Find out the cause of tinnitus and put treatment.

PHYSICIAN’S GUIDE

Authors-Editors
Miguel A. López González
Antonio Abrante Jiménez
Francisco Esteban Ortega

Edition 2013
Find out the cause of tinnitus and put treatment

PHYSICIAN’S GUIDE
Find out the cause of tinnitus and put treatment

PHYSICIAN’S GUIDE

Authors - Editors
Miguel A. López González
Antonio Abrante Jiménez
Francisco Esteban Ortega

ISBN: 978-84-616-3093-6

© 2013. Seville, Spain
Legal deposit: SE 515-2013
“Tinnitus tells us that we have exceeded any of our limits”

Authors - Editors

Miguel A. López González
Biochemist and Otorhinolaryngologist
Otorhinolaryngology Associated Professor, University of Seville
Tinnitus and Hyperacusis Unit
Virgen del Rocío University Hospital, Seville
Spain

Antonio Abrante Jiménez
Otorhinolaryngologist
Otorhinolaryngology Associated Professor, University of Seville
Director of Department of Otorhinolaryngology
Quiron Sagrado Corazon Hospital, Seville
Spain

Francisco Esteban Ortega
Otorhinolaryngology Professor, University of Seville
Head of Department of Otorhinolaryngology
Virgen del Rocio University Hospital, Seville
Spain

Copyright
The content of this book is protected by copyright. It cannot be distributed, copied or used to make a derivative work, as regarded by current law.
PREFACE
Tinnitus requires medical care. The tinnitus patient consults an otolaryngologist, a doctor specialising in the ears, nose and throat. The medical discipline dedicated to the ear is otology. Until now, otology has not provided any convincing solutions. Perhaps this is because otology focuses on the ear, only studies the ear and ignores everything around it, that which is outside of it.

There is now a new scientific discipline, namely otosociology. It is born of a symbiosis between otology and sociology. It is dedicated to the study of the auditory system in its social environment. It includes a methodology, which, in five steps, studies the ear's organic and functional components. The first three steps focus on researching the body's hardware, that is to say the biophysical component, and the next two steps focus on researching the software, that is to say the ear's functionality. The otosociological methodology begins with the ear and ends with the person's social environment. The information obtained is very relevant, investigating the causes of tinnitus, collecting information on the symptoms and discussing their consequences.

If otosociology can be used to uncover the causes then the treatment should be easy. In principle, if we can eliminate the causes, the tinnitus may disappear. The treatment used is comprehension and commitment therapy. Comprehension therapy involves explaining to the patient why they have tinnitus and commitment therapy means that the patient commits to carrying out a series of measures to get rid of the tinnitus. These measures may be to resolve certain conflicts or social tensions, changing some inappropriate attitudes, taking part in sound therapies, taking bioactive natural compounds or receiving physical or drug-based treatments.

This book would like to show how the shift from otology to otosociology for the treatment of tinnitus, is a step forward in terms of our understanding of the problem and how discovering the cause of tinnitus enables us to find a cure.

This physician's guide is intended as a manual to the diagnosis of the cause and treatment of tinnitus, which will have a significant effect on the satisfaction of the patient, their family and their social circle.
….. “there was roaring in his ears

when the Elder Gull
of the Council Gathering
banished him to the
Far Cliffs for his
reckless irresponsibility in the
Discovery of New Horizons” ..... 

JONATHAN LIVINGSTON SEAGULL
Richard Bach
Contents
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preface</td>
<td>07</td>
</tr>
<tr>
<td>Chapter 1 Concept</td>
<td>15</td>
</tr>
<tr>
<td>Chapter 2 Classification</td>
<td>19</td>
</tr>
<tr>
<td>According to the observer</td>
<td></td>
</tr>
<tr>
<td>According to the type of noise</td>
<td></td>
</tr>
<tr>
<td>According to the perception time</td>
<td></td>
</tr>
<tr>
<td>According to the annoyance produced</td>
<td></td>
</tr>
<tr>
<td>Chapter 3 Social-psychobiological models for tinnitus</td>
<td>27</td>
</tr>
<tr>
<td>Social environment</td>
<td></td>
</tr>
<tr>
<td>Person</td>
<td></td>
</tr>
<tr>
<td>Body</td>
<td></td>
</tr>
<tr>
<td>Head</td>
<td></td>
</tr>
<tr>
<td>Ear</td>
<td></td>
</tr>
<tr>
<td>Chapter 4 Otosociological methodology</td>
<td>35</td>
</tr>
<tr>
<td>Ear</td>
<td></td>
</tr>
<tr>
<td>Head</td>
<td></td>
</tr>
<tr>
<td>Body</td>
<td></td>
</tr>
<tr>
<td>Person</td>
<td></td>
</tr>
<tr>
<td>Social environment</td>
<td></td>
</tr>
<tr>
<td>Chapter 5 Diagnosis</td>
<td>45</td>
</tr>
<tr>
<td>Hybrid medical history</td>
<td></td>
</tr>
<tr>
<td>Complementary tests</td>
<td></td>
</tr>
<tr>
<td>Chapter 6 Treatment</td>
<td>53</td>
</tr>
<tr>
<td>Of the causes</td>
<td></td>
</tr>
<tr>
<td>Of the pathogeny</td>
<td></td>
</tr>
<tr>
<td>Of the symptoms</td>
<td></td>
</tr>
<tr>
<td>Of the consequences</td>
<td></td>
</tr>
<tr>
<td>Epilogue</td>
<td>63</td>
</tr>
<tr>
<td>Annex</td>
<td>65</td>
</tr>
<tr>
<td>Symptomathological scale</td>
<td></td>
</tr>
<tr>
<td>Semi-structured Social Interview</td>
<td></td>
</tr>
<tr>
<td>Clinical case histories</td>
<td></td>
</tr>
<tr>
<td>Alphabetical index</td>
<td>123</td>
</tr>
</tbody>
</table>
Chapter 1

CONCEPT

Concept of tinnitus ........................................ 15
Chapter 1
CONCEPT

Tinnitus is a sound heard within the ears or within the head.

The usual conception of tinnitus is a sound which is heard within the ears without any external sound being produced.

It is also important to distinguish it from auditory remembrance or auditory sensation expressed by the patient such as music, words, conversations or radio broadcasts, as well as any auditory hallucinations or verbal commands perceived in certain psychoses.

Tinnitus can affect people with normal hearing as well as deaf people, just as people without tinnitus may be deaf or have normal hearing. (Table I).

Table I
Tinnitus and audition.

<table>
<thead>
<tr>
<th>PERSON</th>
<th>WITHOUT tinnitus</th>
<th>WITH tinnitus</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMAL* audition</td>
<td>55 - 93%</td>
<td>7 - 45%</td>
</tr>
<tr>
<td>HYPOACUSIA**</td>
<td>38%</td>
<td>62%</td>
</tr>
</tbody>
</table>

**Zarenoe et al., 2012.

One consideration related to tinnitus and hearing is the fact that in acoustic vestibular schwannoma processes, it has been found that 75% of tinnitus cases occur in the same ear as the tumour, whilst in 25% of cases the tinnitus was only present in the ear on the opposite side to the tumour (Lee et al., 2011), that is to say the ear with the tumour did not present tinnitus. The tinnitus contralateral to the tumour must be the result of other circumstances.

Summarising the known data, we can see that there are tinnitus sufferers with normal hearing, deaf people without tinnitus and acoustic schwannoma sufferers without tinnitus. Therefore, a different aetiology should be sought, and it can be found in studies into neural hyperactivity caused by various types of stress (organic/physical, psychological/psychiatric, social and cultural). In conclusion, there is no absolute link between tinnitus and the ear
which hears it, with several studies indicating that central neural hyperactivity is the source of tinnitus.

References


Savastano M. Tinnitus with or without hearing loss: are its characteristics different? Eur Arch Otorhinolaryngol 2008;265:1295-300.


Chapter 2

CLASSIFICATION of TINNITUS

According to the observer .................................. 19
According to the type of noise ......................... 19
According to the perception time .................... 20
According to the annoyance produced ......... 20
Relationship: tinnitus – neural activity ......... 21
Chapter 2
CLASSIFICATION of TINNITUS

Tinnitus can be classified according to the observer (diagram 1), according to the type of sound (diagram 2), according to the perception time (diagram 3) and according to the discomfort it causes (diagram 4).

Diagram 1
Classification of tinnitus according to the observer.

Objective tinnitus, as well as being heard by the patient, can be heard by an observer with or without a stethoscope, presenting as vascular or muscular tinnitus. Subjective tinnitus can only be heard by the patient. The prevalence of objective tinnitus is 5-20% (Shulman A., 1997), although it is rare for a general otorhinolaryngologist to observe this type of tinnitus.

Diagram 2
Classification of tinnitus according to the type of sound.

Pure pulsatile tones such as heartbeats are associated with objective vascular tinnitus and with subjective tinnitus where the transmission of the sound is more intense, as in contracture of the head and neck muscles. The
pure "typewriter" tone in the form of a rapid tapping ("tic-tic-tic") is associated with somatosensory tinnitus, which is predominantly due to muscular tension. The continuous pure tone in the form of "whistling" is subjective tinnitus associated with central neural hyperactivity.

White noise "like an untuned radio" or "the chirping of crickets or cicadas" or "a pressure cooker" occurs in subjective tinnitus due to central neural hyperactivity of a frequency band in the spectrum of low, medium or high frequencies. It can be measured by comparing it with NBN (Narrow-Band Noise) at the same frequencies.

Occasional tinnitus is heard at certain times and is of short duration. Periodic tinnitus appears over time with a determined duration; this may be associated with the presence of causal factors. Constant tinnitus is heard throughout the day. The causal factors are usually present constantly.

This can be considered in two parts:

1. The discomfort caused by tinnitus may be assessed ("semi quantified") using the Visual Analogue Scale (VAS) from 0 to 10, corresponding to tolerable tinnitus at values 0-3, annoying tinnitus from 4-7 and unbearable tinnitus from 8-10.

2. Another important aspect to take into account is that discomfort occurring due to tinnitus is a reflection of central neural hyperactivity (Wineland et al.,
Tolerable, non-annoying or tolerable tinnitus does not present neural hyperactivity. The neural activity is the same as that presented in healthy subjects without tinnitus. Whilst annoying or unbearable tinnitus presents neural hyperactivity (diagram 5), the prevalence of the latter is shown in Table I.

**Diagram 5**
*Relationship between the discomfort caused by the tinnitus and neural activity.*

**Table I**
*Prevalence of tinnitus.*

Yost WA, 1994
Vesterager V, 1997
Shargorodsky et al., 2010
Kochkin et al., 2011
Average activity of tinnitus in auditory and non-auditory zones determined through activation of the c-fos gene. (Graphical representation showing the values from the works by Wallhauser-Franke et al., (2003) and Zhang et al., (2003).

Neural hyperactivity in tinnitus has been studied using imaging techniques such as SPECT- Single Photon Emission Computed Tomography (Shulman et al., 1995), which detects neural hyperactivity in auditory and non-auditory zones. Later, with the use of PET- Positron Emission Tomography (Mirz et al., 1999), the findings were more definitively confirmed, also being established using MEG-magnetoencephalography (Llinás et al., 1999). When immediate-early activation genes such as c-fos and arg3.1 were used, it was possible to quantify neural hyperactivity in each zone (Wallhauser-Franke et al., 2003; Zhang et al. 2003), show that hyperactivity in non-auditory zones was almost four-times greater than hyperactivity in auditory zones (Figure 1). From then until now, different techniques have continued to confirm these findings: voxel morphometry (Schecklmann et al., 2012), functional magnetic resonance (Maudoux et al., 2012), diffusion tensor imaging (Aldhafeeri et al., 2012) or quantitative electroencephalography (Vanneste et al., 2012).

References


Chapter 3

TINNITUS MODELS

General scheme ........................................... 27
Types of stress .............................................. 28
Social-psychobiological model ................. 28
Action mechanism ........................................ 29
Social-psychobiology and tinnitus .............. 30

Los cambios de actividad neural en acúfenos se han encontrado en zonas auditivas y no auditivas y en regiones corticales y subcorticales (sistema límbico). En corteza auditiva primaria y secundaria temporal (audición), en prefrontal (emociones), en parietal (atención), en cingulado anterior y posterior / precuneus (molestias), así como alteraciones de la actividad en tronco cerebral, cerebelo, tálamo, parahipocampo, cuerpo geniculado, núcleo accumbens, ínsula, córtex frontal y áreas sensorimotoras (Leaver et al., 2011; Vanneste et al., 2011, 2012a, 2012b, 2012c; Aldhafeeri et al., 2012; Maudoux et al., 2012a, 2012b; Langguth et al., 2012; Song et al., 2012).

**Modelo de acúfenos sociopsicobiológico**

El modelo de acúfenos comienza a elaborarse con el esquema general de la interacción social-persona (esquema 1).

**Diagram 1**
*General scheme showing Social-psychobiological stress in tinnitus.*

*(Resilience: sociocultural process allowing a person to overcome adverse situations and emerge stronger. Vulnerability: inability to resist or recover from the impact of a social stressor.)*
Tinnitus can be caused by any type of stress (diagram 2).

Diagram 2
Diagram showing the different types of stress involved in tinnitus.

The social-psychobiological model for tinnitus begins with social tensions and conflict and ends with the ear (diagram 3).

Diagram 3
Social-psychobiological sequence of tinnitus.
The mechanism of action of how stress can cause the pathology is shown in diagram 4.

**Diagram 4**

Mechanism of action of stress.

- **ACTH**, adrenocorticotrope hormone.
- **CRF**, corticotropine release factor.
- **HHAC Axis**, hypothalamus-hypophysis-adrenocortical.
- **HSAM Axis**, hypothalamus-sympathic-adrenomedular.
- **PRF**, prolactine release factor.
- **Rα**, alpha receptor.
- **Rβ**, beta receptor.

Stress contributing to the generation of tinnitus may act through neural hyperactivity, central hypersensitivity, contracture of the cervical and mandibular muscles, dyslipidaemia, altered immune function or ischemic processes.

A group of authors (Seydel et al., 2006; Mazurek et al., 2010, 2012a, 2012b) have linked stress directly to the generation of tinnitus, including psychosocial stress; however this study neglected the determining influence that the social environment has on the whole process. Their stress-tinnitus model lacks the social environment that we include in the social-psychobiological model. In children, just as in adults, stress is a cause of tinnitus (Kim et al., 2012).

The specific biopsychosocial stress model for tinnitus is shown in diagram 5.
Diagram 5
Social-psychobiological tinnitus model.

References


http://dx.doi.org/10.1016/j.brainres.2012.05.006.


Møller AR. The role of neural plasticity in tinnitus. Prog Brain Res. 2007;166:37-45.


CHAPTER 4

OTOSOCIOLOGICAL METHODOLOGY

Logo ................................................................. 35
Otology versus Otosociology ................................. 36
Otosociological methodology ................................. 36
Semi-structured social interview ......................... 38
Chapter 4
OTOCIOLOGICAL METHODOLOGY

Otosociology (Cherta et al., 2012; López-González et al., 2012) is a discipline dedicated to the "study, intervention and prevention of the organic and functional pathology of the auditory system with special focus on the influence exercised by social factors".

Otosociological methodology begins with the study of the ear and ends with the patient's social environment (Figure 1) in order to uncover the causes or triggers of the otic symptomatology and to be able to make a diagnosis and arrange causal, symptomatic and consequential treatment.

The application of otosociological methodology to tinnitus is a process that changes tinnitus into a conventional pathology. It is used to uncover the causes, reveal any related symptoms and understand the consequences.

A comparison between otology and otosociological methodology is shown in diagram 1.
Otosociological methodology as applied to tinnitus is shown in diagram 2.

Diagram 2
Otosociological methodology as applied to tinnitus.
Otosociological methodology uses the scientific method of different disciplines (diagram 3); in order to carry out studies with specific methodologies (diagram 4) at all levels.

**Diagram 3**
Otosociological methodology as a scientific method: disciplines applied to tinnitus.

<table>
<thead>
<tr>
<th>ORGAN and FUNCTION</th>
<th>DISCIPLINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAR</td>
<td>Otorhinolaryngology, Audiology, Audioprosthesis</td>
</tr>
<tr>
<td>HEAD</td>
<td>Neurology</td>
</tr>
<tr>
<td>BODY</td>
<td>Rehabilitative medicine, Osteopathy, Physiotherapy, Odontology, Maxillofacial medicine, Internal medicine</td>
</tr>
<tr>
<td>PERSON</td>
<td>Psychology, Psychiatry</td>
</tr>
<tr>
<td>SOCIAL ENVIRONMENT</td>
<td>Sociology, Social work</td>
</tr>
</tbody>
</table>

**Diagram 4**
Otosociological methodology as a scientific method: methodologies applied to tinnitus.

<table>
<thead>
<tr>
<th>ORGAN and FUNCTION</th>
<th>METHODOLOGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAR</td>
<td>Otorhinolaryngological study, Audiovestibular study</td>
</tr>
<tr>
<td>HEAD</td>
<td>Cranial and ears MRI</td>
</tr>
<tr>
<td>BODY</td>
<td>Balance, Temporomandibular joint, Muscle contractures, Trigger points, Diagnosed diseases</td>
</tr>
<tr>
<td>PERSON</td>
<td>Personality disorder questionnaire</td>
</tr>
<tr>
<td>SOCIAL ENVIRONMENT</td>
<td>Social semi-structured interview</td>
</tr>
</tbody>
</table>
The most decisive aspect of otosociology is the inclusion of the semi-structured social interview which is used to discover the causes of the tinnitus. This type of interview forms part of the scientific methodology of sociology.

In the semi-structured social interview, the person conducting the interview has a script which outlines the subjects for discussion during the interview. The interviewer is free to use their judgement when choosing the order and manner of asking the questions. They may structure the conversation however they see fit, ask questions that seem relevant and phrase these questions in terms they feel are appropriate. The interviewer explains the content, and can request the patient to give clarification when required and can delve deeper when it appears necessary. The interviewer develops their own personal style.

The semi-structured social interview with people with tinnitus is based on the study of social stressors and the sociopathological process that leads to the onset of tinnitus.

The interview script outlines social stressors, and it begins with the respondent's demographic details (diagram 5). It should include information on their social environment (diagrams 6 and 7) and the sociopathological process bringing together a series of periods and stages (diagram 8). Details of each of these technical characteristics are shown in the annex.

### Demographic data

| DATE: | \.................................................. |
| NAME: | \.................................................. | AGE (current): | \............. |
| TINNITUS: | \.................................................. | AGE (event): | \............. |
| ACADEMIC LEVEL: | \.................................................. |
| PROFESSION: | \.................................................. | OCCUPATION: | \............. |
| FAMILY SITUATION: | \.................................................. |

*Diagram 5*

*Demographic data notes from the semi-structured social interview.*
Diagram 6
Notes on stress factors from the semi-structurated social interview.

Diagram 7
Notes on personal contributions to stress factors from the semi-structurated social interview.

Diagram 8
Notes on the sociopathological process of tinnitus from the semi-structurated social interview.
The semi-structured social interview can be represented diagrammatically (figure 2).

![Diagram of social interactions]

Figure 2
Diagrammatical representation of the semi-structured social interview corresponding to a clinical case history described in the annex.

The clinical case describes a 42-year old man suffering from bilateral tinnitus over the previous 7 months and with normal hearing. The diagram shows the development through time of the social events. A) Family stress derived from conflict between the patient’s mother and wife over the control of the family. At a particular point in time, the wife suggests divorce as a way out of the problem. The patient wants both women to get along. B) Shows the developments at the patient’s workplace. The economic crisis has also affected the construction company where he worked, as personnel director. It was his responsibility to personally dismiss the employees, one by one. Once all the workers had been dismissed, the company dismissed him and he remains unemployed (section C). D) Shows the time-line for the sequence of social interactions. E) Represents medical care, showing the chronological link in time between the start of his tinnitus and his wife’s suggestion of divorce, making this the trigger. There was a brief period lasting two or three days between this suggestion from his wife and the onset of the tinnitus. The conditioning factors were family and work-related stress which developed over time. He was treated using comprehension and commitment therapy. This made him aware of the cause and triggers and encouraged the patient to realise the best thing to do would be to attend family psychotherapy to bring the two women together. F) Represents the medical check-up after six months. The family psychotherapy did not take place as his wife refused to go already being in the process of preparing the divorce papers. The patient’s condition remained unchanged. He was advised to undergo cognitive-behavioural therapy with a psychotherapist.

To conclude the case, we should add that the social stressors were so significant that they reduced the patient’s vulnerability, independently from his
personality (dominated by perfectionism, anxiety and emotional instability). Management of social stressors must be adequate in order to prevent disease. It is very illuminative to consider that this case should not be medicalized; a social problem should not be medicalized. Trimetizidine or gingko biloba should not be prescribed to solve the social aspect and everything should be done to avoid telling the patient to get used to their tinnitus or to learn to consider it as something neutral, as is the case with some kinds of retraining therapy, without informing them first of the cause of their tinnitus. Firstly, the patient should be informed of the cause and then suitable treatment can be discussed.

Summary

Otosociological methodology studies the subject from a biomedical or structural viewpoint and also within the framework of sociopsychology or interpersonal interactions (figure 3).

Figure 3
Otosociological methodology studies the subject from a biomedical or structural viewpoint and also within the framework of sociopsychic or interpersonal interactions.
Doctor Georgina Cherta Laquente is a sociologist and anthropologist. She completed her doctoral thesis on the pathology of the auditory system and its social environment, achieving a pass with honours with an Extraordinary Award. In her later book "Otology versus Otosociology", where the symbiosis between Otorhinolaryngology and Sociology in discussed, provides the basis of a new discipline, Otosociology, which can be used to discover the causes of otic processes defined as idiopathic or unknown.
Chapter 5

DIAGNOSIS

Hybrid medical history ............................................. 45
Causes ........................................................................ 46
Symptoms .................................................................... 46
Consequences .............................................................. 47
Valoration ..................................................................... 47
The diagnosis of tinnitus is based on otosociological methodology, which is used to find out the causes. It makes use of the hybrid medical case history and complementary tests.

**Hybrid medical history**

The medical case history is called hybrid because it gathers information about somatic, psychological and social changes as a totality (diagram 1). It can be complemented by two questionnaires: the "Symptomatological scale" (see annex) and the "Salamanca questionnaire for the assessment of personality disorders" (Pérez Urdániz et al., 2012).

![Diagram 1](image)

*Hybrid medical case history for tinnitus.*

The diagnostic process into the causes of tinnitus follows the five sections which form part of the otosociological methodology (ear, head, body, person and social environment) and is shown in diagram 2. Diagnosis of the symptoms (diagram 3) and the consequences (diagram 4) completes the study. Diagnostic assessment takes place once all the information is known (diagram 5). The patient assesses the causes of their tinnitus subjectively, the person accompanying them does the same and then, finally, the therapist gives their objective assessment.
Diagram 2
Diagnosis of the causes of tinnitus by means of otosociological methodology.
CAPD, central auditory processing disorder.

Diagram 3
Diagnosis of the symptoms of the person with tinnitus.
### Diagnosis of the consequences of the tinnitus.

#### Diagram 4

**Dependence**
- Insecurity
- Irritability

**Family**
- Neglect
  - Housework
  - Couple
  - Offspring

**Work**
- Unemployment
- Time incompatibility

**Social**
- Isolation

---

### Diagnostic assessment of tinnitus

(Disease, disorder, disturbance)

<table>
<thead>
<tr>
<th>ORGAN and FUNCTION</th>
<th>MEDICAL HISTORY, COMPLEMENTARY TESTS</th>
<th>SUBJECTIVE assessment</th>
<th>OBJECTIVE assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAR</td>
<td></td>
<td>Patient</td>
<td>Insider</td>
</tr>
<tr>
<td>Audition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEAD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central nervous system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BODY</td>
<td>Somatosensory S., organs and apparatus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PERSON</td>
<td>Personality disorders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCIAL ENVIRONMENT</td>
<td>Family, work, leisure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Diagram 5

Subjective and objective diagnostic assessment.
The diagnostic assessment helps the patient to understand the problems related to their tinnitus. Here follows a clinical case history with a diagnostic assessment:

“54-year old man, currently unemployed with a monthly pension of 425 Euros, married, one 25-year old son.

Otosociological methodology

EAR: chronic otitis media of the left ear for over 10 years, subtotal perforation, dry and clean. Audiometric thresholds (conductive hearing loss of 50 dB) which have not changed in the last 5 years. Tinnitus of the left ear for the last 14 months; he has never suffered from tinnitus before.

HEAD: Cranial MRI normal

BODY: no somatosensory pathology or pathology related to other systems or organs

PERSON: perfectionist, histrionic and anxious.

SOCIAL ENVIRONMENT: Semi-structured social interview: the company he worked for as a shutterer closed 36 months ago. 30 months ago, he opened a greengrocer's, which was so much work that his wife had to help. His son does not work or study and does not help. 14 months ago, his wife had an accident, leaving her with a painful limp and she can no longer work at the greengrocer's. He had to close the greengrocer's 12 months ago.

DIAGNOSTIC EVALUATION

The patient: the tinnitus is due to ear drops he used for occasional infections in his left ear.

The person with him (his wife): the tinnitus is due to the distress caused by his son's bad attitude.

Therapist: tinnitus caused by family and work-related stress.”

The objective diagnostic evaluation for this clinical case history considered the chronological link between the stress, caused by conflicts and tensions within the family and at work with the appearance of the tinnitus. This information was obtained during the semi-structured social interview, which is part of the scientific methodology used in sociology.

On-going studies

During the last two years, otosociological methodology has been put into practice with patients with tinnitus. Figure 1 shows the causal mechanisms of tinnitus recorded at the Tinnitus and Hyperacusis Unit at the Virgin of Rocío University Hospital in Seville, Spain.

Practically all cases of patients with tinnitus can be explained by social factors. Organic or physical factors only represent one in every ten cases. And the psychological/psychiatric factors are usually secondary psychological reactions to the social stressor or due to the tinnitus itself. 20% of patients with psychological/psychiatric involvement require immediate psychological and/or psychiatric treatment according to the details provided by the hospital's Psychiatric Department. The most common personality disorders are perfectionism and anxiety followed by emotional instability and social exclusion.
Figure 1
Causal factors of tinnitus studied using osociological methodology.

References

Pérez Urdaniz A, Rubio Larrosa V, Gómez Gazol ME. Cuestionario Salamanca de trastornos de la personalidad.
(consultado el 26-Julio-2012).
Chapter 6

TREATMENT

Therapy of Comprehension and Commitment

Causes

Pathogeny

Symptoms

Consequences

Diets and tinnitus

- 51 -
Chapter 6
TREATMENT

Treatment of tinnitus is based on comprehension and commitment therapy (diagram 1). Comprehension, because it is important for the patient to know why they have tinnitus, and commitment, so that they are involved in the cure.

**Diagram 1**
Comprehension and commitment therapy for tinnitus.

Once the patient knows the cause of their tinnitus, they commit to receiving treatment, selecting that most suitable for their circumstances, from among the treatments described below.

Treatment of tinnitus can be prescribed for the causes, pathogenesis, symptoms and consequences.
Treatment for the causes

The treatment for the causes of tinnitus may be at organic/physical (diagram 2); psychological/psychiatric (diagram 3) and socio-cultural levels (diagram 4).

**Diagram 2**
Treatment for the organic/physical causes of tinnitus.

**Diagram 3**
Treatment for the psychological/psychic causes of tinnitus.
Treatment for the socio-cultural causes of tinnitus.

Diagram 4
Treatment for the socio-cultural causes of tinnitus.

Treatment for the pathogeny

Treatment for the pathogeny of tinnitus is detailed in diagram 5.

Diagram 5
Treatment for the pathogeny of tinnitus.
Treatment for the symptoms

Treatment for tinnitus as a symptom is shown in diagrams 6 and 7, treatment of other accompanying symptoms in diagram 8 and auditory retraining therapies in diagram 9.

Diagram 6
Sound treatment for the intensity of tinnitus.

Diagram 7
Sound treatment for the frequency and timbre of tinnitus.
Diagram 8
Treatment for other accompanying symptoms of tinnitus.

Diagram 9
Treatment for tinnitus using auditory retraining.

TRT (Jastreboff et al., 2002) and TSS (López-González et al., 2004) can be used for the symptomatic treatment of tinnitus.
Behavioural-cognitive therapy is recommended in cases of tinnitus where the attitude to social stressors is inadequate, provided that behavioural auto-therapy has proved ineffective. Cima et al. 2012 published a study on the different therapeutic procedures, coming to the conclusion that behavioural-cognitive therapy is better than retraining therapy for tinnitus, as well as other treatments commonly used.

Treatment for the consequences

Treatment for the consequences of tinnitus is detailed in diagram 10.

**Diagram 10**
Treatment for the consequences of tinnitus.
Inhibitory therapeutic diet and tinnitus

The Tinnitus Research Initiative (TRI) with its head office in Regensburg (Germany) granted funding (MALG 0705) for a research project looking into diet and tinnitus. The results were presented at the III TRI Meeting 2009 in Stresa (Italy). A total of four types of diet were obtained, all based on reducing neural hyperactivity through decreasing excitatory neurotransmitters, increasing inhibitory neurotransmitters or both mechanisms at once.

The four types of diet are: the very low carbohydrate diet, the histamine exclusion diet, the adenosine diet and oral inhibitory neurotransmitters. These diets are considered therapeutic and are recommended for a period of time to symptomatically reduce neural hyperactivity.

VERY LOW CARBOHYDRATED DIET

This diet cuts out the majority of carbohydrates from the patient’s daily diet. It is calculated that, with this diet, the patient consumes 10-20g of carbohydrates each day, which are practically impossible to eliminate. The mechanism of action is the production of a relative ketosis resulting in an increase in ketone bodies in the central nervous system, which cause a decrease in excitatory neurotransmitters, an increase in inhibitory neurotransmitters and an increase in ATP-adenosine triphosphate, thus reducing neuronal hyperexcitability and thus, perception of the tinnitus.

HISTAMINE EXCLUSION DIET

In the central nervous system, increased levels of histamine cause neural hyperexcitability and stress. There are foods, which, when in contact with the organism, produce large amounts of histamine (food intolerance). The production of histamine is determined by the mast cells in peripheral blood in response to habitual foods. The diet consists of the exclusion from the daily diet of any food causing histamine to be generated above the normal level.

ADENOSINE DIET

Adenosine is antiglutamatergic and antidopaminergic, two of the main excitatory neurotransmitters. It controls stress. It has anti-convulsive properties; it is an anxiolytic and antipsychotic. It modulates autism and aggressive behaviour. The mechanism of action is the transformation of purines in the diet into adenosine by means of the inhibition that allopurinol produces during its degradation pathway.
ORAL INHIBITORY NEUROTRANSMITTERS

This consists of the oral administration of the inhibitory neurotransmitters, glycine or taurine. The patient with tinnitus eats their normal diet which is supplemented with these neurotransmitters. Glycine and taurine increase inhibitory neurotransmitters and decrease the excitatory ones. They are antioxidants and neuroprotectors. They have an anxiolytic action.

Note:
More information on inhibitory therapeutic diets and tinnitus can be found in the book entitled "Acúfeno como señal de malestar” 2010 edition, pages 727-66. This can be downloaded free of charge from the publications section of the following website: www.saeia.es

References

EPILOGUE

Microsociology ........................................... 63
Social economy ............................................ 63
EPILOGUE

Otosociological methodology has changed the way in which we discover the causes of otic pathology previously described as idiopathic. It is now possible to study tinnitus in order to discover its causes and in this way, be able to find a treatment that is causal, symptomatic and consequential. Almost all tinnitus cases are caused by a social stressor with psychological/psychological factors usually being secondary and the biophysical factor being less important. In the same way, we can study other otorhinolaryngology pathologies such as hyperacusis, idiopathic sudden deafness, Meniere’s disease, benign paroxysmal positional vertigo, Bell’s idiopathic facial paralysis or central auditory processing disorder.

We have presented clinical cases histories of tinnitus studied using otosociology: with normal hearing (clinical cases 1-8) and with deafness (clinical cases 9-30). Other cases within otosociology have also been studied such as acoustic schwannoma (clinical case 31), objective tinnitus (clinical case 32), hyperacusis (clinical cases 33-35), central auditory processing disorder (clinical case 36), Bell’s facial paralysis (clinical cases 37-39) and VPPB (clinical case 40). The same methodology can be extended to the field of otorhinolaryngology: rhinosociology (clinical cases 41-43), pharyngosociology (clinical cases 44-46) and laryngosociology (clinical cases 47-48). Current psychosomatic medicine, lacking the social environment, could become part of sociopsychosomatic medicine to resolve processes that are yet to be resolved.

The symbiosis of medicine and sociology, more specifically microsociology² or sequential interactionism, may provide the methodology needed to solve problems that medicine leaves labelled as unknown. The current economic crisis is causing many cases of tinnitus; perhaps what is needed is confidence in the social environment, as is proposed in the theory of the Social Economy or the Economy for the Common Good³, in order to find a resolution to both the global problems and tinnitus.

---

² Microsociology is the study of the structure of an individual’s experience in social interaction (Erving Goffman) comprising of a series of sequences formed by reciprocal actions and interactions (Isaac Joseph).
³ Social Economy or Common Good (Christian Felberg) is based on human values: trust, honesty, responsibility, cooperation, solidarity, generosity and compassion, among others. The balance of common good in a company measures: human dignity, solidarity, social justice, ecological sustainability and democracy with all providers and clients. There are limits on wages (such as twenty times the minimum wage) and benefits, with the surplus being invested in the company’s R+D; this R+D will affect the company’s common good and development. There are already industries that use the social economy.
ANNEX

Symptomatological Scale .......................... 67
Semi-structured Social Interview ............... 71
Clinical Cases ........................................ 79
SYMPTOMATOLOGICAL SCALE

The symptom assessment scale is a questionnaire collecting information on the overall symptomology presented by patients with tinnitus. It has been created over the past few years in accordance with data collected from medical records. It is composed of 20 items or statements to which the patient responds using evaluative quantification.

It is divided into four subscales: emotional, organic, sensorial and social.

**Emotional subscale**

This relates to items 1, 2, 3, 4 and 5 (diagram 1).

**Organic subscale**

This relates to items 6, 7, 8, 9, 10, 11, 12 and 13 (diagram 2).

**Sensorial subscale**

This relates to items 14, 15, 16, 17 and 18 (diagram 3).

**Social subscale**

This relates to items 19 and 20 (diagram 4).

---

**Diagram 1**

*Symptomatological scale: emotional subscale*
**ORGANIC subscale**

<table>
<thead>
<tr>
<th>Item</th>
<th>Pathology</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Chronic fatigue syndrome</td>
</tr>
<tr>
<td>7</td>
<td>Sleep disorders</td>
</tr>
<tr>
<td>8</td>
<td>Irritable bowel syndrome</td>
</tr>
<tr>
<td>9</td>
<td>Headache</td>
</tr>
<tr>
<td>10</td>
<td>Fibromyalgia</td>
</tr>
<tr>
<td>11</td>
<td>Interstitial cystitis</td>
</tr>
<tr>
<td>12</td>
<td>Sjögren’s syndrome</td>
</tr>
<tr>
<td>13</td>
<td>Food intolerance</td>
</tr>
</tbody>
</table>

*Diagram 2*

Symptomatological scale: organic subscale.

**SENSORY subscale**

<table>
<thead>
<tr>
<th>Item</th>
<th>Pathology</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Deafness</td>
</tr>
<tr>
<td>15</td>
<td>Tinnitus</td>
</tr>
<tr>
<td>16</td>
<td>Hyperacusis</td>
</tr>
<tr>
<td>17</td>
<td>Dizziness</td>
</tr>
<tr>
<td>18</td>
<td>Neural degeneration</td>
</tr>
</tbody>
</table>

*Diagram 3*

Symptomatological scale: sensory subscale.
**Diagram 4**
Symptomatological scale: social subscale.

<table>
<thead>
<tr>
<th>Item</th>
<th>Conflicts and tensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Family</td>
</tr>
<tr>
<td>20</td>
<td>Work</td>
</tr>
<tr>
<td></td>
<td>SYMPTOMATOLOGICAL SCALE – Central Hypersensibility in Tinnitus</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>In your daily life, number each of the following topics.</td>
</tr>
<tr>
<td></td>
<td>If this is not a concern, circle zero.</td>
</tr>
<tr>
<td></td>
<td>If this is a concern, rate between 1 and 10,</td>
</tr>
<tr>
<td></td>
<td>1 being the lightest and 10 the worst.</td>
</tr>
<tr>
<td>1</td>
<td>Irritability</td>
</tr>
<tr>
<td>2</td>
<td>Personal dissatisfaction</td>
</tr>
<tr>
<td>3</td>
<td>Nervousness or anxiety</td>
</tr>
<tr>
<td>4</td>
<td>Sadness or depression</td>
</tr>
<tr>
<td>5</td>
<td>Decrease of endurance or resistance against the problems</td>
</tr>
<tr>
<td>6</td>
<td>Decrease of vital energy or strength. Unjustified tiredness</td>
</tr>
<tr>
<td>7</td>
<td>Insomnia or sleep disorders</td>
</tr>
<tr>
<td>8</td>
<td>Abdominal pain and alternating periods of constipation and diarrhea</td>
</tr>
<tr>
<td>9</td>
<td>Headache, cephaelea, or migraine</td>
</tr>
<tr>
<td>10</td>
<td>Bones, joints or muscles pains</td>
</tr>
<tr>
<td>11</td>
<td>Severe pain in pelvic or genital area</td>
</tr>
<tr>
<td>12</td>
<td>Dry or itchy skin and mucous</td>
</tr>
<tr>
<td>13</td>
<td>Flatulence or intestinal gases. Feeling bloated gut after eating</td>
</tr>
<tr>
<td>14</td>
<td>Feeling deafness (hearing loss)</td>
</tr>
<tr>
<td>15</td>
<td>Noises in the ears or head (tinnitus)</td>
</tr>
<tr>
<td>16</td>
<td>Discomfort to the usual sounds (hyperacusis)</td>
</tr>
<tr>
<td>17</td>
<td>Instability, dizziness or vertigo</td>
</tr>
<tr>
<td>18</td>
<td>Loss or reduced sense of smell and taste</td>
</tr>
<tr>
<td>19</td>
<td>Family stress (couple, children, parents, relatives)</td>
</tr>
<tr>
<td>20</td>
<td>Work stress (unemployment, job insecurity, drudgery, unsatisfactory, work pressure, …)</td>
</tr>
</tbody>
</table>
SEMI-STRUCTURED SOCIAL INTERVIEW

The synopsis of the script of the semi-structured social interview is presented in diagram 1.

DATE: ……………………………
NAME: .......................................................... AGE (current): …………
TINNITUS: ................................................... AGE (event): ……………
EDUCATION: …………………………………………………………………………
PROFESSION: ……………………… OCCUPATION: ………………………
FAMILY SITUATION: ………………………………………………………………………
The characteristics of each component of the semi-structured social interview on tinnitus comprise demographic data (diagram 2), social stressors (diagram 3), personal contributing factors (diagrams 4, 5 and 6) and the sociopathological process of tinnitus (diagram 7).

**Diagram 2**

*Characteristics of demographic data in the semi-structured social interview.*
### Stress factors

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FAMILY stress</strong></td>
<td>Is measured from 0 to 10, being 0 less stress and 10 maximum stress.</td>
</tr>
</tbody>
</table>
| Nuclear Filiation Collateral | - Family, partners and children usually  
- The ascending  
- Of brothers, cousins and other relatives                                      |
| **WORK stress**           |                                                                                                                                              |
| Conditions                | - Turns, moonlighting, income, health, danger, complete tasks, overtime, manual or management labor, discrimination, bullying, harassment, etc |
| Contents                  | - Satisfaction, knowledge-performance relation, equipment, resources, autonomy, empowerment, participation, decision making, monotony, etc     |
| Relations                 | - Peer relationships: group work / individual meetings, outside the business relationship, etc                                              |
|                           | - Relation with leaders: role conflict, recognition, receive feedback, contradictory orders, etc                                              |
| **LEISURE stress**        |                                                                                                                                              |
| Presence Absence Conflict | - Unemployment or retirement  
- Continued work, lack of friends  
- Leisure or friendships that create tension, interpersonal or internal                |
Diagram 4
Characteristics of an individual nature as personal contributory factors in the semi-structured social interview.

Diagram 5
Characteristics of a medical nature as personal contributing factors in the semi-structured social interview.
## Personal adjuvants to stress factors

<table>
<thead>
<tr>
<th>LIFESTYLE</th>
<th>- It is measured on a scale from 0 to 10: 0 being the lowest and 10 being the highest.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friends</td>
<td>- Those people with whom the subject spends time or from whom they receive support.</td>
</tr>
<tr>
<td>Sport</td>
<td>- Degree to which the person regularly plays any type of sport. According to the World Health Organization, the American College of Sports Medicine and the United States Department of Health and Human Services, in order to be beneficial the physical exercise must last for a minimum of 30 minutes each day.</td>
</tr>
<tr>
<td>Diet</td>
<td>- Normal nutrition is considered to be that eaten at home, at regular times, observing the times and type of home-cooked food eaten (not industrial or prepared).</td>
</tr>
<tr>
<td>Bad habits</td>
<td>- Considered as damaging habits are smoking, drinking, late nights and an irregular lifestyle.</td>
</tr>
<tr>
<td>Sleep</td>
<td>- Measures the subjective quality of sleep.</td>
</tr>
</tbody>
</table>

**Diagram 6**

*Characteristics of lifestyle as personal contributing factors in the semi-structured social interview.*
Diagram 7
 Characteristics of the sociopathological process of the tinnitus in the semi-structured social interview.
In the interview, verbal and non-verbal communication are both important, the second constitutes up to 65% of the information collected (Birdwhistell, 1970). Traditionally, non-verbal communication falls into three categories: kinesic, paralinguistic and proxemic. Kinesic communication covers body movements (gestures, facial expressions, eye contact and posture) and the respondent's general appearance. Paralinguistic communication covers voice quality, vocalisations, silences, fluidity and speaking errors. Proxemic communication is personal and social space (interpersonal distance, how the person is sitting and layout of the room).

Non-verbal communication relates to verbal communication, which takes six different forms (Knapp ML, 1972): repetition, contradiction, substitution, complementation, accentuation and regulation (diagram 8).

### Relationship between NON-VERBAL and VERBAL COMMUNICATION

| Repetition | - The non-verbal and verbal messages indicate the same, such as nodding the head and saying the word yes. |
| Contradiction | - The non-verbal message opposes the verbal, such as when some words of welcome are accompanied by a dry or austere gesture. The non-verbal message is seen as valid. |
| Substitution | - The non-verbal message takes the place of the verbal, such as when a smile is shown to indicate conformity. |
| Complementation | - The non-verbal message complements the verbal when it modifies it, finishes it or elaborates on it, such as when you say a project is abandoned and people look sad. |
| Accentuation | - The verbal message is emphasized by the non-verbal, such as facial and body expressions that accompany words. |
| Regulation | - The non-verbal message regulates the flow of the conversation, such as someone's turn to speak being expressed by movement of the eyebrows or chin. |

**Diagram 8**

*Relationship between the non-verbal and verbal messages.*

However, the interviewer must be aware of the non-verbal messages given by the interviewee and the degree of cooperation obtained will depend on this. The therapist's non-verbal behaviour that may influence the patient comes from the eyes, face, and orientation of the body, posture, interpersonal distance and voice (Cormier and Cormier, 1979).
References

CLINICAL CASES

Otosociology ......................................................... 81
Rhinosociology ...................................................... 108
Pharyngosociology ............................................... 109
Laryngosociology .................................................. 111
Clinical case history 1

**OTOSOCIOLOGY**

Tinnitus - Normal hearing

31-year old man, unmarried, has a partner, no children. No plans to marry in the near future. Lives with his parents. Medical history of bilateral tinnitus of the same intensity for 3 years in the form of beeps, which did not bother him. He sought help after the tinnitus intensified 4 months ago, meaning the tinnitus started to bother him.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Normal audiometry. Normal tympanometry.
**HEAD:** Cranial MRI and ears normal.
**BODY:** Disturbed sleep
**PERSON:** perfectionist and anxious.
**SOCIAL ENVIRONMENT:** Semi-structured social interview: He is a computer technician and works in it. 10 months ago, the company he worked for began a restructuring process, which lasted for 5 months. At the end of this period he was sacked. He found a job a month later, which he has been doing for 8 months. All the patient’s work-related stress during this period continues until he is gets used to his new job. The 1-2 months of calm in his work life (transitory phase) was followed by an intensification of his tinnitus. There is no family-related stress. It is deemed that he has a high level of perfectionism and his cognitive networks are constantly in use in the fulfilment of his profession.

**DIAGNOSTIC EVALUATION:** Irritating tinnitus caused by stress related to losing his job and having to adapt to his new job.

**TREATMENT:** Comprehension therapy: it was explained to the patient that his tinnitus was caused by work-related stress. Commitment therapy: he will take melatonin for 6 months to normalise his sleep pattern. Behavioural auto-therapy to help him confront daily social stress with less anxiety. He has agreed to notched music therapy.

Clinical case history 2

**OTOSOCIOLOGY**

Tinnitus - Normal hearing

37-year old woman, unmarried, no partner, no children. Presented with tinnitus of the left ear in the form of beeps over the last year.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Normal audiometry. Normal tympanogram.
**HEAD:** Cranial MRI and ears normal.
**BODY:** Diagnosed with anxiety-depressive disorder 5 months ago. Her left ear feels like it is blocked and she experiences occasional shooting pains in her left ear. Diagnosed with temporomandibular joint disorder. Intense contractures of the neck and back muscles. Disturbed sleep
PERSON: perfectionist.
SOCIAL ENVIRONMENT: Semi-structured social interview: She is a workplace relations expert with 15 years at the same company. She has been unemployed for 9 months. She experienced all the deterioration of the job market of the last two years at her company, with high stress levels. She is still stressed as she has still not found a new job. She has maintained her friendships.

DIAGNOSTIC EVALUATION: Tinnitus caused by work-related stress.

TREATMENT: Comprehension therapy: the patient was informed of the chronological link between her tinnitus and unemployment. Commitment therapy: she is trying to rejoin the workforce. She will take melatonin. She does not want sound therapy. She is going to try relaxation, physiotherapy and osteopathic techniques.

Clinical case history 3
OTOSOCIOLOGY
Tinnitus - Normal hearing

37-year old man, unmarried. Presented with bilateral tinnitus (more intense in the left ear) in the form of beeps for the last 12 months. Lives with his parents.

OTOSOCIOLOGICAL METHODOLOGY
HEAD: Cranial MRI and ears normal.
BODY: Normal.
PERSON: anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: He is a civil servant (senior engineer). He enjoys music. He has been working in the administration department of his autonomous community for 7 years. His mother was diagnosed with cancer 20 months ago. He accompanied her to medical appointments, chemotherapy and surgery. She was discharged with sequelae, 13 months ago. He admits that the whole process has caused him a significant amount of stress. He went through a period where he his sleep was disturbed but this has normalised now.

DIAGNOSTIC EVALUATION: Tinnitus caused by family-related stress due to his mother's illness.

TREATMENT: Comprehension therapy: the chronological link between his tinnitus and his mother's cancer was explained to the patient. Commitment therapy: he will drink herbal teas composed of lemon balm, passionflower, alpine lime flower and valerian to help him relax. Behavioural auto-therapy to help him face events with less anxiety. He has agreed to sound therapy.
Clinical case history 4  
**OTOSOCIOLOGY**  
**Tinnitus - Normal hearing**

38-year old man, married with two children. Presented with bilateral tinnitus (more intense in the left ear) in the form of beeps, over the last month.

**OTOSOCIOLOGICAL METHODOLOGY**  
**EAR:** Normal otoscopy. Normal audiometry. Normal tympanogram.  
**HEAD:** Cranial MRI and ears normal.  
**BODY:** Contracture of the neck muscle.  
**PERSON:** Perfectionist, anxious.  
**SOCIAL ENVIRONMENT:** Semi-structured social interview: He works as an IT technician. In addition to his job, he is studying for a computer engineering degree. His children cause him a lot of stress, as he cannot cope with them. To top it all, two months ago, he vowed to renovate his house and he has to maintain control over everything. One month ago, a close relative died of a tumour just one week after receiving the diagnosis.

**DIAGNOSTIC EVALUATION:** Tinnitus caused by family-related stress.

**TREATMENT:** Comprehension therapy: the chronological link between his tinnitus and the death of his relative was explained to the patient. The conditioning factors were study-related stress, a lack of time to dedicate to his children and house renovations. Commitment therapy: he is going to reduce the amount of time he spends studying as he only has a few subjects. He will dedicate more time to his family and spend less time on the house renovations. He has also committed to being less of a perfectionist and intends to place fewer demands upon himself and others. He is going to take up a sport and wants to undergo cognitive-behavioural therapy with a psychotherapist. He does not want sound therapy.

Clinical case history 5  
**OTOSOCIOLOGY**  
**Tinnitus - Normal hearing**

42-year old man, married, two children. Presented with bilateral tinnitus of the same intensity in the form of beeps over the last 7 months.

**OTOSOCIOLOGICAL METHODOLOGY**  
**EAR:** Normal otoscopy. Normal audiometry. Normal tympanometry.  
**HEAD:** Cranial MRI and ears normal.  
**BODY:** Surgery for herniated vertebral discs 4 years ago.  
**PERSON:** Anxious.  
**SOCIAL ENVIRONMENT:** Semi-structured social interview: He is the director of a construction company. 3 years ago, his company began to lay off workers due to the financial crisis. The patient was the one in charge of letting them go. He was friends with many of them and this caused him a lot of stress. 14 months
ago, when the company had finished laying off workers, they sacked him. He is unemployed. In terms of his family, a dispute between his mother and his wife is dominating his married life. The patient wants to maintain a relationship with his mother but also wants to continue living with his wife. 7 months ago, his wife proposed a solution to his refusal to remove his mother from their marriage. She suggested a divorce. He cannot continue in this situation.

DIAGNOSTIC EVALUATION: Tinnitus caused by family-related stress.

TREATMENT: Comprehension therapy: the chronological link between his tinnitus and his family life was explained to the patient. Commitment therapy: he is going to try family psychotherapy to reconcile the two women. His wife does not work. He will take tranquilizers for a while. He does not want sound therapy and will continue looking for work.

Clinical case history 6

OTOSOCIOLOGY
Tinnitus - Normal hearing

43-year old woman, married, three children. Presented with tinnitus of the right ear in the form of beeps over the last 2 months.

OTOSOCIOLOGICAL METHODOLOGY
HEAD: Cranial MRI and ears normal.
BODY: Diagnosed with temporomandibular joint disorder. Intense contractures of the neck and back muscles. Disturbed sleep
PERSON: Anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: she is a technical graduate. She works in her profession. Her mother has breast cancer and the patient has been her carer for the last nine months, accompanying her to medical appointments, chemotherapy and radiotherapy. The whole process ended three months ago. Ten weeks ago, she moved from her house in the city centre to a new house in the mountains in a perfect development. She feels she was misled about her new location. Due to the financial crisis, only three families live in the development; there are no tenants and therefore no children for her children to play with. She does not see her family as often as she would like and, as the patient says, she needs this social contact.

DIAGNOSTIC EVALUATION: Tinnitus caused by family-related stress.

TREATMENT: Comprehension therapy: the patient was informed about the chronological link between the move with the resultant loss of her usual family and social relationships. Commitment therapy: She and her husband have been advised to move back to the city, to their neighbourhood. Meanwhile both the adults and children should make every effort to maintain their social relationships, and change their attitude to their new home until they can return to the city. She is to take melatonin for the sleep disorders and has agreed to sound therapy with tinnitus masking.
Clinical case history 7
OTOSOCIOLOGY
Tinnitus - Normal hearing

44-year old man, married, two children. Presented with bilateral tinnitus (more intense in the right ear) in the form of buzzing, over the last 6 months.

OTOSOCIOLOGICAL METHODOLOGY
HEAD: Cranial MRI and ears normal.
BODY: Diagnosed with reactive depressive anxiety disorder 3 years ago; treated with mirtazapine and citalopram. Disturbed sleep until his doctor prescribed melatonin.
PERSON: Perfectionist and anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: he is a civil engineer with high levels of work-related stress. The company he works for is having financial difficulties and began a worldwide diversification of its activities 8 months ago. 6 months ago, he attended a company meeting where he was told he was being transferred to a country in South America. He would have to go alone, as soon as his current project was completed. The only alternative offered was redundancy. 3 years ago his wife had cancer from which she has now recovered.

DIAGNOSTIC EVALUATION: Tinnitus caused by work-related stress (trigger). The conditioning factor is the anxiety-depressive syndrome for which he is still undergoing treatment.

TREATMENT: Comprehension therapy: the chronological link between his tinnitus and his transfer or unemployment was explained to the patient. Commitment therapy: he will consider the move as he does not anticipate any alternative employment is Spain. He will practice relaxation techniques and will drink relaxing herb teas. Behavioural auto-therapy to help him face events with less anxiety. He has agreed to notched music therapy.

Clinical case history 8
OTOSOCIOLOGY
Tinnitus - Normal hearing

52-year old woman, married, three children. Presented with tinnitus of the left ear in the form of beeps over the last year.

OTOSOCIOLOGICAL METHODOLOGY
HEAD: Cranial MRI and ears normal
PERSON: Anxious.
BODY: Contracture of the cervical muscles.
SOCIAL ENVIRONMENT: Semi-structured social interview: she says her tinnitus began after a cold. A year ago saw the decline of her family's construction company, which ended in bankruptcy.

DIAGNOSTIC EVALUATION: Tinnitus caused by family and work-related stress.

TREATMENT: Comprehension therapy: the patient was informed that her tinnitus was caused by the loss of the family business. Commitment therapy: she has agreed not to worry so much. She thinks she may require psychotherapeutic help. She will drink relaxing herbal teas.

Mujer de 52 años, casada, tres hijos. Consulta por acúfenos de oído izquierdo de 1 año de evolución, como un pitido.

METODOLOGÍA OTOSOCIOLÓGICA
OÍDO: otoscopy normal, audiometría normal. Impedanciometría normal.
CABEZA: RMN de cráneo y oídos - normal
PERSONA: ansiosa.
CUERPO: contractura muscular cervical.
ENTORNO SOCIAL. Entrevista social semiestructurada: refiere que su acúfeno comenzó después de un catarro. Hace un año se consumó el declive de la empresa familiar de construcción que terminó en un concurso de acreedores.

VALORACIÓN DIAGNÓSTICA: Acúfeno debido a estrés familiar y laboral.

TRATAMIENTO. Terapia de comprensión: se le indica a la paciente que el acúfeno está causado por la desaparición de la empresa familiar. Terapia del compromiso: se compromete a disminuir su grado de preocupación. Cree que quizás necesitaría ayuda psicoterapéutica. Va a tomar infusiones relajantes.

Clinical case history 9
OTOSOCIOLOGY
Tinnitus - Presbyacusis

56-year old man, married, three children. Presented with tinnitus of the left ear in the form of a sound like a high voltage cable, over the last year.

OTOSOCIOLOGICAL METHODOLOGY
HEAD: Cranial MRI and ears normal.
BODY: Migraines, sleep disorders.
PERSON: Perfectionist and anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: He has run his own company for 4 years; previously, he was a broker in the same business sector. The company which processes agricultural products was growing; it had 15 employees. A year ago, he had to let most of his employees go. Business was
poor due to competition and the economic crisis. The company currently employs three people - his wife and his two children. His son, who is married, is an important part of the company, although he complains that his father has not allowed him to develop his full potential at work. His daughter does not want to work for the company and wants to move to the city to in order to work in her own profession.

**DIAGNOSTIC EVALUATION:** tinnitus caused by work-related stress (trigger) and the current conditioning of family stress due his daughter's desire for independence from the company and family, which also worries him.

**TREATMENT:** Comprehension therapy: the patient was informed of the chronological link between the onset of his tinnitus and his company's decline and loss of workers. Commitment therapy: he has committed to delegating to his son, spending less time worrying and improving dialogue with his daughter. He will take melatonin. He has declined sound therapy.

Clinical case history 10

**OTOSOCIOLOGY**

Tinnitus - Presbyacusis

68-year old man, married, two married daughters. Presented with tinnitus of the left ear over the last two months.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Audiometry - Mild symmetrical bilateral presbyacusis.
**HEAD:** Cranial MRI and ears normal
**PERSON:** Anxiety.
**BODY:** Dyslipidaemia, arterial hypertension.
**SOCIAL ENVIRONMENT:** Semi-structured social interview: he has a blog; he participates in resident associations and spends a lot of time at his computer. His eldest daughter had marital problems, which were resolved favourably. The patient has found the last year difficult because of this. His youngest daughter had serious medical problems during her childhood, which have weakened her significantly. She also had a road accident leaving her with a slight limp. Three months ago, she went abroad to learn a foreign language. She had not finished her ‘A’ levels. When they went to visit her, they found her sharing a filthy room and washing dishes for a living. The patient says this daughter only contacts him when she needs money, which he always gives her. He is very worried about her.

**DIAGNOSTIC EVALUATION:** Irritating or unbearable tinnitus caused by worrying about his daughter.

**TREATMENT:** Comprehension therapy: the patient was informed that his tinnitus was caused by worrying about his daughters. Commitment therapy: he has agreed not to worry as much. He turned down psychotherapy. He does not want sound therapy.
Clinical case history 11

**OTOSOCIOLOGY**
**Tinnitus - Presbiacusis**

75-year old man, married, two children. Medical history of non-annoying bilateral tinnitus for 15 years, in the form of buzzing. He sought help after the tinnitus intensified in the last 18 months. It is more intense on the left-side.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Audiometry - Symmetrical presbiacusis (25-40-60 dB).

**HEAD:** Cranial MRI and ears normal.

**BODY:** Neck pain, cervical arthrosis. Disturbed sleep

**PERSON:** Anxious.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: his tinnitus did not bother him and was occasional and tolerable. 18 months ago, it worsened and is now unbearable. He lives with his wife. His children are married and live independently. Approximately two years ago, his wife was diagnosed with senile dementia. The patient reports that he cannot bear daily life with his wife under these circumstances.

**DIAGNOSTIC EVALUATION:** Unbearable tinnitus caused by family stress.

**TREATMENT:** Comprehension therapy: the patient, and his daughter who came with him, were told that his tinnitus was due to day to day living with his wife. Commitment therapy: to reduce his social stress, they have agreed to arrange a day centre for his wife or to find her a carer. The patient will receive psychotherapy and melatonin to help him sleep better. He will undergo physiotherapy and osteopathy. He has declined sound treatment (ear phones, masking, sound therapy).

---

Clinical case history 12

**OTOSOCIOLOGY**
**Tinnitus - Presbiacusis**

75-year old woman, widowed, three children. Presented with bilateral tinnitus of the same intensity in the form of beeps for the last 2 years, which has intensified over the last 6 months.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Otoscopy - bilateral tympanic sclerosis. Audiometry - sensorineural hearing loss; right ear 25-25-30-40-60 dB; left ear 25-25-40-55-70 dB. She feels deaf.

**HEAD:** Cranial MRI and ears normal.

**BODY:** Type II diabetes, arterial hypertension, hypertensive heart disease.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: She had been caring for her husband, who had COPD, for the last 3 years; he was bedridden. She was widowed six months ago and is still in mourning.
DIAGNOSTIC EVALUATION: tinnitus caused by family-related stress.

TREATMENT: Comprehension therapy: the patient was informed that her tinnitus was caused by her husband's illness and that this tinnitus got worse because of her husband's death. Commitment therapy: she has agreed to overcome her grief with the help of her children. She has declined sound therapy.

Clinical case history 13
OTTOSOCIOLOGY
Tinnitus - Presbiacusis

78-year old woman, widow, no children. Presented with tinnitus of the left ear in the form of beeps over the last 3 months.

OTTOSOCIOLOGICAL METHODOLOGY
HEAD: Cranial MRI and ears normal.
BODY: Neck pain, cervical arthrosis. Disturbed sleep.
PERSON: Depressive.
SOCIAL ENVIRONMENT: Semi-structured social interview: Her husband died four months ago. She does not have any children. She lives alone. Her niece came to the appointment with her. She had never complained of tinnitus before.

DIAGNOSTIC EVALUATION: tinnitus caused by death of her husband.

TREATMENT: Comprehension therapy: the patient was informed of the chronological link between the appearance of her tinnitus and her personal circumstances (loneliness) as a result of her husband's death. Commitment therapy: she will take melatonin to normalise her sleep patterns. She has agreed to look for company. She has declined sound therapy.

Clinical case history 14
OTTOSOCIOLOGY
Tinnitus - Acoustic trauma

36-year old man, unmarried with a partner, no children. Presented with tinnitus of the right ear in the form of beeps over the last 4 months.

OTTOSOCIOLOGICAL METHODOLOGY
EAR: Normal otoscopy. Audiometry - bilateral acoustic trauma; right ear 4000Hz/45dB; left ear 4000Hz/40dB (due to work and leisure-related noise).
HEAD: Cranial MRI and ears normal.
BODY: Disturbed sleep. Earwax was removed from his right ear 6 months ago.
PERSON: Depressed.
SOCIAL ENVIRONMENT: Semi-structured social interview: He has been an unemployed bricklayer for the last 18 months. 4 months ago, his brother was diagnosed with amyotrophic lateral sclerosis (ALS). He admits to being very sad and that it has affected him deeply.

DIAGNOSTIC EVALUATION: The patient associates his tinnitus with the removal of the ear wax. Tinnitus caused by family-related stress.

TREATMENT: Comprehension therapy: the patient was informed of the chronological link between the start of his tinnitus and the diagnosis of this brother's disease. Commitment therapy: he will take melatonin for 3 months to normalise his sleep. He has agreed to be more positive. He has declined sound therapy, psychotherapy and medication.

Clinical case history 15
OTOSOCIology
Tinnitus - Acoustic trauma

38-year old man, married, no children. Presented with tinnitus of the left ear in the form of beeps over the last 2 years.

OTOSOCIOLOGICAL METHODOLOGY
EAR: Normal otoscopy. Audiometry - bilateral acoustic trauma; right ear 4000Hz/40dB; left ear 4000Hz/45dB.
HEAD: Cranial MRI and ears normal.
BODY: Diagnosed with congenital spondylolisthesis which manifested due to overstrain.
PERSON: Perfectionist and anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: He works in the iron and steel industry, in the forge. He works in a noisy environment. He wears anti-noise earplugs and helmets. He has worked at the company for 15 years. He suffers periods of stress at work when he is sent to the aluminium section, because he feels less secure there. 3 years ago, he strained his back leaving him unable to get out of bed, unable to walk and with severe pain. He was diagnosed with spondylolisthesis. He was given sick leave 18 months ago. The tinnitus appeared during this period. He recalls that he was very unhappy during his illness, combined with the worry of "whether he would be able to walk again". He was discharged 18 months ago and continues with the same job. He does rehabilitation exercises daily. In terms of his family life, they have tried IVF twice over the last four years with no success. When asked how he would evaluate the distribution of his stress between work and family, he said 50/50. He wants to continue working at the ironworks. He says that when everything is calm, he barely notices the tinnitus.

DIAGNOSTIC EVALUATION: tinnitus caused by being off work and the uncertainty about whether he would be able to walk again.

TREATMENT: Comprehension therapy: the patient was informed that his tinnitus was triggered by the stress during his time off work with the
conditioning factors being family-related stress due to the unsuccessful IVF, the congenital spondylolisthesis and the acoustic trauma. Commitment therapy: he has agreed to curb his desire for perfection and his anxiety, which causes him daily stress and says that if he cannot manage to do so he will try cognitive-behavioural therapy with a psychotherapist. He will continue with daily rehabilitation exercises and acoustic protection. They will continue with IVF.

Clinical case history 16
OTOSOCIOLOGY
Tinnitus - Acoustic trauma

44-year old woman, married, two children. Presented with tinnitus of the right ear in the form of beeps over the last 12 months.

OTOSOCIOLOGICAL METHODOLOGY
EAR: Normal otoscopy. Audiometry - bilateral acoustic trauma; right ear 4000Hz/35dB; left ear 4000Hz/30dB.
HEAD: Cranial MRI and ears normal.
BODY: Back pain due to muscular problems. Disturbed sleep
PERSON: Perfectionist and anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: She has worked as a lawyer in a lawyer’s office for 8 years. She finds the periods when there is a trial in progress very stressful. Her husband was the manager of a construction company which closed down 18 months ago due to the financial crisis. He is currently unemployed and has been receiving unemployment benefit for the last 18 months. The patient is very worried because she thinks that her husband is not doing everything possible to find a new job. The patient attributes the tinnitus to her daughter screaming in her right ear just a week before the tinnitus started.

DIAGNOSTIC EVALUATION: Tinnitus caused by worrying about her partner's work situation.

TREATMENT: Comprehension therapy: the patient was informed of the chronological link between the start of her tinnitus and her husband's unemployment as well as her view that he is not trying very hard to find a new job. Commitment therapy: she will take melatonin for 6 months to regularise her sleep. She has decided to suggest to her husband that he seek professional advice. Behavioural auto-therapy to help her face every day social stress with less anxiety. She has declined sound therapy.

Clinical case history 17
OTOSOCIOLOGY
Tinnitus - Acoustic trauma
57-year old man, unmarried, no partner, no children. Presented with bilateral tinnitus (more intense in the right ear) in the form of beeps over the last 7 months.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Audiometry - bilateral acoustic trauma; right ear 4000Hz/40dB; left ear 4000Hz/55dB. He has been exposed to loud noise during his time working at the family bakery over the last 22 years.

**HEAD:** Cranial MRI and ears normal.

**BODY:** Currently diagnosed, by his psychiatrist, with anxiety-depressive disorder reactive to tinnitus. He suffered from two periods of depression 30 and 25 years ago due to work related stress.

**PERSON:** Perfectionist and anxious.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: He is a civil servant. He worked as an educator of juvenile delinquents, with high levels of work-related stress. He is currently in a less stressful job. He has fallen out with his brother and they are no longer on speaking terms. 7 months ago, his niece, who has a five-month old daughter, left her husband and returned to live with her mother. The patient has to support his family financially (his mother, his sister, his niece and her daughter’s niece).

**DIAGNOSTIC EVALUATION:** tinnitus triggered by his niece’s separation and her return to the family. Family and work-related stress were the conditioning factors.

**TREATMENT:** Comprehension therapy: it was explained to the patient that his tinnitus was caused by family and work-related stress. Commitment therapy: he is undergoing psychiatric treatment with fluvoxamine and halazepam. He has agreed to symptomatic sound treatment with tinnitus masking. He has committed to behavioural auto-therapy.

Clinical case history 18

**OTOSOCIOLOGY**

Tinnitus – Mild sensorineural hearing loss

35-year old woman, married, pregnant. Presented with tinnitus perceived in her head over the last 18 months, in the form of beeps, during the day and an engine during the night.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Audiometry - high-frequency hearing loss; right ear 8,000Hz/35dB; left ear 8,000Hz/30dB.

**HEAD:** Cranial MRI and ears - discovery of a frontal lobe lacunar infarct.

**PERSON:** Anxious, Disturbed sleep

**BODY:** she is being monitored for emotionally induced hypertension.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: She is the general manager at a perishable food distribution company. Her job is very stressful and she has worked overtime almost every day over the last 3 years. She was diagnosed with TIA 18 months ago and, since then, she has suffered from
tinnitus. She attends a fertility clinic and is currently on her second attempt to fall pregnant. The first attempt was not viable and she lost the baby 18 months ago.

**DIAGNOSTIC EVALUATION:** Tinnitus caused by family-related stress.

**TREATMENT:** Comprehension therapy: it was explained to the patient that her tinnitus was triggered by the miscarriage after the first pregnancy attempt (chronological link) and that constant stress at work was a conditioning factor. Commitment therapy: She has committed to cognitive-behavioural therapy with a psychotherapist and sound treatment. She intends to reduce her workload.

Clinical case history 19

**OTOSOCIOLOGY**

**Tinnitus – Mild sensorineural hearing loss**

40-year old man, married, two young children. Presented with bilateral tinnitus in the form of beeps over the last 9 months.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Audiometry - mild symmetrical bilateral high-frequency sensorineural hearing loss (8000Hz/30 dB).

**HEAD:** Cranial MRI and ears normal.

**BODY:** Disturbed sleep

**PERSON:** Perfectionist and anxious.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: He works as a civil servant with a temporary contract of employment in public administration. 24 months ago, he started to prepare for the public examinations in order to obtain a permanent contract. The dates of his public examinations were announced 12 months ago. He admits that he is scared of losing his job if he does not pass the exams because he could lose his job. This is really worrying him and disturbing his daily rhythms.

**DIAGNOSTIC EVALUATION:** tinnitus caused by work-related stress in preparing for the public examinations (generator phase), showing the chronological link in the appearance of the tinnitus is the period of time (three-month transitory phase) after the public examination dates were announced.

**TREATMENT:** Comprehension therapy: it was explained to the patient that the date of the public examinations was the trigger or cause of his tinnitus. The conditioning factor was the period he spent preparing for the public examinations. Commitment therapy: he has committed to behavioural auto-therapy. As regards his social stress levels, he intends to attend a college to set his studies in order. As for his anxiety and desire for perfection, he will be easier on himself. He will take melatonin to regulate his sleep pattern. He declined tinnitus masking.
Clinical case history 20

OTOSOCIOLOGY
Tinnitus – Sensorineural hearing loss

45-year old woman, married, two children. Presented with bilateral tinnitus (more intense in the right ear) like the sound of the wind for the duration of two years.

OTOSOCIOLOGICAL METHODOLOGY
HEAD: Cranial MRI and ears normal.
BODY: Diagnosed with essential hypertension.
PERSON: Anxious, Disturbed sleep
SOCIAL ENVIRONMENT: Semi-structured social interview: 2 years ago, one of the patient's aunts, who had Alzheimer's, died. The patient was her aunt's carer for the last 3 years of her life. After her aunt's death, the patient was diagnosed with anxiety-depressive syndrome and had to stop working (administrative assistant). When she was discharged from the doctor's care, she returned to her job but was dismissed due to acquired medical incapacity. The job was too much for her. She is currently receiving psychiatric treatment with paroxetine, mirtazapine, lorazepam and relaxation techniques.

DIAGNOSTIC EVALUATION: Tinnitus caused by social and family-related stress.

TREATMENT: Comprehension therapy: It was explained to the patient that her tinnitus was due family-related stress. Commitment therapy: she has committed to eliminate all social and family-related stress. She wants to return to work. She declined sound therapy.

Clinical case history 21

OTOSOCIOLOGY
Tinnitus – Sensorineural hearing loss

47-year old woman, divorced, one son. She sought help for bilateral tinnitus (more intense in the right ear) which resembles the sound of the wind, and which has developed over the last 2 years. It has intensified over the last year.

OTOSOCIOLOGICAL METHODOLOGY
EAR: Normal otoscopy. Audiometry - sensorineural hearing loss; right ear 45-25-25-30-40 dB; left ear 45-25-30-40-55 dB.
HEAD: Cranial MRI and ears normal.
BODY: Spondylarthitis, cervical kyphosis, temporomandibular joint disorder, fibromyalgia, rheumatoid arthritis. Anxious-depressive disorder treated with paroxetine, mirtazapine, lorazepam and relaxation techniques. Disturbed sleep
PERSON: Anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: She is a pharmacist's assistant. She is off work. 2 years ago, she was diagnosed with anxiety depressive syndrome, which the patient attributes to the distress she suffered during her divorce. She has been caring for her aunt with Alzheimer’s for the last year.

DIAGNOSTIC EVALUATION: tinnitus caused by family-related stress.

TREATMENT: Comprehension therapy: it was explained to the patient that her tinnitus began when her divorce was finalised and that it got worse when she began caring for her aunt. Commitment therapy: she has agreed to delegate carer responsibilities to others and to increase her awareness of other family-related stress. She has agreed to take melatonin and has declined sound therapy.

Clinical case history 22
OTOSOCIOLOGY
Tinnitus – Sensorineural hearing loss

51-year old woman, married, one daughter. Presented with tinnitus of the left ear in the form of buzzing which has developed over the last 5 months.

OTOSOCIOLOGICAL METHODOLOGY
EAR: Normal otoscopy. Audiometry - sensorineural hearing loss; right ear 35-15-20-30-70 dB; left ear 30-20-30-35-60 dB.
HEAD: Cranial MRI and ears normal.
BODY: Contracture of the cervical muscles, temporomandibular joint disorder and thyroidectomy.
PERSON: Anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: She is a clinical assistant. Her daughter was diagnosed with Crohn's disease 18 months ago. The family have been suffering in sympathy with her for a year. Her daughter's condition stabilised 6 months ago.

DIAGNOSTIC EVALUATION: tinnitus caused by family-related stress.

TREATMENT: Comprehension therapy: the patient was informed that the cause of her tinnitus was the course of her daughter's illness. There was a one-month transitory period between the stabilisation of the disease and the appearance of the tinnitus. Commitment therapy: she has committed to undergo behavioural auto-therapy, physiotherapy and osteopathy. She will take a muscle relaxant (cyclobenzaprine) symptomatically. She declined sound therapy.

Clinical case history 23
OTOSOCIOLOGY
Tinnitus – Sensorineural hearing loss
53-year old man, married, three children. Presented with bilateral tinnitus in the form of beeps for the duration of 18 months.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Audiometry - symmetrical bilateral sensorineural hearing loss. Downward curve of 35-55-70 dB. He has been subjected to loud noise at work.

**HEAD:** Cranial MRI and ears normal.

**BODY:** Disturbed sleep, cervical arthritis.

**PERSON:** Anxious.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: He has had tinnitus for several years, which he did not take any notice of, but it became unbearable 18 months ago. He had worked at the same company for 37 years in various positions of responsibility for the manager. Manual work. He feels like his boss breached his trust when he sacked him 18 months ago due to the financial crisis. He still has not been able to get over the situation especially because of the way it happened and the breach of trust. There is currently no prospect of him finding another job. Family involvement.

**DIAGNOSTIC EVALUATION:** tinnitus caused by work-related stress due to unemployment, the way it happened (trigger) and the feeling of betrayal by his boss. His stress has been maintained and increased by his lack of employment prospects (conditioning factor).

**TREATMENT:** Comprehension therapy: it was explained to the patient that his tinnitus was caused by work-related stress. Commitment therapy: he has agreed to train for other jobs and to let go of his anxiety through behaviour. He is taking bentazepam prescribed by his psychotherapist. He has agreed to symptomatic sound treatment with tinnitus masking with integrated earphone.

Clinical case history 24

**OTOSOCIOLOGY**

Tinnitus – Sensorineural hearing loss

65-year old man, married, two independent children. Presented with tinnitus of the right ear which sounds like an aircraft engine for a duration of 7-8 months.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Audiometry - sensorineural hearing loss; right ear 35-15-60-75 dB; left ear -25-10-55-65 dB.

**HEAD:** Cranial MRI and ears normal.

**BODY:** Disturbed sleep

**PERSON:** Perfectionist and anxious.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: He retired 6 months ago. He is a technical engineer and was head of maintenance. He was exposed to loud noise during his working life. He was not able to protect his ears due to the fact that diagnosing faults often required him to listen to the sound made by the machines. He has never suffered from tinnitus before. He has taken
retirement badly and this has caused him a lot of anxiety. He says that retirement should be voluntary because he feels useless now.

**DIAGNOSTIC EVALUATION:** tinnitus caused by the stress of retirement.

**TREATMENT:** Comprehension therapy: it was explained to the patient that the cause of his tinnitus has been his retirement; the tinnitus, which he had never suffered from before, began just before he retired and has continued due to the stress his current situation is causing him. Commitment therapy: he has agreed to fill his empty hours with activity. He will take melatonin for his disturbed sleep. He declined sound therapy.

Clinical case history 25

**OTOSOCIOLOGY**

Tinnitus – Unilateral hearing loss

21-year old man, unmarried. Presented with tinnitus of the right ear in the form of beeps of 4 months duration.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Audiometry - right ear 8000Hz/30 dB and normal hearing in the left ear.

**HEAD:** Cranial MRI and ears normal

**BODY:** Contracture of the cervical muscles.

**PERSON:** Anxious.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: He is currently studying at his chosen university where he is achieving good grades. The family business started to have problems 7 years ago and went bankrupt 5 years ago. 4 years ago, the family had to leave the city and move to a village due to the financial situation causing them to lose all their possessions. His father had depressive syndrome and also underwent a delicate surgical procedure leaving him with disabling sequelae. The family's worst moments came during the patient's adolescence.

**DIAGNOSTIC EVALUATION:** tinnitus caused by family-related stress.

**TREATMENT:** Comprehension therapy: It was explained to the patient that his tinnitus was caused by family-related stress. Commitment therapy: he has agreed to continue his studies and to go to family therapy with a psychotherapist. He declined sound therapy.

Clinical case history 26

**OTOSOCIOLOGY**

Tinnitus – Unilateral hearing loss
43-year old man, married, three children. Presented with tinnitus of the left ear of 10 years duration, a beeping sound, which did not bother him and was well tolerated. It has become unbearable over the past year.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Audiometry - right ear normal and left ear 8000Hz/45 dB; other frequencies normal.

**HEAD:** Cranial MRI and ears normal - radiology report: both sides of the cerebellopontine angle cistern show elongated and twisted vascular structures compatible with branches of the basilar artery, which relate to the facial acoustic packet bilaterally, specifically on the right side, the anteroinferior cerebellar artery and, on the left, the superior cerebellar artery, crossing both vascular structures at the eighth pair perpendicular approx. 9-10mm from the exit from the brainstem, around said neural structures' theoretical radial entry zone. No other pathological findings.

**BODY:** Contracture of the cervical muscles.

**PERSON:** Anxious.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: He is an industrial technical engineer and works from 8am until 9pm. He has done this for over 10 years. Over the last two years, his company has started laying people off and he has had to take on more work.

**DIAGNOSTIC EVALUATION:** Tinnitus caused by work-related stress.

**TREATMENT:** Comprehension therapy: it was explained to the patient that his tinnitus became unbearable because of work-related stress. Commitment therapy: it has been suggested that he delegate work and give himself more free time. He does not know if he will be able to do this. He declined sound therapy except for masking, which he carries out using a radio day and night.

---

Clinical case history 27

**OTOSOCIOLOGY**

**Tinnitus – Unilateral hearing loss**

53-year old man, married, three children. Presented with tinnitus of the left ear like the sound of a seashell held to the ear, over the past year.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Audiometry - right ear normal and left ear 25-30-35-40-75-85 dB.

**HEAD:** Cranial MRI and ears normal.

**BODY:** Arterial hypertension currently being treated.

**PERSON:** Anxious.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: He is an electronics technician and works in quality control. He has a permanent job. His medical history: he suffered a transient ischaemic attack 3 years ago which coincided with the death of his mother and he had to take over the care of his father with Alzheimer's. The patient is one of three siblings, but he is responsible for their father. His father has been deteriorating progressively and, he has been unable
to move by himself for about a year. A year ago, the patient suffered sudden hearing loss in his left ear.

**DIAGNOSTIC EVALUATION:** Tinnitus caused by family-related stress.

**TREATMENT:** Comprehension therapy: the patient was informed that his tinnitus was caused by family-related stress. Commitment therapy: he was told that he needs to get some help with the social stressor (caring for his father). He has agreed to discuss this with his siblings. He will undergo sound therapy (earphone with tinnitus masking). He has also agreed to change his attitude towards the social stressor.

Clinical case history 28

**OTOSOCIOLOGY**

Tinnitus – Unilateral hearing loss

65-year old man, married, two children. Presented with tinnitus of the right ear which sounds like the escape of air from a vent, for a duration of 20 months.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Audiometry - unilateral pantonal sensorineural hearing loss in the right ear at 50 dB; left ear normal.

**HEAD:** Cranial MRI and ears normal.

**BODY:** Disturbed sleep

**PERSON:** Perfectionist, anxious and emotionally unstable.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: The deafness in his right ear was detected 5-6 years ago during a medical assessment at work. He has had occasional tinnitus for several years, to which he paid no attention. Between 1 year and 8 months ago, his daughter was diagnosed with breast cancer (chronological link). 48 hours later, tinnitus appeared in the patient's right ear (transitory phase). A year ago, the patient's son left the family business, started keeping bad company and is currently in detox. The patient admits that he has considered suicide.

**DIAGNOSTIC EVALUATION:** tinnitus caused by family-related stress.

**TREATMENT:** Comprehension therapy: it was explained to the patient that his tinnitus was caused by his daughter being diagnosed with cancer (trigger) and it has been maintained and intensified by his son's situation. Commitment therapy: he has agreed to undergo behavioural-cognitive therapy with a psychotherapist. He has agreed to symptomatic sound treatment with tinnitus masking with an integrated earphone for his right ear. He will take melatonin.

Clinical case history 29

**OTOSOCIOLOGY**

Tinnitus – Mixed hearing loss
75-year old man, married, two children. Presented with tinnitus of the left ear in the form of intense beeps for the last 2 months.

**OTOSOCIOLOGICAL METHODOLOGY**  
**EAR:** Otoscopy – right ear normal; left ear with a clean and dry radical cavity. Audiometry – right ear with presbycusia; left ear, mixed hearing loss with downward curve (50-60-75 dB).  
**HEAD:** Cranial MRI normal.  
**BODY:** Mastoidectomy of the left ear 30 years ago. Arterial hypertension, dyslipidaemia, bronchiectasis, ischaemic cardiopathy.  
**PERSON:** anxious.  
**SOCIAL ENVIRONMENT:** Semi-structured social interview: 3 months ago, he had otitis of the left ear, which was treated with antibiotics and he underwent ear cleaning with suction. One week later, he began hearing loud noises in his left ear. He usually suffers from one or two episodes of suppurative otitis of the left ear each year. He had always had tinnitus in this ear but it did not bother him. His wife was diagnosed with Parkinson's disease 3-4 years ago and the patient is her carer. His daughter has been seeing a psychiatrist for the last year. His son was hospitalised for detox 3 months ago after suffering from withdrawal syndrome whilst at home. This caused the patient great distress.

**DIAGNOSTIC EVALUATION:** tinnitus caused by family-related stress.

**TREATMENT:** Comprehension therapy: it was explained to the patient that the chronological link indicates that his son's problems were the cause with the conditioning factors being family stress due to having to care for his wife and his daughter's illness. Commitment therapy: he has agreed to share the responsibilities of caring for his family with help from social services. However, the patient is convinced that the loud tinnitus in his left ear started after his ear was aspirated.

Clinical case history 30

**OTOSOCIOLOGY**  
Tinnitus - Otosclerosis

41-year old man, married, one son. Presented with tinnitus of the right ear in the form of intense beeps for the last 5 months.

**OTOSOCIOLOGICAL METHODOLOGY**  
**EAR:** Normal otoscopy. Audiometry - asymmetrical bilateral conductive hearing loss; right ear 45-40-65 dB; left ear 35-25-45 dB.  
**HEAD:** Cranial MRI normal.  
**BODY:** Underwent a stapedectomy of the right ear 8 years ago and of the left ear 6 years ago. Disturbed sleep  
**PERSON:** Perfectionist.  
**SOCIAL ENVIRONMENT:** Semi-structured social interview: He is a technical engineer. 6 months ago, he was promoted at work; he is now responsible for 20 workers. His new level of responsibility has caused him work-related stress. He
considers himself to be demanding. He says he has always suffered from bilateral tinnitus, which he tolerated well due to its low intensity.

**DIAGNOSTIC EVALUATION:** tinnitus caused by work-related stress.

**TREATMENT:** Comprehension therapy: the patient was informed that the chronological link indicates that the change in his work situation with the increase in responsibility and stress has caused the intensification of his tinnitus. Commitment therapy: he has agreed to try and reduce his level of work-related stress. He will drink relaxing herbal teas regularly and take melatonin to regulate his sleep pattern. He declined sound treatment using earphones, tinnitus masking or earphones with integrated masking.

---

Clinical case history 31

**OTOSOCILOGY**

Tinnitus - Acoustic schwannoma

65-year old woman, married, three children living independently. Presented with tinnitus and deafness of the right ear, vertigo and dizziness for the last 6 months.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Audiometry - sensorineural hearing loss; right ear 25-25-35-55-75 dB; left ear 20-15-20-35-40 dB.

**HEAD:** RMN - Right acoustic schwannoma.

**BODY:** Cervical arthritis.

**PERSON:** balanced personality.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: She is a housewife. The tinnitus, which she has had for 6 months, does not bother her and she only notices it occasionally. She has been diagnosed with neurinoma of the 7th cranial pair and has been referred to the ENT-neurosurgery department for assessment. Two weeks ago, she returned to the ENT department with her eldest daughter for clearer information because she had attended alone previously and the diagnosis upset her. During the consultation, she mentioned that she has had unbearable tinnitus in her right ear since the last consultation, which she did not have before and she now has difficulty sleeping and is very anxious. During the consultation the case details and their concerns were discussed with both the patient and her daughter. The patient said she felt calmer.

**DIAGNOSTIC EVALUATION:** Unbearable tinnitus caused by the stress of the diagnosis.

**TREATMENT:** Comprehension therapy: it was explained to the patient that her tinnitus became unbearable because of the stress caused by the diagnosis. Commitment therapy: she has agreed to try and worry less and to undergo the treatment recommended for the acoustic neurinoma.
Clinical case history 32

OTOSOCIOLOGY

OBJECTIVE: pulsatile tinnitus - Presbyacusis

71-year old woman, widowed. Presented with pulsatile tinnitus of the right ear of 4 months duration. It is unbearable.

OTOSOCIOLOGICAL METHODOLOGY

EAR: Normal otoscopy. Audiometry - mild symmetrical bilateral presbyacusis.
HEAD: Cranial MRI and ears – the diameter of the right cervical carotid artery is 25% greater than the left; not pathological or constitutional.
BODY: Disturbed sleep
PERSON: Anxious.
BODY: Diagnosed with cervical arthritis.
SOCIAL ENVIRONMENT: Semi-structured social interview: She had never complained of tinnitus until four months ago. She lives alone; her nieces and nephews come to visit her, some more than others. She also has a neighbour who looks in on her. Her husband died suddenly four months ago.

DIAGNOSTIC EVALUATION: Irritating or unbearable pulsatile tinnitus caused by family-related stress.

TREATMENT: Comprehension therapy: the patient was informed that the unbearable feeling of the pulsatile tinnitus is due to the physical and mental agitation from which she has suffered since her husband's death. Commitment therapy: she has agreed to find someone to keep her company morning, afternoon and night. She will take melatonin to regulate her sleep pattern. She declined sound therapy.

Clinical case history 33

OTOSOCIOLOGY

Hyperacusis - Normal hearing

21-year old man, single, no partner. Nuisance to the usual sounds for 3 the last 3 years.

OTOSOCIOLOGICAL METHODOLOGY

EAR: Normal otoscopy. Normal audiometry. Discomfort threshold in both ears at 65 dB.
HEAD: Cranial MRI and ears normal.
BODY: Disturbed sleep
PERSONALITY: Anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: Patient from a wealthy family. He finished his A Levels 3 years ago. His mother says he was put under a lot of pressure to study by his father throughout his A Level studies. In the subsequent university entrance exams, he achieved a grade which allowed him to study the engineering of his choice in a province 500km from his home. He had to move and live alone. The first year finished in
September. He enrolled for the second year but he did not go because he did not feel up to it. He moved back to the city and lives with his family. He signed up for a different engineering course in his city, which he also abandoned because it was not his subject. His mother made him sign up for a higher education training module, which he started but stopped after a few months. He is not studying at the moment.

**DIAGNOSTIC EVALUATION:** the hyperacusis, which is a neural hyperactivity, occurred as a result of his inability to meet the expectations of his family, particularly his father, in his studies.

**TREATMENT:** Comprehension therapy: it was explained to the patient that his hyperacusis was caused by his studies. Commitment therapy: he has agreed to see a psychotherapist and, if the psychologist thinks it is appropriate, he will also see a psychiatrist. As a symptomatic treatment, he has been offered sound habitation therapy with sounds of nature.

**Clinical case history 34**

**OTOSOCIOLOGY**

Hyperacusis – Mild sensorineural hearing loss

45-year old woman, divorced, no children. Seen due to hyperacusis for the last year.

**OTOSOCIOLOGICAL METHODOLOGY**

**EAR:** Normal otoscopy. Audiometry - high-frequency hearing loss; right ear 8000Hz/35 dB; left ear 8000Hz/40dB. Discomfort threshold, right ear 70dB, left ear 75dB

**HEAD:** Cranial MRI and ears normal

**PERSON:** Anxious.

**BODY:** Contracture of the cervical muscles.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: She is a professional musician in a symphony orchestra. A year ago, she started working with anti-noise headphones with a filter. The hyperacusis has made her work very difficult. She went through a difficult divorce 3 years ago and there are still outstanding shared financial issues, which she started to sort out a year ago. She says she has not recovered emotionally from the divorce.

**DIAGNOSTIC EVALUATION:** Hyperacusis caused by family-related stress.

**TREATMENT:** Comprehension therapy: the patient was informed that her hyperacusis was due to the social conflict from the divorce. Commitment therapy: she has agreed to pass the financial problems resulting from her divorce over to a professional, and to distance herself from these issues whilst they being are resolved. She would like to get help from a psychotherapist. She has agreed to symptomatic sound habituation therapy.
Clinical case history 35  
OTOSOCIOLOGY  
Hyperacusis – Sensorineural hearing loss  

46-year old man, divorced, one daughter. Nuisance to the usual sounds for the last 10 months.  

OTOSOCIOLOGICAL METHODOLOGY  
EAR: Normal otoscopy. Audiometry - bilateral high-frequency hearing loss; right ear 8000Hz/45dB; left ear 8000Hz/40dB. Discomfort threshold, right ear 75 dB, left ear 65dB  
HEAD: Cranial MRI normal.  
BODY: Contracture of the neck and back muscles.  
PERSON: Perfectionist and anxious.  
SOCIAL ENVIRONMENT: Semi-structured social interview: he is a musician, a violinist in his city's symphony orchestra. Until 10 months ago, he had had no sound-related problems with his work as a musician. He recalls that it started after a symphony concert due to percussion instruments, which he found very loud and irritating. Since then, everyday sounds, which he had tolerated very well before began to bother him, both at work and in his everyday life. Two years ago, he got divorced and took refuge in his work to get through this difficult time. He neglected his daughter during this time. A year ago, his 6-year old daughter was diagnosed with leukaemia.  

DIAGNOSTIC EVALUATION: Hyperacusis caused by family-related stress.  

TREATMENT: Comprehension therapy: it was explained to the patient that the hyperacusis was caused by his daughter's diagnosis (trigger), that the stress he suffered during his divorce was the conditioning factor and the transitory phase was between his daughter’s diagnosis and the appearance of the hyperacusis. The chronological link places the little girl's diagnosis as a causal family-related trigger. The hyperacusis continued and intensified during his daughter's cancer treatment. Commitment therapy: he has agreed to look at his behaviour. He will undergo sound desensitisation therapy. He will begin physiotherapy and osteopathy. He will share the problem with his family.  

Clinical case history 36  
OTOSOCIOLOGY  
CAPD - Normal hearing  
(CAPD, central auditory processing disorders)  

39-year old woman, married, two children. Seen due to sensation of hearing loss over the last few months.  

OTOSOCIOLOGICAL METHODOLOGY  
EAR: Normal otoscopy. Normal audiometry. Normal auditory evoked potentials. The CAPD (Central Auditory Processing Disorders) tests showed changes
(comprehension of speech in noisy environments, dichotic tests, temporal processing).
HEAD: Cranial MRI normal.
BODY: Disturbed sleep
PERSON: Perfectionist, anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: She is a speech therapist and works with autistic children. She says her work is very demanding and she always arrives home exhausted. Over the last 6 months, she has had to take care of her father, who has dementia, because her mother is disabled. She attends her children's extracurricular activities in the afternoons.

DIAGNOSTIC EVALUATION: tinnitus caused by family and work-related stress.

TREATMENT: Comprehension therapy: the patient was informed that the chronological link indicates that the burden of family-related responsibilities combined with the demands of her job caused the symptoms of hearing loss due to a CAPD. Commitment therapy: she has agreed to delegate some of her responsibilities, with professional home help for her father, and her husband is to take care of the children's extracurricular activities. She will take melatonin to regulate her sleep and she will try to place fewer demands on herself.

Clinical case history 37

OTOSOCIOLOGY
Idiopathic facial paralysis or Bell's palsy

36-year old man, married, two children. Seen for idiopathic facial paralysis on the left side 2 weeks ago; he is currently undergoing medical treatment.

OTOSOCIOLOGICAL METHODOLOGY
EAR: Normal otoscopy. Audiometry - bilateral acoustic trauma; right ear 4000Hz/35dB; left ear 4000Hz/30dB.
HEAD: Cranial MRI and ears normal.
BODY: Diagnosed with anxiety syndrome 3 months ago; undergoing treatment with citalopram and alprazolam.
PERSON: Perfectionist.
SOCIAL ENVIRONMENT: Semi-structured social interview: He is a welder. 6 months ago, he was promoted at work; he is now the technical manager and responsible for 200 workers. The facial paralysis began when he was away on holiday. During the six months prior to his holiday, he was under a lot of stress at work due to his increased responsibility.

DIAGNOSTIC EVALUATION: Facial paralysis caused by work-related stress.

TREATMENT: Comprehension therapy: the patient was informed that his paralysis was caused by work-related stress. The 6 months of stress since his promotion (conditioning factor) and the apparent calm of his holidays (transitory phase) triggered the symptomatology of the facial paralysis (chronological link). Commitment therapy: he will continue in his current
position at work (social stressor) but he will delegate responsibilities and will show more firmness of character (attitude or confrontation).

Clinical case history 38
OTOSOCIOLOGY
Idiopathic facial paralysis or Bell’s palsy

48-year old woman, married, three children (aged 30, 24 and 17). Civil servant. Consultation due to facial paralysis on two occasions.

OTOSOCIOLOGICAL METHODOLOGY
HEAD: Cranial MRI and ears normal.
BODY: High cholesterol.
PERSON: Anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: 8 months ago, she suffered facial paralysis on the right side and currently has facial paralysis on the left side. The first facial paralysis occurred 72 hours before her middle son left to work in China. Her son had to return after 15 days because he had a panic attack. The patient says she knew that was going to happen. Her son is currently receiving psychological and psychiatric treatment. The second facial paralysis occurred 4 days before her youngest daughter left for Italy to study Italian. She admits that she was overcome with stress.

DIAGNOSTIC EVALUATION: Facial paralyses caused by family-related stress.

TREATMENT: Comprehension therapy: the patient was informed that both paralyses were caused by the same thing, family-related stress. Commitment therapy: she has agreed not to worry so much about her children flying the nest. Vitamin B complex, long-term.

Clinical case history 39
OTOSOCIOLOGY
Idiopathic facial paralysis or Bell’s palsy

67-year old man, widowed. Consultation due to facial paralysis on the right side.

OTOSOCIOLOGICAL METHODOLOGY
EAR: Normal otoscopy, mild presbyacusis.
HEAD: Cranial MRI and ears normal.
BODY: Arterial hypertension, chronic ischaemic cardiomyopathy.
PERSON: Anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: He cares for a son with schizophrenia. The facial paralysis occurred 48 hours after his son was admitted to hospital with cranial trauma and fractures to the ribs and the left ulna as a result of a fight with a gang of local troublemakers. He considers
himself to be too old to be able to control his son and to make sure that he
takes his medication.

DIAGNOSTIC EVALUATION: facial paralysis caused by family-related stress.

TREATMENT: Comprehension therapy: the patient was informed that his
paralysis was caused by stress related to his son. Commitment therapy: he will
ask for help from social services so that they can help him to care for his son.

Clinical case history 40

OTOSOCIOLOGY
Benign paroxysmal positional vertigo (BPPV)

50-year old woman, partner, two independent children. Consultation due to
episodes of vertigo brought on when moving her head and neck, for the last 10
months.

OTOSOCIOLOGICAL METHODOLOGY
HEAD: Cranial MRI and ears normal.
BODY: Disturbed sleep. Diagnosed with BPPV (benign paroxysmal positional
vertigo). Bilateral earache, more intense in the right ear due to a
temporomandibular disorder. Contracture of the cervical and back muscles. Her
back is painful when pressed. She is starting to go into the menopause.
PERSON: Anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: She has undergone
two otolith repositioning procedures. The first improved the symptoms for
several days. The second made the vertigo worse. As the months have passed,
her balance has got worse. She takes beta-histidine symptomatically. She is self-
employed and runs an estate agency. She quantifies her work stress as a 7 on a
scale of 1 to 10. She divorced the father of her children 23 years ago. She
currently lives with other partner. She quantifies her family-related stress as a 9,
due to the problematic relationship with her current partner. The last 12 months
have been and continue to be very problematic with her current partner.

DIAGNOSTIC EVALUATION: vertigo caused by family-related stress.

TREATMENT: Comprehension therapy: it was explained to the patient that the
cause (trigger) was stress from the relationship with her current partner and
(conditioning factors) work-related stress in her business due to the financial
crisis. Commitment therapy: she has agreed to take better charge of things and
resolve things with her partner. She will drink relaxing herbal teas and take
melatonin. She will go to osteopathy and physiotherapy sessions.
Recurring idiopathic nosebleeds (epistaxis)

46-year old man, married, two children. Sought consultation for recurring nosebleeds over the last 3 months.

**RHINOSOCIOLOGICAL METHODOLOGY**

**NOSE:** Normal rhinoscopy and rhinofibroscopy; free cavum. Normal full blood count and coagulation.

**BODY:** Hypertensive; undergoing treatment with irbesartan and bisoprolol.

**PERSON:** Perfectionist and anxious.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: He is a chef. He has never suffered from hypertension before. 3 months ago, he was promoted to head chef at an establishment that serves lunches and dinners to a considerable number of diners, seven days a week. He says that there is a lot of work to do during both sittings, and he has to ensure everything flows properly. His wife, who came to the interview with him, said that her husband is very responsible and that he does practically all of the work since his promotion.

**DIAGNOSTIC EVALUATION:** Nosebleeds caused by work-related stress; arterial hypertension is the mechanism of action.

**TREATMENT:** Comprehension therapy: the patient was informed that his nosebleeds were caused by the stress related to the new responsibility in his job. Commitment therapy: he has committed to delegate work and to carry out his new duties with less anxiety.

Clinical case history 42

**RHINOSOCIOLOGY**

Recurring idiopathic nosebleeds (epistaxis)

52-year old man, married, three children. Consultation for recurring nosebleeds over the last 2-3 years.

**RHINOSOCIOLOGICAL METHODOLOGY**

**NOSE:** Normal rhinoscopy and rhinofibroscopy; free cavum. Normal full blood count and coagulation.

**BODY:** Diagnosed with hypertension brought on by emotional stress a year ago; currently no medication.

**PERSON:** Perfectionist and anxious.

**SOCIAL ENVIRONMENT:** Semi-structured social interview: He works in administration. The last time he had a nosebleed of the left nostril meant he had to go to A&E at midday. This was accompanied by arterial hypertension (170/105 mmHg). On the morning of the nosebleed, he had attended family meetings to try and resolve the problem of his dependent mother. She had been widowed two years previously. Her husband had been in charge of her care. Since then, no-one had taken responsibility for their mother. He is one of seven
siblings and the patient is the only one involved in her care. Thinking back, the patient and his wife realise that he has had a nosebleed every time he met up with his siblings and their spouses.

**DIAGNOSTIC EVALUATION:** Nosebleeds caused by family-related stress.

**TREATMENT:** Comprehension therapy: the patient was informed that his nosebleeds were caused by family-related stress. Commitment therapy: he is going to look for professional help to help him care for his mother at her home or consider moving her into a care home. He is not keen on this second option.

---

Clinical case history 43

**RHINOSOCIOLOGY**

Recurring idiopathic nosebleeds (apistaxis)

60-year old man, married, two children. Consultation for recurring nosebleeds over the last 4 months.

**RHINOSOCIOLOGICAL METHODOLOGY**

NOSE: Normal rhinoscopy and rhinofibroscopy; free cavum. Normal full blood count and coagulation.

BODY: Blood pressure borderline (150/90 mmHg) during the consultation.

PERSON: Perfectionist and anxious.

SOCIAL ENVIRONMENT: Semi-structured social interview: He is a nurse. 8 months ago, an elevated prostate specific antigen (PSA) showed up in a routine blood test. The blood test was repeated. This confirmed the elevated PSA. This started the urologist visits, the imaging tests and a biopsy. 5 months ago, he was diagnosed with prostate cancer in its initial stages. He underwent surgery and is currently free from the disease with normal PSA. When his blood pressure was taken during the most stressful periods, it was always pathologically high.

**DIAGNOSTIC EVALUATION:** Nosebleeds caused by personal stress related to his prostate pathology, arterial hypertension being the mechanism of action.

**TREATMENT:** Comprehension therapy: the patient was informed that his nosebleeds were caused by stress related to his prostate disease. Commitment therapy: the patient wants to receive treatment for the arterial hypertension.

---

Clinical case history 44

**PHARYNGOSOCIOLOGY**

Recurrent acute tonsillitis

20-year old woman, single. She sought a consultation due to recurrent acute tonsillitis over the last 2 years.
Clinical case history 45

PHARYNGOSOCIOLOGY
Recurrent acute tonsillitis

25-year old man, unmarried. He was seen for recurrent acute tonsillitis over the last 4 years. Industrial engineer.

PHARYNGOSOCIOLOGICAL METHODOLOGY
BODY: No pathological findings.
PERSON: Perfectionist.
SOCIAL ENVIRONMENT: Semi-structured social interview: He finished his final dissertation one month ago. He has a contract to go and work in Germany in his profession. Over the last 6 months he has been under a lot of pressure to finish his dissertation on time. He was working day and night and not eating properly.

DIAGNOSTIC EVALUATION: Tonsillitis caused by work-related stress.

TREATMENT: Comprehension therapy: the patient was informed that his episodes of tonsillitis were caused by reduced defences as a result of the stress caused by having to finish his dissertation on time and the uncertainty about his new job. Commitment therapy: when faced with stressors, he has agreed to undergo behavioural auto-therapy so that his attitude towards these stressors is appropriate and does not affect his health. He will take glycophosphopeptical to activate his defence mechanisms.
Clinical case history 46

PHARYNGOSOCIOLOGY
Recurrent idiopathic mouth ulcers

36-year old man, married, 8 children (the eldest is 19 and the youngest is 3). His wife is 34. He was seen for painful mouth ulcers over the last 3 months.

PHARYNGOSOCIOLOGICAL METHODOLOGY
BODY: Overweight.
PERSON: Anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: Works as a street vendor. His wife says that since the election date of was announced (4 months ago), at which her husband is up for pastor of his community's church, he has been very nervous. He spends all his time writing speeches and is very preoccupied.

DIAGNOSTIC EVALUATION: Mouth ulcers caused by social stress. The stress breaks down his defences, causing them to not work properly, causing repeated episodes.

TREATMENT: Comprehension therapy: the patient was informed that his ulcers were caused by electoral stress. Commitment therapy: He has agreed to worry less. He is taking vitamin complexes.

Clinical case history 47

LARYNGOSOCIOLOGY
Dysphonia

54-year old man, single; he was seen for dysphonia and pharyngeal dryness more pronounced in the morning; this began three months ago.

LARYNGOSOCIOLOGICAL METHODOLOGY
THROAT: Granular pharyngitis with slight hyperaemia. Pharyngolaryngeal constriction, mainly of the medial pharyngeal constrictor muscle.
BODY: Knee locking, sunken chest and distended abdomen. Sleep disorders; he wakes up tired.
PERSON: Anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: He is self-employed. He has tried several treatments with no improvement. He tries natural treatments on his own initiative. He stopped smoking 3 weeks ago, because he is very worried that he might have "something badly wrong". He is worried about his sick grandmother who is ill. He is renovating his house and is very worried about money, as it is costing much more than he had budgeted.

DIAGNOSTIC EVALUATION: the larynx is an emotional centre and his worries have caused constriction at pharyngolaryngeal level, causing dysphonia and other discomfort.
TREATMENT: Comprehension therapy: the patient was informed that the cause of his symptoms were his concerns, which have caused constriction of the throat. Commitment therapy: he has agreed to take up physical exercise and to re-cost his house renovations, which is his biggest worry. (Case of Dr. Lois).

Clinical case history 48
LARYNGOSOCIOLOGY
Dysphonia

37-year old woman, marries, three sons aged 8, 7 and 4; she was seen for dysphonia over the last two months.

LARYNGOSOCIOLOGICAL METHODOLOGY
THROAT: She says it is an effort to talk and is often hoarse, particularly when she meets her friends and when talking to her sons. She has a slight thickening in the medial third of both vocal cords with tension in both ventricular bands and decreased rippling of both cords (videolaryngostroboscopy).
BODY: Sunken thorax, projecting chin, open shoulder blades and tension in her knees.
PERSON: Anxious.
SOCIAL ENVIRONMENT: Semi-structured social interview: She is a housewife. She has been diagnosed with micronodules and has received oral corticosteroid treatment with no improvement. She is worried about maintaining order and silence at home when her husband arrives home from work, since this is what he demands. The patient says her husband needs quiet and it annoys him when their sons talk.

DIAGNOSTIC EVALUATION: self-imposed voice blocking.

TREATMENT: Comprehension therapy: she was informed that the dysphonia is due to voice blocking which she causes herself by speaking quietly even in a noisy environment and by the tension she experiences when she scolds or orders her sons not to shout. Commitment therapy: she is going to try and find time to do some physical exercise or a sport she enjoys. She is going to undergo behavioural auto-therapy to willingly accept noisy situations her sons may cause without becoming anxious. She will undergo four sessions of vocal therapy with the aim of correcting posture and teaching her to free her voice. Her husband needs to accept her sons’ behaviour and share his free time with them, which would benefit the whole family and relax the tense atmosphere between its members. She was discharged with a stable voice, with the micronodules unchanged. The videonystagmography check, after 6 months, showed both vocal cords free of pathological findings. (Case of Dr. Lois).
SUMMARY and CONCLUSIONS
SUMMARY of the clinical case histories

Irritating or unbearable tinnitus is not related to age, sex, marital status, hearing, the ear where the tinnitus is heard, the type of tinnitus, other otic pathologies, cultural level or socioeconomic status. It is dependent on social conflicts and tensions and an inappropriate attitude to them.

Otosociological methodology based on the social-psychobiological model was used to diagnose the causes of idiopathic or unknown tinnitus and to recommend treatment. Practically all of the causes were related to social stress. The chronological link pointed out the causes or triggers. The timeline showed the conditioning factors, generation phase, transitory phase, symptoms and consequences. Treatment was based on comprehension and commitment therapy. There has been improvement in all the cases, some have been cured and others have not been resolved in the manner desired by the patient.

Life is full of sounds. The body and mind are full of sounds. When some of them become annoying or unbearable, like tinnitus, this is due to excitation of the body and mind when faced with social conflicts and tensions. This is the subject matter of the study of otosociology.

CONCLUSIONS of TINNITUS and OTOSOCIOLOGY

Otosociological methodology permits the discovery of the causes of irritating or unbearable tinnitus and other hearing processes known as idiopathic or unknown. The cause is found in the interaction between social conflicts and tensions, and the person's inappropriate attitude, which gives rise to this otic pathology through specific pathogenesis (figure 1).

---oooOooo---

Figure 1
Otosociology permits the discovery of the cause of irritating or unbearable tinnitus, as well as other idiopathic or unknown otic pathologies.

-----oooOooo-----
Statistics of the clinical case histories
Statistics of the clinical case histories

In accordance with otosociological methodology, the cause of irritating or unbearable tinnitus is found in social conflicts and tensions together with an inappropriate attitude from the person involved.

The social conflicts and tensions in the forty eight clinical case histories presented in the annex were caused within the family or at work (figure 1) with family problems accounting for the greater number.

The distribution of social conflicts and tensions in the family is shown in figure 2 and those related to work in figure 3. The results are also shown by sex and age for family (figure 4) and work-related problems (figure 5). Obviously, these results are related to current socio-economic problems.

![Conflicts and social tensions](image)

**Figure 1**
Percentage of social conflicts and tensions from the forty eight clinical case histories presented in the annex.

![Family conflicts](image)

**Figure 2**
Main social conflicts and tensions caused within the family from the forty eight clinical case histories presented in the annex.
**Figure 3**
Main social conflicts and tensions caused by work from the forty eight clinical case histories presented in the annex.

![Pie chart](image)

**Figure 4**
Distribution by sex (male and female) and age (under-equal 50 or over 50) for the social conflicts and tensions in the family from the forty eight clinical case histories presented in the annex.

<table>
<thead>
<tr>
<th>FAMILY</th>
<th>Sex</th>
<th>Age</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>♂️</td>
<td>≤50</td>
<td>&gt;50</td>
</tr>
<tr>
<td>Dependent carer</td>
<td>50%</td>
<td>33%</td>
<td>67%</td>
</tr>
<tr>
<td>Illness in the family</td>
<td>20%</td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>Divorce</td>
<td>40%</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>Death in the family</td>
<td>67%</td>
<td>33%</td>
<td>67%</td>
</tr>
<tr>
<td>Own disease</td>
<td>50%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Family relationships</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
</tr>
</tbody>
</table>
Figure 5
Distribution by sex (male and female) and age (under-equal 50 or over 50) for the social conflicts and tensions at work from the forty eight clinical case histories presented in the annex.
ALPHABÉTICAL INDEX

Causes of tinnitus, 46
Classification, 19
Concept, 15
Diagnosis, 45
Evaluation, 47
Hybrid medical history, 45
Laryngosociology, 111-112
Mechanism of action, 29
Microsociology, 63
Models, 27
Otology versus Otosociology, 36
Otosociological methodology, 35
Otosociology, 81-107
Pathogenesis therapy, 55
Pharyngosociology, 109-111
Rhinosociology, 108-109
Semi-structured social interview, 38, 71
Sociopathological process, 71
Sociopsychosomatic medicine, 63
Symptomatological scale, 67
Treatment, 53
Treatment for the causes, 54
Treatment for the consequences, 58
Treatment for the symptoms, 56
OTHER BOOKS

Find out the cause of tinnitus and put treatment.
PATIENT’S GUIDE

Find out the cause of tinnitus and put treatment.
AUDIOLOGIST'S GUIDE
Life is full of sounds. The body and mind are full of sounds. When some of them become annoying or unbearable, like tinnitus, this is due to excitation of the body and mind when faced with social conflicts and tensions. This is the subject matter of the study of Otosociology.

This Physician's Guide exposes the keys of the otosociological methodology applied to tinnitus to their cause can be ascertained and prescribe the right treatment.