



European Foundation for the Improvement of Living and Working Conditions

Working environment risks and other job-related stress factors in Austria

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This report is available in electronic format only.

The supplementary module of the Austrian Mikrozensus survey, carried out in June 1999, focused on working conditions. Employees and pensioners were asked about working environment risks and other stress factors associated with work-related illness. The results of this module are comparable to those of the survey conducted in June 1994. While working environment risks remained at similar levels, other job-related stress factors rose significantly between 1994 and 1999, with most male and female employees facing exposure to multiple risks and other stress factors.

Statistical sources

The Austrian Mikrozensus survey combines a core questionnaire, containing basic data on population structure, employment and unemployment, with a supplementary module (Sonderprogramm). The June 1999 module dealt with working conditions, focusing on working environment risks and other job-related stress factors. Similar studies were conducted in 1980, 1985 and 1994. However, only the module of June 1994 is comparable to that of 1999.

The 1999 module comprised three parts. First, it ascertained whether working environment risks and other job-related stress factors were present in the workplace. Secondly, interviewees had to specify whether the working environment risks and other job-related stress factors constituted a negative experience. The third part required respondents to specify the number of years they had been working under these conditions. See the Appendix for further information on methodology.

Working conditions

The supplementary module on working conditions of the Austrian Mikrozensus distinguishes between two types of potentially adverse working conditions in the workplace: working environment risks (Umwelteinflüsse) and other job-related stress factors (berufliche Belastungen). Working environment risk factors include, for example, weather conditions, hot or cold indoor conditions, dust, dirt, grease and oil, vapours, gases and smoke, different types of noise (industrial, traffic and office noise), draughts or second-hand smoke. The category of other job-related stress factors comprises workloads, unergonomic working conditions, time pressure, continuous contact with customers, overtime, monotony, accident risk, work on computers, etc. Table 1 shows a complete listing of the working environment risk factors and other job-related stress factors included in the Mikrozensus survey.

Table 1 Working environment risks and other job-related stress factors

Working environment risks	Other job-related stress factors
Weather conditions	Heavy, unwieldy tools
Hot conditions (indoors)	Other heavy, physical workload
Cold conditions (indoors)	Unergonomic working conditions
Wet or humid conditions (indoors)	Repetitive manual tasks
Dust	Work requiring good manual dexterity and motor skills
Dirt, grease, oil	Discomfort caused by working clothes/protective clothing or facilities
Solid or liquid harmful or toxic substances	Accident risk/risk of injury
Vapours, gases, smoke	Working under time pressure
Industrial noise (caused by machinery, engines, etc)	Regularly required to work involuntary overtime
Office noise (caused by phone calls, conversations, etc)	Occupational responsibilities outside working hours
Traffic noise	Monotony of work

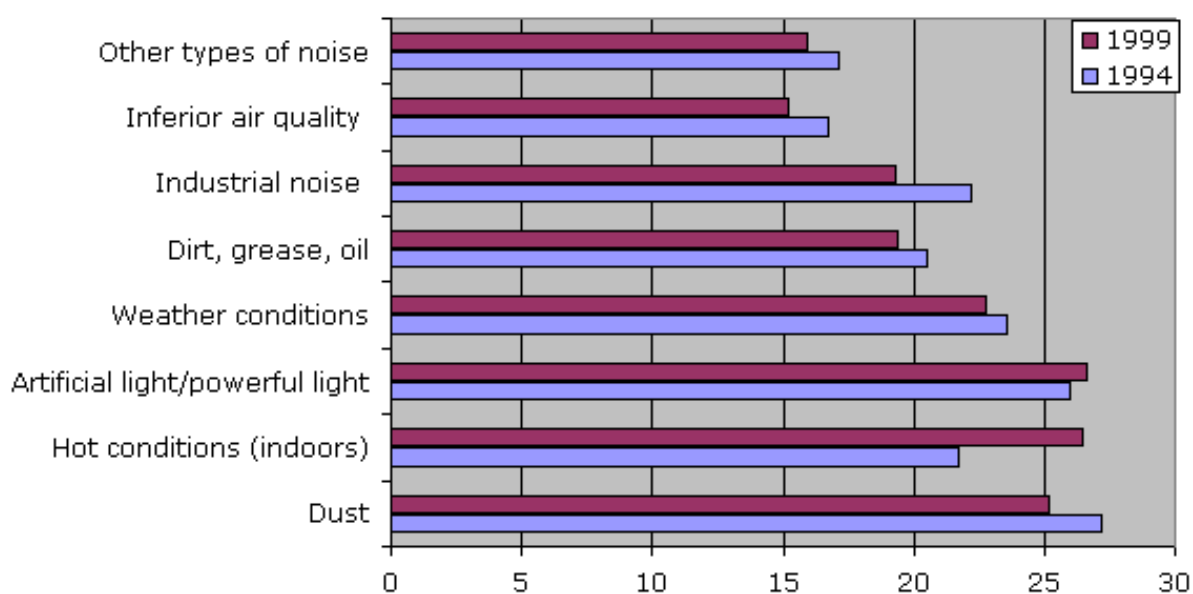
Other types of noise	Unbalanced workloads (i.e. fluctuating demands)
Vibrations	Regular/extensive work on a computer screen
Draughts caused by air conditioning systems	Work requiring constant concentration (e.g. checks, monitoring, etc)
Draughts caused by open windows	Continuous customer contact
Second-hand smoke	Lack of privacy in the workplace
Inferior air quality (stuffy air, bad smells, etc)	Lack of personal interaction in the workplace
Permanent artificial light or exposure to powerful light sources	Extensive contact with people who are suffering, or terminally ill
Permanently closed windows/lack of windows	Lack of optional short breaks
Exposure to electro-magnetic fields, radiation (X-rays, UV, etc)	

Source: Mikrozensus, 1999 (in Fasching, 2000)

Working environment risks

With regard to working environment risks, the 1999 survey showed only minor changes compared with the survey of 1994, as can be seen in Figure 1 below. Weather conditions, dirt, grease and oil, inferior air quality and other types of noise remained more or less stable (-1 to +1.5 percentage points). Industrial noise (-3 percentage points) and dust (-2 percentage points) showed more significant reductions, while the factor 'hot conditions (indoors)' rose by five percentage points. Permanent exposure to artificial light or exposure to powerful light sources grew by 0.6 percentage points. This means that, in terms of environmental conditions in the workplace, few changes took place. These results correspond with those of the European Working Conditions Surveys (Foundation, 2001, p. 11).

Figure 1 Work environment risks, 1994 and 1999 (%)

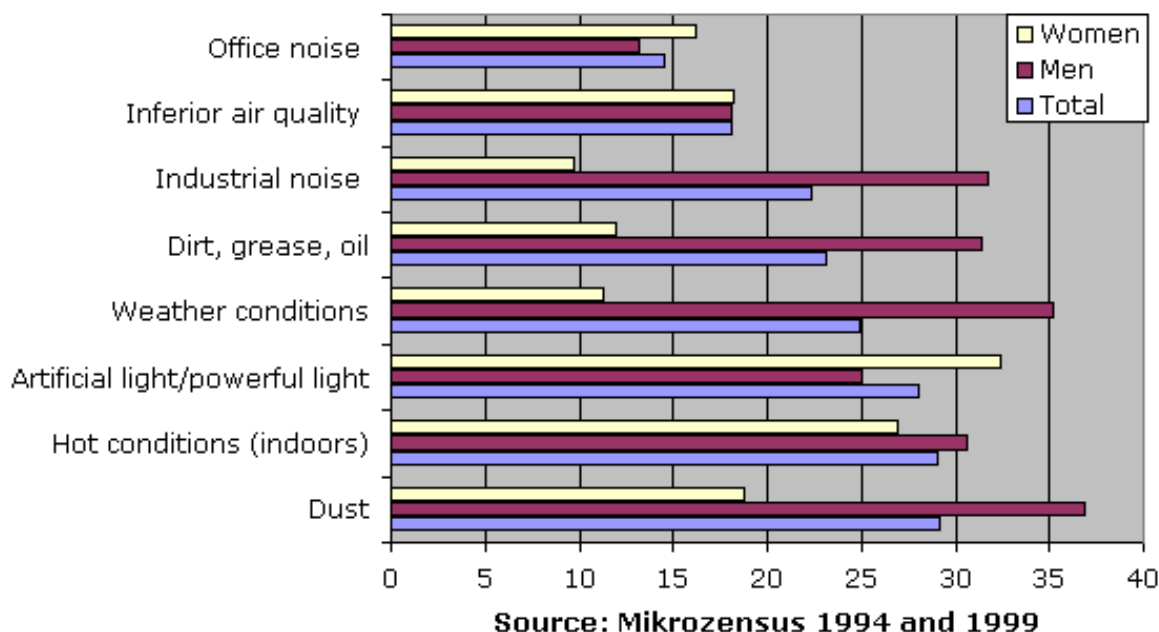


Source: Mikrozensus 1994 and 1999

Nevertheless, workers are still exposed to high levels of working environment risk (see Figure 1). Some 29% are

exposed to dust and a further 29% perform their work under hot indoor conditions. More than a quarter (28%) are exposed to permanent artificial light or powerful light sources, and 25% are confronted with weather conditions. Some 23% come into contact with dirt, grease or oil at work, 22% are exposed to industrial noise, and 18% to inferior air quality.

Figure 2 Work environment risks, by gender (%)



Interestingly, men and women are not only confronted with different environmental conditions but also to different extents (see Figure 2). While men are predominantly exposed to dust (37%), weather conditions (35%), industrial noise (32%) and dirt, grease and oil (31%), only around 10%-18% of all women face exposure to any of these conditions.

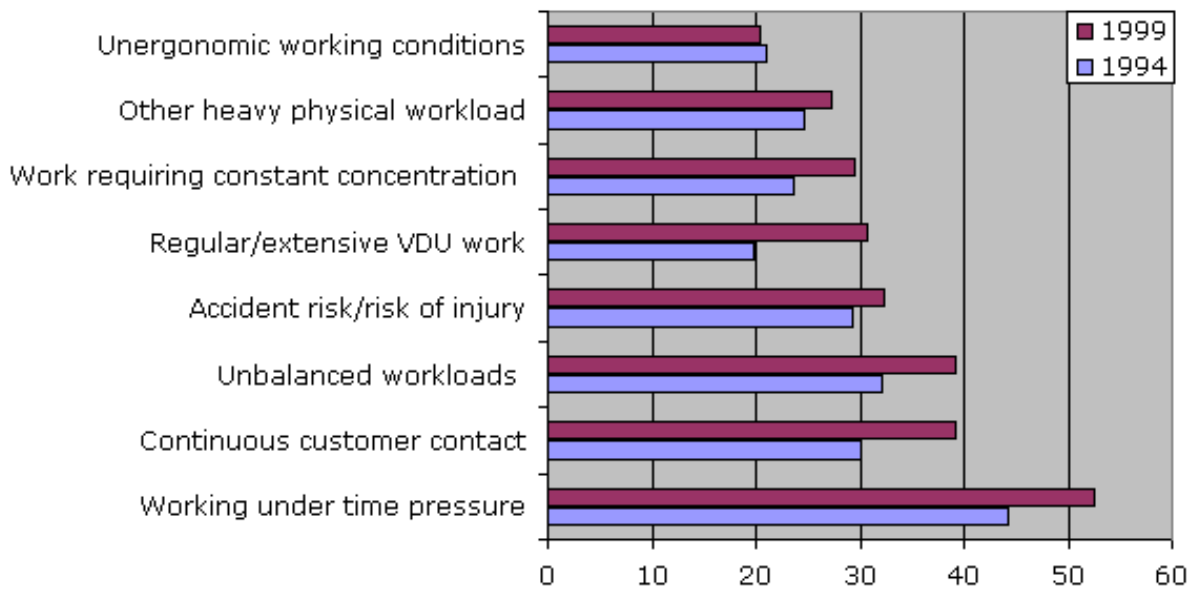
One third of all women are exposed to artificial light or to powerful light sources. Hot indoor conditions (27%) is the second most frequently reported working environment condition by women. However, even though it only ranks fifth among men, a greater proportion of men (31%) than women (27%) are exposed to hot indoor conditions at work. Besides exposure to light sources and hot indoor conditions, 16%-19% of all women are confronted with dust, inferior air quality and office noise.

The different results for men and women may be attributed to the gender segregated nature of the labour market: men are over-represented among industrial and manual workers, while office jobs are mainly performed by women.

Other job-related stress factors

In contrast to working environment risks, other job-related stress factors increased significantly between 1994 and 1999 (see Figure 3). The biggest change took place in the category of regular/extensive work on a computer VDU (visual display unit), which is considered to be a potential occupational risk. While nearly 20% reported regular/extensive VDU work in 1994, this figure rose to nearly 31% in 1999. This is hardly surprising as 20% of all employees work with computers all of the time, and nearly 40% use computers at least one quarter of their working time (Foundation, 2001, p. 8).

Figure 3 Other job-related stress factors, 1994 and 1999 (%)



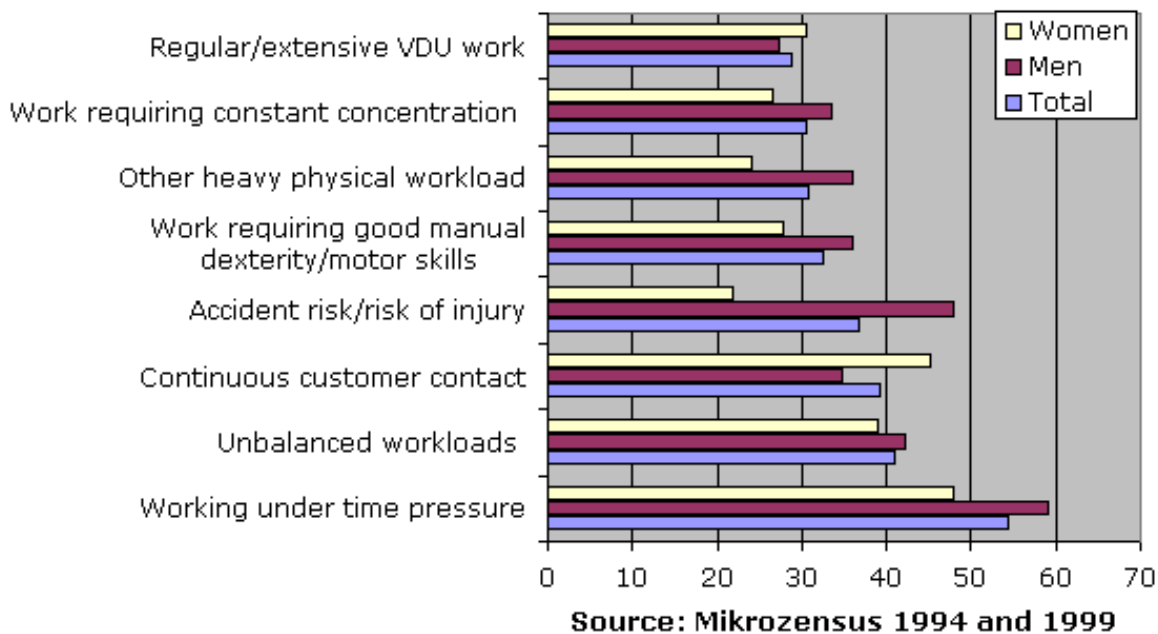
Source: Mikrozensus 1994 and 1999

The proportion of employees who have continuous contact with customers also increased by 9.2 percentage points, while the proportion of people working under time pressure rose by 8.4 percentage points. Other job-related stress factors, such as unbalanced (fluctuating) workloads, work requiring constant concentration, accident risk/risk of injury, or other heavy physical workload, also witnessed increases varying between three and seven percentage points. The only stress factor at work that decreased between 1994 and 1999 is unergonomic working conditions; however, the decrease only amounts to 0.6 percentage points and, thus, is not significant.

In addition to the substantial changes that took place between 1994 and 1999, the proportion of people who are confronted with job-related stress factors is enormous. As can be seen from Figure 3 above, the most frequently reported stress factor is working under time pressure: in 1999, more than half of all respondents (54%) reported working under such pressure. Around 40% were affected by unbalanced workloads, and 40% experienced continuous customer contact (which is considered as a potential occupational risk). One third of the respondents reported being exposed to accident risk or heavy physical workloads, or that they performed work requiring manual dexterity, motor skills and constant concentration.

Time pressure is the most frequently experienced work-related stress factor for both men and women (see Figure 4 below). However, more men (59%) than women (48%) state that they perform their work under time pressure.

Figure 4 Other job-related stress factors, by gender (%)



Apart from time pressure, men and women are confronted with different job-related stress factors. Nearly 50% of jobs of all men involve accident risk, whereas this is the case for only 22% of all women. On the other hand, more women (45%) than men (35%) have continuous contact with customers, again, most likely reflecting the gender segregation of the labour market.

The third most frequently reported job-related stress factor for both women and men relates to unbalanced workloads (i.e. fluctuating demands on the individual worker), though the percentage is slightly higher for men (42%) than for women (39%). Good manual dexterity and motor skills, and constant concentration are also required more often from men than women, whereas more women (30%) than men (27%) perform regular and/or extensive VDU work.

Employment/professional status

The frequency of occurrence of working environment risks and other job-related stress factors differs according to the employment or professional status of employees. The supplementary module of the Mikrozensus survey provides data on four different categories: self-employed people, professionals ('Freiberufliche', including physicians, dentists, lawyers, artists, architects and civil engineers), other white-collar workers (Angestellte), and blue-collar workers (Arbeiter). As can be seen from Table 2 below, exposure to artificial light or powerful light sources is most often reported by self-employed people, professionals and white-collar workers. Nevertheless, more white-collar workers (32%) are exposed to it than in the other two groups (22% each).

Table 2 Most frequently reported working environment risks, by employment/professional status, 1999 (%)

Self-employed people		Professionals		White-collar workers		Blue-collar workers	
Artificial light/powerful light sources	22	Artificial light/powerful light sources	22	Artificial light/powerful light sources	32	Dust	47
Dust	21	Hot indoor conditions	20	Office noise	26	Dirt, grease, oil	40

Hot indoor conditions	20	Office noise	18	Hot indoor conditions	24	Industrial noise	39
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Source: Mikrozensus, 1999 (in Fasching, 2000)

Self-employed people, professionals and white-collar workers also frequently experience hot indoor conditions. Even though this working environment condition ranks second among professionals (20%), and third among white-collar workers (24%) and self-employed people (20%), overall, more white-collar workers are exposed to hot indoor conditions.

Office noise is among the working environment risks reported most often among professionals and white-collar workers, more so for white-collar workers (26%) than those working in the professions (18%).

Blue-collar workers are faced with different working environment risks. Nearly half report being exposed to dust (47%), and 40% of blue-collar workers are confronted with dirt, grease and oil, or industrial noise.

In terms of potential job-related stress factors, the factor most often reported by self-employed people, professionals and white-collar workers is continuous customer contact (see Table 3): 66% percent for self-employed people, 61% for professionals and 55% for white-collar workers. Some 61% of those working in the professions, and 60% of self-employed persons, work under time pressure, compared with 55% of white-collar workers. The third most frequently mentioned job-related stress factor among self-employed people (57%) and professionals (53%) is unbalanced workloads.

Table 3 Most frequently reported other job-related stress factors, by employment/professional status, 1999 (%)

Self-employed people		Professionals		White-collar workers		Blue-collar workers	
Continuous customer contact	66	Continuous customer contact	61	Continuous customer contact	55	Accident risk	54
Working under time pressure	60	Working under time pressure	61	Working under time pressure	55	Working under time pressure	51
Unbalanced workloads	57	Unbalanced workloads	53	Regular/extended VDU work	51	Other physical workloads	45

Source: Mikrozensus, 1999 (in Fasching, 2000)

Again, blue-collar workers face different job-related stress factors at work than the other three groups: the most reported factor is accident risk (54%). More than half (51%) are working under time pressure, and 45% of blue-collar workers are confronted with other forms of heavy physical workloads.

Although the degree of risk varies, self-employed people, professionals and white-collar workers are exposed not only to more or less the same working environment risks, but also to similar job-related stress factors. In fact, other job-related stress factors play a bigger role for them than working environment risks. Blue-collar workers, on the other hand, are exposed to different environmental conditions and job-related stress factors than the other three groups, with greater exposure to working environment risks.

Multiple exposure

Austrian employees (excluding those who had taken early retirement - see Appendix for further details of survey population) are usually exposed to several working environment risks and/or other job-related stress factors while performing their work. It is particularly alarming that 39% of all workers encounter four or more working

environment risks at the same time. Some 45% of all workers are exposed to one, two or three working environment risks, and only about 16% report that they do not experience any potentially negative working environment conditions at all.

Table 4 Exposure of Austrian employees to multiple working environment risks, 1994 and 1999 (%)

Working environment risks			
	1999	1994	Difference
0	15.8	19.1	-3.3
1-3	45.1	47.0	-1.9
4 or more	39.2	34.0	+5.2

Source: Mikrozensus, 1999 (in Fasching, 2000)

Compared with 1994, the proportion of employees confronted with four or more working environment risks increased by 5.2 percentage points, whereas the proportion of workers who are not exposed to any working environment risks decreased by 3.3 percentage points.

As can be seen from Table 5, 57% of all employees are exposed to four or more other job-related stress factors, 36% report one to three stress factors, and only 7% are not confronted with any job-related stress factor.

Table 5 Exposure of Austrian employees to multiple other job-related stress factors, 1994 and 1999 (%)

Other job-related stress factors			
	1999	1994	Difference
0	7.0	11.6	-4.6
1-3	35.8	45.7	-9.9
4 or more	57.2	42.7	+14.5

Source: Mikrozensus, 1999 (in Fasching, 2000)

A comparison of other job-related stress factors between 1994 and 1999 gives the following picture: the proportion of employees who are exposed to four or more other job-related stress factors increased by as much as 14.5 percentage points, while the proportion of people not affected by any job-related stress factor decreased by 4.6 percentage points (Fasching, 1999).

The comparison between 1994 and 1999 clearly shows that the proportion of employees not exposed to any working environment risks, or other job-related stress factor, decreased during this period, whereas the proportion of employees who experienced four or more working environment risks or other job-related stress factors increased. Thus, more and more employees seem to be facing exposure to multiple working environment risks or other job-related stress factors (Fasching, 1999).

Table 6 Number of multiple working environment risks and other job-related stress factors, by gender, 1999 (%)

	Working environment risks		Other job-related stress factors	
	Women	Men	Women	Men
0	20.3	12.4	9.1	5.4
1-3	51.3	40.3	41.9	31.1

4 or more	28.3	47.4	48.9	63.5
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Source: Mikrozensus, 1999 (in Fasching, 2000)

Table 6 shows that female and male employees face multiple exposure to a different extent. More men than women are confronted with four or more working environment risks or other job-related stress factors: 47% of all men and 28% of all women are exposed to multiple, potentially adverse, working environment risks. Multiple job-related stress factors are a fact of every day working life for 64% of male employees and 48% of female employees. Conversely, more women than men are not exposed to any potentially negative working environment conditions or other job-related stress factors.

Health risk and multiple exposure

The results of the Mikrozensus survey on working conditions, presented so far, partly include extrapolated data on 437,000 early retirees. More than half of these retirees (236,000) left the labour market before reaching the legal retirement age, due to ill health, and received invalidity pensions. The other 200,000 early retirees were long-term contribution payers. The survey results highlight data on early pensioners, based on the assumption that adverse working conditions are detrimental to the health of workers and, thus, have an impact on early retirement.

In terms of exposure to multiple potentially negative environment conditions, a comparison of people in early retirement and persons in employment shows that the proportion of retirees who were confronted with multiple exposure (at their last workplace before retirement) is much higher than that of employees (see Table 7). While 39% of people at work reported suffering from four or more working environment risks, 58% of all pensioners indicated that this was the case at the time of retirement. In relation to recipients of invalidity pensions, the figure increases further: 65% were exposed to four or more working environment risks while still at work.

Table 7 Multiple exposure (four or more), by activity status, 1999 (%)

	Working environment risks	Other job-related stress factors
Employees	39	58
Pensioners	58	66
Invalidity pensioners	65	73

Source: Mikrozensus, 1999 (in Fasching, 2000)

The same tendency may be perceived for the category of other job-related stress factors, though not to the same degree. More than half (58%) of all employees are confronted with four or more job-related stress factors, compared with 66% of all pensioners and 73% of invalidity pensioners. These results show that health risk increases with the number of working environment risks, and other job-related stress factors, that people are exposed to in their workplace.

One explanation which underlines the assumption that poor working conditions may contribute to early retirement is the connection between age and duration of exposure to these working conditions. This is clearly indicated by the data: the respondents were asked how long they had been exposed to the working conditions risks and other stress factors they had earlier reported. For instance, the proportion of workers affected by back problems increases, from 11% of workers who were exposed to the same working conditions for a maximum of one year, to 31% among those working in the same conditions for 21 years or more. In terms of wear and arthritic diseases of the joints, the difference is even more pronounced, increasing from 4% (maximum of one year) to 23% (21 years or more) (Fasching, 1999, p. 60). Duration of exposure and age thus combine to increase health risks.

Commentary

The data basis for working conditions in Austria is limited. The only nationwide survey is a module on working conditions, included in the Mikrozensus survey, which has been carried out four times in the last 25 years. The most recent data available date from 1999. According to Statistics Austria, it is not planned to conduct this supplementary module again. The working conditions survey focuses on working environment risks and other job-related stress factors; this represents a confined view compared with the wider approach of the European Foundation for the Improvement of Living and Working Conditions.

The clearest trend (from 1994 to 1999) to emerge is that working environment risks stayed more or less at the same level, whereas other job-related stress factors rose substantially. More than half of all employees (54%) are affected by 'work under time pressure', the most frequently reported job-related stress factor in the workplace. These developments are in line with the general European situation. Despite the recent major changes in working life, including the implementation of new technologies and automatic processes, as well as the expansion of the service sector, working environment conditions still pose a serious problem. Together with higher stress levels and work intensification, workers are faced with a general increase of potentially negative environmental conditions and other job-related stress factors.

These trends are bound to represent a major challenge for Europe, especially taking into account the rising retirement age in most European countries. The data show a clear connection between age and the duration of exposure to work strains. If people are supposed to stay in work longer in future, it is essential to ensure sustainable working conditions.

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Appendix: Methodology

The Austrian Mikrozensus survey combines a core questionnaire, containing basic data on population structure, employment and unemployment, with a supplementary module (Sonderprogramm). The survey is based on stratified random sampling and is carried out on a quarterly basis.

The June 1999 supplementary module to the Mikrozensus dealt with working conditions, focusing on working environment risks and other job-related stress factors. Similar studies were conducted in 1980, 1985 and 1994. However, only the module of June 1994 is comparable to that of 1999.

The target group of the questionnaire consisted not only of employees, but also of people who had retired early or on the grounds of invalidity. The pensioners selected were aged up to 60 years for women and 65 years for men, and their retirement dated back to no more than five years. The reason for including early retirees in the survey module lies in the assumption that negative working conditions, combined with health problems, may have forced them to retire before reaching the legal retirement age.

The sample size of the Mikrozensus survey, including the supplementary module, encompassed around 30,000 households, or approximately 0.8% of all Austrian households. These data were then extrapolated to provide information on the working conditions of 3.7 million employees and 437,000 early retirees, a total of more than 4.1 million Austrians.

The Mikrozensus survey is carried out on a voluntary basis. The mode of data collection consists of face to face interviews, in which one member of the household is interviewed and answers on behalf of all members living in the household. In 1999, the proxy data obtained in this way accounted for 35.4% of survey data.

As answering the questions is voluntary, not all respondents answered all questions. To simulate a participation of 100%, missing data were imputed or ascribed in the following manner. By means of a distance function, based on social-demographic variables, the imputation procedure tried to identify a suitable 'donor' for the data in question. The donor response then replaced the missing or invalid information. As a result, it was possible to include missing answers for 24.8% of the target group in the survey. However, as this method was only introduced in 1999, only data that were not imputed in this way can be compared with the results for 1994.

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