Hearing impairment, working life conditions, and gender

By Coniavitis Gellerstedt, Lotta & Danermark, Berth

Abstract: The purpose of this article is to examine differences and similarities in working conditions and health status between men and women with hearing impairments. This article is based on a material collected with a comprehensive questionnaire, looking at psycho-social work environments and health status and answered by a total of 406 patients at two audiological clinics in Sweden. Examination of the data reveals a pattern of unfavourable conditions for hearing-impaired persons/employees when compared to a reference group without auditory impairments. Hearing-impaired women frequently find themselves in extremely trying situations. Health status is worse for those who are hearing impaired as compared to the reference group, especially for hearing impaired women. The concept “double workload” is discussed as a possible notion for further theoretical development of the issues discussed in this article.

Introduction

One of the largest groups of disabled people in Sweden is people with hearing impairments, and this group is growing in size relative to the entire population. At the end of the 1990s, about 860,000 persons (12.5% of the Swedish population) in the age range of 16-84 were hard-of-hearing. Notable is the increase in hearing impairment among women and young men (Statistics Sweden, 2003a: 46, see also Swedish Government Official Reports 2001: S6, p.50). Hearing impairment is more frequent among men (60%) than among women (40%) in Sweden. This brief description of people with hearing impairments in Sweden is similar to the situation in Denmark (Clausen, 2003) and most other European Union countries (Stephens & Danermark, in press). Participation in the labour force is somewhat lower for hearing-impaired individuals when compared to women and men in the population at large (25-64 years of age), while the share of early health related retirement is high (14.3% of men and 21.2% of women with hearing impairments, compared to 6.1% and 8.7% respectively in the population at large) (Statistics Sweden,
Lotta Coniavitis Gellerstedt and Berth Danermark

2003a, Tables 2.1, 2.3, 9.1 & 9.2. See also Swedish Government Official Reports, 2001: 56, Fig. 2A.1a & 1b, Table 3.1). The high proportion of hearing impaired people included in early retirement is likely to be an indication of a vulnerable position at the labour market for hearing impaired individuals.

The purpose of this article is to make a contribution to our knowledge about economically active men and women with hearing impairments. Self-reported working conditions and health status are in focus, and a central question is whether there are gender related patterns.

In order to situate our study in a wider context, we begin by very briefly relating to some contemporary discussions within disability and gender studies, and research into labour market and working conditions. We then introduce a concept to approach our empirical findings.

Impairment and disability are presently at the core of vibrant and challenging theoretical and empirical research agendas in several parts of the world, not least in the UK and USA, giving rise to important questions about individual and structural aspects (cf. Barnes et al, 2002, Corker & Shakespeare, 2002, Danermark & Coniavitis Gellerstedt, 2004b). Feminist research, on the other hand, has for decades made decisive contributions to our understandings of gender related patterns in society. A very cautious and severe investigation made by Carol Thomas (Thomas, 1999; Thomas, 2002) is one of a number of explorations into impairment, disability and gender recently made by disability scholars (Helmius, 2000; Moss, 1999; Parr, 1999; Wendell, 1997; Garland-Thomson, 1997 to name but a few), revealing further major topics to be critically examined by empirical research. Moreover, circumstances related to the labour market, such as demand and supply of labour, work and working conditions, unemployment and marginalisation, have long been at centre of theoretical and empirical research focusing on economical and, increasingly, social and health-related aspects. Systematic empirical investigations into various aspects of the labour market, when differentiating between men and women, reveal large gender related disparities (in Sweden and elsewhere), in for instance occupational and organisational positions, and have contributed to arguments about the division of labour in society not only with reference to paid work but also to unpaid work carried out within households. Gender segregation is approached theoretically in a variety of ways on structural as well as organizational and individual levels, and material, cultural and political aspects are examined. Many injustices are produced by gender segregation and mechanisms that produce such segregation (cf. Roman, 1994; Åberg, 2001; Härenstam et al, 2000). As far as we know, however, theoretical approaches
that integrate an understanding of impairment, disability, labour market and gender are yet to be generated. In the concluding discussion we will merely point to the notion of "double workload" (which has been used in disability as well as labour market research) as a possible tool for further theoretical development of the issues discussed here.

Earlier research

Research on hearing impairment from a gender perspective is scarce. In a review of Swedish research on disability and working life, Backenroth did not find a single study focussing on gender (Backenroth, 1996: 280). But differences between men and women in experiences, feelings and strategies in relation to hearing loss have been reported, mainly in qualitative studies on small numbers of persons with hearing impairments. Theory-generating research carried out by Lillemor Hallberg and her collaborators offers a number of interesting findings. Their research is anchored in psychological and socio-psychological approaches, and with a focus on men and women with noise-induced hearing loss. This research suggests that men seem to more often adopt avoiding strategies in coping with hearing loss in auditory-demanding situations than do women. Women use both avoiding and controlling strategies, according to what they sense is possible in specific emotional settings. Avoiding strategies are characterized by withdrawal, avoidance of auditory-demanding situations, guessing, and pretending to hear. Hearing loss is not disclosed. Controlling strategies, on the other hand, include active and constructive efforts to better control or dominate the interactive scene. Hearing impairment is often made official. It is also noted that in women’s lives, noise-induced hearing loss often appears late due to, among other things, work patterns, and then, in combination with lacking knowledge, hearing problems may be attributed to ageing rather than work-related noise. For political and/or trade union agendas, such observations are presumably of great importance. Research by Hallberg et al. and others concerning the impacts on family life of hearing loss of one adult member in the family further illustrates the very difficult situations that are faced and various ways of handling these. (Hallberg, 1996; Hallberg & Jansson, 1996; Hallberg & Barrenäs, 1995; 1997. See also Fredriksson, 2001). It furthermore seems that research reporting differences and similarities between men and women in confronting, adapting to and handling hearing loss (Arvidsson, 2000) reveal a varied picture, but it appears that authors often find that women act and react in a more overtly emotional ways than do men and use non-verbal communication strategies (Erdman & Demorest, 1998).

Not surprisingly, considering the psychological and socio-psychological approaches used in the studies related
above, we are left with the impression that personal ways of handling loss of hearing are at centre of research. Some of the reasons for this may be found in the interface between much of this research and audiological rehabilitation. Audiological rehabilitation is an endeavour with a focus on the individual and her/his specific circumstances and aims at supporting that person (technically and frequently also in other ways), and helping her/him to adapt to and learn ways of coping with his/her impairment in family, at work, in the physical environment and so on. However, structural aspects such as those related to differences in work patterns between men and women, are also given attention in the reviewed research.

In a study carried out in Denmark focusing on consequences of hearing impairment in working life, in education and for personal welfare, few instances of differences in labour market situation and the lived experience of having hearing loss at work were significantly correlated with sex (Clausen, 2003).

Research into hearing impairment and working life, then, has not focussed on gender, is mainly descriptive, and is frequently lacking in theoretical considerations (for an overview of research, see Danermark, in press). Our research has tentatively introduced a gender perspective into the area of hearing impairment and working life by paying attention to material and cultural injustices to women and disabled people (Fraser, 1995), the segregated labour market in Sweden, and in systematically differentiating between men and women in our empirical data. However, this modest approach does not take us very far from a mere description of sex-as-variable differences between men and women, and has to be further developed and challenged.

Theoretical Considerations and Model of Psychosocial Working Conditions

In a recent project we carried out two empirical studies of economically active men and women with hearing impairments (but not with deafness), one quantitative and one qualitative. Theoretically (Danermark & Coniavitis Gellerstedt, 2003) the studies were generated by considerations of communication and social interaction in situated activities, for instance in various work settings, as outlined by Layder (1997) in his theory of social domains, considerations of the process of relating to one's self as in Honneth's writings (1995) about recognition struggles, and Goffman's discussions of interaction, presentation of self and stigma (Goffman, 1967; 1984a; 1984b). Working conditions were conceptualised in terms of the Demand Control Model, which we will return to below. Our quantitative study indicated that hearing impaired individuals, especially women, appear to have quite wearisome work-
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ing conditions when compared to a reference group. Personal interviews with ten hearing-impaired women working in public childcare services and eleven hearing-impaired men working on the shop floor in the engineering industry provide a deeper understanding of the impact of specific occupations and work settings (Danermark & Coniavitis Gellerstedt, 2004a; Danermark & Coniavitis Gellerstedt, 2003).

The Demand Control Model is a model theoretically and empirically elaborated and developed by Karasek & Theorell (1990), one widely used in research on exploring psychosocial work environments. One of the two major components of this model is related to demands and requirements that specific work tasks place on a person in order to be carried out. Work demands could be physical, such as requiring great physical strength, while some work demands are psychological, such as the pressure of time in relation to work performance. Our concern here is with psychological work demands. Some jobs are associated with high demands and others with low demands. Indeed other requirements at work are also important, and for people with hearing loss, demands related to verbal interaction and communication are crucial. We will discuss such demands later on in this article. The second major component of the model is related to the worker’s degree of control over his/her situation and work tasks. Control can be exercised through having a voice in organisation and flow of one’s tasks on the one hand, and on the other hand, the occupational skills and opportunities to apply and further develop professional knowledge. Some jobs are associated with a high degree of control and others with lower degrees of control. In combining the two dimensions of demand and control, four types of jobs are identified: high stress jobs (high in demand and low in control); passive jobs (low in demand and in control as well); active jobs (high in demand and in control as well); and low stress jobs (low in demand and high in control). The theory behind the Demand Control Model generates the hypothesis that excessive psychological demands and lack of control causes increased risks of poor health. Furthermore, jobs low in demands as well as control may generate risks of poor health to some degree. Such a hypothesis has considerable empirical support (cf. Dunham, 2001), but this model has never been used investigating the psychosocial environment for hearing-impaired employees. In other words, high stress and passive work types, both of which are characterized by lack of control, are associated with health problems, while so called low stress and active work types are not. However, other circumstances besides job content, such as coping strategies and other individual characteristics, are of importance for the health and well-being of workers (Schaufeli & Enzmann, 2000).
The Demand Control Model has been further developed by the addition of a third dimension known as social support (Johnson, 1986). Social support includes mutual support and fellowship amongst co-workers, as well as information, directives, feedback, and encouragement from management. Social support provides a sense of coherence and could furthermore operate as a buffer or a bulwark against stress in situations of high demand and low control (See Swedish Work Environment Authority & Statistics Sweden, 2001, particularly chapter 8). This third dimension is now incorporated in the Demand Control Model.

Empirical Material and Method

In this article, the main empirical source is material collected from our quantitative study, using a questionnaire sent out to a sample of people with hearing impairments. However, we will additionally briefly refer to some of the findings from our qualitative study gathering data through personal interviews.

Operationalisation of “people with hearing impairment”

Generally, there are two ways of distinguishing the group “people with hearing impairment”: through self-reported hearing problems or through clinically diagnosed hearing loss. Estimations to support the statements made in the initial paragraph of this article are based upon self-reported difficulties in hearing (with or without hearing aid) what is said in conversations between two or more persons, according to the Swedish Survey of Living Conditions. The population of hearing-impaired individuals referred to in this article, however, are patients at audiological clinics, where hearing loss is diagnosed through audiological measures. Impairment is, in other words, operationalised as circumstances connected to individuals, in the first case as experiences (difficulties in hearing) and in the second case, their status as patients with audiologically diagnosed hearing loss. This is also in accordance with the International Classification of Functioning, Disability and Health (ICF), defining impairment as problems in body functions or structure such as significant deviation or loss (WHO 2001, Ch. 4.1). Defining a group of “people with hearing impairment” in any of the two ways just described gives us very limited information about disability, at least according to understanding disability as restrictions in “doing” and “being” (cf. Thomas, 1999). However, the first definition indicates restrictions of activity, e.g. participation in verbal communication in various social settings where insufficient measures are taken, at either structural or individual levels, in order to accommodate people with hearing loss. The second suggests that problems connected with activity restrictions and/or psycho-emotional well-being have triggered off a visit to an audiological clinic. It is this latter group of
individuals visiting audiological clinics that provides the empirical data used in this article, a group presumably making up part of the larger group of people with self-reported hearing problems.

Sample
Survey questionnaires were distributed to 781 hearing-impaired individuals, selected from the audiological clinics in two counties in Sweden. Retirement from working life in Sweden is typically at 65 years of age, and the sample included those in the age range 20-64 years. This sample was randomly drawn from all patients in this age range visiting the two clinics over a period of 24 months. The response rate was 70% (N= 539). Of these respondents, 94 (17%) were excluded because they had not been active on the labour market during the last three years due to early retirement (12%), long-term sick leave, unemployment, etc. (remaining 5%). A total of 445 economically active men and women answered the questionnaire. Comparing those not in the labour force due to early retirement (and hence excluded from our analysis) with those 445 still in the labour force, we found that the retired were older (with an average age of 61 years as compared to 53 years) and had more severe hearing losses (Pure Tone Average – here measured as hearing threshold at frequencies 0.5, 1 and 2 kHz in the better ear). This is hardly surprising. Furthermore, 45% of the retired were women, compared to 39% women among those economically active included in the study (cf. Clausen 2003:61). An analysis of non-respondents and respondents did not reveal any differences regarding sex, age or diagnosis. Additionally, we have no indications that using a sample from the two selected counties would be associated with any systematic bias. However, as the sample is drawn from a patient register, we have no information about the situation for people with hearing loss in the 20-64 year range that are not registered as patients at any clinic. Comparing our sample of hearing-impaired patients at audiological clinics with hearing-impaired age peers as this group is defined in the Swedish Survey of Living Conditions, we find that the “patient group” is older than those with self-reported hearing difficulties (Danermark & Coniavitis Gellerstedt, 2003:105). For instance, 54% of our sample is between 55 and 64 years of age compared to 35% among the overall Swedish population of individuals with hearing impairments in the same age range (20-64 years). We may add here that in analysing our data, we did not find a correlation between age and psychosocial work environment, health and well being.

Additionally, we have excluded self-employed persons (39) from our analysis in this article, since psychosocial environments for self-employed individuals is different from that of other employees and some of the questions were not relevant for this subcategory. To sum up, our final sample consisted of 406 male and female employees with hearing impairments diagnosed through audiological measures.

This sample is briefly described in Table 1.
Table 1: Some basic characteristics of the sample

|                      | Men        | Women      | Total      |
|----------------------|------------|------------|------------|
| N:                   | 245 (61%)  | 161 (39%)  | 406 (100%) |
| Age:                 |            |            |            |
| - mean               | 54         | 52         | 53         |
| - stand.dev          | 9.0        | 8.7        | 8.9        |
| Tinnitus*:           | 53%        | 42%        | 49%        |
| Sensorineural hearing loss**: | 72% | 79% | 75% |
| Pure tone average:   |            |            |            |
| - mean               | 25         | 37         | 31         |
| - stand.dev          | 16.4       | 19.2       | 19.0       |
| Marked hearing loss (PTA***≥ 56): | 4%  | 13% | 9% |
| Onset before age 8:  | 7%         | 14%        | 9%         |

* Occurrence of tinnitus, our data suggest, contributes to more frequent health problems associated with neck, insomnia, stomach and headache as well as with feeling tired and ineffective. Differences between hearing impaired with and without tinnitus are not very large, but show a clear trend (Danermark & Coniavitis Gellerstedt 2003: 138)

** Sensorineural hearing loss is a type of hearing loss that only marginally can be compensated by using a hearing aid.

***Pure tone audiometry average at 0.5, 1 and 2 kHz in the best ear.
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On the average, women as compared to men in the sample are slightly younger and have more serious hearing losses (Table 1).

Questionnaire and operationalisation of the Demand Control Model

The "Municipal Work Environment Questionnaire" used in this study is based on the Demand Control Model and has been utilised by Metodicum AB (an organisation working for the Occupational Health Service in Sweden) in several studies over the last five years. The questionnaire consists of a number of questions/indicators concerning demand, control and social support (for details, see Danermark & Coniavitis Gellerstedt, 2003) at the workplace, as well as self-reported health status. Demand is operationalised by twelve questions, such as "Are you bothered by haste and lack of time margins in your work?". Control is operationalised by seven questions, such as "Can you influence which work tasks you are to carry out?" and Social support is operationalised by eight questions, such as "Is your opinion on work-related issues asked for by management?". All these questions have seven response alternatives ranging from "Never" to "Always" (Demand, Control and Social Support from management) or from "Miserable" to "Great" (Social Support from work mates). One question on occurrence of abusive treatment, bullying, and/or harassment is also included. Additionally, physical health status is operationalised by seven questions asking whether the respondent over the last three months has had trouble with neck/shoulders; back; skin; insomnia; stomach; headache and mucous membranes, respectively (all health questions with seven response alternatives ranging from "Never" (0) to "Everyday" (6)). A simple health-index was constructed based on the total sum of each respondent's answers on the seven health questions (theoretically ranging from 0, answering "Never" to all questions, to 42, answering "Everyday" to all questions). In the sample the minimum value was 0 and the maximum value was 38, (mean = 14.5 and standard deviation = 7.8.) The health index thus summarises the health status and is used to investigate the correlation between demand/control and health (for detailed analysis of the different seven dimensions of the health index, see Danermark & Coniavitis Gellerstedt, 2003, 2004a).

The four types of jobs according to the Demand Control Model were operationalised by combining two questions: one about work demanding haste and creating lack of time margins and another about opportunity to influence the pace of work. Unfortunately analogous information for the reference group is not available to us.

Reference groups

In using the "Municipal Work Environment Questionnaire" as the basis for our questionnaire, we also accessed information for a large reference group.
facilitating comparisons between our hearing-impaired group and a matched (age and sex) group of local municipality employed persons (N=7979 persons). We were thus able to compare four groups of respondents/employees: hearing impaired men, hearing-impaired women, men in the reference group, and women in the reference group. However, comparisons are necessarily somewhat flawed, as data concerning the reference group could not be totally rearranged in order to make it mirror our sample. For example, occupations related to manufacturing, transport and agriculture are not very frequent in the reference group while making up a fairly large part of men’s professions in our sample. Still, as the reference group consists entirely of municipally employed, and extensive cuts in public spending during the nineties in Sweden have led to deteriorating working conditions in particular for the municipally employed, we compare our sample of hearing impaired to a group on the labour market that is considered to be extremely exposed to problematic working conditions (Bäckman & Edling, 2000: 137, Swedish Government Official Reports, 2002: 5, pp. 11, 92 and appendix 2:4). Accordingly, we presume that any indications that working conditions for people with hearing impairments are worse than in the reference group are probably underestimations of corresponding differences between people with hearing impairment and the working population at large.

In some instances we will also refer to a broad investigation into psychosocial working conditions, according to the Demand Control Model, based on large samples of economically active men and women in Sweden aged 16-64 (Swedish Work Environment Authority & Statistics Sweden, 2001). Questions and indicators used in our study as compared to this comprehensive study are similar in that we use the same model, but also different in relation to number, context, etc. However, this source can serve as point of reference, indicating where people with hearing impairments in the labour force differ from non-hearing-impaired, although this still does not allow us to make detailed statistical analysis of the differences.

Results

Initially a short, general, description of our sample of employees with hearing impairments is presented, followed by a more detailed account of working conditions and comparisons with reference groups.

About every tenth person has had hearing loss since birth or early childhood (Table 1), whereas subjective onset of hearing impairment occurred during the last decade or decade and a half for about every fifth person. Recent onset is more frequent among women, indicating that hearing loss is increasing among women, also confirmed by other
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sources as mentioned previously. Slightly more than 80% of both women and men live with a partner and 33% of the women and 28% of the men have children in their households.

About 63% of men and 46% of women in our sample characterise their work environment as noisy. 75% of the women (as compared to 28% of the men) have occupations related to health- and caring professions, professions related to economy, administration and personnel, and teaching professions, while occupational concentration (measured in this crude way) is far less pronounced among males in our sample. The most frequent occupations for men are professions related to economy, administration and personnel, mining, construction and metal workers, held by about 40% (as compared to 25% of the women). Men and women in our sample are thus largely working in separate parts of the labour market. This is so in the labour force at large in Sweden, where occupations within service, care and commerce are dominated by women, while men dominate as craftsmen, as construction and manufacturing workers, process/machine operators, and transport workers (cf. Swedish Work Environment Authority & Statistics Sweden, 2002). Obviously, working conditions will also then differ between men and women, justifying focus on comparing women to women and men to men.

**Demand and control**

Work certainly seems to often be very demanding in many ways from a psychosocial point of view, in terms of lacking information, planning and instructions, unclear responsibilities and in particular concerning a prevailing sense of haste, time pressure, and conflicting demands. However, our data does not indicate a worse situation for hearing impaired employees regarding the twelve indicators of demand. Moreover, women with hearing impairment seem to be less exposed to haste, time pressure, and conflicting demands than women in the reference group (see Danermark & Coniavit Gellerstedt, 2003). This could partly reflect the reference group consisting of municipally employed persons and the as previously mentioned public sector, and in particular the female-dominated health and caring professions, being characterised by below average working conditions.

Opportunities to control various aspects of work through influencing and deciding on work tasks differ, as illustrated in Table 2.
Table 2. Four indicators of the control dimension for hearing impaired and reference group in combination with sex (percentages)

| Indicators                        | Men Hearing impaired | Reference group | Men Hearing impaired | Reference group | Women Hearing impaired | Reference group |
|-----------------------------------|----------------------|-----------------|----------------------|-----------------|------------------------|-----------------|
| Influence work tasks to be carried out |                      |                 |                      |                 |                        |                 |
| never – seldom                    | 19                   | 9               | 19                   | 12              | 12                     | 12              |
| sometimes                         | 17                   | 21              | 30                   | 22              | 22                     | 22              |
| often – always                    | 65                   | 70              | 51                   | 65              | 65                     | 65              |
| Influence decisions on alterations of work |                      |                 |                      |                 |                        |                 |
| never – seldom                    | 25                   | 20              | 34                   | 27              | 27                     | 27              |
| sometimes                         | 28                   | 36              | 38                   | 40              | 40                     | 40              |
| often – always                    | 47                   | 45              | 28                   | 33              | 33                     | 33              |
| Decide in what way tasks are to be carried out |                      |                 |                      |                 |                        |                 |
| never – seldom                    | 10                   | 2               | 8                    | 6               | 6                      | 6               |
| sometimes                         | 11                   | 8               | 17                   | 13              | 13                     | 13              |
| often – always                    | 79                   | 89              | 75                   | 82              | 82                     | 82              |
| Decide pace of work               |                      |                 |                      |                 |                        |                 |
| never – seldom                    | 23                   | 14              | 34                   | 23              | 23                     | 23              |
| sometimes                         | 16                   | 18              | 17                   | 22              | 22                     | 22              |
| often – always                    | 60                   | 67              | 47                   | 54              | 54                     | 54              |

Note: Four comparisons are made and tested (Chi²-test): a) between men (hearing impaired and reference group respectively), b) between women (hearing impaired and reference group respectively), c) between hearing impaired men and women and, finally, d) between men and women in reference group. All differences in the comparisons are significant (p<0.05) except those between women regarding “Influence decisions on alterations of work tasks” and “Decide in what way tasks are to be carried out”; and between hearing impaired men and women regarding “Decide in what way tasks are to be carried out".
The pattern, consistent but not statistically significant in all comparisons (see Table 2, note), is that hearing-impaired women more often than any other group are in the most unfavourable positions as far as opportunities to control their work situation, i.e. positions where they reported “never” or “seldom” in influencing or deciding on aspects of work and work tasks. The opposite holds for men in the reference group. Furthermore, hearing-impaired men on the whole are more often in a worse position as compared to men in the reference group, which might be explained due to differences in occupational profiles.

According to the Demand Control Model, a sense of control can also be achieved through opportunities to apply and further develop professional knowledge and occupational skills. Two indicators of this type of control (“Stimulating work tasks” and “Tasks include problem solving”) reveal a somewhat more unfavourable situation for women generally, but hearing-impaired women do not differ from women in the reference group (Danermark & Coniavitis Gellerstedt, 2003: 114).

In our quantitative study, indicators on demand and control are general and not specifically designed to examine demands in terms of verbal communication. Occupations and work settings where verbal communication with clients, customers, pupils, patients, and the public make up a main part of work tasks are naturally high in demands of interactive skills, and hence more sensitive to difficulties in communication due to, for instance having a hearing impairment. For a professional worker with a hearing impairment, considerable efforts are made in order to compensate for hearing loss and maintain control over work tasks, and these efforts are presumably more trying in interaction-demanding occupations than in others. This specific interplay and potential lack of balance between demand and control, which is related precisely to hearing loss in certain work settings, is accordingly in one way or another added to the imbalances and risks discussed above (Gullacksen, 1993; 2002; Danermark & Coniavitis Gellerstedt, 2003). Accounts from our interviews, given below, serve the purpose of illustrating such particular interplay between demand and control in the case of hearing impaired.

The job settings of the 21 hearing impaired men and women we interviewed are similar in that they all represent the slimmed-down organisations of work of our times, but they differ very much in terms of, for instance, communication and social interaction being parts of tasks carried out. The workshop workers individually carry out various tasks such as welding or iron-plate making on the shop floor. The work environment is noisy, and since communication is limited and restricted to instructions from the foreman, efficient hearing pro-
Hearing protectors can be used most of the time nowadays. Previously, limited or no hearing protectors were made available or not considered necessary. Child care workers at day care centres, on the other hand, also work in a noisy environment, but are unable to use hearing protectors, since it is precisely communication and social interaction with children, colleagues and parents that is demanded and at the core of daily work tasks. Furthermore, in a noisy group of children, hearing aids usually cannot be used or are difficult to use.

Frequently the workshop workers indicated that hearing loss is expected as part of the job, and some of them expressed that “almost everyone at the workplace has a more or less severe hearing loss”, something considered unavoidable in the noisy work environment. Losing one’s hearing is more or less part of their occupational identities. Everyone at the workplace takes hearing loss into consideration, and joint strategies are worked out for situations when hearing capacity really does make an important difference, for instance in dangerous situations.

For child carers, however, hearing loss is quite another story. The strain to uphold social interaction at work, to make sense of what is heard, to construct and reconstruct meaning in ongoing conversations, can be extremely tiresome in the noisy environment of the day care centre, often made more difficult because of the not yet fully developed language and communication skills on part of the children, and for some child carers with hearing impairment full-time positions in such settings could be completely devastating. Many of our interviewed child-carers are in acute need of tranquillity and rest when they return home from work (cf Clausen, 2003: 97). Individual and joint coping strategies are worked out, and hearing loss is in one way or another incorporated into every day life at work. However, sadness and distress, created by lacking capacity in hearing the children and not being able to hear, listen and respond to all they say, and also lacking capacity to easily capture messages about children forwarded by their parents, seem to linger on and indicate that occupational identity is hit at its very heart.

The accounts just given illustrate differences in the demands on hearing capacity that occur in different occupations and job settings, as well as the impact of hearing loss on possibilities to control one’s work through occupational skills.

**Different types of job and health**

About one third of the hearing-impaired in our sample have low stress jobs (see Table 3), and 20% of women and 16% of men have passive job types. In other words, according to our operationalisation, about half of the hearing-impaired have jobs that are low in demand, and this is about the same for both men and women. Corresponding numbers of
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Women and men in the population at large (16-64 years of age, 1997/99) are 42% and 46% respectively (Swedish Work Environment Authority & Statistics Sweden, 2001:133-134). About every fourth hearing-impaired individual in our sample, however, has high stress jobs (high in demands and low in control), and about every fifth person has active jobs (high in demands and in control). The former types of jobs are associated with high risks, whereas active jobs are associated with a better situation. Almost every third woman has a high-risk job as compared to about every fourth man, and only 17% of the women have active jobs as compared to 25% of the men. (Differences between women and men are however not significant at the 0.05-level except for active job (p=0.049)). Corresponding percentages in the population at large are 34% and 22% with high stress job types, and 23 and 31 percent of active job types among women and men respectively (Swedish Work Environment Authority & Statistics Sweden, 2000). Operationalisation of job types according to the Demand Control Model differs between our study and the comprehensive study of the population at large referred to here. Data suggest, however, that patterns of high stress job types which are more frequent among women and active job types which are more frequent among men could be similar. Furthermore, this data generates the question of whether low stress jobs are more frequent and active jobs are less frequent among the hearing-impaired, irrespective of sex, when compared to the population at large.

Table 3. Type of job according to Demand Control Model and sex among hearing impaired employees (percentages)

| Type of job | Men | Women | Both sexes |
|------------|-----|-------|------------|
| High stress | 25  | 31    | 28         |
| Low stress | 35  | 32    | 34         |
| Active     | 25  | 17    | 21         |
| Passive    | 16  | 20    | 17         |
| All        | 100 (n=241) | 100 (n=156) | 100 (n=397) |
As noted earlier, the combination of high demand and low control generates greater risks of stress-related health problems. In this study, Health status as reported by respondents in the four groups (hearing impaired men and women, men and women in the reference group) show notable patterns. Hearing-impaired individuals, and in particular women, more frequently have problems with their neck and back which are well-recognised symptoms of tension and a common diagnosis for hearing-impaired individuals and sleeping problems. Hearing-impaired women, are comparably much more likely to suffer from headaches. Women with hearing-impairments also seem to more frequently experience exhausting psychological conditions at work, such as indifference, lack of spirit and enthusiasm (Danermark & Coniavitis Gellerstedt, 2004a).

In order to further investigate statistical correlations between various circumstances and health in our sample of hearing impaired people, we performed a multivariate analysis (stepwise) with the health-index as the dependent variable and a number of independent variables (see Table 4). Sex, tinnitus and type of job turned out to have a statistically significant impact on the health-index, while the other variables did not contribute to variation in health. Our analysis indicates that women are worse off than men and high-stress job types (in particular), but also passive job types, are empirically associated with a worse situation in terms of health status.

Table 4. Regression analysis (stepwise), dependent variable: Health Index

| Independent variables | Unstandardized Regression Coefficient (t-value) | Sign. |
|-----------------------|-----------------------------------------------|-------|
| Type of job*          | 2.078 (6.040)                                 | 0.000 |
| Sex                   | 3.346 (3.939)                                 | 0.000 |
| Tinnitus              | -3.001 (-3.597)                               | 0.000 |

(R2 = .194

Excluded variables: degree of hearing loss; working full time/part time; age; time since onset of hearing loss)

a) The average health index for high stress type of job is 18.1, for passive type of job 15.4, for active type of job 13.6 and for low stress type of job 11.3. This indicates a rank order between the types of job. Consequently, “type of job” has been included in the analysis ranging from 1 (low stress) to 4 (high stress).
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Social support
When examining social support in our quantitative study, we looked for encouragement, positive feedback and other forms of support from management and relations to work-mates in terms of cooperation and help in trying situations. The overall pattern concerning support from management is that approximately one third in each of the four groups of respondents frequently experience lacking support, and in particular lack of positive feedback, but roughly the same also goes for access to support from management. Hearing-impaired men stand out, however, in that almost half of them reported that they are "seldom", "very seldom" or "never" encouraged to develop professional competence through further training. Hallberg reports similar findings (2002: 132), as does Clausen (2003:101). In other words, opportunities to improve the kind of control that could be exercised through professional skills seem to be held back for men with hearing losses. Cooperation and support within and between work teams are generally reported as good, in particular within teams.

Summary
To sum up, we find some empirical indications of unfavourable working conditions for hearing-impaired persons/employees when compared to the reference group. Women with hearing impairments more frequently lack control over various aspects of their situation at work, and men more frequently lack encouragement from management to develop occupational skills a way of improving control. We have also paid particular attention to the interplay between high demands on social interaction and communication, as in the case of the teaching, service, commercial and caring professions (many of which are dominated by women), exemplified by the situation at children’s day care settings, and the specific conditions for a hearing-impaired worker to exercise professional control under such circumstances. Furthermore, hearing-impaired women have physically and psychologically related health problems, such as insomnia, more frequently than the other groups. These differences cannot be explained by age or severity of hearing loss. We also found that hearing-impaired women, in accordance with the pattern in the population at large, comparably often have high stress job types. The hypothesis that, according to the Demand Control Model, high stress job types are high-risk jobs, associated with health problems, also holds in our study of people with hearing impairments. For future research into working conditions of people with hearing impairment, our study suggests that further attention should be paid to the dimension of control, understood in a broad sense and in various work settings.

In conclusion, women in the labour force with hearing impairments seem to
frequently have quite vulnerable positions. The extent of early retirement seems to further support this observation. However, our empirical data are by no means sufficient to make and support all relevant comparisons.

Discussion

We will now turn to a discussion investigating the potential usefulness of the concept “double workload” in interpreting our empirical data. The concept of a “double workload” has been used in describing the situation for people with hearing impairments (Gullaksen, 1993; 2002). In this context the “double workload” alludes on the one hand to the regular work tasks done by each and everyone at work and, on the other hand, to the additional work done “behind the scene” by hearing-impaired persons to compensate for their loss in order to be able to carry out their regular work tasks. Even though compensating for hearing loss is not permanently necessary in all work settings, as many tasks during a workday are carried out on a routine basis or do not require hearing capacity, the hearing-impaired individual has to be prepared to mobilise such compensating work. This second workload of the hearing impaired to compensate for hearing loss is for a variety of reasons frequently invisible, seldom recognised, or even known by people in the immediate surroundings. To compensate for hearing loss, and to keep or regain professional control, requires a great deal of planning, including numerous individual and joint strategies at specific work places. Physical and psychological strain is added to the ordinary strain of a specific working environment (Gullaksen 1993; 2002; Danermark & Coniavitis Gellerstedt, 2003). Additionally, the “double workload” of hearing impaired individuals is present not only in work place settings, but also in social life, family life, and so on, although in the latter settings perhaps in more elastic ways. The “double workload” in the sense used here is associated with the individual herself/himself and the way her/his specific hearing loss is individually and collectively confronted in particular situations and settings. Reduction or elimination of this kind of workload, and thereby also reduction of restrictions in activity and participation, is dependent upon the existence of a variety of individual and joint strategies in specific work settings. A specific work setting, then, provides a more or less favourable environment for such strategies. It is reasonable to suggest that if the time needed to construct meaning in verbal communication is not provided in a work setting, where such interaction frequently takes place, we must search for underlying mechanisms that generate such scarcity of time at work. The nature and organisation of production processes, service provision processes, etc. as well as the socio-economic, cultural and physical environment of these processes must be examined.
However, the concept of "double workload" has also been used in reference to structural conditions of women in contemporary Western societies. The "double workload" signifies in this context the paid work done by women on the labour market (segregated horizontally as well as vertically) on the one hand (Roman, 1994; Åberg, 2001; Bildt & Karlqvist, 2001) and the unpaid work done by the same women in family and household on the other (Eurostat, 1997; Statistics Sweden, 2003b).

It would seem, then, that men and women with hearing impairments in the labour force may have a double and a triple or multiple workload respectively, a situation that presumably may produce a number of physical, psychosomatic and psychological conditions, which in one way or another filter experiences of working conditions and add to occupational strain.

The patterns in our empirical data would support a hypothesis about double and triple workloads of economically active men and women with hearing impairment, at least as far as women are concerned. However, research specifically designed to look further into the interplay of gender, age, impairment, occupational context, and workload is certainly needed.

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The Authors:
Lotta Coniavitis Gellerstedt, PhD, is a sociologist and senior researcher at the Swedish Institute of Disability Research, Örebro University, Sweden. Her research is mainly about people with hearing impairment.

Berth Danermark, Professor of Sociology, is head of the Swedish Institute of Disability Research, Örebro University, Sweden. His main professional fields of interest are communication disorders and critical realism in disability research.

Address:
Lotta Coniavitis Gellerstedt
The Swedish Institute for Disability Research
Örebro University
SE-701 82 Örebro
Sweden

Berth Danermark
The Swedish Institute for Disability Research
Örebro University
SE-701 82 Örebro
Sweden

E-mail:
Berth.danermark@ivo.oru.se