

Psychological Correlates of Functional Dysphonia: An Investigation Using the Minnesota Multiphasic Personality Inventory

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Summary: Abnormal psychological factors have been implicated in the development of functional dysphonia (FD). This investigation describes the personality and psychological characteristics of 25 female subjects who had received the diagnosis of FD. In all subjects symptoms were resolved after voice therapy. While vocally asymptomatic, these remitted subjects with FD completed the Minnesota Multiphasic Personality Inventory (MMPI), an objective personality questionnaire. When compared with a medical outpatient control group, the results showed that subjects with FD scored significantly higher on 7 of 10 clinical scales, suggesting an elevated degree of emotional maladjustment. A stepwise logistic discriminant analysis identified 2 clinical scales that provided valuable discriminatory power between the two groups. Scale 1 (Hs—hypochondriasis), which measures the number and type of reported somatic complaints, and scale 7 (Pt—psychasthenia), a measure of diffuse anxiety, discriminated the groups with 88% sensitivity and 89% specificity. The results suggested that in spite of symptom improvement after voice therapy, the subjects with FD continued to exhibit poor levels of adaptive functioning, which may represent trait-like vulnerability. The clinical implications of these results for voice practitioners are discussed. **Key Words:** Functional dysphonia—Psychological characteristics—MMPI.

The human voice is regarded by many as the “valve of emotion” and a “window to personality,” implying that it is a conduit for the expression of emotions and temperament. Consequently, when voice becomes disordered, abnormal psychological processes are frequently offered as potential causal mechanisms, as is often the case in functional dysphonia (FD), where no visible structural or neurological pathology exists to explain the

voice disturbance (1,2). Functional dysphonia, which may account for more than 10% of cases referred to multidisciplinary voice clinics (3) occurs predominantly in women, and is frequently transient (4,5). It is often preceded by upper respiratory infection symptoms and varies in its response to treatment (6–18). Although the voice literature is replete with speculations regarding the personality–psychological characteristics associated with FD, the precise nature of the voice–psychology relationship remains unspecified (19). This investigation proposes to describe the psychological characteristics of a group of patients with FD.

DEFINING FUNCTIONAL DYSPHONIA

Controversy surrounds the term “functional dysphonia,” and some clinicians object to the label because of

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Portions of this study were presented at the American Speech and Hearing Association Convention, New Orleans, Louisiana, U.S.A., 1994, and it has been accepted for presentation at the Voice Foundation’s 25th Annual Symposium, Philadelphia, PA, 1996.

its etiologic and symptomatologic ambiguity (1,8,16). *Functional* implies a disturbance of physiological function rather than in anatomical structure. Functional is usually contrasted with *organic* and often carries the added meaning of psychogenic. Stress and psychological conflict are frequently presumed to cause or exacerbate functional symptoms (20–22). Confusion exists because FD is often used as the general descriptive term for many disorders, and is sometimes broadly synonymous with “hysterical,” “psychogenic,” “conversion,” “psychosomatic,” “muscle misuse,” or “tension” dysphonia. Certain authors prefer the labels psychogenic or conversion voice disorder to describe the presumed psychological origins of the dysphonia (6,8). Theorists differ, however, concerning the relative contribution of psychological factors to the formation of functional voice disorders (23). There is currently no clear evidence of whether psychological processes should be considered causal, correlational, or consequential.

Functional *dysphonia* and *aphonia* are sometimes regarded as disorders represented on a continuum of severity, and are believed to share a common etiology (12). In aphonia, patients lose their voices completely and articulate in a whispered breath stream, whereas dysphonia suggests phonation is preserved, but disturbed in quality, pitch and/or loudness (24). Most studies investigating personality and/or psychological processes group both disorders under the designation “psychogenic voice disorder,” reflecting the etiological supposition. Some authors warn that distinctions must be made between aphonia and dysphonia to prevent overestimation of the role of psychological factors in dysphonia (25).

PSYCHOGENIC MECHANISMS

Most clinicians acknowledge that factors contributing to a dysphonic voice are often a complex blend of organic, psychological and social elements, any one of which may be a predisposing, precipitating, or perpetuating agent (8,26). Rammage et al. (27) described several psychopathological processes that might be active in symptom formation. One such mechanism was conversion reaction. In conversion, the voice loss is believed to represent a symbolic somatization of psychodynamic conflict. In short, patients convert psychic distress into a somatic symptom. In such disorders, the dysphonia is typically described in relation to primary and/or secondary gain (8,28–30).

In addition to conversion, other psychological processes have been proposed to explain FD, including the combined interaction of organic and psychogenic

mechanisms. One example of this interaction is the “specificity hypothesis” offered by Alexander (31,32). This theory suggests that a specific stimulus (emotional conflict) elicits a distinctive response, or illness, and the organ affected (larynx) is determined by a genetic weakness or vulnerability. Milutinovic (9) recognized the extensive etiologic overlapping of organic and functional voice disturbances and suggested that “genetic factors, the state of the endocrine and neurovegetative systems, and psychological factors are significant in the development of functional dysphonia” (p. 179). He believed that psychogenic aphonia and dysphonia should be considered as *phononeuroses*. Since over half of his phononeurotic patients had documented infection of the upper respiratory airways preceding the voice disturbance, he concluded that a direct connection existed between the pathological state of the mucosa and the development of FD. Milutinovic speculated that organic changes in the larynx, pharynx and nose facilitate the appearance of a functional voice problem; that is, they direct the somatization of the psychodynamic conflict.

Schalen and Andersson (3) also emphasized the interaction between psychological and physiological influences. Based on results of their study of subjects with psychogenic dysphonia and aphonia, they concluded that the high number of reported allergy/asthma symptoms (37.5%) justified a more detailed examination of the interrelationship between psychological factors and respiratory and phonatory disorders.

In addition to acknowledging the conversion explanation for FD, Nichol et al. (26) suggested that “tensional symptoms arise from the overactivity of autonomic and voluntary nervous systems in individuals who are unduly aroused and anxious” (p. 644). He added that such overactivity leads to hypertonicity of the intrinsic and extrinsic laryngeal muscles, resulting in muscle tension dysphonias sometimes associated with adjustment and anxiety disorders, or with certain personality trait disturbances. This generalized laryngeal hypertonicity is also a recurrent theme in the writings of Aronson and others (8,24,27–30).

Finally, most authors have viewed psychological factors as strongly influential in the development of FD, and have virtually ignored the possibility that such processes could be the consequence of coping with an incapacitating voice disorder. Depression, anxiety, and tension are frequent psychological concomitants of chronic illness (33–35). The notion that such sequelae could be considered outcomes of a severe voice disturbance, rather than causal agents, has received little attention.

STANDARDIZED ASSESSMENT OF PSYCHOLOGICAL PROCESSES

Although the previous review of potential psychological mechanisms represents engaging speculation, empirical evidence to support these explanations has seldom been provided. Only a handful of studies exist that have

used standardized instruments to assess the voice-psychology relationship. Table 1 provides a review of the major findings and interpretations. Direct comparison of the results is restricted because of significant methodological differences. Some studies neglected to use control groups or normative data, whereas other researchers selected comparison groups with unmatched or unspeci-

TABLE 1.

Reference	Subjects	Test instrument(s)	Major findings and interpretations
Aronson et al. (12)	Psychogenic aphonia/dysphonia N = 24 F; 3 M Mute (1) Continuous whisper (11) Intermittent whisper-phonation (7) Continuous phonation (8)	Minnesota Multiphasic Personality Inventory (MMPI) Clinical psychiatric interview	A period of acute/chronic stress antedated the onset of dysphonia in 74% of the patients. 93% of patients were judged to have difficulty dealing with anger. 26% of patients reported excessive somatic complaints. No patient was in acute psychiatric distress. A clinical impression of hysteria was observed in less than half of patients, and 30% exhibited a conversion "V" profile. The authors suggest that the entire group had a hysterical flavor.
Pfau (36)	Psychogenic aphonia/dysphonia N = 46 F; 8 M	German equivalent of MMPI	Results suggested neurosis in 35% of female patients, 20% of whom were considered a hysterical reaction type. The majority of individual profiles were either uninterpretable (37%) or considered within normal limits (28%).
Kinzl et al. (10)	Hyperfunctional and hypofunctional aphonia N = 22 F	Psychiatric evaluations Social support network assessments Life event inventories	Patients did not have particular personality traits in common, nor exposed to comparable conflict situations. "Personality structures and psychopathological symptoms ranged from mild impairment to severe neurosis (p. 134)." Hysterical personality traits were frequent, but not always present. 75% of patients have other psychosomatic functional disturbances in their histories. Authors suggest that aphonia is a homogeneous clinical syndrome with heterogeneous personality structures and psychopathologies underlying its development.
Gerritsma (6)	Psychogenic dysphonia/aphonia N = 75 F; 7 M	Wilde's Amsterdam Biographical Questionnaire (ABV) Social Anxiety Scale (SAS) Wolpe-Lazarus Assertiveness Scale (WLAS)	42% of patients scored high on neuroticism (N) and neurotic somatization (NS) scales, a pattern consistent with conversion symptoms; and 40% scored low on the extraversion (E) scale, suggesting a tendency toward introversion. 4% met DSM (III) criteria for hysterical personality. 65% of subjects were socially anxious, nonassertive, or both. Author suggests dropping the term "hysterical dysphonia" in favor of one of "conversion, psychogenic or functional" aphonia.
Friedl et al. (7)	Functional dysphonia (FD)/aphonia (20) Organic dysphonia (14) Normal control (20)	Multiple measures of personality and anxiety	FD patients show a tendency toward restraint, and in stressful situations, the result is an intensified anxiety state. Life events may influence pathogenesis of FD.
Friedl et al. (25)	Functional dysphonia (FD)/aphonia	Empirical-psychological procedure	Psychological conditions were major etiologic factors in aphonia, but only partially relevant in patients with functional dysphonia. Authors warn that distinctions must be made between aphonia and dysphonia to prevent overestimation of the role of psychological factors in "dysphonia."
House and Andrews (37)	Functional dysphonia (FD)/aphonia Dysphonia (65) Aphonia (4) Spastic (2)	Present State Examination (PSE) Bedford College Life Events and Difficulties Interview	Authors failed to find an association between voice type and PSE score or psychiatric diagnosis. "The majority of patients were remarkable for the apparent normality of their premorbid psychological and social functioning. Major mental illness was infrequently diagnosed and minor states of tension and anxiety predominated (33%) (p. 488)." FD is not usually found in markedly abnormal personalities and previous episodes of conversion disorder are rare.

fied qualities. Most investigators did not describe whether subjects were vocally asymptomatic at the time of testing. It is therefore difficult to judge whether these psychological attributes reflect long-term, trait-like characteristics or merely represent reaction to the voice disorder (i.e., "state" attributes). These problems are complicated by inclusion of heterogeneous voice disorder types, and the failure of the investigators to distinguish aphonic from dysphonic subjects. This might partially explain the diverse results regarding the frequency and degree of hysterical personality traits (6,10,12) conversion reaction (6,10) and psychopathological symptoms (6,10,12,36,37). These obstacles make it exceedingly difficult to appraise the specific nature of the voice-psychology relationship. As Green (19) states, "until more adequate research is conducted, psychological variables must be considered possible etiological, consequential and therapeutic factors" (p. 34).

The primary goal of the present study was to assess the psychological characteristics of patients who had functional dysphonia. In accordance with the recommendation of Freidl (25) this investigation was restricted to those subjects exhibiting dysphonia, not aphonia. By contrasting the personality profiles of remitted functional dysphonics with a medical outpatient control, we attempted to shed further light on the voice-psychology relationship.

SUBJECTS

Methods

Two groups were selected to participate in this investigation. The group with voice disorders consisted of 25 female patients (ages 18 to 69 years, mean 44.6 years, ± 12.5) who attended a hospital-based speech pathology service. All of the subjects had a voice disturbance that ranged in duration from 4 days to 3 years, with a mean duration of 8.5 (± 11.6) months. The diagnostic label of functional dysphonia was offered following comprehensive perceptual, acoustic, and videolaryngoscopic examinations by a speech pathologist and otolaryngologist. Diagnostic inclusion criteria for FD were: (a) a voice disturbance in the absence of visible mucosal disease or structural pathology; (b) no neurological pathology (specifically, vocal fold paresis, paralysis or motor speech disturbance); (c) no previous laryngeal surgery; and (d) no coexisting upper respiratory infection symptoms at the time of examination. All of the subjects were treated by one of two speech pathologists (NR and ST). Each subject responded favorably to voice therapy techniques; that is, voice improved substantially or returned to normal, according to the perceptual judgment of both the

clinician and patient. The negative laryngeal findings, combined with the positive response to treatment, excluded other possible explanations, and confirmed the diagnosis of FD.¹

The control group consisted of 19 age- and gender-matched medical outpatients without voice disorders (mean age 45.8 years, ± 14.6 ; range 28 to 74 years) who were recruited by their family physician during a non-emergent visit. The control subjects received medical care for physical complaints unrelated to laryngeal function, and had no previous history of voice related problems. Because control subjects sought help for medical concerns, it was thought that they would serve as an appropriate comparison group.

PROCEDURES

Description of the MMPI

During a follow-up session (mean 3.96 months after treatment, ± 5.91), each remitted FD subject completed the *Minnesota Multiphasic Personality Inventory* (MMPI) (39) in a quiet setting. The MMPI is the most widely used personality test in the United States (40). The relatively unambiguous stimuli and the structured response format qualify the MMPI for classification as an objective technique of personality assessment. It permits inferences regarding general level of adjustment and degree of psychopathology. The MMPI consists of 566 self-reference statements; subjects respond "true" or "false" to each statement depending on whether the subject views the statement as descriptive of her behavior.

Scoring of completed inventories was undertaken by a licensed psychologist (JJM). The scoring procedure produced scores for 3 validity scales and 10 basic clinical or personality scales. The raw scores from the standard validity and clinical scales were transformed to linear T-scores (mean 50; SD = 10). The T-scores were then plotted to construct a profile, which served as the basis for generating inferences regarding the examinee. The validity scales L, F, and K not only provided validation measures of the subject's attitude toward taking the test (i.e., defensiveness, or responding in a socially desirable manner), but also furnished useful clinical information.

¹ The presence of dysphonia and its positive response to treatment was substantiated by auditory-perceptual evaluation by four judges. Randomized pre- and posttreatment audio recordings of the middle sentence of the Rainbow Passage (38) were rated on a seven-point equal-appearing interval scale, where 1 indicated normal voice and 7 indicated a severe voice disorder. Results confirmed a significant reduction in mean severity ratings across all subjects. The interested reader should refer to Roy et al (48) for a complete description of the rating procedure.

The clinical scale section of the MMPI profile was composed of 10 scales, each with a number, abbreviation, and formal name. The 10 clinical scales yielded information regarding problem areas for the examinee. Elevation of scores on each of the clinical scales (1 through 10) was one indicator of adjustment. In general, the more the scores on the clinical scales were elevated (and as the degree of elevation increased), the greater was the probability that some psychopathology and poor level of adaptive functioning was present (41). Elevated scores were considered to be in the moderate range when $T = 60$ through 70 , and to be in the marked range when $T = 70$ or above. This division into categories is a generally-accepted convention and should not be taken as absolute.

RESULTS

All test patterns and profiles were within admissible validity limits. Only 32% of FD subjects (8 of 25) displayed "normal" MMPI profiles, as evidenced by no clinical scale score exceeding $T = 70$. This is compared with 90% of the medical control patients (17 of 19) whose profiles fell within the normal range using the same criterion.

The means and standard deviations for the validity and clinical scale variables appear in Table 2. Asterisks indicate significant differences between groups based on t-test comparisons of mean T-scores. P values for each of the comparisons are also provided. Inspection of these data revealed that the functional dysphonia group did not differ from the medical controls on any of the 3 validity scales. However, FD subjects differed significantly from the controls on seven of the 10 clinical scales, specifi-

cally scales 1 Hs-hypochondriasis, 2 D-depression, 3 Hy-hysteria (scales 1-3 constitute the "neurotic triad"), 6 Pa-paranoia, 7 Pt-psychasthenia, 8 Sc-schizophrenia, and 0 Si-social introversion.

Figure 1 illustrates composite MMPI profiles generated from the mean T-score values for the FD and medical control group. The cursory scale descriptions that follow were derived from several sources and serve only to familiarize the reader (41-47). *Scale 1 Hs* measures the number of bodily complaints claimed by the examinee. Individuals who score high on this scale are characterized by denial of good health and the admission of a variety of vague somatic symptoms. This scale reflects "dispositional" attributes, suggesting that elevated scores tend to reflect long-standing behavior. *Scale 2 D* is a mood scale that provides an index of the examinee's present degree of pessimism, dissatisfaction, and sadness. This scale is sensitive to current states of mood and mood changes, and as such, represents a "state" index. Those with elevated scores report feeling depressed, blue, unhappy, or dysphoric. *Scale 3 Hy* measures tendencies toward denial. One method of avoiding facing difficulty and conflict is to deny such situations exist. This scale measures the amount and type of such denial. It is considered a character scale. High scorers acknowledge many physical problems, but deny that they are worried about them. Elevated scores may be suggestive of persons who, when under stress, avoid responsibility by developing physical symptoms. Persons may be symptom-free most of the time, but under stress the symptoms appear suddenly. These symptoms are likely to disappear just as suddenly when the stress subsides. *Scale 6 Pa* suggests suspiciousness, interpersonal sensitivity, and a rigid adherence to ideas and attitudes. *Scale*

TABLE 2.

Validity and clinical scales	Functional dysphonia		Medical control		p value
	Mean	SD	Mean	SD	
L Scale	56.96	11.32	56.52	8.62	.8901
F Scale	59.88	13.21	53.42	11.39	.0959
K Scale	49.24	10.26	54.15	9.91	.1175
1-Hs: Hypochondriasis	65.84	10.11	51.47	8.68	<.0001 ^a
2-D: Depression	62.40	10.43	50.74	6.70	<.0001 ^a
3-Hy: Hysteria	63.88	13.03	52.42	11.39	<.0040 ^a
4-PD: Psychopathic Deviate	56.44	9.63	52.32	8.29	.1431
5-Mf: Masculinity/femininity	50.12	9.75	53.58	11.25	.2817
6-Pa: Paranoia	57.08	10.15	51.12	8.09	<.0430 ^a
7-Pt: Psychasthenia	61.24	7.39	47.16	9.09	<.0001 ^a
8-Sc: Schizophrenia	61.68	8.49	48.37	10.90	<.0001 ^a
9-Ma: Mania	53.40	10.71	51.89	10.80	.6479
0-Si: Social introversion	57.84	6.32	53.05	5.05	<.0098 ^a

^a Indicates statistically significant differences. ($p < .05$)

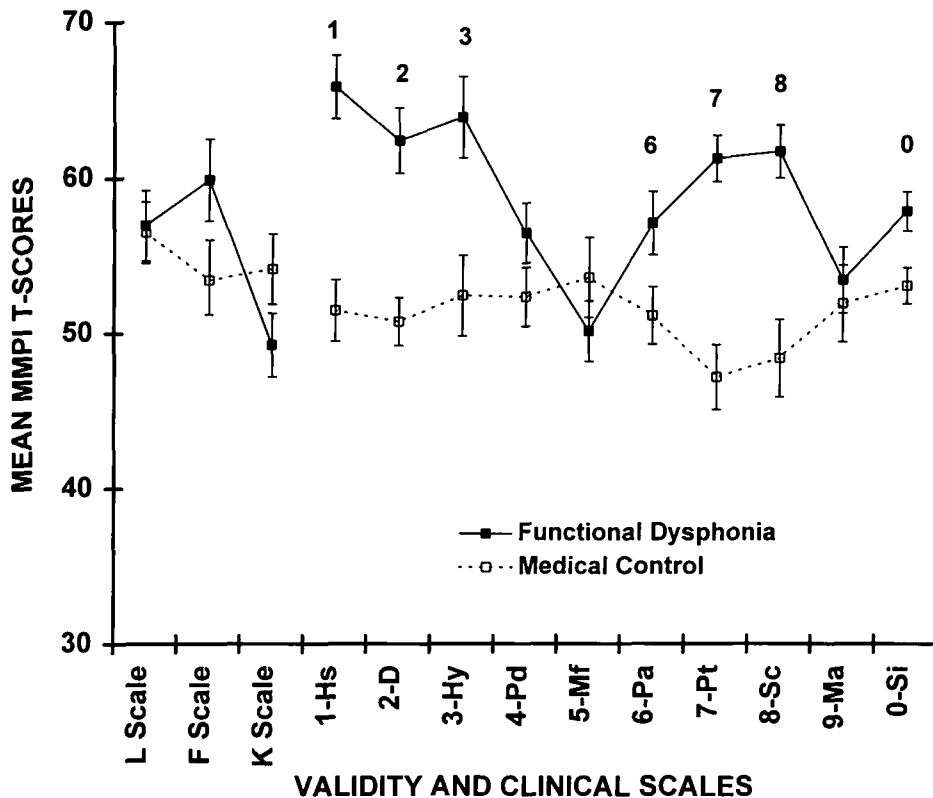


FIG. 1. Composite MMPI profiles for functional dysphonia and medical control groups using mean T-score values (\pm standard error). Numbers placed above selected scales indicate significant differences between the groups, based on t-test comparisons of mean T-scores.

7 Pt is a measure of diffuse anxiety, usually of a long-term nature; thus, general trait anxiety related to character. Individuals with elevated scores have a low threshold for anxiety and tend to be worried, indecisive, tense, and unable to concentrate. When scales 1, 2, and 3 are combined with scale 7, they describe individuals with increased anxiety and fearfulness in addition to the physical ailments suggested by the triad (1-2-3) profile. *Scale 8 Sc* measures mental confusion: the higher the elevation, the more confused the person is. Elements of this scale deal with social alienation, isolation, bizarre feelings, influence of external agents, peculiar bodily dysfunctions and general dissatisfaction. *Scale 0 Si* provides an index of a person's preference for being alone (high 0) or being with others (low 0). High scorers tend to be withdrawn, socially insecure, and anxious when in contact with people. All of these scales, with the exception of scale 2 D are viewed as assessments of character, not mood. All but scale 2 D represent relatively enduring personality structures (41-47).

A stepwise logistic discriminant analysis was performed to identify clinical scale scores that best distinguished the group with voice disorders from the controls. The clinical score variables were entered in a stepwise

fashion, in the order of their discriminatory ability. Variable entry stopped when the remaining variables contributed no further significant discriminatory information. All variables remaining in the model were significant at the 0.05 critical level. Two scales sufficiently discriminated the FD subjects from the controls: clinical scale 1 (Hs), a general index of frequency of somatic complaints; and scale 7 (Pt), a measure of diffuse anxiety. Figure 2 graphically illustrates a scatter plot of individual FD and medical control subjects, using the two clinical scales. Subjects' T-scores are plotted for scale 1 (Hs), which is represented on the y-axis, and scale 7 (Pt), which is represented on the x-axis. This scatter plot of the distribution of scores for the FD subjects versus the controls clearly illustrates the discriminatory value of the two clinical scale variables.

For each subject, a predicted value was obtained from the estimated logistic regression equation. This predicted value is the probability that the subject is a control. If a probability of 0.4 or greater was used as the cutoff to predict a control, the estimated sensitivity was 88%, and the estimated specificity was 89%. That is, a subject with FD would be correctly identified as such about 88% of the time, and a control subject would be correctly iden-

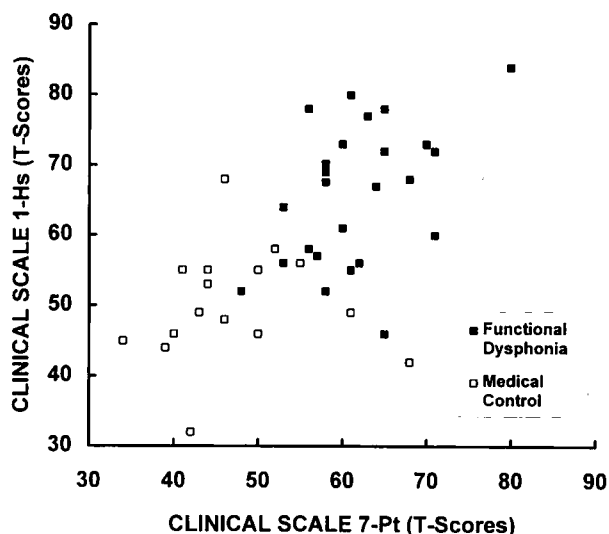


FIG. 2. Scatter plot of T-scores obtained from clinical scale 1-Hs (y-axis) and clinical scale 7-Pt (x-axis) for individual subjects with functional dysphonia and medical control subjects.

tified as such about 89% of the time. These rates are remarkably high.

DISCUSSION

Functional dysphonia is a disorder characterized by heterogeneous psychological and personality functioning. As a group, FD subjects exhibited significantly more emotional adjustment problems and poorer levels of adaptive functioning than a medical outpatient control group. This array of problems included multiple somatic complaints, diffuse anxiety, and dysphoria.

Despite significant differences between subjects with FD and the medical controls in seven of the clinical scales, it is also important to recognize that almost one third of the subjects with FD displayed profiles considered within the normal range. Inventories in most cases were administered several weeks after successful treatment, and therefore, one might argue that these results may actually underestimate levels of emotional maladjustment, especially in this "normal" subgroup. Because we did not administer the MMPI both before and after treatment, it is impossible to directly assess changes in psychological functioning associated with voice recovery. These normal subjects may represent an etiologically distinct subgroup, underscoring the heterogeneity of patients with FD. Clearly, more precise longitudinal methodologies are required to identify changes in psychological functioning after successful voice management.

These results are in general agreement with findings in

previous studies identifying elevated levels of anxiety, somatic complaints and introversion in this patient population (6,7,10,12,37). Although these data do not directly answer the question of whether psychological factors should be considered causal or a consequence of the disordered voice, several inferences can be made. Recognizing that all of the inventories were collected while the subjects were vocally asymptomatic, and assuming that treatment did not create emotional problems, it appears that many remitted patients with FD continue to display emotional adjustment difficulties after their voice symptoms have abated. Thus, the poor levels of adaptive functioning, as demonstrated by elevated MMPI scores, can be interpreted as either representing residual psychological effects, that is, the "emotional scar" of the voice problem, or persistent personality characteristics. Because most of the elevated scores occurred on clinical scales with trait-like stability, the emotional scar argument seems less defensible. These findings suggest that a majority of FD patients display certain psychological and personality dispositions, including bodily preoccupation and anxiety, that are relatively enduring and seem to represent trait-like qualities. Interestingly, this may constitute a persistent vulnerability (diathesis) for the development of tensional or somatic symptoms when under conditions of psychological distress.

In the absence of a psychiatric or psychosocial interview, the question of whether functional dysphonia can be explained by a single mechanism, for example, conversion reaction, is impossible to answer directly with this research methodology. Some qualified evidence from individual MMPI profiles, however, does not appear to support conversion as the sole explanation. Specifically, elevated scores on clinical scales 1 and 3 of the MMPI, with an intervening valley of 10 or more T-points at scale 2, form what has come to be called the "conversion V" (41-47). The general meaning of the 1-3 or 3-1 pattern is that these individuals convert psychological stress and difficulties into physical complaints. It is believed that the association of bland emotional unconcern/effect (low scale 2) with numerous physical complaints (contributing to elevation of Scale 1 scores) and denial of anxieties and fears (raising Scale 3 scores) is characteristic of conversion reactions. Although six subjects with FD approximated the distinctive "V" profile, only three of those subjects met the above accepted standard for the "conversion V" configuration.

Additional evidence against a prototypical conversion profile is found in the presence of other elevated clinical scale scores. In particular, high scores on scale 2 combined with an elevated scale 7 score suggest a pattern contrary to the celebrated "la belle indifférence" some-

times felt to be characteristic of "hysterical" conversion patients. Rather than displaying bland indifference, these patients endorse many items consistent with dysphoria and cognitive distress. This is further complicated by a general tendency toward introversion (high scale 0 score), which is in direct contrast to the extroverted, histrionic style of the hysterical personality. Thus, if conversion is the primary mechanism underlying functional dysphonia, as has been suggested by several authors, then the overwhelming majority of these subjects seemingly do not display the prototypical "conversion profile" as measured by this instrument.

The finding of only 12% of patients with the classic "conversion V" profile is in contrast to results of previous studies by Aronson et al. (12) and Pfau (36), who identified this pattern in 30% and 20% of their patients, respectively. Their findings may reflect differences related to subject selection. Their inclusion of aphonic subjects (and their relative proportions) might partly account for the discrepancy. Unfortunately, any further comparison between the current research and the Aronson study is impeded by the failure of those researchers to provide completed individual or group MMPI data.

In addition to conversion, other mechanisms need to be considered to explain functional dysphonia. Within the diagnostic category of functional dysphonia, it is reasonable to speculate that several subtypes exist with single or multiple etiologic factors. Other psychological mechanisms, including the interaction between trigger factors, voice use, anxiety and tensional states, require further exploration.

CLINICAL IMPLICATIONS

The discriminatory value of scales 1 and 7 merits further discussion. These two scales may be potentially useful as a clinical tool to distinguish patients with FD from other voice disorder types, for example, spasmodic dysphonia. The development of an abbreviated, but reliable screening device could raise the index of suspicion of one type of disorder over another. At the very least, information regarding psychological functioning could assist in the assessment and treatment process.

From these results, it is clear that despite successful voice management, a substantial proportion of patients with FD continue to display emotional adjustment problems. Voice therapy may represent the first step in rehabilitation; however, relapse could be a serious problem in the absence of adjunctive counseling (48). The dysphonia in some patients might be a symptom of underlying psychological distress and tension. Failure to recognize such fundamental problems may limit long-term success in the treatment of functional dysphonia.

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