

# Functional Voice Disorders: The Importance of the Psychologist in Clinical Voice Assessment

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**Summary: Objectives.** The etiopathogenesis of functional voice disorders (FVDs) is multifactorial. The purpose of this study was to analyze the severity of depression and anxiety, and the incidence of affective and anxiety disorders, in patients who presented different types of FVDs and were followed at the University Clinic of Otolaryngology.

**Design.** This is a cross-sectional study.

**Methods.** After ENT observation, 83 women were classified into three groups: psychogenic voice disorder (PVD = 39), primary muscle tension voice disorder (MTVD1 = 16), and secondary muscle tension voice disorder (MTVD2 = 28). A psychologist assessed the severity of depression and anxiety using the Hamilton rating scales, and screened for affective and anxiety disorders using the Mini International Neuropsychiatric Interview.

**Results.** Significant differences in the mean values were found between the groups, with the MTVD1 group having higher levels of depression and anxiety. In affective disorders (current major depression and current mood disorder with psychotic symptoms) and in anxiety disorders (lifetime panic disorder, current generalized anxiety, and current panic disorder with agoraphobia), significant differences in association were found between groups.

**Conclusions.** Groups presented with significant differences in depression and anxiety levels, and in some psychiatric diagnoses. Patients with FVDs should be independently assessed regarding their voice disorder classification. The integration of a psychologist in the clinical voice assessment team is essential, as findings have corroborated an important incidence of psychiatric disorders in FVDs patients.

**Key Words:** Functional voice disorders–Psychogenic voice disorders–Primary muscle tension voice disorders–Secondary muscle tension voice disorders–Psychiatric Disorders.

## INTRODUCTION

In the adult population, the prevalence rate of voice disorders was estimated at 7.6%,<sup>1</sup> with a lifetime prevalence rate of nearly 30.0%.<sup>2,3</sup> Vocal symptom presentation ranges in a continuum from the complete absence of voice (aphonia) to varying degrees of vocal impairment (dysphonia).<sup>4,5</sup> The vocal symptom may also have a temporary or prolonged expression.<sup>1</sup>

A balance between active and attentive listening is needed when patients present to ENT specialists with voice symptoms.<sup>6</sup> It is up to the voice professional to focus on voice quality<sup>7</sup> and the patient's subjective perception of his or her voice problem. The medical evaluation encompasses not only the observation of the laryngeal structures,<sup>8</sup> but also the vocal folds particularly during breathing and phonation.

Voice disorders are multidimensional and their classification contributes in the characterization of the etiology, the anatomic-functional presentations, and the biopsychosocial factors that they are associated with. The establishment of a classification system has implications on the definition of the treatment choice for each patient with voice disorders.

Several approaches are used to classify the broad range of voice disorders,<sup>9</sup> yet the most common classification corresponds to the dichotomous classification between organic and functional

voice disorders (FVDs), with FVDs being classified as psychogenic voice disorders (PVDs), primary muscle tension voice disorders (MTVD1), or secondary muscle tension voice disorders (MTVD2).

Organic voice disorders are related to malformations of the larynx, acute or chronic inflammations of the vocal folds, vocal fold paralysis, or benign and malignant tumors.<sup>10</sup> FVDs are characterized by dysphonia in the presence of apparent normal vocal fold anatomy and movement. This type of voice disorder may originate from psychological and idiopathic causes.<sup>11</sup>

In FVDs the voice has poor quality, ie, there is no relationship between voice quality and laryngeal signs. The abuse (any vocal behavior that strains or injures the vocal folds, like excessive talking, throat clearing, coughing, smoking, or yelling) or misuse (improper voice usage such as speaking too loudly or at an abnormally high or low pitch) of the anatomic and physiological vocal apparatus causes the vocal behavior to be located at the center of FVDs. A poor vocal technique can lead to the development of compensatory laryngeal maneuvers<sup>12–14</sup> as an attempt to maintain the previous vocal register, which is associated with muscle tension.

This muscle tension during phonation may result from precipitating factors such as acute laryngitis, laryngeal trauma, allergies, prolonged voice rest, persistent cough, or psychological stress.<sup>15</sup> These factors in combination with anxiety or depression,<sup>2</sup> high neuroticism,<sup>16</sup> or the presence of personality disorders may contribute to the development of FVDs.<sup>7,17</sup>

Patients with FVDs were described as having interpersonal sensitivity or estrangement and distrust of others,<sup>18–20</sup> and as being very reactive to stressful life events.<sup>21</sup> The anatomic-functional predispositions were also identified: small glottic proportions, occupational susceptibility, prolonged stress exposure, and laryngeal inflammatory processes.<sup>12</sup> All these factors can interfere

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in the etiopathogenesis of FVDs, such as worsening the vocal condition or delaying the patient's vocal recovery.

FVDs are more predominant in women than in men (3:1) and are more frequent between the third and fifth decades of life.<sup>15</sup>

For Aronson, a PVD indicates the existence of one or more psychological disorders: affective (depression and/or anxiety disorders), conversion, and/or personality disorder, and all can interfere negatively with the phonation process.<sup>22</sup> The term psychogenic clearly indicates that the primary process has a psychological origin,<sup>23</sup> reinforcing the complex and dynamic interaction between vocal production and personality and emotional status.<sup>20</sup>

In 1983, Morrison and colleagues<sup>24</sup> introduced the term muscle tension dysphonia to describe a clinical feature in which patients evidence normal vocal fold morphology and movement. However, extensive voice use can lead to laryngeal changes, which then alter voice quality.<sup>11</sup> Muscle tension dysphonia may manifest itself in two ways: as a primary or secondary feature.<sup>25</sup>

Muscle tension voice disorders have various etiologies<sup>26</sup>: poor vocal technique, great vocal demands and psychological factors,<sup>27</sup> inappropriate vocal behavior, gastroesophageal reflux, and psychological and personality factors.<sup>28,29</sup> Behlau and colleagues<sup>12</sup> emphasized the role of psychological and/or personality factors and vocal misuse or abuse that lead to compensation with an increase on the vocal fold tension. Because muscle tension often arises from the overactivity of the autonomic and voluntary nervous system when arousal or anxiety occurs, poorly regulated laryngeal muscle activity patterns may be present.<sup>30,31</sup>

Muscle tension voice disorders affect nearly 10.0–40.0% of patients in a voice clinic and are also more prevalent in middle-aged women.<sup>32</sup>

MTVD1 occurs in the absence of organic vocal fold pathology and is associated with excessive, atypical, or abnormal laryngeal movements during phonation.<sup>24</sup> In a laryngeal examination, the most common feature is a wide gap upon closure and medial and anteroposterior compression of the glottis with reduction of the vocal fold amplitude.<sup>33</sup>

MTVD2 has both behavioral and organic etiologies. This particular feature corresponds to the vocal pathology in which the presence of an underlying organic condition causes undesirable changes to the function of the vocal folds. Consequently, the excessive effort made during voice production whenever the speaker tries to maintain his or her normal pitch and volume in the structurally altered larynx<sup>4,24</sup> causes trauma to the vocal folds,<sup>25</sup> resulting in vocal nodules, polyps, or cysts. This means that in the presence of fold lesions, a new voice production pattern will arise based on the excessive muscle activity<sup>24</sup> and a vicious circle can be installed.

In reference studies with FVDs patients, the design usually includes a group of patients with FVDs, often with a higher participation of women than men, and a control group composed of healthy subjects, matched by sex and age.

Willinger and collaborators<sup>34</sup> assessed the severity of depressive symptoms of 61 patients with functional dysphonia, and they concluded that 33% of the patients showed clinically significant depressive symptoms, with a percentage far superior to that obtained by the healthy control group. The authors also

used a standardized psychiatric interview that allowed them to diagnose 33.0% of FVDs patients with mood disorders and 20.0% of FVD patients with anxiety disorders, based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria for Axis I.<sup>34</sup>

Kotby et al<sup>35</sup> evaluated the severity of anxiety symptoms in a comparative study involving 100 patients diagnosed with non-organic voice disorders and 50 normal individuals (control group). Elements of both genders were present in both groups. For the sum of mild, moderate, and severe categories of anxiety severity, subjects with non-organic voice disorders scored 43.0% and individuals of the control group reached a value of 6.0%.

Whenever FVDs are investigated, reference to psychiatric illness always arises. The majority of the scientific articles published before 2005, which aimed to address the relationship between FVDs and psychopathology, enabled us to verify that expressions such as “psychological distress,”<sup>12,23</sup> “psychological/emotional conflict,”<sup>21,36,37</sup> “a response to negative emotions in the context of stressful life events,”<sup>21</sup> “emotional maladjustment,”<sup>1,21,36,38</sup> and “mental health troubles”<sup>39</sup> are often used. These labels were chosen to refer to the existence of psychological components acting as precipitants, maintaining and/or perpetuating factors. A review of these studies raised some methodological issues: small sample sizes,<sup>17,40,41</sup> a study group of both genders with a non-homogeneous number of participants being compared with a healthy control group,<sup>23,38,40,41</sup> and whenever the aim was to analyze the frequency of psychological variables in populations with voice disorders, too often these studies resorted to the use of a semi-structured interview and self-report psychological standardized tests.<sup>2,23,36,38,39,41,42</sup>

In addition to these methodological issues, the choice of nomenclature raised the question about the real meaning of these labels as they only provide information about the presence of psychological variables in the etiopathogenesis of FVDs. These labels are not informative in respect to the psychological elements they refer to. More recently, terms such as depression, anxiety, and personality disorders are commonly used in literature when referring to FVDs patients either at a syndromic or nosological level according to the DSM-IV and the International Statistical Classification of Diseases and Related Health Problems (ICD)-10 criteria.

At present, an overall classification does not exist, and this is justified by the lack of consensus on nomenclature. The theoretical model underlying this study recognizes the existence of organic and functional voice disorders, and we will classify FVDs as one of the three presentations that were previously described.

Patients with FVDs were referred to as a group vulnerable to the development of psychiatric disorders. An exploratory and cross-sectional study was designed to assess psychiatric disorders in FVDs patients who were classified into three groups: PVD, MTVD1, and MTVD2.

The main purpose of the present study was to explore and compare the severity of depression and anxiety within groups, which were composed solely of female FVDs patients, and to investigate and compare the incidence of affective and anxiety disorders between groups with the application of hetero assessment standardized tests.

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