Discrimination of Organic versus Psychological Impotence with the DSFI: A Failure to Replicate

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Patients with a presenting complaint of erectile dysfunction were extensively investigated by a research team consisting of a urologist, vascular surgeon, psychiatrist and psychiatric social worker. Patients were assigned to organic and psychogenic groups according to specified criteria. Multiple comparisons of psychogenic and organic impotence cases on scores derived from the Derogatis Sexual Functioning Inventory (DSFI) did not differentiate the two groups. This inventory did, however, manifest numerous relationships with demographic variables. Failure to identify a psychological profile characteristic of psychogenic impotence was attributed to the heterogeneity of this diagnostic grouping and selection processes in seeking treatment for such disorders.

Finding psychological discriminants between cases of organic and psychogenic impotence has both theoretical and practical significance. Psychoanalytic theorists hypothesize that male erectile dysfunction is a sign of underlying psychopathology, whereas Masters and Johnson and behaviorally oriented therapists stress that erectile dysfunction can occur in otherwise normal men. The absence of detectable psychological differences between men with organic and psychogenic impotence would offer evidence against psychoanalytic theories concerning the etiology of impotence and suggest that psychological characteristics of men with erectile dysfunction may be secondary to the development of impotence.

In the last 10–15 years, the use of nocturnal penile tumescence monitoring has emerged as a procedure to differentiate organic from psychogenic impotence. R. T. Segraves, M.D., PhD., is Associate Professor of Psychiatry; H. W. Schoenberg, M. D., is Professor of Surgery (Urology); C. K. Zarins, M.D., is Associate Professor of Surgery (Vascular); J. Knopf, M. A., is Assistant Director Sexual Dysfunction Clinic; and P. Camic, M.A., is Psychology Intern; all at University of Chicago Hospitals & Clinics, 950 East 59th Street, Chicago, IL 60637. Address reprint requests to first author.
In cases of erectile failure, the presence of normal nocturnal penile tumescence indicates that the problem is psychogenic. The absence of nocturnal erections suggests that the problem is organic in etiology. Nocturnal tumescence measurement has been found to have several disadvantages, including its high cost. Similarly, several investigators have reported cases of psychogenic impotence which did not evidence nocturnal erections.\textsuperscript{12-13} Technical difficulties occur in patients with marginally decreased nocturnal erectile capacity.\textsuperscript{14} In these cases, it is frequently difficult to establish what degree of nocturnal tumescence corresponds to sufficient turgidity for vaginal penetration. It would appear that nocturnal tumescence monitoring can facilitate the discrimination between organic and psychogenic impotence if used in conjunction with a careful sexual history, medical evaluation and psychiatric assessment. In this regard, questionnaires which differentiate the two syndromes would be extremely useful.

The literature consists of many failures to find psychological differences in psychogenically impotent men or of failures to replicate findings of previous investigators. Using the Neuroticism Scale Questionnaire, Cooper\textsuperscript{15} was unable to find an association between anxiety and psychogenic impotence. Cooper\textsuperscript{16} also administered the Foulds Hostility Questionnaire to 64 patients suffering either from impotence, premature ejaculation or impotentia ejaculandi. The three groups had similar scores. However, the sexual dysfunction group demonstrated higher hostility scores than a normal control group. An organic impotence control group was not used. Senoussi\textsuperscript{17} reported that the Male Impotent Test discriminates between psychogenic and organic impotence. Methodological shortcomings of this test\textsuperscript{18} and failures to replicate this finding\textsuperscript{19} severely curtail the value of this questionnaire.

The Minnesota Multiphasic Personality Inventory (MMPI) has also been suggested as an instrument to differentiate psychogenic from organic impotence.\textsuperscript{20} Beutler and his associates\textsuperscript{21-24} examined MMPI scores in relationship to nocturnal penile tumescence evaluations in 32 men with erectile disturbances. No significant group differences were noted on any of the scales. However, using a criterion group of 10 patients representing the extremes of nocturnal penile tumescence adequacy and inadequacy, they derived a decision rule to differentiate organic from psychogenic impotence. The presence on MMPI masculinity-femininity standard score greater than 60 combined with a standard score greater than 70 on at least one other scale was reported to indicate 70-80\% likelihood that the erectile disturbance as psychogenic. Such a profile would indicate greater psychological disturbance in the psychogenic patients. Marshall and associates\textsuperscript{22} recently reported an attempt to cross-validate the Beutler findings in a sample of 20 impotent men. They were unable to replicate these findings and reported that organically impotent patients appeared more psychologically disturbed.

More recently, Derogatis and associates\textsuperscript{23-24} reported the development of the Derogatis Sexual Functioning Inventory. This is one of the most sophisticated instruments in the field of human sexuality, being both well conceptualized and standardized. This instrument takes approximately 45-60 minutes to complete and contains 10 subtests: sexual information, sexual experience, sexual drive, sexual attitudes, psychological symptoms, affect, gender role, sexual fantasy, body image, and sexual satisfaction. In a recent report,\textsuperscript{25} this instrument was administered to a sample of 28 impotent, white, middle- to upper-middle-class
patients. Psychogenically impotent patients had significantly more sexual experience and a hyperpolarized masculine role definition than did men with biogenic impotence. The authors suggested that this profile might indicate a counterphobic response toward sexuality in psychological impotence cases. This rigid, sex-typed role definition was posited as rendering an individual vulnerable to the development of sexual disorders.

In view of the provocative findings by Derogatis and associates and in view of numerous failures to replicate such findings in the past, the purpose of this investigation was to see if the Derogatis findings could be cross-validated in a different setting.

PROCEDURE

The authors have been involved in the collaborative evaluation and treatment of patients with erectile dysfunction for over 3 years. However, this clinical series is limited to patients investigated in a more rigorous manner over the past 14 months. This evaluation consisted of a thorough medical history and physical examination, supporting laboratory investigation where indicated, assessment of penile blood pressure and a 2-hour psychiatric examination stressing a thorough sexual history. In questionable cases, nocturnal tumescence testing was used as an auxiliary diagnostic investigation. As part of this evaluation, each patient was also required to complete the Derogatis Sexual Functioning Inventory (DSFI), the Locke-Wallace Marital Adjustment Test and the Azrin Marital Happiness Scale. Completion of these scales was concluded prior to any therapeutic intervention.

Patients were allocated to the psychogenic and organic groups according to specific criteria. These criteria are listed in Tables 1 and 2. For the purposes of this series, impotence was defined according to DSM-III criteria for inhibited sexual excitement.

TABLE 1
Criteria for Psychogenic Impotence

At least one of the following for a provisional diagnosis of psychogenic impotence:

1) Full erections upon awakening occurring two or more times per week for the past 3 months and lasting until micturation; patient judged erection turgid enough for vaginal penetration if such attempted
2) Normal masturbatory erections
3) Normal erections with alternative partner
4) Normal erections after trial of behavioral sex therapy
5) Frequent, full, lasting erections during noncoital activity (e.g., for 5 minutes of foreplay with detumescence occurring only when penetration planned)
6) Normal nocturnal tumescence record

Both of following necessary:

1) Normal penile blood pressure
2) Absence of detectable physical abnormality probably contributory to the disorder
TABLE 2
Criteria for Organic Impotence

All of criteria below necessary:
1) No full sustained erections under any conditions for at least 6 months (e.g., upon awakening, masturbatory, extramarital, spontaneous)
2) Presence of organic condition known to cause impotence (e.g., pelvic surgery, radiation, injury, diabetes, other major endocrine disorder); if diabetic, either insulin dependent more than 5 years of presence of other vascular or neurological complication, plus progressive loss of function
3) Time course must fit organic condition
4) Insidious onset unless related to clear organic insult (e.g., priapism)
5) No obvious psychological precipitating events; if obvious psychological precipitating event, nocturnal tumescence must be abnormal and evidence of physical impairment noted

This criterion alone can suffice:
1) Decreased penile blood pressure and absent normal erections

RESULTS

Demographic Description

In the series, 12 men were identified as having impotence of organic etiology (2 post priapism, 1 post pelvic irradiation, and 9 diabetics). The average age of this group was 45.6 years; the average duration of erectile dysfunction was 8.1 years. Fifty-eight percent of this group was black. The percentage in each marital status group was as follows: single 17%; divorced or separated 33%; married 50%. The percentages in various social classes as defined by the two factor index of social position were as follows: I 8%; II 17%; III 0; IV 50%; V 25%.

Fifty-one men were identified as having impotence of psychogenic etiology. The average age of this group was 45.7 years; the average duration of the complaint was 5.7 years. Twenty-eight percent of this group was black. The percentage in each marital status was as follows: single 24%; divorced or separated 25%; widowed 8%; married 43%. The percentages in various social classes were as follows: I 20%; II 6%; III 29%; IV 31%; V 14%.

Chi square analyses did not reveal significant differences between the groups on demographic variables.

Comparison of Psychogenic versus Organic Groups on DSFI Scores

Repeated students' t-tests between all 10 subscales on the DSFI between organic and psychogenic groups did not indicate significant differences on any of the scales.
Relationship of DSFI Scores to Demographic Variables

As the psychogenic and organic groups differed on various demographic indices (although not to a statistically significant level), the relationship between demographic measures and DSFI scores was examined by product-moment correlations. Various demographic variables were significantly related to DSFI scores. These relationships are illustrated in Table 3.

Age was significantly correlated with five of the DSFI scales. Older age was associated with decreased sexual drive and fantasies and, reassuringly, with increased satisfaction and positive body image. Rather surprisingly, race was correlated with numerous DSFI Scales. Black racial status was associated with decreased sexual experience, less psychological distress, fewer sexual fantasies and increased sexual satisfaction. Being married as compared to being nonmarried was associated with lessened sexual drive. Duration of the complaint and social class were also associated with DSFI variables.

Formation of a Psychogenic Cohort

The presence of numerous associations between demographic indices and DSFI scores suggested that the formation of a matched psychogenic group was indicated. This was accomplished by first matching each organic case with a psychogenic case of the same race and closest age. Further matches were done for marital status, duration of complaint and social status.

The matched psychogenic group had an average age of 48.2 and a duration of complaint of 8.6 years. Racial and marital status composition of the matched group was identical to the organic group. Social class match was good with the social class distribution in the matched group being: I 16%; II 8%; III 8%; IV 42%; V 25%.

Comparison of Organic Group With Matched Psychogenic Group

The mean DSFI scores and standard deviations of the two groups are listed in Table 4. Repeated t-tests between scale scores of the two groups were all nonsig-

<table>
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<th>Sexual Experience</th>
<th>Sexual Drive</th>
<th>Sexual Attitudes</th>
<th>Psychologic Distress</th>
<th>Sexual Fantasies</th>
<th>Body Image</th>
<th>Sexual Satisfaction</th>
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TABLE 4

Means, Standard Derivations of Organic and Matched Psychogenic Groups

<table>
<thead>
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<th>Organic</th>
<th>SD</th>
<th>Psychogenic</th>
<th>SD</th>
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<td>19.3</td>
<td>3.1</td>
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<td>.31</td>
<td>.47</td>
<td>.35</td>
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<td>.48</td>
<td>1.33</td>
<td>.86</td>
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<td>Sex Fantasy</td>
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<tr>
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<td>8.1</td>
<td>14.9</td>
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<tr>
<td>Sex Satisfaction</td>
<td>6.7</td>
<td>3.0</td>
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</table>

significant. Similarly repeated analyses of variances comparing scale scores of the psychogenic, organic, and a previously reported normal control group were nonsignificant.

The psychological distress scale of the DSFI is similar to the Hopkins Symptom Checklist and consists of nine subscales: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Each of these subscales were scored and the organic and psychogenic groups compared. No significant differences were noted. The small numbers of married men made comparison of marital adjustment indices impractical.

**CONCLUSION**

Clearly, no evidence was found to support the hypothesis of identifiable personality differences between men with psychogenic and organogenic erectile dysfunction. The small, statistically insignificant differences found were different in direction from those previously reported by Derogatis and associates. Thus, this study should be considered as another failure to replicate in the attempt to identify personality characteristics associated with psychogenic impotence.

It is possible that such a relationship exists and that technical difficulties precluded the current authors' attempt to find such a relationship. The DSFI is a well-standardized instrument, but it was originally standardized using a population, predominantly white and mainly of social classes I through III. Clearly, the population reported here had a larger proportion of individuals in social classes IV and V. The report of differences in personality between organic and psychological impotence by Derogatis was based on a study of mainly white, middle- to upper-class patients. It is conceivable that the DSFI is less reliable with a black population or with individuals from the lower socioeconomic classes. Anecdotally, this appears to be a possible explanation as it was not infrequent for lower socioeconomic patients to take up to 2 hours to complete the questionnaire, to
ask for clarification of questions, and to appear to experience considerable subjective discomfort while completing the questionnaire.

It would not appear that incorrect assignment of cases to the criterion groups was responsible for the failure to replicate. The current study used a methodology similar to that reported by Derogatis. Each case was seen by four investigators with considerable experience in the diagnosis and treatment of erectile dysfunction. The diagnostic procedures exceeded 5 hours in most cases, and consisted of detailed documentation of the level of current sexual functioning. Although nocturnal tumescence testing was not routinely employed, the organic group clearly consisted of cases of impotence of organic etiology. No patient in this group had obtained more than semiaccid erections under any circumstances for at least 4 years. Two patients in this group were impotent secondary to fibrosis resulting from repeated bouts of priapism. One patient had the onset of erectile dysfunction after receiving considerable pelvic radiation for the treatment of Hodgkin's disease. The other nine patients were insulin dependent diabetics, seven of whom had clear signs of peripheral neuropathy. One of these diabetics had a penile index of .59, indicating considerable compromise of penile blood flow. As of this date, seven in this group have had successful penile prosthesis implantation.

If one examines the matched group for psychogenic impotence, it contains: two individuals who were able to achieve complete and full erections during bi-weekly masturbation; one individual who had a spontaneous remission of symptoms shortly after initial evaluation, three individuals subsequently successfully treated in behavioral sex therapy; four patients who recovered transient normal erectile function prior to terminating sex therapy; and two divorced individuals whose erectile function has shown a gradual recovery as time from divorce accrues.

The repeated failures reported in the literature to find consistent personality differences between men with psychogenic and organic impotence may be due to other causes. Inability to achieve erections in marital coitus is an observable end result of many possible psychologic etiologies. Even cases of chronic psychogenic impotence constitute an extremely heterogeneous group. Within this sample, the appearance of psychologic erectile dysfunction appeared related to a myriad of causes ranging from individual psychopathology to chronic marital dysfunction in otherwise healthy individuals. In other cases, the onset of impotence appeared clearly related to a significant psychosocial stress such as widowhood, becoming divorced, or the death of a child or parent. It is highly unlikely that any common psychological profile would differentiate this heterogeneous group from an equally heterogeneous 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 than reported to date. The work by Ansari indicating poor prognosis for insidious onset psychogenic impotence versus impotence with an acute onset related to identifiable stress is a beginning effort at subpartitioning the heterogeneous group of psychological impotence.

Another explanation for the repeated findings of psychological characteristics of impotent men by one group of investigations and the failure to replicate by another group may be that few investigations are studying representative
samples of impotent men. Studies of psychological impotence are usually done by psychiatrists, psychologists and other mental health professionals. Impotent men reach these investigators from a variety of sources, including self-referral and physician referral. In our experience, it appears that there are considerable differences between self-referred couples coming to a sexual dysfunction clinic and physician-referred patients. Similarly, many men who are referred to sexual dysfunction clinics by nonpsychiatric physicians do not complete such referrals. Our preliminary data suggest that only approximately 50% of such referrals are completed.

In summary, given our lack of precise knowledge about the incidence of impotence in the general population, its natural history, and the selection processes involved in those who finally consult with a sexual treatment unit, we need to be extremely cautious in generalizing findings from individual studies. The failure of other investigations to replicate some of Masters and Johnson's clinical findings may also be a reflection of this minimally studied selection process.82

REFERENCES