mixture of inherent constitutional factors. These "constitutional factors" are not delineated by the author. Ansari concludes that factors such as homosexual ideation; cultural taboos, religious restrictions and alcoholism do not appear to be of any etiological importance.

Ansari's first group appears similar to the early onset group described by Cooper (1969a). These individuals are anxious about coitus and react to this fear by exhibiting erectile failure. Ansari however, fails to clarify why these males develop anxiety around sexual intercourse. It may well be that cultural taboos and religious restrictions, conscious or unconscious, contribute to the individuals anxiety about intercourse. These constructs are difficult to measure and prove problematic in determining their validity as variables. It is unwise to dismiss these factors as Ansari has done, and it is certainly contraindicated according to some of the studies that have been presented thus far and will be reviewed in the remaining sections of this chapter.

The etiology of Ansari's second group is defined by their reactivity to their partner's personality and sexual overtures. In a later study which involved 21 married men presenting for individual therapy, another author observes:

...the majority of these men view their wives as nonsexual creatures with no sexual wishes of their own. These men came from families with dominating mothers and minimal participation by fathers ... these men were excessively passive in their sexual relationships with their wives (Friedman, 1973).

Additional support is given to Ansari's second group classification by



Friedman (1974). In this clinical study several cases were presented where the role of the wife was influential in the development and maintenance of psychogenic dysfunction. In reporting his clinical observations Friedman emphasized that erectile dysfunctional men share important characteristics such as limited social-sexual experience before marriage and a view of women as nonsexual persons. An important deficit in Friedman's studies is the lack of inclusion of similar data of married males that are not experiencing erectile difficulties. The failure to secure a comparison group weakens Friedman's argument significantly. His description of psychogenically impotent males as "... having dominating mothers ... and weak fathers" likens impotent males to the traditional psychoanalytic interpretation of male homosexuality (Freud, 1910; Ferenczi, 1956; Bieber, 1974).

A more recent Israeli study examined the personality characteristics of a mixed group of sexually dysfunctional males and their wives. The control group consisted of a group of married, nondysfunctional couples (Rosenheim and Neuman, 1981). All subjects were administered the Sensitivity to Rejection Scale, Hostility and Direction of Hostility Questionnaire, and the Ascendence-Submission Reaction Scale. A combined discriminant function analysis correctly classified 84.1% of the male patient group. Two variables, sensitivity to rejection ( $F=16.68$ ,  $p<.001$ ) and guilt ( $F=4.89$ ,  $p<.007$ ) were able to identify 79.5% of the dysfunctional males when the patient group was examined alone. The wives of the dysfunctional men were identified by the following two variables; acting out behavior ( $F=5.29$ ) and criticism of others ( $F=4.78$ ), both at the  $p<.001$  level of significance.

No significant variables were identified for the control group of husbands or wives.

This study is an important one in that it is the first to systematically evaluate the personality characteristics of sexually dysfunctional males and their partners with a control group of non-dysfunctional males and their partners. The results partially support earlier clinical observations where psychogenically impotent males were seen as more sensitive to rejection and experiencing significant degrees of guilt (Gutheil, 1959; el-Sanoussi, Coleman and Jaubei, 1959). Rosenheim and Neuman give some support to Friedman's (1974) argument that the role of the wife is influential in the maintenance of male erectile dysfunction. An "acting out wife" who is highly critical of others - including her husband - as delineated by this Israeli study, could conceivably be influential in maintaining the dysfunction of a guilty husband who is sensitive to rejection. This complicated scenario might better fit the description of variables that ensue after the male partner becomes dysfunctional rather than a precursor to it (Jacobs, 1977).

In a random sampling of 58 married Swedish males a semi-structured interview was administered to determine sexual dysfunction and sexual satisfaction. The sample was representative of the Swedish married population (Nettlebladt and Uftenderg, 1979). Seven percent of the subjects were experiencing erectile difficulties at the time of the interview and an additional two percent reported previous erectile difficulties. An additional ten percent reported difficulties with premature ejaculation. The authors report no relationship

between quality of marriage and existence of sexual dysfunction. This is contradictory to previous reports where the marital relationship is shown to have a significant effect on sexual functioning (Stekel, 1927b; Masters and Johnson, 1970b).

In detailed interviews, those males with a sexual dysfunction described their fathers in a negative manner. The quality of contacts with their fathers during childhood and adolescence was cited by 61% of the dysfunctional men as poor. The authors find support for their hypothesis,

Poor masculine identification may predispose males to a sexual dysfunction.

They conclude by stating:

Sexual dysfunction is more related to early parental relationships while sexual satisfaction is more related to the couple's present emotional relationship.

There are several problems with this study. The total number of impotent males (N=7) is small considering the significant conclusions which are being drawn. Secondly, the attempted separation of sexual dysfunction from marital satisfaction is artificial. Sexual functioning for some men varied between partners; this is not accounted for under this hypothesis.

Nettelbladt and Ufdenberg do present however, important information regarding the etiology of erectile dysfunction. In citing the importance of the father-son relationship these authors modify the traditional psychoanalytic interpretation which has specified the significance of the mother-son relationship. These authors also question the justification of using behavioral interventions, which

focus on sexual therapy rather than on earlier parental relationships (Masters and Johnson, 1970a; LoPiccolo and LoPiccolo, 1978).

In a Czechoslovakian study which examines the family situation during childhood of dysfunctional males, Mellan (1974) concludes that males with organic dysfunction differ significantly from psychogenically dysfunctional males. In this study 250 dysfunctional males received a psychiatric interview and were administered a ten point Family Scale where the highest grade corresponded to a hypothetically ideal family situation. Those males who suffer from primary erectile dysfunction had the most disturbed family of origin. Those who were dysfunctional after a normally satisfying sexual life (secondary erectile dysfunction) could be differentiated from primarily dysfunctional males, but not at a statistically significant level. The organic group was not distinguishable from a nondysfunctional control group. The conclusions reached by the author are quiet clear in supporting a,

...noteworthy disturbance in early parental relations for the psychogenically impotent male.

This study has been the most significant to date that successfully differentiates organic from psychogenic, and to a lesser degree differentiates primary from secondary psychogenic dysfunction. These results give additional support to the premise that psychogenically dysfunctional males do, in fact, experience a more disturbed childhood. What this study does not do, and this is extremely important, is to say that this group is more psychiatrically disturbed. A more disturbed childhood does not necessarily indicate present psychopathology.

The last two studies that have been discussed raise important and significant questions as to etiology and prevalence of these dysfunctions. It is unfortunate that Mellan does not employ a better known and standardized instrument. His Family Rating Scale, although based on Czechoslovakian society, lacks appropriate norms for inclusion in a psychological study. If adequately normed, this scale would prove useful in examining father-son relationships as reported by Nettlebladt and Ufdenberg.

In an earlier Swedish study which examines the family constellation of impotent males, Lidberg (1976) reports the parents of dysfunctional males were older and the men were often the only son or an only child. In this study, a greater percentage of the men had technical or administrative positions than a comparison group. The conclusions reached by the researcher are discussed in reference to:

...a supposed focus on achievement in the upbringing of the eldest or only son ... focus on achievement may cause emotional restraint and subsequent psychosocial disturbances.

The study introduces family constellation data that has not been previously published; namely, the position of the dysfunctional male within the family structure. The conclusions reached by Lidberg relative to the focus on achievement as a cause of psychosexual restraint was initially theorized by Hirschfeld (1919) and later elaborated upon by Stekel (1927a). This is demographic data that has not been published previously and adds significantly to the data base for erectile disorders. Following this perspective one might expect to see a higher degree of erectile dysfunction among the technical

and professional class where there is a strong push to achieve. Recent demographic studies which have examined both referral sources and type of patient referred in an American hospital, have not cited significant differences between classes, using the Hollingshead 2-Factor Index (Segraves, Schoenberg, Zarins, Camic and Knopf, 1982).

The methodological problem inherent in Lidberg's analysis is compounded by his lack of an experimental paradigm. His subjects are patients in his Stockholm practice and he used the population statistics of the city of Stockholm for a comparison group. It is widely known that patients are self selecting and are often from higher socioeconomic classes; this proves to be an additional problem for his study.

Another American study which examines socioeconomic status as one of its variables (Segraves, et al, 1981), found self referred impotent patients coming from higher socioeconomic backgrounds. The same study noted that patients referred by a urologist to a sex dysfunction clinic tended to be of lower socioeconomic classes than self referred patients. Both Mellan's and Lindberg's studies do however, suggest new research paths to undertake in determining the prevalence of sexual dysfunctions within the total population. A study of this kind would certainly involve an undertaking similar in magnitude to that of Kinsey in the 1940s (Kinsey, Pomeroy and Martin, 1948).

An attempt was made to determine the socio-cultural correlates of incidence of erectile dysfunction by examining sexual dysfunctioning cross culturally in preindustrial and industrial societies (Welch and Kantub, 1978). This study examined how socio-cultural environments

induce and inhibit sexual dysfunction. Data was collected by interviews, examination of medical records and reviews of previous investigation (Okasha and Demendash, 1976). Data was analyzed in two stages using standard multiple regression procedures. Results show that socio-cultural factors are highly correlated with incidence of impotence ( $R=.91$ ). The authors conclude:

...sociocultural characteristics of a society are effective predictors of the incidence of impotence observed in that society.

The predictor values used in the study are (1) restriction of attitude for women toward premarital sex, (2) overall frequency of premarital intercourse, (3) restriction of attitude toward male, (4) degree of danger imputed toward sexual intercourse, (5) restriction of attitude toward sex in marriage, (6) restriction of attitude toward extra-marital intercourse. The reader is left with the impression that in societies where sexual contact is restricted, the incidence of erectile dysfunction is higher. Although there is some support for a higher rate of sexual dysfunction among conservative religious groups (Renshaw, 1978a), there is no significant clinical support for their conclusions that socio-cultural characteristics of a society are effective predictors of the incidence of male sexual dysfunction (Masters and Johnson, 1970a; Servais, 1976; Renshaw, 1978b; Lieh, 1981).

This section of the review of the literature has sought to present an overview of the various psychological theories of male erectile dysfunction. This has included an historical perspective from the earliest times where erectile dysfunction was reported as a disorder

of some sort (Walton, 1958; Cooper, 1969, 1971; Benedek, 1973; Wickler, 1973; Strage, 1980). The prescientific approach of early sexologists and psychoanalytic theorists and clinicians are then discussed (Krafft-Ebing, 1882; Ellis, 1906; Hirschfeld, 1919; Jones, 1919; Freud, 1926; Stekel, 1927a, 1927b; Ferenczi, 1925, 1956; Abraham, 1949).

The mid-twentieth century saw the introduction of extensive sociological and psychological procedures to study both human sexuality and sexual dysfunctions (Kinsey, et al, 1948; Kardiner, 1954; Johnson, 1965). The latter portion of this century has seen a refinement in both theory generation and assessment procedures (Cooper, 1969; Masters and Johnson, 1970a; Kent, 1975; Derogatis, 1976; Osborne, 1981; Smith, 1981). Research examined thus far has cited developmental, familial, affective, interpersonal and informational differences in contributing to the psychological understanding of erectile dysfunction.

Two remaining sections follow. The next investigates the history of psychometric assessment of erectile dysfunctions. The final section introduces the concept of the Millon Behavioral Health Inventory (MBHI) as an instrument to use with behavioral medicine and health psychology populations.



Differentiation of Psychogenic and Organic Erectile  
Dysfunction by Psychological and Medical Measurements

The final two sections of Chapter II reviews the variety of assessment procedures that have been used to differentiate organic and psychogenic dysfunction. Included here are research studies that solely use psychological instruments and clinical studies that employ psychological assessment as a portion of the diagnostic procedure. The final section of this chapter presents a rationale for using the Millon Behavioral Health Inventory as an assessment device in the study of sexual functioning.

Males from all socioeconomic classes present themselves to clinics with the presenting problem of erectile dysfunction (Segraves, Schoenberg, Zarins, Camic and Knopf, 1981). These individuals, like all patients coming to a sex dysfunction clinic, are referred from many sources including urologists, physicians from other specialties, friends, spouses and mental health professionals (Ibid, 1981).

Many approaches are currently employed in assessing the male with an erectile disturbance. At one time the predominant thought in the medical and psychiatric profession saw erectile dysfunction as strictly a psychological and not physical disorder (Cooper, 1969b). This view was further popularized by the treatment innovations of Masters and Johnson in the early 1970s. As the study of sexual functioning matured, additional research indicated that nearly 10% of the dysfunctions had a significant physical component prevalent in their etiology (Boyarsky and Boyarsky, 1978). Other authors have reported

that organic erectile dysfunction may be more prevalent than initially believed (Spark, White and Connolly, 1980). One such clinical investigation using consecutive sequence sampling (Blaivas, O'Donnell, Gottlieb, and Labib, 1980) in which 27 males participated ( $\bar{X}$  age=50, range 27-78 years) found penile blood pressure abnormalities in 67% and neurological abnormalities in 41% of their patients. The authors concluded by emphasizing the possible multiple factors involved in erectile dysfunction and suggest that a higher degree of organic etiology may be present than previously realized.

The decade of the 1970s saw significant advances in sexual dysfunction assessment, particularly for erectile dysfunctions. The need for differential diagnosis of erectile dysfunction became necessary in light of new evidence which supported omnifarious medical conditions as interfering with sexual functioning (Tucker, 1971; Kolodny, Kahn, Goldstein and Barnett, 1973; Kent, 1975; Segraves, 1977; Malloy and Wein, 1978; Kedia, 1981; Krane and Siroky, 1981; Smith, 1981; Weideman and Northcutt, 1981; Wagner, Bro-Rasmussen, Willis and Nielson, 1982).

Although a consensus has yet to be reached concerning which measures to apply in a standardized assessment procedure, this divergency is lessening. A multidisciplinary approach is the assessment of choice by many investigators. This approach includes a self-report by the patient, a behavioral inventory and a physiological-medical examination (Wincze, 1982). In a study previously cited (Blaivas, et al, 1980) which was conducted at Tufts-New England Medical Center in Boston, each patient underwent a thorough

multidisciplinary evaluation which included a psychiatric, social and sexual history as well as a vascular and neurologic assessment. The latter two assessments included a Doppler penile blood pressure exam, testing of the sacral spinal segments by examining perianal sensation, small muscles of the foot, anal sphincter tone, bulbocavernous reflex and latency time. In addition a lab exam consisted of complete blood urea nitrogen, creatinine, urinalysis and two hour post prandial blood sugar determination. This exhaustive procedure, while certainly thorough, is expensive and time consuming, both for patients and medical personnel. This assessment is considered routine at this hospital.

Another recent study also cited a high percentage of patients with organic dysfunction (Schumacher and Lloyd, 1981). In this clinical study 102 impotent males between the ages of 23 and 78 were examined as they were referred to a sex dysfunction clinic. A sex history, psychiatric examination and when indicated, vascular, urologic and neurologic exams were performed. The findings showed 72% with an organic disease and 28% with no medical factor present. In this group 45% were self referred while 55% were referred by a medical or psychiatric professional. The disease categories include cardiovascular-respiratory (29 patients), endocrine (19 patients), metabolic (19 patients), neurologic (5 patients), and urogenital (13 patients). This surprisingly high percentage of organic dysfunctional males in a referred sample to a sexual dysfunction clinic appears unusually high.

Percentages of organic cases at other major sexual dysfunction



clinics have varied (Kaplan at Cornell, 1974; Renshaw at Loyola, 1978a; Segraves at Chicago, et al, 1981) but do not approach the percentages cited by either the Blaivas, et al (1980) or the Schumacher and Lloyd (1981) studies. While both of these latter studies employed a more extensive medical examination, the fact remains that the cases of organic impotence remain significantly higher ( $p < .05$ ) than the Kaplan (1974), Renshaw (1978a), or Segraves (1981) studies indicate. This discrepancy can be related to a host of factors including geographic location of each clinic, population of area, clinic reputation by lay and professional communities and nature of referral sources. This discrepancy highlights the need to further examine the assessment process used to determine diagnosis (Camic, 1981).

Montague (1981), writing for a symposium on male sexual dysfunction, outlined a basic assessment procedure and suggests use of physical examination and laboratory tests only if there is uncertainty about etiology. He discourages routine use of these tests when assessing erectile dysfunction. The author cites as a major problem for physicians in finding mental health personnel, and psychiatrists particularly, who have an interest in the area of sexual functioning. The use of a multidisciplinary health team is viewed as essential by Montague. His comprehensive list of laboratory tests to aid in differential diagnosis is found in Table I.

The decade of the 1970s also saw a proliferation of psychometric testing as an aid in differential diagnosis. One such test, the Male Impotence Test (MIT) claimed to differentiate organic from psychogenic

TABLE 1

Laboratory Studies Used in Differential  
Diagnosis of Erectile Dysfunction

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1. Serum Testosterone - values 370 to 110ng%, average=730ng%  
IF LESS THAN 300ng% proceed to 1b-1d:
    - 1b. Follicle Stimulating Hormone Test (FSH)
    - 1c. Luteinizing Hormone Test (LH)
    - 1d. Prolactin
  2. Glucose Tolerance Test (not to be administered to diagnosed diabetic patients)
  3. SMA-12 or SMA-18 Survey
    - 4a. Penile Systolic Blood Pressure Exam-using the Doppler method
    - 4b. Penile Pulse Volume
- IF THE ABOVE ARE NEGATIVE proceed to 5a-5c:
- 5a. Nocturnal Penile Tumescence Test (NPT)
  - 5b. Electroencephalogram (EEG)
  - 5c. Direct observation of erect penis

(Montague, 1981).

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dysfunction in addition to determining the following: reaction to female rejection, flight from male role and reaction to male inadequacy. Although this test was initially published in 1964 it received little attention until the 1970s (Ellis, 1972).

A 1975 study (Beutler, Karacan, Anch, Salis, Scott and Williams) administered the Male Impotence Test and the Minnesota Multiphasic Personality Inventory (MMPI) to 32 male patients between 17 and 67 years old complaining of erectile difficulties. Penile tumescence was recorded for each of these patients using a sleep laboratory. This study attempted to validate the predictive validity of the MIT and MMPI is discriminating between those who produced normal penile tumescence during sleep and those that did not. Normal nocturnal tumescence was taken to indicate the physiological capacity for achieving arousal and is suggestive of psychogenic dysfunction (Beutler, Steinbronn and Bamford, 1981). Results suggest that the MIT is without value in differentiating organic and psychogenic impotence. The MMPI was however able to appropriately classify 90% of the cases. Classification occurred on the MMPI were masculinity-femininity (MF) scaled were above 60 and one or more additional scores were above a T value of 70.

Reporting in another journal on the continuation of their earlier study (Beutler, et al, 1975), the authors investigated the utility of the MMPI to determine suitability for penile prosthesis surgery and the prognosis for such surgery (Beutler, Scott, and Karacan, 1976). In discussing four case study examples the authors lend support for the efficacy of the MMPI in both diagnostic assessment

and for post surgical follow-up. Again, the authors cite the 90% differentiation rate between organic and psychogenic dysfunction (Mf score  $\geq 60$  and a score  $\geq 70$  on any other scale). Prediction of post surgical follow-up is qualitative and based on a variety of clinical interpretations of MMPI scales. Unfortunately the study does not employ any statistical analysis on the predictive capability of post surgical follow-up. The small sample of four subjects, out of the 32 available, significantly limits the applicability of these results to other impotent patient populations.

In a later study (Marshall, Surridge and Delva, 1980) an attempt was made to cross validate Beutler, et al's (1975) MMPI findings. In this investigation only patients whose erectile difficulties were previously confirmed as organic or psychogenic were included. The criterion groups of 10 have a mean age of 45.3 years for organics and a mean age of 52.7 for psychogenics ( $F(1, 18)=2.15, p=.16$ ). A 2 x 2 chi-square analysis found no significant difference between organic and psychogenic groups. A stepwise discriminant function analysis however, yielded a statistically significant discriminant function ( $\chi^2(5)=14.06, p=.15$ ) and a 95% differentiation rate with all psychogenics and nine out of 10 organics correctly classified. The scales used, in decreasing order, were Hy, Sc, Pa, Hs and Mf. Contrary to prior findings (Beutler, et al, 1975; Beutler, et al, 1976) it was the organic and not the psychogenic patients who displayed greater psychological disturbance.

In another study which examined both MMPI and Nocturnal Penile Tumescence (NPT) recordings (Marshall, Morales, and Surridge, 1981)

it was found that both instruments had high error rates. In this study ten patients, five organic and five psychogenic, were examined. Etiology was established prior to the investigation. The decision rules were an NPT recording less than 15mm for organic diagnosis and an NPT greater than 15mm for psychogenic diagnosis. For the MMPI an MF score greater than 60 and any other scale greater than 70 yielded a psychogenic evaluation. The results indicated that all MMPI scores classified all subjects as psychogenically impotent. This yields an error rate for the MMPI of 50%. The results of the NPT alone yields an error rate of 25%. While this is a significantly better predictor than the MMPI, this error rate remains higher than a sex history and psychiatric examination would yield. The authors strongly caution against the use of the MMPI in assessing erectile dysfunction and urge conservative judgement in basing a diagnosis on the NPT alone. Additional studies concerning the NPT Test will be presented later in this chapter.

Although not intended as an instrument to aid in the differential diagnosis of sexual dysfunction, the Sexual Interaction Inventory (SII) developed by two New York State University at Stony Brook psychologists, was the first psychological inventory to focus on actual sexual behavior as an aid in treatment planning (LoPiccolo and Steger, 1974). The SII consists of 17 items that cover a variety of typical heterosexual behaviors ranging from kissing to coitus. The original subject pool consisted of 28 heterosexual couples ( $\bar{X}$  age = 27 years for males and 26 years for females) with a member of each couple reporting a sexual dysfunction. The control group consisted



of 133 married couples with satisfactory sexual adjustment. Each couple was administered the SII; the patient sample both pre- and post-treatment and the control sample once. The SII was able to distinguish dysfunctional couples from controls at a statistically significant level ( $p \leq .05$ ), at the beginning of treatment. At the conclusion of treatment the dysfunctional group couples who had improved were not (at the  $p \leq .01$  level) distinguishable from the control group. Although this instrument has appeared infrequently in the literature since its publication, its utility is seen by its ability to aid in assessment of specific sexual behaviors that are problematic for heterosexual couples (McGovern, McMullen and LoPiccolo, 1978).

A Czechoslovakian study (Safko and Mechvecky, 1974) using the Taylor Manifest Anxiety Scale and the Cornell Medical Index, found age, in combination with anxiety level and psychosomatic symptomology, to be statistically significant factors in differentiating organic from psychogenic dysfunction ( $p \leq .05$ ). In this study 52 male patients between 17 and 63 years of age, claiming difficulty of erection as their main problem, were administered the Taylor Scale and Cornell Index. Administration occurred prior to the psychiatric history and physical examination. When indicated, urological, neurological and endocrinological tests were also performed. In 7.1% of the subjects an organic component was found. Further analysis indicated that age distinguished the two groups. For the group under 30 years of age, fear of not having an erection and higher levels of coital anxiety were more significant than those over 30 years of age. The older subjects

also reported more hypochondriacal symptoms than the younger subjects. In their concluding remarks the authors sketch a psychological profile of an organically impotent male as being over 30 years of age, exhibiting minimal coital anxiety and being hypochondriacal. This "psychological profile" is inadequate. The Taylor and Cornell instruments are limited in scope, measuring anxiety levels and medical symptomatology respectively. These instruments are insufficient to determine an indepth psychological profile of impotent males. While they may serve as a component in a psychological assessment battery, to use them alone to determine psychological characteristics of organic and psychogenic erectile dysfunction is inappropriate and beyond their scope.

An Indian study using the Rorschach Inkblot Technique to assess personality factors in impotent males, was not able to discriminate psychogenic impotence from organic etiology (Dubey, 1977). The author administered the Rorschach to 40 males between the ages of 20 and 35 years. Results show an overall constriction in productivity, inability to tolerate emotion provoking situation and conflict in the sexual sphere. No consistent pattern prevailed between either group. It is once again unfortunate that a control group was not used. Considering the latitude in scoring and interpretation of the Rorschach, these results should be examined carefully. Other groups of patients, other than sexually dysfunctional males may demonstrate similar personality styles.

Thus far in this chapter nocturnal tumescence testing (NPT) has only been briefly referred to as a medical test to determine etiology

of erectile dysfunction. In 1953, Aserinsky and Kleidman first described rapid eye movement (REM) sleep. In a later study published in 1955 they noted that nocturnal erections corresponded to REM sleep levels. Karacan (1966) subsequently confirmed the report of a high REM-nocturnal penile tumescence correlation. Later Karacan (1969) introduced a simple, and at the time inexpensive, method for measuring penile erection during sleep. In 1970 Karacan described the clinical value of NPT recording as a method to diagnose organic erectile dysfunction. For Karacan, if penile circumference change was not adequate for penetration the individual was diagnosed organically dysfunctional. In subsequent studies (Karacan, Hirsch and Williams, 1972) the correlation between REM sleep and nocturnal erections in an elderly population was examined. The authors concluded, with advancing age, nocturnal erections become less of a function of REM sleep. In this study the REM sleep periods and the total sleep periods remained the same over a 50 year age span. Tumescence however, decreased over this period with these same subjects. The important conclusion reached here implies that the two phenomena, REM sleep and NPT, are not strictly parallel in their neural substrates. Since a discrepancy is found in the correlation between age and NPT, the validity of the NPT test as a sole diagnostic procedure to assess erectile functioning is drawn into question (Wasserman, Pollak, Spielman and Weitzman, 1980a).

In another REM-NPT study published by the same group at Albert Einstein College of Medicine (Wasserman et al, 1980b) males between the ages of 20 and 38 were examined. The subjects were divided into

three groups, organic, psychogenic and normal, based on the diagnosis of the referring physician. Subjects were asked to remain in the hospital for three consecutive nights for monitoring. In addition to monitoring REM sleep periods and NPT, electroencephalograms (EEG) and electromyograms (EMG) were administered. The NPT test correctly classified the organic group in 90% of the cases. The NPT classified 80% of the psychogenic group and 100% of the controls. While this classification rate generally pleased these researchers, they cautioned against using the NPT test to be used as a sole diagnostic procedure. Considering the possible consequences of misdiagnosing a patient with organic dysfunction, this is one false positive extremely important to rule out.

In a 1981 publication Karacan and his associates reversed their earlier diagnostic criteria and cautioned against using NPT monitoring as a solitary decision factor in diagnosing erectile dysfunction (Karacan, Williams, Derman and Aslan, 1981). Although they continue to encourage NPT monitoring as an essential aspect of the assessment process, they conclude that sleep disorders may effect REM sleep and therefore NPT assessment. To insure that a sleep disorder is not a primary problem the EEG and EOC (electroocularogram) are administered along with the NPT test. As an additional diagnostic procedure penile rigidity is determined. To determine rigidity, a precision strain gauge is attached to a force-application device on the glans of the penis until it visibly bends. The gauge measures buckling pressures between 1gm and 1000gms with 450 gms as an average for satisfactory intercourse (Karacan, Salis, and Williams, 1978). For this study,

the measure of penile rigidity raises the discriminatory powers of NPT monitoring to nearly 95% of all cases examined.

In yet another study (Marshall, Surrige and Delva, 1981) 40 men between the ages of 20 and 66 years were assigned to four groups based on previous diagnoses of organic, psychogenic, mixed etiology or unsure etiology. Assessment consisted of a psychiatric interview, physical exam, history, and NPT monitoring. The subjects were required to spend two nights in the hospital. Penile tumescence and the number of nocturnal erection episodes were measured. An episode was defined as any time penile circumference exceeded 3mm. Maximal change between episodes was examined and thought by these researchers to be a better index of actual erectile capacity rather than solely examining net NPT circumference.

Using an analysis of variance, nine out of ten organic subjects were correctly classified but only seven out of ten psychogenic subjects were correctly classified ( $p < .05$ ). When an additional decision rule was added where organic etiology is less than two episodes, and psychogenic is greater than three episodes, all ten organic subjects and nine out of ten psychogenic subjects were classified correctly. A possible explanation for the overlap of these two groups on the measure of maximum erectile response, is the large variation that has been noted for NPT measures (Karacan, et al, 1975). This is the first reported study where maximal change between episodes has been reported as a factor in diagnosis. Additional clinical investigation is required before the maximal change between episode measurement can be safely incorporated into NPT assessment.

These studies support the usefulness of NPT monitoring as part of the assessment procedure for erectile dysfunction. Careful clinical judgement needs to be employed however, in those cases where there is a divergence between clinical interviews and NPT results. These studies have shown that in addition to the NPT, EEG, EMG and penile erection episode measurements are often necessary to rule out a sleep disorder as part of the differential diagnosis.

An additional problem is the high cost of overnight sleep studies and the inefficiency of the take home NPT monitoring units. Often sleep studies are limited to major medical centers, preventing studies in more outlying areas. These problems aside, the NPT Test is, to date, the most comprehensive assessment procedure available to men with an erectile disorder (Smith, 1981).

A 1980 study introduced another assessment device, the Sex Form (SF), to differentiate sexual attitudes of psychogenic and organic dysfunctional males (Beutler, Thornby, Karacan and Walter, 1980). The subjects included 21 psychogenically dysfunctional males, 30 organically dysfunctional males and 17 controls. The Sex Form has 12 content scales and a demographic data sheet. The scales measure sex drive, sexual knowledge, fantasy, sexual conflict, gratification, activity, passivity, psychological adjustment, conservatism and liberalism. A 2 x 3 chi-square analysis was used to determine the items which discriminate among these subject groups. A multiple discriminant analysis was then used to determine significance of the discriminating factors. The results differentiated psychogenically impotent males on the basis of fantasy. These

individuals were less likely to day dream or fantasize about something unexpected and fortunate happening in their lives, than the other two groups. This was not statistically significant in differentiating between psychogenic and organic groups however.

The response pattern for both organic and psychogenic groups to overall stimuli in life was generally fantasy oriented rather than action oriented. This is particularly true for the psychogenic group. The authors claim an "82% hit rate" in differentiating impotent males from normals. Although not statistically significant, the psychogenic group was seen as relatively passive in sexual relationships and less well adjusted psychologically compared to organic subjects.

In 1976 Derogatis, a psychologist at Johns Hopkins School of Medicine, unveiled what has become the most sophisticated and comprehensive psychological assessment instrument for sexual functioning. The Sexual Functioning Inventory - SFI (Derogatis, 1976) was designed to assess the nature and magnitude of sexual dysfunctions. The SFI is composed of eight scales which measure: attitudes, information, experience, symptoms, role definition, affects, fantasy and erotic drive. Derogatis also cites key "mediating variables" such as gender, social class, age and health status as playing a modifying role in determining the nature and course of sexual disorders. The Sexual Functioning Inventory was developed for use with both men and women. The review of the research related to the SFI will be limited to male subjects as they relate to this study.

As the review of the literature has thus far been able to demonstrate, there is continuing controversy among members in the

field regarding accompanying psychopathology in dysfunctional men.

Derogatis was also concerned about this and administered the Symptom Checklist-90 (SCL-90) as a screening inventory for his initial sample group. The SCL-90 is an extended version of the Hopkins Symptom Checklist (Derogatis, Lipman, Rickels, Uhlenhuth and Covi, 1974). The checklist is composed of 90 items, each rated on a 5-point scale of distress that represent a broad range of psychopathology.

In the analysis of the first group of patient-subjects, the SCL-90 showed sexually dysfunctional males to have elevated scores on hostility, paranoid ideation and somatization. None of these scores however, reached the level of scores from an outpatient psychiatric sample. In terms of psychopathology, this placed the dysfunctional group in the 20th percentile in the distribution of psychiatric outpatients.

Over the next four years Derogatis and his associates continued to publish their ongoing work with the SFI. Later in 1976 the Sexual Functioning Inventory added the principal researcher's name to its title becoming, the Derogatis Sexual Functioning Inventory (DSFI). In another 1976 study (Derogatis, Meyer and Dopkin, 1976) a group of psychogenic and organic males were administered the DSFI. The subjects included 14 males who presented with psychogenic dysfunction ( $\bar{X}$  age=44.6,  $\sigma$ =10.6, range 23-60) and 14 males with organic dysfunction ( $\bar{X}$  age=43.3,  $\sigma$ =12.5, range 20-62). Both the DSFI and the SCL-90 were administered prior to a psychiatric interview.

On the majority of subtests there was no significant difference between psychogenic and organic groups. Two subtests did discriminate



organic from psychogenic subjects: Experience and Gender Role

Definition:

The former measure showed psychogenic males to have a significantly greater variety ( $p < .05$ ) of sexual experiences than organic males; The latter subtest revealed psychogenic males to have a hyperpolarized masculine role definition ( $p < .001$ ). Organic males manifested gender role scores that showed them to be quite androgenous and well integrated in this domain of sexual functioning.

Derogatis cautions that with such a small sample, while statistically significant, it is not of the magnitude to allow diagnostic prediction. He suggests the use of multivariate techniques and specifically discriminate function analysis, as methods of choice in an assignment situation. In this study a cutting-score analysis was employed with a hit rate of 59.2%.

Subtest five of the DSFI is composed of the Brief Symptom Inventory (BSI) and determines levels of psychopathology. Although this subtest failed to show any significant differences between the two groups, specific pathological processes needed to be ruled out. For this reason the BSI subtests were also scored for its nine primary symptom dimensions. Results of this analysis showed organic males manifesting somewhat higher scores than psychogenic males on most symptom dimensions. Differences were not large enough to be statistically significant. The exception was the Phobic Anxiety subtest of the BSI where organic patients showed a significantly higher level ( $p < .001$ ) of anxiety. These subtest scores did not contribute to discrimination beyond that related to Gender Role Definition and Experience subtests. The BSI is a modified version of the SCL-90, developed for inclusion as a subtest within the DSFI. The results of

this study do not indicate whether the sexual dysfunction is a result of these factors or a precursor to them. Only a longitudinal study, involving a substantially larger sample, can determine the answer to this question. Derogatis has added additional information to our understanding of sexual dysfunctions which may be useful for future investigators.

A later study (Derogatis and Melisaratos, 1979) presented additional data on an updated and expanded DSFI, which now includes ten subscales: Information, Experience, Drive, Attitudes, Psychological Symptoms, Affects, Gender Role Definition, Fantasy, Body Image and Sexual Satisfaction. The male subjects in this study consisted of 76 normals ( $\bar{X}$  age=31.40,  $\sigma$ =9.07) and 91 dysfunctions ( $\bar{X}$  age=41.21,  $\sigma$ =12.37). Approximately 90% were caucasian and 58% married. The normal group tended to be more representative of the middle and upper-middle socioeconomic groups, while the dysfunctional group was more equally divided between lower-middle, middle, and upper-middle groups.

Using a stepwise discriminant function analysis the classification matrices reveal 77% correct assignment. Examination of the discriminant coefficients reveal that Information, Symptoms, Affects and Fantasy subtest scores contribute significantly to discrimination. The Symptom subtest, using the BSI, reveals significant elevations for the dysfunctional males. The Global Symptom Score is 1.3 standard deviations above the normative mean. The erectile dysfunctional males manifested the highest distress levels, with peaks on Depression and Anxiety. Premature ejaculators revealed a less dramatic profile but

continued to be elevated when compared to normals.

Derogatis draws the following conclusions from this study: (1) The DSFI is a useful discriminator between sexually dysfunctional and normal males, classifying 77% and (2) it is a useful clinical tool in understanding the dysfunctional patient:

there are substantial levels of psychological distress among patients with sexual dysfunctions ... this is not to say whether the dysfunction caused the psychological symptom or whether the psychological stressor resulted in the dysfunction. This we do not know.

He has made an impressive point of the latter issue, namely, psychological distress appears to be significant among this population. This is an area that is continually open to disagreement.

His claim of classifying 77% of the dysfunctional group remains unimpressive. This is partially related to design and methodology weaknesses. It would have been useful to test external validity by correlating DSFI scores with independent therapist ratings via diagnoses. This research does not answer the question concerning utility of psychological measurement versus clinician assessment (Korchin and Schulberg, 1981). In this study an attempt was made to differentiate dysfunctional from normal males. The recent literature has not raised this as a concern, particularly regarding psychometric assessment. Rather, differentiation of organic from psychogenic dysfunction is a significantly more pressing clinical concern. Surprisingly Derogatis does not continue the previous evaluation of organic-psychogenic dysfunction previously reported (Derogatis, Meyer and Dupkin, 1976).

The "third phase" of Derogatis and associate's psychological

assessment program for sexual dysfunctions, completed their most recent study in 1979 and determined specific psychological profiles for sexually dysfunctional men and women (Derogatis and Meyer, 1979). The focus of this latest study in this series is differentiating specific psychological factors which contribute to sexual dysfunction. The male subjects in the study numbered 104 with 47 dysfunctional and 57 normals ( $\bar{X}$  age dys.=36.64,  $\sigma$ =11.02,  $\bar{X}$  age normals=32.04,  $\sigma$ =9.16). Assessment of each subject's psychosexual status was accomplished through the use of the DSFI. Data was analyzed on three levels. First, a series of two-way analyses of variance (sex x diagnosis), next a one-way analyses of variance focusing on differences between groups but within sexes, and finally, specific analytic procedures on various subtests. The authors report significant effects on eight of the subtests: Information  $p < .03$ , Experience  $p < .002$ , Drive  $p < .10$ , Attitude  $p < .01$ , Symptoms  $p < .10$ , Affects  $p < .001$ , Gender Role  $p < .05$ , Fantasy  $p < .001$ . The Symptom subtest specifically revealed dysfunctional subjects to have significantly higher levels of psychological distress on all 3 BSI global measures. This placed the dysfunctional group 1.25 standard deviations above the normal controls. The symptoms elevated include Depression, Anxiety and Interpersonal Sensitivity. They conclude:

...it appears that individuals suffering from sexual dysfunction have a somewhat distinct psychological profile, one that differs from persons who have not experienced these disorders.

This study, unlike others in this series that have been examined (Derogatis, Meyer and Dupkin, 1976; Derogatis, 1976; Derogatis and Melisaratos, 1979) does not have as its goal, the differentiation of

normals and dysfunctionals. Rather, it seems to identify underlying psychological variables that contribute to the maintenance of the disorder. Further identification of psychological variables may demonstrate the existence of subgroups within this population.

In an attempt to integrate the advances in diagnosis and treatment of sexual dysfunctions, Beutler and Gleason (1981) recommend a "cost-effective" assessment procedure. This assessment procedure includes the MMPI, Sex Form, DSFI, a sex history, medical history, physical exam, and NPT monitoring. Although this is a thorough evaluation it may not be necessary for all patients. The authors defeat their proposal for a "cost-effective" approach by requiring all dysfunctional patients to undergo NPT sleep studies. This test alone is quite costly and is only necessary when etiology is uncertain (Smith, 1980; Segraves, et al, 1981).

In the only reported study that attempts to replicate the DSFI findings that discriminate organic from psychogenic dysfunction, a group at the University of Chicago found no significant differences between organic, psychogenic or normal control groups (Segraves, Schoenberg, Zarins, Knopf and Camic, 1981). Repeated Students' T-tests between all ten subtests on the DSFI were performed ( $\bar{X}$  age organic group=45.6,  $\bar{X}$  age psychogenic group=45.7). When comparing DSFI scores to demographic variables several differences were found between organics and a matched cohort group of psychogenics. Although not at a statistically significant level, these differences include older age being associated with decreased sexual drive and sexual fantasies and increased sexual satisfaction and positive body image.

Black racial status was associated with decreased sexual experience, less psychological distress, fewer sexual fantasies and increased sexual satisfaction. The authors conclude:

Clearly, no evidence was found to support the hypothesis of identifiable personality differences between men with psychogenic and organic erectile dysfunction.... Thus, this study should be considered another failure to replicate in the attempt to identify personality characteristics associated with psychogenic impotence.

An important point is brought out in the concluding paragraphs. Namely, groups of impotent males, regardless of etiology or chronicity are a highly heterogenous group of individuals. This being the case,

...it is highly unlikely that any common psychological profile would differentiate this heterogenous group from an equally heterogenous group of organically impotent patients. Assuming that the psychogenic impotence group as a whole contains various subgroups with identifiable psychological characteristics, identification of these subgroups would require studies of much larger samples.

Thus ends the review of the literature as it relates to erectile dysfunction etiology and assessment. This review has encompassed over 17 centuries of erectile difficulties from a variety of scientific and not-so-scientific points of view. What unfortunately stands out is the confusion and lack of a consensus regarding psychogenic etiology. Many theoretical positions have presented themselves-- some relating entirely to internal psychological process, others pointing to constitutional deficits, and still others looking at environmental stressors. When it appears that there has been a psychometric "breakthrough" it is short lived as another study is unable to replicate it. Some studies have pointed to organic dysfunctionals as more psychologically disturbed, while others point to

psychogenics as more disturbed, while still others say neither group displays psychopathology.

Rather than look for labels of psychopathology to securely fit these patients it may be more productive to examine coping or personality styles that each use in dealing with potentially distressing interpersonal situations (Millon, 1969). An instrument has been developed to look at such an approach. It is such an instrument that provides the major investigative tool of this research.

### The Millon Behavioral Health Inventory Approach

The Millon Behavioral Health Inventory (MBHI) was introduced in 1979 (Millon, Green and Meagher, 1979) by a research team at the University of Miami and formally at the University of Illinois-Chicago. The MBHI consists of 150 true-false items which are self descriptive. The inventory has 20 subscales divided into four categories: Personality Style which includes Introversive, Inhibited, Cooperative, Sociable, Confident, Forceful, Respectful, and Sensitive; Psychogenic Attitudes which includes Chronic Tension, Recent Stress, Premorbid Pessimism, Future Despair, Social Alienation, and Somatic Anxiety; Psychosomatic Correlates which include Allergic Inclination, Gastrointestinal Susceptibility and Cardiovascular Tendency; and Prognostic Index including Pain Treatment Responsivity, Life Threat Reactivity and Emotional Vulnerability.

In the first section Personality Style was changed to Coping Style in 1982 (Millon, Green and Meagher, 1982) to better reflect the underlying philosophy of the test's construction. The subscales in

this group were derived as normal variants of personality (Millon, 1969). The next six subscales reflect different sources of psychosocial stressors selected on the basis of their support in the research literature as contributing to the precipitation or exacerbation of physical illness. The third set of scales reflect similarity to persons with the same physical condition in terms of whether the illness was or was not substantially complicated by social or emotional factors. The fourth set, Prognostic Indices, attempt to identify future treatment problems or difficulties that may arise in the course of the patient's illness. Additional information about the psychometric analyses of the MBHI, including validity and reliability coefficients, will be presented in Chapter III.

In another area of study the MBHI was administered to chronic pain patients to differentiate those that improved with somatotherapy and those that did not (Rabinovitz, 1979). The MBHI scales, three biographical variables and four medical variables were entered into a stepwise discriminant analysis. This function was statistically significant and accurately classified 93% of the patients as improved or not improved.

In the only previous study using the MBHI with a sexual dysfunctional population (Green, 1978), it was determined that the instrument could act as a discriminating predictor of treatment outcome for this population (Millon, et al, 1979). This study looked at 77 heterosexual couples at the sex therapy program at Loyola University Hospital ( $\bar{X}$  age=32 years). These subjects were administered the MMPI, MBHI, the Marital Adjustment Test and the Self Report Questionnaire. Both



sexes were divided by symptom group with 21 males classified as psychogenically dysfunctional. On the MMPI, three subscales were greater than the control group but these subscales did not differentiate between premature ejaculators and erectile dysfunctional subjects: Hypochondriacal, Symptomatic Depression, and Psychasthenia. The Masculinity-Femininity scale (Mf) had a mean of 66.5 for this group. No other scaled score exceeded this mean score. The decision rules for the MMPI which have been reported in past studies to differentiate psychogenic impotence (Mf  $\geq$  60 and any other scaled score  $\geq$  70) have once again failed to replicate.

Analyses of the MBHI revealed that males who responded well to treatment and showed improvement of their psychogenic dysfunction scored higher scale means on Sociable, Confident and Inhibited scales with a slight elevation in the Recent Stress score. Those males that did not show improvement exhibited higher scale means on Cooperative, Inhibited, and Respectful scales. They also showed higher scores than both the non-symptom and symptom reversal groups on Premorbid Pessimism, Future Despair and Social Alienation. The author reminds us that these descriptions are styles of interaction and outlook on life and not measures of psychopathology. Although this study did not examine organically dysfunctional males, its results are important and serve as the only pool of data on the MBHI and erectile functioning.

### Summary

This chapter has reviewed the significant literature published to date in the area of human erectile dysfunction. From examining

the early theory and treatment literature of impotence in antiquity, the review proceeded through the pre-scientific years to the nineteenth century. In the latter part of that century significant contributions were made by the first sexologists and psychoanalytic theorists. This lead to more recent behavioral and socio-cultural explanations of erectile dysfunction in both psychological and medical areas.

The last section of the chapter focused on recent psychometric and medical advances in assessing erectile dysfunction. The chapter concludes with an introduction to the MBHI, the major investigative instrument of this study.

Chapter III provides validity and reliability data on both the MBHI and BSI. In addition, Chapter III describes the subjects involved in this study, the design of the study and the statistical procedures used for analyses.

## CHAPTER III

### METHODOLOGY

#### Introduction

This chapter outlines the design of the study, subject selection, subject demographics, psychological instruments used for measurement and the statistical analysis. Additionally, the chapter describes the three settings where data was collected, interview schedules, and consent to participate procedures. Table 2 contains the demographic variables of the subjects who participated in the study.

#### Design of the Study

There are two components to the design of the study. The first is ex post facto in nature. The inferences made about relations among variables are made without direct manipulation of the variables (Kerlinger, 1973). Each subject who participated in the study had been designated either organic, psychogenic or control prior to analysis of the data. This designation procedure followed the diagnostic criteria that is delineated in Appendix A.

The second component of the design examined the organic group, post surgery. A questionnaire was administered to medical personnel while the subject was an inpatient during recovery from penile prosthesis surgery. The questionnaire was designed to assess the utility of the MBHI to assist medical personnel in making hospital

TABLE 2  
Demographic Data

	<u>Organic</u> N=20	<u>Psychogenic</u> N=20	<u>Control</u> N=40
<u>Age</u>	$\bar{X}=47.95$ $\sigma=13.82$	$\bar{X}=40.70$ $\sigma=12.12$	$\bar{X}=36.35$ $\sigma=13.22$
<u>Race</u>	%	%	%
White	75	70	85
Black	25	30	15
<u>Religion</u>			
Catholic	35	35	32.5
Protestant	35	30	42.5
Jewish	10	20	10
Other	--	5	10
None	20	5	5
<u>Marital Status</u>			
Married	65	45	42.5
Single	25	50	52.5
Divorced	5	10	5
<u>Social Class</u>			
I	--	10	5
II	15	35	35
III	45	25	42.5
IV	35	30	12.5
V	5	--	5
<u>Education</u>			
Graduate	15	30	17
College	25	35	50
High School	50	35	30
H.S.	10	--	3
<u>Duration of Problem</u>			
<1-4 years	35	55	
5-9	60	20	
10-14	5	20	
15-19	--	--	
20-24	--	5	

based treatment decisions.

### Sampling

In studying clinical populations, the more traditional form of random sampling is often difficult to perform. A type of sampling that resembles random procedure is that of probability sampling. This study uses a form of probability sampling, systematic sampling, for each of the three subject groups. The first subject in each group was randomly chosen from the available population. Each successive subject was then chosen at a specified interval; in this case at every sixth patient. If a subject refused to participate in the study the next sixth patient was chosen. Sampling of subjects occurred from January to August, 1982. There were no subjects from the organic or psychogenic groups that declined participation. Four subjects in the control group initially declined to participate. When a subject declined to participate, as in these cases within the control group, the next sixth subject was chosen.

### Subjects

Subjects were male patients between the ages of 18 and 82 years old. The organic subject group of 20 patients was taken from the Department of Urology at Loyola University Medical Center, Maywood, Illinois. The psychogenic group of 20 patients were taken from the Sex Dysfunction and Marital Therapy Clinic, Department of Psychiatry, University of Chicago Hospitals and Clinics. The control group are subjects who were outpatients at the Howard Brown Clinic, a clinic

on the northside of Chicago affiliated with St. Joseph's Hospital. A frequency distribution of the three groups for age is found in Table 3.

The distribution of subjects by marital status was: married 39, single 36, divorced 5. A frequency distribution of subjects by marital status is found in Table 4.

The distribution of subjects by religion was: Roman Catholic 27, Protestant (all denominations) 30, Jewish 10, other 5, none 7. The frequency distribution for religion is found in Table 5.

The distribution of subject by education was: Graduate School 16, College 32, High School 29, No High School 3. A frequency distribution for educational training is found in Table 6.

The Index of Social Position using the Hollingshead and Redlich criteria (1958) was determined for each subject. This index examines residence, occupation, and education and is placed on a matrix which includes five scales of social class. For these subjects the distribution was: Class I 4, Class II 24, Class III 31, Class IV 18, Class V 3. A frequency distribution for social position is found in Table 7.

Duration of erectile dysfunction was determined for the first two groups, organic and psychogenic. The distribution was:  $\leq$  4 years 18, 5-9 years 16, 10-14 years 5, 15-19 years 0, and 20-24 years 1. Of those in the first group two reported difficulties of less than one year, both of these in the psychogenic group. A frequency distribution and mean and standard deviation for duration of problem is found in Table 8.

TABLE 3

## Frequency Distribution of Subjects by Age

Age Category	Organic		Psychogenic		Controls	
	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency
1. 21-33	2	.100	7	.350	22	.550
2. 34-46	8	.400	7	.350	8	.200
3. 47-59	6	.300	4	.200	6	.150
4. 60-72	3	.150	2	.100	3	.075
5. 73-85	1	.050	-	--	1	.025

TABLE 4

## Frequency Distribution of Subjects by Marital Status

Marital Status	Organic		Psychogenic		Controls	
	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency
1. Married	13	.650	9	.450	17	.425
2. Single	5	.250	10	.500	21	.525
3. Divorced	1	.050	2	.100	2	.050



TABLE 5

## Frequency Distribution of Subjects by Religion

Religion	Organic		Psychogenic		Controls	
	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency
1. Catholic	7	.350	8	.400	13	.325
2. Protestant	7	.350	6	.300	17	.425
3. Jewish	2	.100	4	.200	4	.100
4. Others						
Greek			1	.050	2	.050
Buddhist					1	.025
Hindu					1	.025
5. No Religion	4	.200	2	.100	2	.050

TABLE 6

## Frequency Distribution of Subjects by Education

Educational Level	Organic		Psychogenic		Controls	
	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency
1. Grad School	3	.150	6	.300	7	.175
2. College	5	.250	7	.350	20	.500
3. High School	20	.500	7	.350	12	.300
4. Did not Complete High School	2	.100	-	--	1	.025

TABLE 7

## Frequency Distribution of Subjects by Social Position

Social Class	Organic		Psychogenic		Controls	
	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency
I	-	--	2	.100	2	.050
II	3	.150	7	.350	15	.375
III	9	.450	5	.250	17	.425
IV	7	.350	6	.300	5	.125
V	1	.050	-	--	1	.025

TABLE 8

## Frequency Distribution of Subjects by Duration of Erectile Dysfunction

Duration of Dysfunction in years	Organic		Psychogenic	
	Absolute Frequency	Relative Frequency	Absolute Frequency	Relative Frequency
1. < 1-4	7	.350	11	.550
2. 5-9	12	.600	4	.200
3. 10-14	1	.050	4	.200
4. 15-19	-	--	-	--
5. 20-24	-	--	1	.050

### Assessment Instruments

Two psychological inventories were used in this study, The Millon Behavioral Health Inventory (MBHI) and the Brief Symptom Inventory (BSI). The MBHI is a diagnostic instrument developed to aid clinicians, such as physicians, psychologists and nurses, who deal with physically ill and behavioral medicine patients. The instrument is also appropriately suited for research in health psychology (Millon, Green and Meagher, 1982b). Information provided by the instrument includes the patient's likely style of relating to health care personnel, problematic psychosocial stressors and attitudes, as well as his/her similarity to patients with psychosomatic complications or poor responses to either illness or treatment interventions. It is an instrument developed and normed on a medical population, rather than a psychiatric one. This is an important distinction and is not often considered when undertaking research in health psychology. Instruments developed and normed on psychiatric populations cannot easily, if at all, be employed on medical populations (Millon, et al, 1982b).

The MBHI is a 150 item, true-false type of psychometric instrument. The inventory consists of 20 scales which are organized around four broad categories: basic coping style, psychogenic attitudes, psychosomatic correlates and, prognostic indices. Scales 1 through 8 describe Basic Coping Styles which are conceptualized according to relatively enduring personality traits that typify individual styles of perceiving, feeling, thinking, and interacting. These scales are

designated as follows: Introversive, Inhibited, Cooperative, Sociable, Forceful, Respectful, and Sensitive.

The next set of six scales, A through F assess Psychogenic Attitudes. The scales of this section represent the personal feelings and perceptions of patients regarding different aspects of psychological stress which increase psychosomatic susceptibility or aggravate the course of a disease. The first two of these scales pertain to relatively objective events which have been experienced as either chronically or recently stressful. The second two relate to attitudes that intensify the subjective impact of past or future stressful events. The third set of two scales attempts to gauge the status of two significant sources of potential stress, interpersonal relationships and bodily functioning (Millon, et al, 1979). Those scales are: Chronic Tension, Recent Stress, Premorbid Pessimism, Future Despair, Social Alienation, and Somatic Anxiety.

Psychosomatic Correlates Scales, scales MM through OO, are designed for use with patients who have previously been medically diagnosed as exhibiting one of a number of specific disease syndromes. Those are: Allergic Inclination, Gastrointestinal Susceptibility and Cardiovascular Tendency.

The fourth set of scales, Prognostic Indices, scales PP through RR, seek to identify future treatment problems or difficulties that may arise in the course of patient's medical treatment. Those scales are: Pain Treatment Responsivity, Life Threat Reactivity and Emotional Vulnerability. A more precise description of all 20 scales is found in Appendix B.

Norms for the MBHI are based on several groups of non-clinical subjects and varied samples of medical patients involved in treatment, diagnosis or follow up (Millon et al, 1982b). The clinical group consisted of 1194 physically ill subjects from diverse presenting medical conditions. The concerns about the reliability of a psychological test is an important decision to clarify before employing the particular test. There are particular problems when addressing personality tests:

...(it) is difficult with tests designed to measure personality or coping styles; it is even more difficult when appraising attitudes that may reflect transient or situational concerns. Change is inevitable in these states (Millon, et al, 1982b).

The test-retest reliabilities are reasonably high for the MBHI: the personality style scales which comprise complex characteristics and are subject to change with time have an average reliability of .82; psychogenic attitude scales averaged .85; psychosomatic correlate scales averaged .80; prognostic indices were the lowest with an average of .72.

The external correlates of the MBHI include its relationship to other tests and its clinical utility as measured by reports of medical personnel. Positive correlations were found between various MBHI subscales and other well known and standardized instruments. These instruments include, the MMPI, SCL-90, California Psychological Inventory (CPI), the Life Events Survey, Jenkins Activity Survey, and Rotter's Locus of Control.

The second instrument used in the study was the Brief Symptom Inventory (BSI). This is a 53 item self report inventory that is a

brief form of the Symptom Checklist-90, an expanded version of the Hopkins Symptom Checklist (Derogatis, 1975). The BSI measures symptomatic distress with three global summary scores: General Severity Index (GSI), Psychological Symptom Distress Index (PSDI) and the Psychological Symptom Severity Index (PSSI) (Derogatis and Meyer, 1979). The inventory has been used as a quick screening device for psychological disturbance in a sex therapy clinic (Derogatis, et al, 1976; Derogatis and Melisatos, 1979; Segraves, et al, 1981).

The BSI is also a complete subtest within the Derogatis Sexual Functioning Inventory (DSFI). The BSI was originally normed on 60 normal males and 60 male patients. Test-retest reliability was reported at .90 and internal consistency averaged .78 with a standard deviation of .048.

A third questionnaire, the post surgery follow-up questionnaire (PSQ) was developed by the author and administered to medical personnel during the hospital stay of the organically dysfunctional males who had elected surgery to alleviate their erectile dysfunction.

The PSQ consists of two sections. The first section contains the symptom dimensions of Degree of Pain, Cooperation with Medical Staff, Future Outlook, Anxiety, Depression, Inhibited, Confidence, Emotional Vulnerability and Overall Reaction to Surgery. These items are based on a 5 point scoring scale where item dimension is ranked by a high-low graded response. The questionnaire also consists of four questions, answered yes or no, that assess the psychosomatic and medical problems of patients, as well as assessing the effectiveness of the MBHI as a predictive tool for pre-surgical, penile



prosthesis patients. Again, this questionnaire is answered by medical personnel that are involved directly with post-surgical care. This questionnaire is found in Appendix C.

### Procedure

Each subject group, because of different clinical settings, has slightly different data collection procedures. The organic group was seen at an urology outpatient clinic. All patients seen in this clinic over a seven month period were administered the two questionnaires prior to diagnosis. When diagnosis was determined only data from organically diagnosed patients was selected; criteria for organic diagnosis are found in Appendix A. Although this method of data collection proved complicated it decreased the possibility of contamination; the diagnosis of organic dysfunction was confirmed after the administration of the MBHI and BSI. Both instruments were administered during a clinic visit and as part of the routine screening. The study was approved by the Loyola University Medical Center Institutional Review Board (see Appendix C). Consent to participate in the study was verbal. The verbal consent form which was uniformly read to each patient is found also in Appendix C. This method of consent was suggested by the Institutional Review Board.

A second segment of the organic group's participation in the study concerned post surgical follow up of those organic dysfunctional patients who chose penile prosthesis surgery. This group consisted of 11 patients from the initial 20 organic subjects; 9 patients declined the surgery for various reasons including cost (4), divorce in process

(1), other complicating medical factors (3) and unknown reasons (1). This questionnaire was administered to medical staff four days after surgery; four days post surgery was chosen because patients often began to leave the hospital on the fifth day.

The psychogenic group was seen at a sex therapy clinic within a psychiatry department in another hospital. The MBHI and BSI were administered to patients during the diagnostic assessment. The study was verbally explained to each patient and they were asked to sign a consent to participate form. The study was approved by the Clinical Research Committee of the University of Chicago Medical School. The written consent form is a required procedure at this institution (Appendix C). Only those patients where a certainty of psychogenic dysfunction existed were included. The criteria for psychogenic impotence is found in Appendix A.

The third group, a medical control group, were taken from a private outpatient clinic, affiliated with a general hospital, on the northside of Chicago. At the conclusion of a visit to the clinic every sixth patient was asked to participate in the study. Consent was verbal. All patients were screened for erectile dysfunction. This was the primary complaint of one patient and he was eliminated from subject selection. The collection of data was approved by both the medical and executive directors of the clinic. A copy of the explanation of the study and the verbal consent form are found in Appendix C.

For all three groups demographic data was obtained from patient medical charts. Confidentiality was completely assured and enforced

by the use of a six digit code which appeared on each instrument and the demographic data sheets.

### Statistical Procedures

The following data were coded and used in the statistical analysis: Demographic data which included age, marital status, race, religion and social class; (2) Millon Behavioral Health Inventory 20 subtest scores; (3) Brief Symptom Inventory 3 global symptom measures; (4) Post surgery follow-up questionnaire.

1. A frequency distribution was determined for the following variables: age, marital status, religion, education, social position and duration of problem.

2. A chi-square analysis of demographic data was performed to determine if there were significant differences between subject group means. A 3 x 2 was performed for race; a 3 x 3 for marital status; a 3 x 4 for education; a 2 x 5 for duration of dysfunction, and separate 3 x 5 analyses for age groups, religion and social position.

3. Both Pearson's product-moment, and point-biserial correlations, were performed on MBHI subscales and demographic variables to determine specific correlations.

4. A stepwise discriminant function analysis was performed on MBHI scales, BSI scales and demographic variables.

5. Using the discriminants determined by the above analysis a classification procedure was established.

6. A Pearson product-moment correlation was performed between PSQ and MBHI scales to determine the relationship between the MBHI

and the follow-up questionnaire.

Chapter three presented the methodology of the study. Included within this chapter was a description of the design of the study, sampling procedures, presentation of demographic data, frequency distributions of the demographic data by diagnostic category, a description of the psychometric instruments used in the study and an outline of statistical procedures.

Chapter four presents an analysis of the study using the statistical procedures discussed in Chapter three. Chapter five will present a discussion of the results reported in Chapter four.

## CHAPTER IV

### RESULTS OF THE STUDY

#### Introduction

This chapter reports the findings obtained through analysis of the following data: Millon Behavioral Health Inventory, Brief Symptom Inventory, demographic data, and the post surgery follow-up questionnaire. The chapter will address these data and their analysis in the following order: chi-square analyses of demographic variables, profiles of groups by diagnostic category, discriminant analysis of MBHI and BSI subtest scores to develop predictors of diagnostic differentiation, classification of subjects through the use of discriminants developed and analysis of the post surgical follow-up questionnaire.

#### Analysis of Demographic Data

Multiple chi-square analyses were performed to determine differences between groups on demographic variables. A 3 x 5 chi-square analysis was performed for diagnostic groups by age (Table 9). The level of significance ( $p < .15$ ) was not statistically significant. A 3 x 3 chi-square was performed on diagnostic groups by marital status (Table 10). There was no significant difference found between those variables.

A 3 x 5 chi-square was performed on diagnostic groups by religious

TABLE 9

A 3 x 5 Contingency Table for Diagnostic Groups by Age

Age Groups	Organic	Psychogenic	Control
21-33	4.26	.072	2.725
34-46	.880	.223	1.065
47-59	1.00	0.00	.500
60-72	.892	.035	.071
73-85	.500	.500	1.00
Chi-square	Degrees of Freedom	Significance Level	
12.718	8	.15	

TABLE 10

A 3 x 3 Contingency Table for Diagnostic Groups by Marital Status

	Organic	Psychogenic	Control
Married	1.510	.1478	.3205
Single	1.473	.0320	.5000
Divorced	.0296	.3607	2.5000
Chi-square	Degrees of Freedom	Significance Level	
4.47	4	.50	

orientation (Table 11). Again, the level of significance ( $p < .55$ ) is not significant. Table 12 presents a 3 x 4 chi-square for diagnostic groups by educational level. The level of significance ( $p < .17$ ) is once again not significant. A 3 x 2 chi-square analysis for diagnostic groups by race (Table 13) also proved not to be statistically significant ( $p < .45$ ). Table 14 presents a 3 x 5 chi-square for diagnostic groups by social class. The level of significance ( $p < .70$ ) is rejected.

The final chi-square analysis is a 2 x 5 (Table 15) design which examines organic and psychogenic groups by duration of dysfunction. The level of significance ( $p < .13$ ), is not statistically significant. These chi-square analyses did not reveal significant differences between the diagnostic groups on demographic variables. Hypothesis 1, which stated there is no relationship between the selected demographic data of age, race, religion, marital status and social class, was accepted. The lack of differences on demographic variables decreases the possibility of sampling error. The groups thus meet the criteria for matched groups.

Although there were not statistically significant differences between organic, psychogenic and control groups on selected demographic variables, both Pearson product-moment and point-biserial correlations (Bruning and Kintz, 1977) were performed to determine if there were significant correlations between selected demographic variables of organic and psychogenic groups and MBHI subtest scores. These relationships are illustrated in Table 16.

Age was significantly correlated with two of the MBHI scales.



TABLE 11

A 3 x 5 Contingency Table for Diagnostic Groups by Religion

	Organic	Psychogenic	Control
Catholic	--	.1428	.0714
Protestant	.0322	.2903	.2666
Jewish	.1000	.9000	.2000
Other	1.2500	.005	.9000
None	2.8928	.3214	.0671
Chi-square	Degrees of Freedom	Significance Level	
7.43	8	.55	

TABLE 12

A 3 x 4 Contingency Table for Diagnostic Groups by  
Level of Education

	Organic	Psychogenic	Control
Graduate School	.2500	1.000	.1250
College	1.125	.1250	1.000
High School	1.0431	.0086	.4385
No High School	2.0833	.7500	.1666
Chi-square	Degrees of Freedom	Significance Level	
8.50	6	.17	

TABLE 13

A 3 x 2 Contingency Table for Diagnostic Groups by Race

	Organic	Psychogenic	Control
White	.0131	.3289	1.289
Black	.0357	.1944	.198
Chi-square	Degrees of Freedom	Significance Level	
2.84	4	.45	

TABLE 14

A 3 x 5 Contingency Table for Diagnostic Groups by  
Social Position

	Organic	Psychogenic	Control
I	-.0125	1.000	--
II	1.69	.090	.500
III	.2016	.975	.145
IV	1.3888	.500	1.777
V	.500	.500	--
Chi-square	Degrees of Freedom	Significance Level	
9.28	8	.70	

TABLE 15

A 2 x 5 Contingency Table for Diagnostic Groups by  
Duration of Dysfunction

Years	Organic	Psychogenic
1-4	.4444	.4444
5-9	2.000	2.000
10-14	.900	.900
15-19	--	--
20-24	--	.500
Chi-square	Degrees of Freedom	Significance Level
7.18	4	.13

TABLE 16  
 Significant Correlations Between MBHI Scales  
 and Demographic Variables

	MBHI Scales						
	1	2	3	4	5	6	7
Age*		.36	-.44				
Race**		-.35					-.40
Marital Status**					.41		
Social Class**				.46			
Religion**	.51	.58				.31	

\*Pearson Product-Moment Correlation

\*\*Point-Biserial Correlation

1. Introversive
2. Inhibited
3. Sociable
4. Sensitive
5. Recent Stress
6. Premorbid Pessimism
7. Emotional Vulnerability

Older age was associated with a Sociable personality style while younger age was associated with a more Inhibited personality coping style. Race was also correlated with two MBHI scales; Black racial status was associated with a less Inhibited style of coping and less Emotional Vulnerability. Single marital status was associated with Recent Stress. Higher social class was associated with an increase in Sensitivity as a personality coping style. Religion was surprisingly associated with an Introversive and Inhibited coping style and an increase in Premorbid Pessimism.

Although these demographic variables were included in the discriminant analysis, they proved not to be significant discriminators as is seen in the next section of this chapter. These demographic correlations are important however, in making clinical assumptions about patient groups. Similar findings have been reported elsewhere (Segraves, Schoenberg, Zarins, Knopf and Camic, 1981).

#### Discriminant Analysis of MBHI and BSI Subscale Scores

Discriminant analysis is a statistical technique used to study simultaneously the differences between two or more groups of objects with respect to several variables (Klecka, 1981). The basic prerequisites are that two or more groups exist which are presumed to differ on several variables and that those variables can be measured at the interval or ratio level (Stevens, 1951). The mathematical objective of discriminant analysis is to weight and linearly combine potentially discriminating variables in some fashion so that groups are forced to be as statistically distinct as possible. The functions produced are

then used to predict group membership (Green, 1978).

This analysis employed a stepwise procedure which utilized Wilks' Criterion. This criterion is the overall multivariate F ratio for the test of difference among group centroids. The variable which maximizes the F ratio also minimizes the Wilks' Lambda, a measure of group discrimination. A stepwise procedure was selected, rather than a direct procedure, to maximize the contribution of each independent variable. High degrees of collinearity among the classificatory variables may lead to discriminant coefficients that are unstable, thus the decision to use a stepwise procedure.

The means and standard deviations of all three groups on MBHI and BSI subscales are seen in Table 17. The combined MBHI and BSI instrument subscales were weighted and placed in analysis based on a stepwise variable selection process seen in Table 18. This selection process produced Fisher's linear discriminant functions seen in Table 19. These linear discriminant functions were further analyzed based on Wilks' Lambda formula. When this analysis was completed two functions were generated to differentiate the three diagnostic groups. This canonical discriminant function has been listed for an analysis of significance for the combined tests in Table 20.

As seen in Table 20 Eigenvalues are listed first. These are not generally interpreted directly. Rather, the relative magnitudes between functions are compared to aid in the assessment of how much total discriminating power each function has. Thus the eigenvalue for function one is nearly six times larger than the eigenvalue for function two. The eigenvalue of function one accounts for 85.47% of the



TABLE 17

Profile of Groups by Diagnostic Category on the MBHI and BSI

MBHI Subscales	Organic		Psychogenic		Controls	
	$\bar{x}$	$\sigma$	$\bar{x}$	$\sigma$	$\bar{x}$	$\sigma$
Introversive	56.45	14.70	50.10	22.29	33.80	19.52
Inhibited	57.15	21.49	64.90	29.16	47.27	29.92
Cooperative	39.25	24.25	42.95	26.68	40.97	28.77
Sociable	34.50	20.78	43.25	25.40	54.80	28.30
Confident	44.90	20.00	41.35	25.84	52.22	28.01
Forceful	50.15	27.18	47.85	30.06	56.47	29.95
Respectful	53.00	16.89	42.05	25.23	36.05	17.44
Sensitive	52.20	19.50	53.10	25.96	49.82	24.47
Chronic Tension	41.50	17.59	43.20	25.25	50.22	20.12
Recent Stress	36.65	18.57	43.65	27.69	52.57	19.09
Premorbid Pessimism	50.85	15.83	52.00	19.76	42.45	20.42
Future Despair	57.80	14.31	54.75	20.14	44.07	19.47
Social Alienation	52.20	13.16	56.20	19.06	49.50	23.10
Somatic Anxiety	53.15	14.91	49.55	15.28	43.52	17.10
Allergic Inclination	60.70	18.33	63.95	15.89	52.02	16.74
G.I. Susceptibility	62.45	15.05	57.45	14.29	48.52	14.47
Cardiovascular Tend.	61.35	14.00	60.75	18.26	52.45	14.28
Pain Treatment Resp.	54.40	15.59	60.55	22.41	49.57	18.76
Life Threat Reactiv.	53.45	19.37	59.09	17.14	44.70	17.93
Emotional Vulnerab.	22.75	22.09	37.25	22.96	21.50	21.36

TABLE 17 (continued)

BSI Subscales	Organic		Psychogenic		Controls	
	$\bar{x}$	$\sigma$	$\bar{x}$	$\sigma$	$\bar{x}$	$\sigma$
General Severity	.449	.246	.594	.386	.518	.450
PSDI	15.10	7.19	20.95	11.67	16.50	9.44
PSSI	1.58	.444	1.55	.394	1.43	.508

TABLE 18  
Stepwise Variable Selection

---

Selection Rule: Minimize Wilks' Lambda

Maximum number of steps.....	46
Minimum tolerance level.....	0.001
Minimum F to enter.....	1.000
Maximum F to remove.....	1.000

---

TABLE 19

## Fisher's Linear Discriminant Function Coefficients

MBHI Scales	Organic	Psychogenic	Controls
Introversive	.882	.881	.777
Sociable	.139	.139	.128
Respectful	.109	.103	.946
Sensitive	.120	.112	.107
Chronic Tension	-.492	-.443	-.415
Recent Stress	-.443	-.421	-.332
Gastrointestinal Susceptibility	.164	.113	.799
Premorbid Pessimism	.788	.800	.684
Cardiovascular Tendency	.660	.619	.558
Pain Treatment Responsivity	.517	.561	.488
Emotional Vulnerability	-.308	-.238	-.241
<u>BSI Scales</u>			
Psychological Symptom Distress Index	-.426	-.295	-.295
Psychological Symptom Severity Index	.178	.164	.156

TABLE 20  
Canonical Discriminant Functions

Function	Eigenvalue	% of Variance	Canonical Correlation	Wilks' Lambda	Chi-Square	d.f.	Significance
1	1.68445	85.47	.7921390	.28956	87.995	26	.0001
2	.28646	14.53	.4718838	.77732	17.885	12	.1192

Canonical Discriminant Functions Elevated at Group Means  
(group centroids)

Group	Function 1	Function 2
Organic	1.69532	-.58171
Psychogenic	.76481	.85304
Controls	-1.23006	-.13567

variance. In function two it accounts for 14.53%.

The canonical correlation is the next test seen on Table 20. This is a coefficient that measures the association which summarizes the degree of relatedness between groups and the discriminant function. The larger the number of the canonical correlation the greater the degree of relatedness. Taken together with the eigenvalues, the substantive utility of the discriminant function was judged. The canonical correlation tells "how well the discriminant function is doing (Klecka, 1981). Function one has a canonical correlation of nearly .80 while the second function has a canonical correlation of nearly .50. These correlations, taken together with the percent of variance of the eigenvalue, support the substantivity of the discriminant function.

To gain further information about the utility of the discriminant functions Wilks' Lambda was examined. Wilks' Lambda is a multivariate measure of group differences over several variables which are the discriminating variables. As lambda increases toward its maximum value of 1.0 it reports progressively less discrimination. The Wilks' Lambda of function one is relatively small (.289) while the Wilks' Lambda of function two is much higher (.777). To test the significance of the Wilks' Lambda it was converted into chi-square distributions. These chi-square distributions were then compared to standard tables to determine the significance level. The chi-square of function one, with 26 degrees of freedom, was statistically significant with  $p < .0001$ . The chi-square of function two, with 12 degrees of freedom, was less significant with  $p < .11$ . Although this is a level not typically considered statistically significant in psychological

research (Tatsuoka, 1970), function two was included in the canonical discriminant function coefficient to gain a broader understanding of the variables that aid in classification.

The standardized canonical discriminant function coefficients are reported in Table 21. These coefficients were determined by computing the standard coefficient from the unstandardized coefficients by using the following transformation:

$$c_i = u_i \frac{\sqrt{w_{ii}}}{\sqrt{n-g}}$$

$w_{ii}$  = sum of squares for variables

$n$  = total number of cases

$g$  = number of groups

$c$  = standardized coefficient

$u$  = unstandardized coefficient

These standardized coefficients are useful and will be used to determine which variables contribute most to determining scores on each function. Obviously, the larger the magnitude of the variable, the greater the variable's contribution.

The results presented in Table 22 indicate that the discriminants did differentiate the three groups and predict group membership. The percent of "grouped" cases correctly classified by these two functions was 81.25%. Particularly encouraging were the results of the predicted group membership of organic subjects (85.0%). This is also visually represented in Graph I. This correctly classified organic group membership is the highest classification by a psychometric instrument

TABLE 21

## Standardized Canonical Discriminant Function Coefficients

MBHI Scales	Function 1	Function 2
Introversive	.802	.500
Sociable	1.056	.591
Respectful	.973	-.268
Sensitive	.919	-.582
Chronic Tension	-.493	.391
Recent Stress	.848	-.217
Premorbid Pessimism	.769	.649
Gastrointestinal Susceptibility	.378	-.274
Cardiovascular Tendency	.517	-.108
Pain Treatment Responsivity	.576	.251
Emotional Vulnerability	-.376	.824
<u>BSI Scales</u>		
Psychological Symptom Distress Index	-.328	.656
Psychological Symptom Severity Index	.320	-.236



TABLE 22  
Classification Results

Actual Group	Number of Cases	Predicted Group Membership		
		Organic	Psychogenic	Controls
Organic	20	17 85.0%	2 10.0%	1 5.0%
Psychogenic	20	4 20.0%	15 75.0%	1 5.0%
Controls	40	2 5.0%	5 12.5%	33 82.5%

OVERALL CASES CORRECTLY CLASSIFIED = 81.25%.

published to date. The overall classification of 81.25% is also a significantly higher discrimination than reported by studies with either the MMPI or DSFI. Further discussion of this is presented in Chapter Five.

It was hypothesized (Hypothesis 2) that identifiable personality styles and psychogenic attitudes exist which can classify organically and psychogenically dysfunctional males at a statistically significant level. Hypothesis 2 is thus supported. These personality styles, according to function one of the standardized canonical discriminant function coefficients, are, in decreasing rank order of significance: Inhibited (1.05), Respectful (.97), Sensitive (.91), Recent Stress (-.84), Introversive (.80) and Premorbid Pessimism (.76). The remaining variables are somewhat less important. These are: Pain Treatment Responsibility (.57), Cardiovascular Tendency (.51), Chronic Tension (-.49), Gastrointestinal Susceptibility (.37), Emotional Vulnerability (-.37), Psychological Symptom Distress Index (.32) and Psychological Symptom Severity Index (.32).

Although function two is not quite statistically significant ( $p < .11$ ), there are three variables within this function which appear important: Emotional Vulnerability (.82), Psychological Symptom Distress (.65), and Premorbid Pessimism (.64). The variables, Emotional Vulnerability and Psychological Symptom Distress are particularly of interest in that, within function two, the standard coefficients have the opposite sign from their function one counterparts. Further analysis of the meaning of these variables have on the assessment of erectile dysfunction is presented in Chapter Five.

### Analysis of Post Surgery Follow-up

A second component of the study was the administration of a post surgery follow-up questionnaire (PSQ) to medical personnel who attended to those subjects electing penile prosthesis surgery. One of the purposes of the MBHI is to aid medical personnel, such as nurses, physicians, physical therapists, etc., in evaluating and planning services for patients during hospitalization (Millon, Green and Meagher, 1979; 1982). At the present time there is not a systematic method of evaluating the usefulness of the MBHI for penile prosthesis patients. The PSQ was developed by the author in collaboration with medical personnel at a Chicago area hospital where penile prosthesis surgery is frequently performed. The purpose of the questionnaire was to assess medical personnel's perception of patient functioning during hospital stay.

The statistical analysis for this assessment is descriptive in nature. Means and standard deviations of the responses to the PSQ are contained in Table 23. The remaining responses to the PSQ are seen in Table 24. This table includes the responses concerning the perceived adequacy of the MBHI in assessing the patients in the study who underwent prosthetic surgery; the medical complications related to the surgery that occurred; and development of psychosomatic symptomatology since surgery.

It was hypothesized (Hypothesis 3) that knowledge of selected personality styles, psychosocial attitudes and prognostic indices are potential predictors of post surgical recovery for penile prosthesis

TABLE 23

Means\* and Standard Deviations of Medical Personnel  
Responses to the PSQ (Items 1-9)

PSQ Item	$\bar{x}$	$\sigma$
1. Degree of Pain	3.1	.5
2. Cooperation with Medical Staff	2.4	1.2
3. Future Outlook	4.3	1.1
4. Anxiety	1.9	1.0
5. Depression	2.0	.9
6. Inhibited	3.4	1.5
7. Confidence	2.3	.6
8. Emotional Vulnerability	1.6	.8
9. Overall Reaction to Surgery	3.9	1.3

\*scores range from a low of 1 to a high of 5.

TABLE 24

Responses of Medical Personnel to the PSQ (Items 10-13)

---

10. Development of new psychometric symptoms since surgery:

Yes	%	No	%
6	54.5%	5	45.4

Symptoms reported: Stomache ache (4 patients)  
 Hyperventilation (2 patients)  
 Rash (1 patient)

11. Medical complications since surgery:

Yes	%	No	%
1	9.09	10	90.0

Complications reported: blood clot

12. Did the MBHI adequately describe this patient:

Yes	%	No	%
8	72.7	3	27.2

13. Usefulness of the MBHI as a pre-surgical screening instrument for penile prosthesis candidates:

Yes	%	No	%
9	81.8	2	18.18

---

candidates. Although the number of subjects in this component of the study is small (N=11), it is possible to cautiously accept this hypothesis. The variables of Gastrointestinal Susceptibility, a Cooperative Coping Style, an Inhibited Coping Style and degree of Emotional Vulnerability were all related to patient reaction to surgery. It is important to note that these variables were only examined through a descriptive statistical analysis. A Pearson product-moment correlation was performed on PSQ and MBHI variables. These results are found in Table 25. Also important to note is that the PSQ is not a standardized instrument. There certainly may be additional personality variables related to Hypothesis 3 above that were not within the scope of the PSQ to verify.

Hypothesis 4, which states that the MBHI is a useful psychometric instrument to assess penile prosthesis candidates is accepted, although once again, cautiously. A substantial degree of medical personnel completing the PSQ (72.7%) agreed that the MBHI adequately described their patient and 81.8% believed that the MBHI is a useful pre-surgical assessment instrument for penile prosthesis candidates.

#### Summary

This chapter presented the analysis of the data. Demographic data was first presented and examined for possible confounding influences on subject selection. No significant influences were discovered between diagnostic groups and the selected demographic data. Product-moment correlations were then performed on demographic data and MBHI and BSI subscale scores. While correlations were

TABLE 25

Pearson Product-Moment Correlations of PSQ and MBHI Variables

PSQ	MBHI		Gastrointestinal Susceptibility	Emotional Vulnerability
	Cooperative	Inhibited		
Inhibited		.67	.42	.33
Cooperative	.51		-.98	
Emotional Vulnerability			.66	.59
Psychosomatic Symptoms			.88	

reported these did not contribute to the discriminant function analysis. Hypothesis 1, which stated that there is no relationship between the selected demographic data of age, race, religion, marital status, social class, duration of problem, and etiology of dysfunction, was supported.

A stepwise discriminant function analysis was performed on all diagnostic groups. This statistical procedure was successful in selecting several discriminating variables. These variables, contained in two functions, correctly classified 81.25% of the grouped cases. Hypothesis 2, which stated that there are identifiable personality styles which can differentiate organic from psychogenically dysfunctional males, was supported.

The next component of the analysis examined post surgical recovery and the utility of the MBHI in making predictions in assessing penile prosthesis candidates. This third hypothesis is cautiously accepted in contributing to the exploratory nature of this segment of the study. Additional subjects and a more rigorous statistical analysis, on a standardized instrument, is required in future studies to more fully understand the relationship of these subtest scales to pre-surgical assessment.

In the final component of the analysis, 81.8% of medical personnel completing the PSQ believed the MBHI was a useful assessment tool for males electing penil prosthetic surgery, supporting Hypothesis 4. Chapter Five, the final chapter of this study, thoroughly examines these results, discusses limitations of the study and makes recommendations for future research.



## CHAPTER V

### DISCUSSION

This study addressed the problem of classification of erectile dysfunction into three diagnostic groups: organic, psychogenic and a medical control group. Review of the literature reveals the utility in having a psychometric assessment instrument capable of differentiating organic and psychogenic dysfunction. A psychometric instrument, such as the MBHI, serves three functions: (1) It can be administered by support staff, such as an intake worker or receptionist, making it a cost-effective procedure, (2) It provides a non-intrusive method of assessment that can be administered during the initial assessment or after therapy has begun, and (3) It requires minimal professional staff time for interpretation and analysis.

As the review of the literature has indicated, a variety of psychometric measures have attempted to differentiate these two diagnostic groups but with mixed results. This study employed the Millon Behavioral Health Inventory for two purposes. The first, as a psychometric tool to differentiate organic from psychogenic dysfunction and secondly, to act as a predictor of surgical outcome for those organic subjects who chose penile prosthetic surgery.

The MBHI was chosen as an assessment instrument for several reasons. It was normed on a medical rather than a psychiatric population (Millon, Green and Meagher, 1979). The population of organic, psychogenic and control groups used in this study are subjects that do

not present psychopathology. In addition, this instrument has undergone extensive reliability and validity trials and shown to be reliable and valid across various medical conditions (Millon, Green and Meagher, 1981, 1982). In the only published study to use the MBHI with a sexual dysfunctional population, Green (1978) demonstrated its effectiveness in differentiating psychogenics from a normal control group. The present study attempted to determine if the MBHI could differentiate organics from psychogenics and a non-sexually dysfunctional control group. The results, as reported in the preceding chapter, indicate that the MBHI is able to differentiate among organics, psychogenics and controls and is able to correctly classify 81.25% of these subjects.

The discussion presented in this chapter is divided into three sections. The first section addresses the findings as they relate to each hypothesis. The second section examines the limitations of the study. The third section summarizes conclusions and presents suggestions for future research.

#### Review of the Hypotheses

The first hypothesis stated that there is a relationship between the selected demographic variables of age, race, religion, marital status, social class and etiology of dysfunction. Using multiple chi-square analyses and later including these variables in a stepwise discriminant function, no relationship was found between these demographic variables and the three diagnostic groups. This hypothesis was rejected. Similar findings not relating demographic

variables to diagnostic etiology have been reported in previous studies examining erectile dysfunction (Servais, et al, 1976; Derogatis, 1976; Segraves, et al, 1981b).

The chi-square analyses have shown that the three groups involved in this study did not differ significantly from each other on demographic variables. This decreases the possibility of sampling error and further strengthens the validity of the discriminant function.

This study examined subjects from three medical settings. Although these locations were all within the urban Chicago geographical area, populations from a multiclinic study raise the possibility of sampling error and subject selection bias (Kerlinger, 1973). Since this study used multiple locations for data collection it became important to assure homogeneity across subject groups. The study has accomplished this. It is possible to state, with statistical assurance, that differences obtained on the discriminant analysis were not attributable to differences between groups on demographic factors.

The second hypothesis stated that identifiable personality styles, as determined by the MBHI, can diagnostically classify organically and psychogenically dysfunctional males at a statistically significant level. The results of the stepwise discriminant function analysis supports accepting this hypothesis. The identifiable personality styles which differentiated organic from psychogenic dysfunction were: Inhibited, Respectful, Sensitive, and Introversive. The identifiable Psychogenic Attitudes were: Recent Stress, Premorbid

Pessimism and Chronic Tension. The Psychosomatic Correlates were: Cardiovascular Tendency and Gastrointestinal Susceptibility. The Prognostic Indices were: Pain Treatment Responsivity and Emotional Vulnerability. These discriminants, which are subscales of the MBHI, were able to classify 85% of the organic group, 75% of the psychogenic group, and 82.5% of the control group. The overall total of correctly classified subjects was 81.25%. These analyses reveal that the MBHI is capable of making discriminant assignment substantially above chance.

An assessment procedure, be it psychological or medical, is only as good as the incremental validity it brings to the decision making process. Although the overall classification of 81.25% is impressive, the question must be asked, Does it add new assessment and classification information to the already existing data base on erectile dysfunction? Stated in a different way, Is the MBHI a clinically useful instrument with this population?

To answer these questions it is necessary to examine studies which attempted classification procedures on populations experiencing erectile dysfunction. A study by Derogatis and associates (Derogatis, et al, 1976) attempted to differentiate organic from psychogenic dysfunction with the Derogatis Sexual Functioning Inventory. The study consisted of a sample of 28 males (15 organic and 13 psychogenic) with no control group. Using a cutting score discriminant analysis, which included only one discriminant, 89.2% of the subjects were correctly classified into organic or psychogenic groups. The significant discriminant cited in this study was Gender Role

Definition ( $p < .001$ ), a subtest of the DSFI. In an attempt to replicate these findings, Segraves and associates (1981b) administered the DSFI to a matched group of organically and psychogenically dysfunctional males. No evidence was found to support the Derogatis (1976) findings that the DSFI discriminates organic from psychogenic erectile dysfunction. In the seven years since Derogatis first reported the differentiating abilities of the DSFI there has not been a successful replication study published.

In an earlier study with the MMPI which involved 32 patients, Beutler, et al (1975) claimed that the MMPI was able to correctly classify approximately 90% of the cases as either organic or psychogenic. There was not a control group. In an attempt to replicate these findings Marshall, et al (1981) found the error rate for the MMPI classification to be 50%. This is substantially less significant than Beutler (1975) had reported. In Marshall's study the Nocturnal Penile Tumescence Test was administered to all subjects. The NPT was used to cross validate the MMPI findings. Here, the NPT was able to correctly classify only 75% of the subjects. The error rate of 25% for the NPT is high and the authors caution against using this test as a sole diagnostic criterion. Other researchers have raised concerns about using the NPT as a measurement for differential diagnosis (Wasserman, et al, 1980; Bohlen, 1981).

Although the results of the present study are encouraging and add new information to the data about erectile dysfunctioning, they should be interpreted cautiously. The specific limitations of this study are discussed later in the chapter.

The third hypothesis stated that knowledge of selected personality styles, psychosocial attitudes and prognostic indices as determined by the MBHI, are potential predictors of post surgical recovery for penile prosthesis candidates. The MBHI variables of Gastrointestinal Susceptibility, Cooperative Coping Style and Emotional Vulnerability were correlated with patient reaction to surgery. Hypothesis three was accepted.

The MBHI subscale of Inhibited Coping Style was positively correlated with the attending medical personnel's report (PSQ) of patient post surgical recovery in three areas: Emotional Vulnerability, Inhibited, and Psychosomatic Symptomatology. Those organic subjects that showed an elevated score on the MBHI subscale Inhibited Coping Style, were perceived by medical personnel to be hesitant and ill at ease when interacting with medical personnel and visitors while in the hospital. These patients developed psychosomatic symptomatology of stomach aches (4 patients), hyperventilation (2 patients) and a skin rash (1 patient) which were not present prior to surgery.

Patients that showed an elevated MBHI subscale score on Cooperative Coping Style were perceived by medical personnel to be eager to follow medical advice and developed a positive attachment to hospital staff. These patients reported minimal physical or psychosomatic complaints during their hospital stay.

Patients perceived by medical staff to be emotionally upset, being anxious or depressed after surgery, tended to develop stomach aches or hyperventilated during the hospital recovery period. These patients obtained higher scores on MBHI subscales of Emotional

## Vulnerability and Gastrointestinal Susceptibility.

Although there were only 11 patients that elected penile prosthesis surgery, the MBHI was able to predict which patients developed new psychosomatic symptoms (N=5) and which had emotional difficulties while recovering from surgery (N=4). It should be noted that each of these patients underwent a psychological evaluation and psychometric testing (MMPI) as part of the standard pre-surgical assessment procedure at this hospital. The results of the assessment procedure did not indicate prior psychosomatic inclinations or emotional problems inherent in any of these patient-subjects.

The fourth hypothesis stated that the Millon Behavioral Health Inventory is a useful pre-surgical psychometric instrument to assess penile prosthesis candidates. A total of 72.7% of medical personnel agreed that the MBHI adequately described their patient and 81.8% believed that the MBHI is a useful pre-surgical assessment tool for penile prosthesis candidates. Caution is exercised in accepting this hypothesis because of the small sample (N=11) of patients that completed this part of the study. These results are however, encouraging and support the need for continued research with the MBHI as a pre-surgical assessment tool in the area of health psychology. Particularly encouraging were the comments made by nurses and physicians about the MBHI. Although not quantifiable, these comments spoke to the ease in administration of the MBHI and its relative relatedness to the concerns of medical personnel regarding medical patients.

### Limitations of the Study

1. The prevalence of erectile dysfunction in the human population has yet to be determined. Hence, there is not a natural group in which to randomly select subjects. Subjects in this study were selected on the basis of a self decision to seek treatment. These groups therefore, may not be a representative sample of either an organic or psychogenic dysfunctional population.

2. This study selected subjects from three separate medical facilities. Although every attempt was made to select a sample from each site that was similar, there is the possibility that a multi-clinic population may differ based upon clinic selection criteria, reputation of the medical facility and the population it serves.

3. Standardized diagnostic criteria were used to assess organic and psychogenic groups (Appendix A). Although careful assessment was performed for each subject there is the possibility of misdiagnosis and thus false inclusion criteria. Not all subjects in the psychogenic group received a NPT evaluation nor did all subjects in the psychogenic group undergo complex medical procedures as part of their diagnostic workup. This assessment, while performed by two mental health professionals extensively involved in treating a sexual dysfunctional population, is not an exact science and human error in diagnosing is possible. The organic group was independently assessed by two urologists prior to a final diagnosis. Although this is also a thorough assessment procedure making misdiagnosis unlikely, it remains possible.



The control group underwent no erectile assessment procedure. Subjects were classified as members of this group based on self report with no reported history of sexual dysfunction. As with all self report inventories there is the possibility of inaccurate response by the participants. In considering the personal nature of this study the likelihood of a control subject not volunteering that he has or has had erectile dysfunction seems increased.

4. The results of the discriminant function analysis while statistically significant, need to be replicated before the MBHI can be considered to reliably classify organic and psychogenic dysfunctional patients. While discriminant function analysis is a rigorous statistical procedure utilizing a complicated computer assisted program, it is only effective as a statistical procedure if the groups under study are distinct and separate with no possibility of overlap.

5. Volunteers for research on sexually related issues tend to be individuals from higher income levels than non-participants (Murphy and Mendelson, 1973). This causes the sample to differ from the general population and creates a problem in generalizing the results.

6. As with all studies involving the use of self reporting psychological instruments there is the problem of accuracy in recording data. While the investigator personally explained the procedure to each participant and remained available to answer questions, it is not possible to assure the reliability of each respondent.

### Recommendations for Future Research

The results from this study have lead to additional research in two areas at the University of Chicago Medical Center where the author is employed. . The first area of new research is an attempt to replicate the differential diagnostic capability of the MBHI with both a stepwise discriminant analysis, followed by a factor analysis of those results and completed with a final discriminant function on the results of the factor analysis. Subject groups of organic, psychogenic and controls will come from the same medical institution to further reduce the possibility of sampling bias.

An additional area of research is further examining the utility of the MBHI as a pre-surgical assessment instrument. This has been the first published study where the MBHI has been used to assess penile prosthesis candidates. Assessment of these candidates is necessary for a variety of reasons: to screen psychologically unsuitable candidates away from surgery to other methods of treatment; to determine candidates for whom implant surgery should be accompanied or preceded by psychological counseling; to help identify situational factors which might influence the course of post surgical sexual adjustment and; to aid in finding methods of differentiating successful from unsuccessful applications of surgery (Maddock, 1980).

Additional areas of research would include examining specific subgroups of organic and psychogenically dysfunctional males. An individual that has experienced erectile failure for six months may look very different psychologically from an individual who has

experienced the problem for five years, as an example.

For those who have experienced erectile dysfunction within a marriage for a relatively long period of time, the dysfunction may serve some dynamic function for both the patient and the spouse. Specific assessment procedures for the male, his partner, and the couple as a dyad would prove useful in understanding the meaning of the dysfunction for both the couple and for the patient.

Another subgroup are different age groups. A man at 25 years of age who is unable to achieve an erection may look quite different than a man who is 55 years old with erection difficulties. The difficulty in assessing erectile dysfunction may be a function of the differences in population samples as much as the disorder itself. Most studies have attempted to include a heterogenous population sample. Considering the complexity of this disorder it may ultimately prove more useful to look at very homogenous samples and to derive hypotheses related to these populations rather than attempting to generalize to all males experiencing the disorder.

Research with those individuals that cannot be clearly diagnosed as organic or psychogenic is necessary to determine what neurologic, physiologic, vascular or psychologic factors are contributing to the dysfunction. Recent research has examined the function of the autonomic nervous system on erectile capabilities with encouraging results (Lange, Wincze, Zwicle, Feldman, and Hughes, 1981). The erectile response system is not completely understood. To gain additional understanding of this response physiological studies are necessary concurrently with psychological assessment. Why a male develops

psychogenic dysfunction and not retarded ejaculation may prove to be a function of psychological as well as physiological processes.

### Conclusions

The present study attempted to differentiate organic, psychogenic and control groups on the basis of MBHI and BSI subscale scores and demographic variables. Using the 20 subscales of the MBHI, the three global scales of the BSI and the demographic variables of age, race, religion, social class, marital status and duration of dysfunction, discriminant factors were determined that differentiated the three groups. These factors were able to classify 85% of the organic group, 75% of the psychogenic group and 82.5% of the control group correctly.

These results establish the necessity to undertake a replication study to lend further validity and reliability to the MBHI as a psychometric tool which differentiates organic and psychogenic dysfunction. The results from this study support the use of Coping Style subscales on the MBHI as a method to differentiate organic and psychogenic dysfunction.

The second part of the study establishes the MBHI as a psychometric instrument that has utility in the pre-surgical assessment of penile prosthesis candidates. To further analyze the reliability of the MBHI in surgical assessment the 11 patients who underwent surgery need to be followed over a period of time. To more adequately determine the validity of the MBHI in pre-surgical assessment a larger sample is needed.

This study introduced the MBHI as a psychometric instrument capable of differentiating psychogenic and organic erectile dysfunctional patients. It also served as an effective instrument to assess prosthesis patients prior to surgery. Future research will determine if this instrument is able to replicate these encouraging results.

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APPENDIX A

## Definition of Terms

### Sexual Dysfunction

Impaired, incomplete or absent expressions of normally recurrent human sexual desires and responses. These dysfunctions may be attributed to psychological or physiological origins and occur in both men and women and heterosexual and homosexual individuals.

### Erectile Dysfunction-Primary

Inability to achieve an erection sufficient for penetration at any point within a male's lifetime.

### Erectile Dysfunction-Secondary

Inability to achieve or maintain an erection sufficient for penetration occurring after at least one successful coitus.

### Psychogenic

Having or pertaining to a psychological or non-physiological etiology.

### Organic

Having a physiological etiology correctable only by medical or surgical intervention.

### Selected Demographic Data

This is defined as data obtained from an interview with the patient or from a patient's history sheet. This includes age, education, income, occupation, race, religion, address and marital status.

### Selected Medical Data

This is defined as data obtained from the patient's

medical chart including diagnosis, duration of problem, previous treatment and current medications.

### Selected Personality Variables

These are defined as the specific subtest scales on the Millon Behavioral Health Inventory.

### Sexologist

An individual who is engaged in the scientific study of an aspect of human sexuality. The individual may also represent one of the following professional areas: anthropology, medical history, medicine, psychiatry, psychology or sociology.

CRITERIA FOR PSYCHOGENIC ERECTILE DYSFUNCTION

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- A. At least two of the following for a provisional diagnosis of psychogenic dysfunction.
1. Full erections upon awakening occurring 2 or more times per week for the past three months and lasting until orgasm; patient judges erection turgid enough for vaginal penetration if attempted.
  2. Normal masturbatory erections as judged by patient.
  3. Normal erections with alternative partner of either sex, as judged by patient to be sufficient for intercourse.
  4. Frequent, full, lasting erections during noncoital activity (e.g., for 5 minutes of foreplay with detumescence occurring only when penetration or oral intercourse is planned).
  5. Normal NPT recording; record demonstrating minimum of 4 erectile episodes per night lasting 12 minutes with 20 mm circumference change.
- B. Both of the following
1. Normal penile blood pressure, penile index  $\geq$  0.90.
  2. Absence of detectable physical abnormality probably contributing to the erectile dysfunction.
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A. All of the criteria below are necessary.

1. No full sustained erections under any conditions for at least 6 months (e.g., upon awakening, masturbation, extra-marital relations, spontaneous).
2. Presence of organic condition known to cause erectile dysfunction (e.g., pelvic surgery, radiation treatment, injury, diabetes or other major endocrine disorder, vascular disease, neurologic disease).
3. Time course must fit organic pathology.
4. Insidious onset unless related to clear organic insult (e.g., priapism).
5. No obvious psychological precipitating events; if obvious psychological event nocturnal tumescence must be abnormal and evidence of physical impairment noted.

B. This criteria alone can suffice.

1. Decreased penile blood pressure, penile index  $< .60$ , and abnormal nocturnal tumescence record less than 10mm of circumference change.
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APPENDIX B

## SCALE DESCRIPTIONS

The titles of the 20 scales comprising the MBHI are noted, along with the number of items scored on each scale. Descriptions focus on the most salient features commonly found among high scorers in an adult medical population. The scales are grouped into four broad categories: basic coping styles; psychogenic attitudes; psychosomatic correlates; prognostic indices.

Basic Coping Styles (Scales 1-8)

The following descriptions characterize patients with a distinctive high score on the scale noted. For most patients, these characteristics usually blend with other features in a configural pattern of several scales. In addition to noting general personality traits, interpretive reports attempt to identify the manner in which patients are likely to relate to health personnel, services and medical regimens.

Scale 1: Introversive Style (32 items)

High scorers are rather colorless and emotionally flat, tending to be quiet and untalkative. They often appear unconcerned about their problems. Typically, they are lacking in energy, are vague and difficult to pin down concerning symptoms and may be passive with regard to taking care of their physical state. Health care professionals should give clear directions and not expect these patients to take the initiative in following a treatment plan.

Scale 2: Inhibited Style (43 items)

High scorers tend to be hesitant with others and are often shy and ill-at-ease. One must be careful in dealing with them since they are easily hurt, often are concerned over what others may do to them. As a result, health care professionals will have to devote extra effort in establishing rapport. Because these patients may fear that others will take advantage of them, they may keep their problems to themselves. However, they do seek understanding and attention. With a sympathetic attitude, one should be able to get them to be cooperative.

Scale 3: Cooperative Style (33 items)

High scorers tend to be eager to attach themselves to a supportive professional and will follow advice closely. However, these patients do not usually take the initiative in seeking treatment and will expect to be told exactly what to do. They may be inclined to deny the existence of real problems. Health care personnel may have to probe carefully and ask questions explicitly. These patients become very dependent and may resist when suggestions are made for referral to other doctors or clinics.

Scale 4: Sociable Style (40 items)

High scorers tend to be outgoing, talkative and charming. However, these patients may be changeable in their likes and dislikes. They may be very cooperative initially in following the treatment plan, but this may be short-lived. These patients often are more concerned with "appearing nice and attractive" than with solving their problems. Dependability in meeting appointments and taking necessary medications is likely to be low.

Scale 5: Confident Style (33 items)

High scorers act in a calm and confident manner. However, they are likely to fear bodily ailments and will thus be motivated to follow any treatment plan that will ensure their well-being. They may expect to be given special treatment and will tend to take advantage of staff members. Although this behavior may be troublesome at times, it is important that these patients are treated professionally and receive complete explanations of their course of treatment. If these patients are impressed with the critical importance to their health of following the medical regimen, they will do so carefully.

Scale 6: Forceful Style (33 items)

High scorers tend to be somewhat domineering and tough-minded. The health care team should be careful not to feel intimidated or provoked. A straight-forward approach in which the professional "pulls no punches" and makes no apologies would be best. Given their tendency to be distrustful, these patients may not follow planned treatment regimens. It will be necessary for the team to work hard to get these patients to follow the prescribed treatment course.

Scale 7: Respectful Style (42 items)

High scorers are likely to be responsible, conforming and cooperative. They hold their feelings inside and will try to impress the health care team as being well-controlled and serious-minded. These patients usually take medications carefully and follow therapeutic recommendations. There is a strong tendency, however, to deny symptoms; many may have waited a long time before seeking treatment. They do not like being sick since it signifies weakness and inefficiency.

Scale 8: Sensitive Style (48 items)

High scorers tend to be unpredictable and moody. They are often erratic in following a treatment plan -- over-medicating or under-medicating without telling the physician. These patients often seem displeased and dissatisfied with their physical and psychological state. At times, they will complain a lot about treatment, but this can quickly switch to expressions of guilt. Mood changes seem to occur for no clearcut reason. Rapport may be easy on some days but difficult on others.



Psychogenic Attitudes Scales (Scales A-F)

The scales of this section represent the personal feelings and perceptions of the patient regarding different aspects of psychological stress which increase psychosomatic susceptibility or aggravate the course of a current disease. Scores are gauged by comparing these attitudes to those expressed by a cross-section of both healthy and physically ill adults of the same sex. The first two of these scales pertain to relatively objective events which have been experienced as either chronically or recently stressful. The second two relate to attitudes that intensify the subjective impact of past or future stressful events. The third set of two scales attempts to gauge the status of two significant sources of potential stress, interpersonal relationships and bodily functioning.

Scale A: Chronic Tension (29 items)

High levels of stress have repeatedly been found to relate to the incidence of a variety of diseases. More specifically, qualitative studies of chronic stress, such as persistent job tensions or marital problems, have been carried out with particular reference to their impact on heart diseases, often addressed as Type A-Type B behavior (Friedman and Rosenman, 1974; Gersten, Frii and Lengner, 1976; Jenkins, 1976; Rahe, 1977). High scorers on this scale are disposed to suffer various psychosomatic and physical ailments, notably in the cardiovascular and digestive systems. They seem constantly on the go, live under considerable self-imposed pressure and have trouble relaxing. When feasible, discussions should be initiated by the health care practitioner with the thought of reducing tensions and slowing down the rapid pace of life these patients pursue.

Scale B: Recent Stress (20 items)

This scale addresses the patients' perceptions of the prevalence of stress in the recent past. This is a phenomenological assessment similar to the Social Readjustment Rating Scale (Holmes and Rahe, 1967) and Sarason and Johnson's Life Experience Survey (1978). High scorers on this scale have an increased susceptibility to serious illness for the year following test administration. Recent marked changes in their life predicts a significantly higher incidence of poor physical and psychological health than in the population-at-large (Andrew, 1970; Rahe and Arthur, 1968). Regular and frequent contact with medical personnel would be advisable during this period so as to anticipate and avert the possibility of serious illness.

Scale C: Premorbid Pessimism (40 items)

This scale addresses the dispositional attitude of helplessness-hopelessness implicated in the appearance or exacerbation of a variety of diseases including multiple sclerosis, ulcerative colitis and cancer (Mei-Tal, Meyerowitz and Engel, 1970; Paull and Hislop, 1974;

Schmale, 1972; Stavrakys, Buck, Lott and Wanklin, 1968). It differs from other "depression" indices found in the following scale, by noting characterologic tendencies toward viewing the world in a negative manner. High scorers on this scale are disposed to interpret life as a series of troubles and misfortunes and are likely to intensify the discomforts they experience with real physical and psychological difficulties. Health care team members should attempt to assess the complaints of these patients carefully and objectively. Support and reassurance would be helpful to moderate a tendency to aggravate difficulties.

Scale D: Future Despair (38 items)

This scale focuses on the patients' willingness to plan and look forward to the future as addressed in a number of studies (Glassman and Siegel, 1970; Engel, 1968; Wright, 1960). This is more likely than the previous scale to tap the patient's response to current difficulties and circumstances rather than a general or lifelong tendency to view things negatively. High scorers do not look forward to a productive future life and view medical difficulties as seriously distressing and potentially life-threatening. The bleak outlook and consequent poor prognosis that characterizes these patients will require considerable support and encouragement on the part of health personnel.

Scale E: Social Alienation (33 items)

Level of familial and friendship support, both real and perceived, appears to be a significant moderator of the impact of various life stresses (Cobb, 1976; Rabkin and Struening, 1976). This sense of aloneness has been detailed in sociological literature (Berkman, 1969; Comstock and Partridge, 1972; Moss, 1977; Parkes, Benjamin and Fitzgerald, 1969). High scorers are prone to physical and psychological ailments and a poor adjustment to hospitalization is common. They perceive low levels of family and social support and may not seek medical assistance until illness is extremely discomforting. Every effort should be made to provide these patients with opportunities to develop significant rapport and confidence in their health care team.

Scale F: Somatic Anxiety (34 items)

All of the above stressors seem to be significantly modulated upward or downward by the preoccupations and fears that patients may express about their physical state. Studies of what may be called somatic anxiety reflect the general concerns that patients have about their bodies (Lipsitt, 1970; Lowy, 1977; Lucente and Fleek, 1972; Mechanic and Volkart, 1960). High scorers on this scale tend to be hypochondriacal and susceptible to various minor illnesses. They experience an abnormal amount of fear concerning bodily functions and are likely to overreact to the discomforts of surgery and hospitalization. The health professional should be sensitive to the unwarranted concerns of these patients and seek to minimize their consequences by engaging in periodic supportive and reassuring discussions.

Psychosomatic Correlates Scales (Scales MM-00)

The scales comprising this section are designed for use only with patients who have previously been medically diagnosed as exhibiting one of a number of specific disease syndromes. The scores of each scale gauge the extent to which the patient's responses are similar to comparably diagnosed patients whose illness has been judged substantially psychosomatic or whose course has been complicated by emotional or social factors.

Scale MM: Allergic Inclination (34 items)

High scorers among patients with allergic disorders - urticaria, dermatitis, asthma - experience emotional factors as significant precipitants of their disease process. The role of these influences among low scorers is likely to be minimal.

Scale NN: Gastrointestinal Susceptibility (27 items)

High scorers among patients with gastrointestinal disorders - ulcers, colitis, dyspepsia - are likely to react to psychological stress with an increase in the frequency and severity of symptomatology. Stress is not likely to be a significant precipitant among low scorers with these ailments.

Scale 00: Cardiovascular Tendency (38 items)

High scorers among patients with cardiovascular symptoms - hypertension, angina pectoris - are susceptible to a significant increase in complaint symptomatology under conditions of psychic tension. Emotional factors are not likely to contribute significantly to such symptomatology among low scorers.

Prognostic Indices Scales (Scales PP-RR)

The scales comprising this section seek to identify future treatment problems or difficulties that may arise in the course of the patient's illness. The scores of each scale gauge the extent to which the patient's responses are similar to patients whose course of illness or treatment has been more complicated and unsatisfactory than is typical.

Scale PP: Pain Treatment Responsivity (42 items)

High scorers on this scale are similar in their results to patients whose management with a traditional medical treatment program was less than satisfactory. It is also probable that psychological factors may maintain the pain behaviors.

Scale QQ: Life Threat Reactivity (42 items)

High scorers who are currently suffering a chronic or progressive life threatening illness - metastatic carcinoma, renal failure, congestive heart disease - are likely to deteriorate more rapidly than is typical among patients with a comparable physical illness. Low scorers are judged as likely to progress through a more benign and favorable course.

Scale RR: Emotional Vulnerability (12 items)

High scorers facing major surgery or other life dependent treatment programs - open heart procedures, hemodialysis, chemotherapy - are vulnerable to severe disorientation, depressions or frank psychotic episodes. Severe reactions of this nature are not probable among low scorers.

APPENDIX C

**LOYOLA UNIVERSITY MEDICAL CENTER**

2160 South First Avenue, Maywood, Illinois 60153

312 531-3000

January 20, 1982

Mr. Paul Camic  
Department of Urology  
Loyola University Medical Center

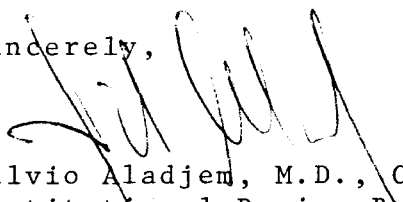
Re: "Psychological Characteristics of Organic and Psychogenic  
Erectile Dysfunction."  
IRB# 1/82-4d.

Dear Mr. Camic:

At the January meeting of the Institutional Review Board, the Board voted to approve your study. Your verbal consent form and the letter of assurance from Dr. Canning met with approval.

You now have full IRB approval and have been assigned the IRB number indicated above.

Sincerely,



Silvio Aladjem, M.D., Chairman  
Institutional Review Board for the  
Protection of Human Subjects - Medical Center

SA/s

cc: Dr. Canning  
IRBPHS Members  
IRBPHS file

Verbal Consent Form

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Department of Urology  
Loyola University Medical Center

Hello Mr. \_\_\_\_\_ (name of patient). My name is Paul Camic. I am working with Dr. Canning on a research project involving male patients here in the Urology Dept. I have two questionnaires that I would like you to complete. The first questionnaire is a true-false type and the second is based on a scaled response of 1 to 5.

(questionnaires are handed to patient to examine)

The completion of each questionnaire is strictly voluntary. If you choose to complete the questionnaires it will take you approximately 30-40 minutes.

You may stop at any time once you have begun answering either questionnaire.

The availability or quality of services at Loyola University Medical Center will not be affected regardless of whether you decide to complete the questionnaires or not.

Participation is anonymous. Please do not write your name on either questionnaire.

Do you have any questions?

IF DECLINES: Thank you for considering this.

IF ACCEPTS: Thank you for participating. It is very much appreciated.

Patient Name: \_\_\_\_\_  
 Protocol Number: \_\_\_\_\_ Unit Number: \_\_\_\_\_

CONSENT BY SUBJECT OF RESEARCH PROJECT  
 (SHORT FORM)

Research Project: \_\_\_\_\_

Doctor(s) Directing Project: \_\_\_\_\_

I, \_\_\_\_\_, the undersigned, hereby consent to participate as a subject in the above named research project conducted by the University of Chicago hospitals and clinics.

(state nature of procedure or treatment)

The substance of the project and procedures associated with it have been fully explained to me, and all experimental procedures have been identified. I have had the opportunity to ask questions concerning any and all aspects of the project and any procedures involved.

Potential benefits from proposed treatment as well as possible risks and discomforts that may result from the taking of any medication or the performance of any procedure have been explained to me by Dr. \_\_\_\_\_. I have been informed of possible alternatives (if treatment is involved) available as a course of treatment. I am aware that I may withdraw my consent at any time and that such withdrawal will not restrict access to health care services normally available at the University hospitals. I acknowledge that no guarantee or assurance has been given by anyone as to results to be obtained.

I have been informed that in the event I suffer physical injury as a consequence of the investigation, I will receive appropriate medical treatment for that injury. I also understand I will receive no financial compensation from the University for any injuries resulting from the investigation.

Doctor: \_\_\_\_\_

\_\_\_\_\_  
 Signature of Subject

Witness: \_\_\_\_\_

If relative or legal representative signs, indicate relationship or other authority.

Date: \_\_\_\_\_

Time: \_\_\_\_\_ A.M.

\_\_\_\_\_ P.M.

Revised: 9/80

jf



THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF PSYCHIATRY  
950 EAST 59TH STREET  
CHICAGO • ILLINOIS 60637

Dear Howard Brown Memorial Clinic Client,

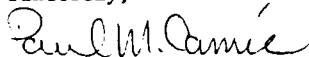
At the conclusion of your visit to the Clinic today you are going to be asked to participate in a research project that is being co-sponsored by the University of Chicago Hospitals and Clinics and Loyola University. The research project consists of answering three brief questionnaires which will take approximately 20 to 25 minutes. Each questionnaire is coded with a six digit number for research purposes to allow a statistical analysis of the results. We ask that you DO NOT put your name on any of the material. The anonymity of each participant has been assured.

Your decision to participate in this project is completely voluntary.

The availability, or quality of services available to you from the Howard Brown Clinic will not be effected regardless of whether you decide to participate or decline participation.

Thank you for your consideration.

Sincerely,



Paul M. Camic

Principle Research Coordinator

Note to participants: If, after completing the questionnaires you would like information about the nature of the research, please write to me at the above address, or call 947-5039 and I will be happy to answer any questions.

PLEASE RETURN THIS SHEET TO YOUR INTERVIEWER. THANK YOU.

DEMOGRAPHIC INFORMATION

Please answer each question. Do not write your name on this sheet. The information that we are requesting is for research purposes only. Thank you for your cooperation, it is very much appreciated.

Age: \_\_\_\_\_

Education (to date): \_\_\_\_\_

Present Occupation: \_\_\_\_\_

Race: \_\_\_\_\_

Yearly Income (approximately): \_\_\_\_\_

Religious Background (please include religious training as a child if different from your present beliefs): \_\_\_\_\_  
\_\_\_\_\_

Marital Status:      Single\_\_\_  
                         Married\_\_\_  
                         \*Coupled\_\_\_  
                         Divorced\_\_\_

\* refers to a current primary relationship of at least 1 year duration with the same individual.

If you are presently experiencing difficulties with obtaining and/or sustaining an erection please answer the following questions.

How long have you been experiencing difficulties with your erections?

Is this difficulty with experienced with: One partner: \_\_\_\_\_

Multiple Partners: \_\_\_\_\_

---

PLEASE STOP HERE. THIS SPACE IS FOR RESEARCH PURPOSES.

Subject Code: \_\_\_\_\_

Howard Brown Clinic \_\_\_\_\_

Loyola Hospital \_\_\_\_\_

Univ. of Chicago Hospital \_\_\_\_\_

BRIEF SYMPTOM INVENTORY

Below is a list of problems and complaints that people sometimes have. Please read each one carefully. After you have done so, please fill in one of the numbered spaces to the right that best describes how much that problem has bothered or distressed you in the past two weeks including today. Mark only one numbered space for each problem and do not skip any items.

HOW MUCH WERE YOU BOTHERED BY:						
		0 - Not at all 1 - Slightly 2 - Moderately 3 - Quite a bit 4 - Extremely				
1.	NERVOUSNESS OR SHAKINESS INSIDE	=0=	=1=	=2=	=3=	=4=
2.	FAINTNESS OR DIZZINESS	=0=	=1=	=2=	=3=	=4=
3.	THE IDEA THAT SOMEONE ELSE CAN CONTROL YOUR MIND	=0=	=1=	=2=	=3=	=4=
4.	FEELING OTHERS ARE TO BLAME FOR MOST OF YOUR TROUBLES	=0=	=1=	=2=	=3=	=4=
5.	TROUBLE REMEMBERING THINGS	=0=	=1=	=2=	=3=	=4=
6.	FEELING EASILY ANNOYED OR IRRITATED	=0=	=1=	=2=	=3=	=4=
7.	PAINS IN HEART OR CHEST	=0=	=1=	=2=	=3=	=4=
8.	FEELING AFRAID IN OPEN SPACES	=0=	=1=	=2=	=3=	=4=
9.	THOUGHTS OF ENDING YOUR LIFE	=0=	=1=	=2=	=3=	=4=
10.	FEELING THAT MOST PEOPLE CANNOT BE TRUSTED	=0=	=1=	=2=	=3=	=4=
11.	POOR APPETITE	=0=	=1=	=2=	=3=	=4=
12.	SUDDENLY SCARED FOR NO REASON	=0=	=1=	=2=	=3=	=4=
13.	TEMPER OUTBURSTS THAT YOU COULD NOT CONTROL	=0=	=1=	=2=	=3=	=4=
14.	FEELING LONELY EVEN WHEN YOU ARE WITH PEOPLE	=0=	=1=	=2=	=3=	=4=
15.	FEELING BLOCKED IN GETTING THINGS DONE	=0=	=1=	=2=	=3=	=4=
16.	FEELING LONELY	=0=	=1=	=2=	=3=	=4=
17.	FEELING BLUE	=0=	=1=	=2=	=3=	=4=
18.	FEELING NO INTEREST IN THINGS	=0=	=1=	=2=	=3=	=4=

- 2 -

19. FEELING FEARFUL	=0=	=1=	=2=	=3=	=4=
20. YOUR FEELINGS BEING EASILY HURT	=0=	=1=	=2=	=3=	=4=
21. FEELING THAT PEOPLE ARE UNFRIENDLY OR DISLIKE YOU	=0=	=1=	=2=	=3=	=4=
22. FEELING INFERIOR TO OTHERS	=0=	=1=	=2=	=3=	=4=
23. NAUSEA OR UPSET STOMACH	=0=	=1=	=2=	=3=	=4=
24. FEELING THAT YOU ARE WATCHED OR TALKED ABOUT BY OTHERS	=0=	=1=	=2=	=3=	=4=
25. TROUBLE FALLING ASLEEP	=0=	=1=	=2=	=3=	=4=
26. HAVING TO CHECK AND DOUBLE CHECK WHAT YOU DO	=0=	=1=	=2=	=3=	=4=
27. DIFFICULTY MAKING DECISIONS	=0=	=1=	=2=	=3=	=4=
28. FEELING AFRAID TO TRAVEL ON BUSES, SUBWAYS OR TRAINS	=0=	=1=	=2=	=3=	=4=
29. TROUBLE GETTING YOUR BREATH	=0=	=1=	=2=	=3=	=4=
30. HOT OR COLD SPELLS	=0=	=1=	=2=	=3=	=4=
31. HAVING TO AVOID CERTAIN THINGS, PLACES OR ACTIVITIES BECAUSE THEY FRIGHTEN YOU	=0=	=1=	=2=	=3=	=4=
32. YOUR MIND GOING BLANK	=0=	=1=	=2=	=3=	=4=
33. NUMBNESS OR TINGLING IN PARTS OF YOUR BODY	=0=	=1=	=2=	=3=	=4=
34. THE IDEA THAT YOU SHOULD BE PUNISHED FOR YOUR SINS	=0=	=1=	=2=	=3=	=4=
35. FEELING HOPELESS ABOUT THE FUTURE	=0=	=1=	=2=	=3=	=4=
36. TROUBLE CONCENTRATING	=0=	=1=	=2=	=3=	=4=
37. FEELING WEAK IN PARTS OF YOUR BODY	=0=	=1=	=2=	=3=	=4=
38. FEELING TENSE OR KEYED UP	=0=	=1=	=2=	=3=	=4=
39. THOUGHTS OF DEATH OR DYING	=0=	=1=	=2=	=3=	=4=
40. HAVING URGES TO BEAT, INJURE OR HARM SOMEONE	=0=	=1=	=2=	=3=	=4=

- 3 -

41. HAVING URGES TO BREAK OR SMASH THINGS	=0=	=1=	=2=	=3=	=4=
42. FEELING VERY SELF-CON- SCIOUS WITH OTHERS	=0=	=1=	=2=	=3=	=4=
43. FEELING UNEASY IN CROWDS	=0=	=1=	=2=	=3=	=4=
44. NEVER FEELING CLOSE TO ANOTHER PERSON	=0=	=1=	=2=	=3=	=4=
45. SPELLS OR TERROR OR PANIC	=0=	=1=	=2=	=3=	=4=
46. GETTING INTO FREQUENT ARGUMENTS	=0=	=1=	=2=	=3=	=4=
47. FEELING NERVOUS WHEN YOU ARE LEFT ALONE	=0=	=1=	=2=	=3=	=4=
48. OTHERS NOT GIVING YOU PROPER CREDIT FOR YOUR ACHIEVEMENTS	=0=	=1=	=2=	=3=	=4=
49. FEELING SO RESTLESS YOU COULDN'T SIT STILL	=0=	=1=	=2=	=3=	=4=
50. FEELING OF WORTHLESSNESS	=0=	=1=	=2=	=3=	=4=
51. FEELING PEOPLE WILL TAKE ADVANTAGE OF YOU IF YOU LET THEM	=0=	=1=	=2=	=3=	=4=
52. FEELINGS OF GUILT	=0=	=1=	=2=	=3=	=4=
53. THE IDEA THAT SOMETHING IS WRONG WITH YOUR MIND	=0=	=1=	=2=	=3=	=4=

# MILLON BEHAVIORAL HEALTH INVENTORY

**DIRECTIONS:** This inventory consists of a number of statements which people use to describe themselves. Read each statement, decide whether or not it applies to you, and then mark your choice on the special answer sheet. (Make no marks on this form.) *Please use a pencil* to mark the answer sheet.

If you agree with a statement or decide that it describes you, pencil in completely between the dotted lines under T (TRUE) on the answer sheet. If you disagree with a statement or decide it does not describe you, pencil in completely between the dotted lines under F (FALSE) on the answer sheet. If you have some doubt about the truth of a statement as it applies to you, pencil under F (FALSE). In making your choices on the answer sheet, be sure that the number of the statement you have just read is the same number you are marking on the answer sheet. *Erase completely* any answer you may wish to change. Below are two examples to acquaint you with the procedure you are to use in answering the questions:

		T	F
1. I am a human being.	1.	■■■■	: : : :

This statement would be true of you, so you would pencil *completely* between the lines in the column headed T, as marked above.

		T	F
2. I am over ten feet tall.	2.	: : : :	■■■■

This statement would be untrue of you, so you would pencil *completely* between the lines in the column headed F, as marked above.

Try to pencil in an answer for every statement, even if you are not absolutely sure of your choice. Even though on some statements it will be difficult for you to make a decision, still pencil in under either T (TRUE) or F (FALSE). It is better to answer a statement than to leave it blank. There is no time limit for completing the inventory, but it is best to work as rapidly as is comfortable for you. You may now begin with the first item below.

1. I have always been able to overcome the problems I've had.
2. Lately, life has been going along as usual, with no special things happening.
3. When I was a young child, my parents felt very proud of me.
4. I have almost never been sick.
5. I have friends who will listen to any problems I have.
6. I like to be the one in authority to take charge of things.
7. If I were very sick, I'm sure that everything would work out well.
8. I always take the medicine a doctor tells me to even if I don't think it is working.
9. I am very pleased with all the things I have done up to now.
10. I almost never feel pressure in the work I do.
11. I get very frightened when I think of being all alone in the world.
12. I am ready to attack anyone who tries to say terrible things about me.
13. I have a feeling that things in my life just go from bad to worse.
14. All my life I have to "blow up" every now and then.
15. This year I was successful at something that was very important to me.
16. I am in better health than most of my friends.
17. A quiet hobby is more fun for me than a party.
18. Most people wouldn't care much if I were very sick.
19. I often say things that I regret having said.
20. I have lots of plans of what I'd like to be doing ten years from now.
21. I have a lot of faith that doctors can cure any sickness.

22. People can influence me quite easily.
23. I often find time to take it easy and do nothing.
24. Even in difficult times, I always try to be cheerful.
25. I don't mind that other people are not interested in my friendship.
26. I've had serious money problems this past year.
27. I almost always have medical problems.
28. I often feel that others do not want to be friendly to me.
29. If I became ill, I wouldn't have much help from my family.
30. In many ways I feel very superior to most people.
31. If I ever got a serious illness, I think it would be the end of me.
32. No matter what, seeing a doctor can make me feel better.
33. So little of what I have done has been appreciated by others.
34. Keeping to a time schedule is not important to me.
35. I've done most things in my life very well.
36. When I think about the past, I remember mostly the good things.
37. I make nasty remarks to people if they deserve it.
38. I have had more than my share of troubles in the past year.
39. It is good to have a regular way of doing things to avoid mistakes.
40. Many people have been spying into my private life for years.
41. I almost never worry about my health.
42. If I thought I had a serious sickness, I would quickly talk it over with my family.
43. There are always a number of reasons why most problems can't be solved.
44. I look forward to the future with lots of hope.
45. I do my best to get along with others by being pleasant and agreeable.
46. All doctors care about is my money, not me.
47. I get upset when things I don't expect happen to me.
48. I often get angry with people who do things slowly.
49. I don't depend much on other people for friendship.
50. I feel pretty upset about most things in my life.
51. It is very difficult for me to stop feelings from coming out.
52. My family has had really bad problems in the past year.
53. I can stand a lot of pain.
54. I like to flirt a lot.
55. In time of trouble there are several friends that I can depend on.
56. Most people can be trusted to be kind and thoughtful.
57. Even if I were very sick, I'd keep fighting and never give up.
58. I sometimes feel I am in this world all alone.
59. I feel that the doctors I have seen are not interested in my problems.
60. I am a dramatic and showy sort of person.
61. I can't stand people who are late for appointments.
62. I do my best to stop anyone from trying to boss me.
63. I often think about unhappy things that have happened to me.
64. I often do things for no reason other than it might be fun.
65. During the past year, someone close to me has been very ill.
66. I guess I'm a complainer who expects the worst to happen.
67. It is not unusual to feel lonely and unwanted.
68. I worry a lot about my health.

69. Lots of people would care about me if I became very sick.
70. I would much rather follow someone than be the leader.
71. If I had a very serious sickness, I think I would fall apart mentally.
72. To get ahead in this world I'm willing to push people who get in my way.
73. Doctors have always been helpful to me.
74. I find it hard to feel sorry for people who are always worried about things.
75. I seem to fit in right away with any group of people I meet.
76. I like being in a crowd just to be with lots of people.
77. Most of my problems just go on and on.
78. I guess I depend too much on others to be helpful to me.
79. I moved during the past year.
80. I have always felt some kind of problem between me and the opposite sex.
81. I get frightened when I think I have a medical problem.
82. Punishment never stopped me from doing whatever I wanted.
83. I would have lots of visitors if I were in the hospital.
84. Among the most important things a person can have are a strong will and the drive to get ahead.
85. I would never let a serious sickness stop me from working toward the future.
86. I often feel so angry that I want to throw and break things.
87. I dislike going to doctors, and do so only after trying everything myself.
88. I really hate to have my work pile up.
89. I find it hard to take my mind off my work even when I'm supposed to be relaxing.
90. I have not seen a car in the last ten years.
91. I very often think I am not wanted by others in a group.
92. Even when things seem to be going well, I expect that they'll soon get worse.
93. I would rather be direct with people than avoid telling them something they don't like.
94. Many important things have happened in my life this past year.
95. What this country really needs are more serious and devoted citizens.
96. At no time in my life have I had any hair on my head or my body.
97. T.V. programs about illness make me very upset.
98. Ever since I was a child I have been losing touch with the real world.
99. I cannot depend on my family when I need them.
100. I like to tell others about the things I have done well.
101. I'd rather be dead than have a very serious sickness.
102. I usually let other people have their own way.
103. I usually won't take any medicines, even if a doctor tells me to.
104. I wish the people around me would move faster and get more things done.
105. I often feel that there is nothing I can do to make my life easier.
106. I have very few close personal ties with others.
107. This past year has been one of the most difficult ones in my life.
108. If I thought I were getting sick, I would quickly call a doctor.
109. I have a strong desire to win any game I play with others.
110. Nobody really cares about my state of health.
111. I have faith that human nature is good.
112. I haven't thought much about what I'll be doing a year from now.
113. All my life I have had the feeling that I have done something terribly wrong or evil.
114. When someone hurts me, I try to forget it.
115. Hospitals are frightening and lonely places to be in.



116. My work makes me tense almost all the time.
117. I have flown across the Atlantic 30 times last year.
118. In this world you either push or get shoved.
119. If I were young again, I would do things very differently.
120. It is very important that children learn to obey their elders.
121. I've had a lot of shocks and disappointments this past year.
122. Rather than demand things, people can get what they want by being gentle and thoughtful.
123. I get very upset when I feel pain in any part of my body.
124. I can see more sides of a problem better than others can.
125. If I were getting sick, I wouldn't waste my time telling anyone in my family.
126. I am more worried about finishing things that I start than most people.
127. For me, the future looks like it will be full of trouble and problems.
128. I do my best not to hurt people's feelings.
129. I have never felt much life in me.
130. I would rather be in pain than take any medicines.
131. I often doubt whether people are really interested in what I am saying to them.
132. It is very easy for me to relax and slow down.
133. I don't know what I want out of life.
134. Life has never gone well for me.
135. I've been touchy or tearful about everything most of my life.
136. I am very uneasy when I have to tell people what to do.
137. I am too rushed and busy to take the vacations I should.
138. There has recently been an important change in my job.
139. I like to follow instructions and do what others expect of me.
140. I often think that I have a serious illness.
141. I am a quiet and cooperative person.
142. I'd be a pretty lonely person if I ever were hospitalized.
143. I become very excited or upset once a week or more.
144. I always try to do what is proper.
145. I don't think I would want to go on living if my body was marked up a lot in a serious operation.
146. I get so touchy that I can't talk about certain things.
147. From things I hear about them, I don't trust the people who work in hospitals.
148. I have a strong need to feel like an important person.
149. My day is filled with pressures and responsibilities.
150. I like to arrange things down to the last detail.

Post Surgery Follow-Up Questionnaire

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Patient's Name \_\_\_\_\_ Hospital ID \_\_\_\_\_

In-Patient \_\_\_\_\_ 6-Week Visit \_\_\_\_\_ (please check one)

Please rate the patient on the following dimensions:

	Negative or Low				Positive or High		Unable to Judge	
	1	2	3	4	5		X	
1. Degree of Pain			1	2	3	4	5	X
2. Cooperation with medical staff			1	2	3	4	5	X
3. Future outlook			1	2	3	4	5	X
4. Anxiety			1	2	3	4	5	X
5. Depression			1	2	3	4	5	X
6. Inhibited			1	2	3	4	5	X
7. Confidence			1	2	3	4	5	X
8. Emotional Vulnerability			1	2	3	4	5	X
9. Overall Reaction to Surgery			1	2	3	4	5	X

10. Has the patient developed any new psychosomatic symptoms since surgery? Yes \_\_\_ No \_\_\_
11. Has the patient developed any medical complications because of or since surgery? Yes \_\_\_ No \_\_\_
12. Did the MBHI adequately describe this patient? Yes \_\_\_ No \_\_\_
13. Would the MBHI be useful, in your opinion, as an assessment tool for pre-surgical penile prosthesis candidates? Yes \_\_\_ No \_\_\_
14. Please use the reverse side for additional comments.

Thank you for completing this questionnaire. If you have any questions please call me at 947-6401. Please return to your head nurse.

APPROVAL SHEET

This dissertation submitted by Paul Marc Camic  
has been read and approved by the following committee:

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

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

5-15-83  
Date

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