
Longitudinal Follow-Up of Occupational Status in Tinnitus Patients

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Abstract: In this study, the long-term outcome of tinnitus patients was studied in terms of changes in occupational status from admission to follow-up for an average duration of 5 years. A consecutive series of 189 tinnitus patients seen between the years 1988 and 1995 were sent a postal questionnaire booklet; 146 provided usable responses (a 77% response rate). Results showed a significant change in occupational status, which was explained partly by retirement because of old age. Few were unemployed at follow-up, and relatively few were on sick leave. These data suggest that tinnitus patients may be less of a demand for the sickness benefit system in Sweden, but it may reflect also that tinnitus is not accepted as a cause for sick absenteeism.

Key Words: occupational status; sick leave; unemployment; work

Impressions from clinical work suggest that tinnitus can become a major obstacle in the workplace and sometimes lead to sick leave for long periods of time. In Sweden, all citizens are covered by national insurance and receive 80% of income in compensation while on sick leave [1]. Getting approval for tinnitus as a cause for sick leave in Sweden has been relatively difficult but, given recent publicity on tinnitus, this gradually may change. When tinnitus has occurred in association with noise-induced hearing loss, having tinnitus classified as being caused at work is easier. However, other (albeit rare) plausible causes are related to occupational circumstances (e.g., poisoning). Apart from clear etiological factors, psychosocial aspects of the work situation may augment the suffering caused by tinnitus (e.g., in musicians for whom hearing is extremely important in their profession).

The research data on occupational effects of tinnitus has been sparse, but Tyler and Baker [2] reported that only 4% of patients in their study group had experienced any adverse effect of tinnitus on their work. As psychological factors are known to affect tinnitus annoyance [3,4], and work-related factors (such as unemployment) are known to be associated with psychologi-

cal distress [5], highlighting the occupational status of sufferers of severe tinnitus is important. This study presents data from a longitudinal study on tinnitus in which questions concerning occupational status were asked at admission and at follow-up for an average follow-up duration of 5 years.

MATERIALS AND METHODS

Subjects

The subject sample in this study was drawn from a consecutive series of tinnitus patients seen at the department of audiology in Uppsala, Sweden, between the years 1988 and 1995. All were primary referrals for tinnitus complaints. A postal questionnaire booklet was sent to 189 former patients, of whom 146 provided usable responses, in all yielding a 77% response rate. The 77 women (53%) and 69 men (47%) ranged in age from 22 to 83 years (mean = 56.4; standard deviation [SD] = 13.0). Average duration between first appointment to follow-up was 4.9 years (SD = 1.9), ranging between 3 and 10 years. Mean duration of tinnitus at follow-up was 10.5 years (SD = 12.5; range, 3–50 years). Detailed description of the sample is given in a related publication (G. Andersson, unpublished data). Four patients did not provide data on occupational status at follow-up and hence were excluded.

Average hearing loss (HL) as measured by pure-tone average calculated for “the better ear” over the fre-

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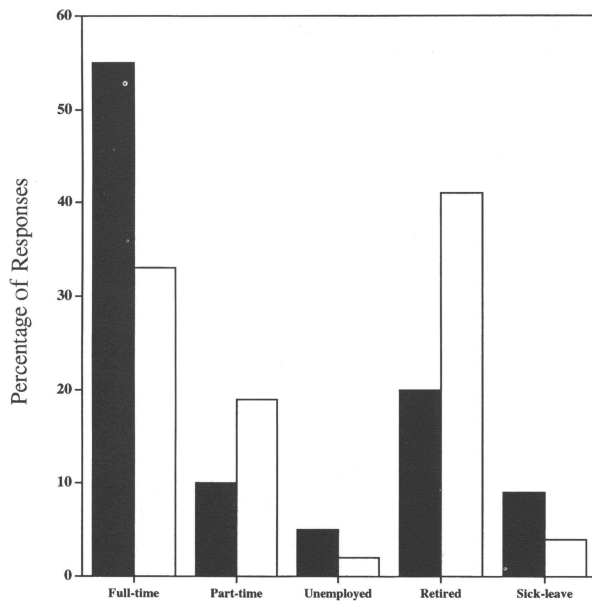


Figure 1. Occupational status of tinnitus patients at admission (black bars) and at a mean of 5 years of follow-up (white bars).

quencies of 0.5, 1, 2, and 3 kHz was 21.4 dB HL (SD = 19.5). Tinnitus matchings (OB 822 audiometer over Telephonics TDH 39 headphones) showed an average threshold tinnitus loudness of 44.1 dB HL (SD = 23.7) and an average pitch of 5291 Hz (SD = 3501). Minimal masking level was 40.7 dB HL (SD = 25.6). From audiograms and medical records, the HLs were classified as sensorineural in a majority of cases (92%). Included among these were Ménière's disease (11%), acoustic neuroma (1%), and sudden deafness (7%). For the rest, conductive HL (7.5%) and combined sensorineural-conductive HL (1%) were present.

Questionnaire Measures

A structured interview protocol [6] was adapted to fit a self-report format (Questions About Your Tinnitus). In all, the derived self-report questionnaire consisted of 44 questions (G. Andersson, unpublished data). In this study, longitudinal data regarding occupational status are presented.

RESULTS

Results of occupational status at admission and at follow-up are presented in Figure 1. As can be seen in the figure, striking differences in occupational status are evident, which are supported by chi-square analysis ($\chi^2[16] = 80.3; p = .0001$). To elucidate the long-term outcome further, Figure 2 relates admission data to follow-up data in terms of individual cases. This figure shows that a substantial number of patients had been retired when completing the follow-up (59 versus 29). The age distribution of the retired group (mean age, 66.5; SD = 8.4) reveals that not all patients can be expected to be retired because of old age (the age of retirement being 65 years in Sweden). In fact, using no more than 65 years as the criterion, only 37% could be regarded as being retired because of old age. However, only 20% were younger than 60, which implies that a majority were retired because of age, as retirement after 60 is possible. Interestingly, few were unemployed at either admission (5.2%) or follow-up (2.1%).

DISCUSSION

In this study, longitudinal data about tinnitus patients' occupational status are presented, showing significant

Occupational Status at Follow-Up

Occupational Status at Admission

	Full-time	Part-time	Unemployed	Retired	Sick-leave	Total No.
Full-time	40	1	5	0	1	47
Part-time	17	5	1	1	4	28
Unemployed	1	0	1	0	0	2
Retired	16	6	2	28	7	59
Sick-leave	2	3	0	0	1	6
Total No.	76	15	9	29	13	142

Figure 2. Changes in occupational status between admission and follow-up on an individual basis.

changes from admission to follow-up. The number of tinnitus sufferers being employed in full-time work decreased from 55% to 33%. In most cases, these patients either had gone into part-time work or had retired. A more complex picture was found regarding the other occupational categories used in the study. However, few patients were on sick leave on both measurement occasions, and still fewer were unemployed.

The data regarding sick leave should be interpreted in light of the finding that approximately 30% of the total sickness benefit in Sweden goes to patients with chronic pain [1]. In comparison, tinnitus patients constitute less of a demand for public finance. However, the results in our study also may reflect that tinnitus is not a widely accepted cause for sick leave in Sweden, although no data can back up this notion. Interestingly, several authors have commented on the links between tinnitus and chronic pain [7,8] and, eventually, once tinnitus becomes more well-known, it can become more generally accepted as cause for sick leave. Still not clear is whether this development is positive or negative.

The rate of unemployment in this study was similar to that of the general population in Sweden, in which 5.5% are registered as unemployed [9]. However, no firm conclusions can be drawn from this finding, as we do not know whether tinnitus sufferers from lower socioeconomic backgrounds tend not to frequent the clinic. Socioeconomic factors have indeed been found to influence hearing disorders negatively [10].

In this study, we used self-reported occupational status, not records from employers or insurance companies, which could have resulted in another picture. However, in a study by Linton et al. [11] of patients with musculoskeletal pain, a strong correlation was found between self-reported status and records from insurance offices ($r = .95$), and the authors found no systematic indication of over- or underreporting.

In summary, this study showed that tinnitus does not create the demand for public costs as does, for example, chronic pain. The rate of unemployment was low but, over the years, occupational status did deteriorate. Pa-

tients who had been in full-time work at admission were found not only to have retired owing to normal aging but to have gone into part-time work. This study should be followed up by prospective data on the relation between work and tinnitus distress.

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