
Importance of Behavior in Response to Tinnitus Symptoms

Marina Savastano¹ and Maria Bona Maron²

¹Ear, Nose, and Throat Department and ²Neurologic and Psychiatric Science Department, Padua University, Padua, Italy

Abstract: Among subjects affected by tinnitus, two groups are distinguished: patients who can cope positively with the symptom and patients who cannot cope with it. These differing attitudes suggest the necessity to study affected patients' "illness behavior" (i.e., a subjective interpretation of symptoms concerning body functioning).

Our study considered 125 idiopathic tinnitus sufferers who requested a visit by an otorhinolaryngologist expressly for this symptom. All patients were invited to complete the illness behavior questionnaire (IBQ). IBQ mean score results were lower for affective inhibition and irritability and resulted in higher denial. Patients with more psychological suffering presented higher levels of hypochondria, disease conviction, and dysphoria. Results revealed a correlation between psychological suffering and tinnitus intensity: The group of patients with stronger psychological suffering included more subjects with a higher intensity level. The other group included more subjects with a moderate intensity level. Within the psychological evaluation of tinnitus sufferers, the IBQ results demonstrated particular sensitivity in revealing patients' nonadaptation area in coping with the symptom.

Keywords: subjective symptom interpretation; tinnitus

Tinnitus is a symptom often related to psychological complaints, such as depression, irritability, increased tension, and sleep disturbances [1-4]. In some cases, the distress can be extremely debilitating and may lead to significant changes in lifestyle, occupational functioning, emotional well-being, and social relationship. The result is a declining quality of life [5-8]. In this regard, we must point out that quality of life means life as a whole, as a multidimensional concept. This view encompasses perception of our well-being as a subjective experience, including physical, functional, psychological, and social dimensions [9]. Such changes in psychophysical balance are not necessarily related to the qualitative aspects peculiar to tinnitus (loudness, frequency). As a matter of fact, studies demonstrated that similar audiometric characteristics are evidenced in both successful and poor copers [10]. Moreover, a lack of correlation was evident between audiological measures of the tinnitus and daily distress variations, even if such correlation seems to be related also to the kind of psychometric test used [11-15].

The difficulty in assessment of this symptom derives, however, from the fact that because it is a subjective disturbance, different intensity levels of tinnitus may be described in various ways, and patients may cope with it in different ways as well. This variation is exhibited in accordance with the dynamics of each individual's personality and with the "coping strategies." By *coping strategies*, we mean the engagement of appropriate behaviors in response to a situation, which generally leads to a different method of coping. Therefore, a distinction has been suggested to distinguish between patients who can cope positively with the symptom and those who cope negatively with it. Studies revealed a high score in measuring anxiety and depression in tinnitus sufferers requiring treatment, especially among poor copers [16,17].

One theory that may contribute to our understanding of tinnitus-related distress is the cognitive theory of emotional disturbance espoused by Beck et al. [18]. These authors asserted that depression, anxiety, and other states involve negative thinking about the self, the world, and the future. Such thinking is characterized by illogical processes, such as arbitrary inference, overgeneralization, and magnification. In particular, possi-

Reprint requests: Marina Savastano, Via D. Monegario 6/c, 35127 Padova, Italy.

bly subjects whose thinking already is characteristically negative simply may focus on the tinnitus as an additional subject toward which they entertain negative and illogical thoughts. On the other hand, tinnitus patients may exhibit negative thinking fairly specifically about their tinnitus and not about other aspects of the self, the world, and the future, as the former subjects did.

The engagement of different behaviors and, therefore, different methods of coping with tinnitus are matters of great importance to the clinical study of the subjective interpretation of symptoms concerning one's own physical functioning (illness behavior). This study can be carried out using the illness behavior questionnaire (IBQ) [19,20], a psychometric test that was revealed to be extremely useful and versatile.

In our research, the IBQ was applied to enhance our understanding about coping strategies applied by tinnitus sufferers. We sought to get a more complete description of the psychoemotional condition of these subjects and to better their global therapeutic approach.

MATERIAL AND METHODS

Our study considered 125 idiopathic tinnitus sufferers who requested a visit by an otorhinolaryngologist expressly for this symptom. Patients were invited to complete the IBQ provided that they underwent an accurate anamnesis, audiometry, psychological symptomatology, and functional somatic disease observation by means of a psychological evaluating interview.

Tinnitus loudness is considered at two levels: moderate loudness (<10 dB) and high loudness (>10 dB). Factors studied and measured using the IBQ include the following:

- IBQ1: General hypochondria (phobic reaction to personal well-being)
- IBQ2: Conviction of disease (worry about symptoms and conviction concerning one's own disease)

- IBQ3: Psychosomatic perception (contrast between somatic and psychological perception)
- IBQ4: Affective inhibition (difficulty in expressing personal feelings)
- IBQ5: Dysphoria (anxiety and depression associated with the disease)
- IBQ6: Denial (refusal to admit any difficulty in one's life)
- IBQ7: Irritability (tendency to anger and irritation)

The statistical analysis was performed using the Student's *t* test, the chi-squared test, and the hierarchical complete linkage cluster analysis.

RESULTS

IBQ mean scores compared to values taken from groups of samples revealed on one side significantly lower values in the range concerning affective inhibition and irritability. On the other side, values were significantly higher for denial (Fig. 1). Male patients had higher scores for denial and a tendency to higher scores for irritability ($p < .045$, one-tailed *t* test). Patients' ages exerted no influence on such tests, except for a significantly higher score for irritability in the younger patients (age 40 or younger). Civil status and cultural level did not influence this test. Though occupation is meaningful for irritability, it proved to be higher among those subjects who were engaged in a job.

As for the evaluation of psychological symptomatology, a relation was noted only between those psychological symptoms that existed before the tinnitus onset and high scores for dysphoria ($p < .03$). In contrast, the presence of psychological symptoms beginning after tinnitus onset appear to be much more important and influential for this test when previous symptoms also are present. Only denial, affective inhibition, and psychosomatic perception are not influenced by previous psychological symptoms.

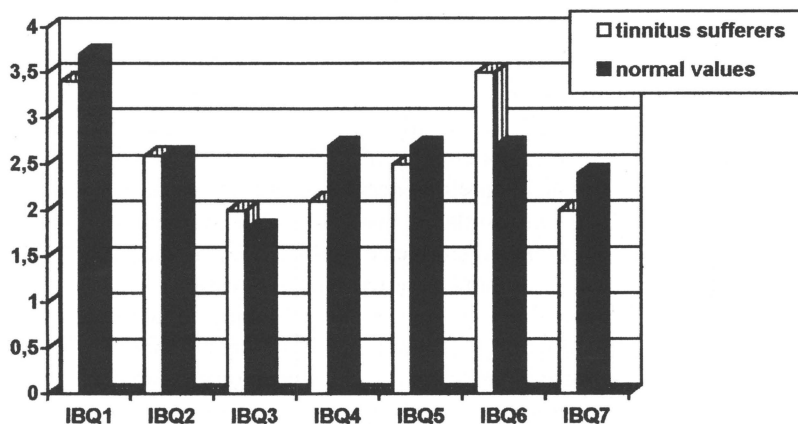


Figure 1. Illness behavior questionnaire mean scores in tinnitus sufferers as compared to normal reference values.

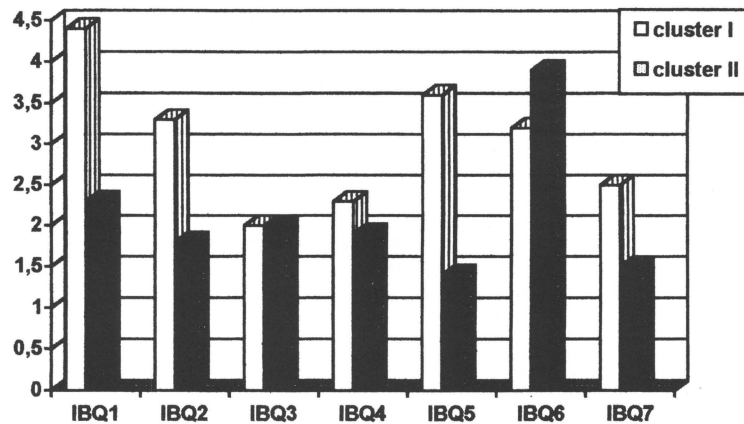


Figure 2. Illness behavior questionnaire mean values for the two clusters.

In patients with functional somatic disease subsequent to tinnitus, the score for psychosomatic perception appears significantly higher. Those patients without presenting symptoms exhibit a lower mean score for conviction of disease.

The analysis of clusters permits us to distinguish two groups. The first, consisting of 87 patients, reported scores higher than those of the second group, consisting of 78 patients, as regards hypochondria, conviction of disease, dysphoria, and irritability, but demonstrated a lower score for denial (Fig. 2). Regarding the correlation with loudness of tinnitus, those in the first group (Fig. 3) revealed more psychological suffering; this group contained more patients with a greater level of loudness (>10 dB). The second group contained more patients with tinnitus of moderate loudness (<10 dB).

CONCLUSION

Results obtained on the IBQ in this study revealed the importance of studying how patients cope with the disturbance caused by tinnitus in their psychophysical and social balance. The IBQ offers us a chance to understand how patients cope with tinnitus. More than one-

half of all patients revealed a particular psychological distress, with high levels of hypochondriacal conviction of disease and dysphoria and with more moderate denial as compared to that of the remaining part of the casuistry, those patients affected with denial only, which supports the hypothesis of a somatic expression of the disease not admitted at a conscious level and therefore denied. The presence of denial in the whole casuistry, even if at lower levels for patients with psychological distress, may support the hypothesis of a psychosomatic influence on the presence of tinnitus.

Psychological distress evidenced by answers on the IBQ reveals a clear correlation with the loudness of tinnitus: patients with higher psychological distress (cluster I) revealed a greater level of loudness than did patients (cluster II) whose values were normal, excluding denial.

Data obtained on the basis of this research confirm the validity of the psychological study for tinnitus sufferers and demonstrate a close relation between symptoms and psychological distress. In this ambit, IBQ was found to be particularly sensitive in revealing patients' nonadaptation areas in coping with the symptom of tinnitus: Patients perceived tinnitus as a suffering source, which perception, in its turn, strengthened patients'

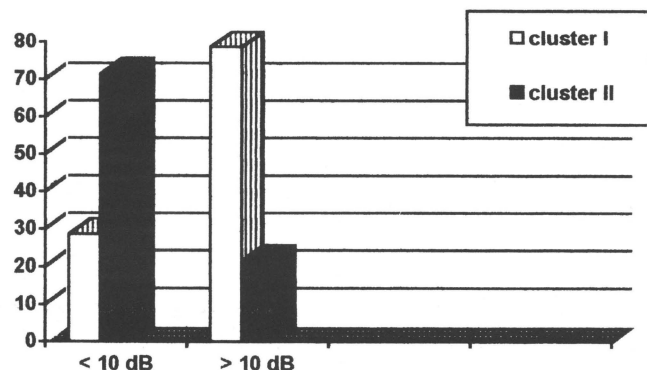


Figure 3. Distribution of two clusters on the basis of tinnitus loudness.

symptoms by increasing the tinnitus via hypochondriacal alteration and creating a somatopsychic and psychosomatic vicious circle.

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