Assessment of indoor air problems at work with a questionnaire
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Aims: To assess the extent of indoor air problems in office environments in Finland.

Methods: Complaints and symptoms related to the indoor environment experienced by office workers were collected from 122 workplaces in 1996–99 by using the modified Indoor Air Questionnaire established by the Finnish Institute of Occupational Health. Altogether 11 154 employees took part in the survey.

Results: The most common problems were dry air (35% of the respondents), stuffy air (34%), dust or dirt in the indoor environment (25%), and draught (22%). The most common work related symptoms were irritated, stuffy, or runny nose (20%), itching, burning, or irritation of the eyes (17%), and fatigue (16%). Women reported indoor air problems and work related symptoms more often than men. Allergic persons and smokers reported indoor air problems more often, and experienced work related symptoms more often than non-allergic persons and non-smokers.

Conclusions: The complaints and work related symptoms associated with indoor air problems were common in office workers. The present questionnaire is a suitable tool for the occupational health personnel in investigating indoor air problems and the data of the survey can be used as a reference when the results of a survey at work are being analysed.

Problems in the indoor air of workplaces are issues which occupational health care often needs to consider when evaluating the health risks of a work environment. On the other hand, good indoor air quality has a beneficial effect on the health of employees, the social atmosphere at work, and productivity in offices.1–5

Already in the 1980s the reports by the WHO stated that up to 30% of employees in new or renovated buildings expressed an unusually high number of complaints concerning the work environment, enabling classification of the buildings as “sick”.4 This appeared to be a problem especially in countries with a colder climate.

Working in these problem buildings may cause respiratory symptoms (stuffy and irritated nose, rhinitis, cough, sore throat, and shortness of breath), skin symptoms, as well as general symptoms (fatigue, headache, fever), all of which are typical to the sick building syndrome (SBS).3–7 Some researchers consider SBS as more of a reaction to the work environment than as a disease per se.4 This appeared to be a problem especially in countries with a colder climate.

For the time being, there is very little information on the causal relations of indoor air problems and the mechanisms behind them. Occasionally, it is easy to find the cause of an indoor air problem in a targeted building when, for example, the air conditioning is not working properly, or if there is an obvious moisture damage or mould growth in the structures of the building. However, quite often the situation is far more complex. Previous experience has shown that even extensive technical and microbiological studies, or clinical examination of the employees, have difficulties in confirming the exact problem area in the building. Systematic investigations of the work environment, combined with information gathered from the employees with interviews or questionnaire surveys, form a basis for further investigation and restorative measures.3–8

If information is gathered from a large number of workers, a questionnaire is a useful aid. The Indoor Air Questionnaire of the Finnish Institute of Occupational Health (FIOH) is based on a method developed by a Swedish research group.6 In the questionnaire, the validity of the questions has been tested, for example, by comparing the answers in the questionnaire with the physicians’ evaluation of the symptoms of the target group, and with information on the work environment.7 In addition, the reliability of the questionnaire has been confirmed in surveys conducted in office and residential buildings.8–10

The present study examines the prevalence of complaints concerning indoor air and the symptoms of office workers. Also personal factors such as sex, age, allergies, and smoking, and their effect on the results of the survey, were assessed. At the same time, reference material was collected from office environments for those conducting indoor air surveys.

METHODS
The Uusimaa Regional Institute of the FIOH has been using the present Indoor Air Questionnaire since 1995 as one tool in the investigation of indoor air problems. The questionnaire was developed in Örebro, Sweden (MM-40 questionnaire);9 it comprises four parts, the first of which deals with the work environment, the second with work arrangements, the third with the allergy history of the employees, and the fourth with work related symptoms.

In the questionnaire, environmental problems (draught, dry, or stuffy air, etc) are recalled from the past three months. Environmental problems and symptoms that had occurred every week or occasionally were enquired about and collected in the present study. The questionnaire also deals with
allergic diseases: past or present asthma, hay fever, allergic rhinitis, or atopic dermatitis. In the present survey, the respondents were distinguished as “allergic” if they reported any of the four allergic diseases. Symptoms attributed to indoor air at work are reported from the past three months, and they are further explained by specifying whether the symptoms are weekly, and whether the persons attribute the symptoms to their work environment. This study focused on symptoms that occurred every week and were attributed to the work environment.

In 1996–99, surveys were conducted by the Uusimaa Regional Institute of the FIOH in 122 workplaces, mainly offices. In addition, nine schools, four hospitals or health care centres, and 14 other workplaces were investigated. An indoor air problem had been suspected in all of the targets before the survey was conducted. The employer or its health care unit had contacted the Regional Institute and ordered the indoor air survey as a part of other investigations concerning the suspected indoor air problem. In some cases, the party ordering the survey had been able to point out a control area for the department to be investigated. The exact response rate was known in 72 workplaces, the average response rate being 73% (range 40–100%).

The workers had two weeks to respond to the inquiry. In most of the cases the occupational health care of the office arranged the delivery and collection of the questionnaires at the workplace. The survey covered questionnaires of 11 154 participants, 7819 of whom were women and 3240 were men (in 95 cases no gender was reported). In the 72 workplaces in which the return percentage was known, the number of participants was 6176.

For the statistical analysis of the data, SAS 6.12 and PEPI 3.0 programs were used. In the analysis of the data, the relative differences between the different groups were studied, and the statistical significance of the differences was estimated with the $t$ test from the difference of two values. The significance of the prevalences in difference between the age groups was tested with a paired sample $t$ test.

**RESULTS**

**Complaints related to environmental factors**

The most common environmental problems that had occurred every week were dry air (35% of the respondents), stuffy air (34%), dust or dirt (25%), and draught (22%) (table 1). The most common environmental problems that had occurred occasionally were varying room temperature (53%), too low temperature (51%), too high temperature (48%), unpleasant odours (46%), and draught (44%).

The greatest differences between the men and women concerned complaints of dry and stuffy air, dust or dirt, and draught (table 1). Women reported environmental problems more often than men; the difference was statistically significant concerning all of the environmental problems. The differences between men and women were accentuated even more among those who had never had problems in the environmental conditions.

When the complaints regarding environmental conditions are compared between age groups, the younger employees complained more often about low temperatures and stuffy air than did the older employees who, in turn, complained more often about environmental noise than did the younger employees (table 2).

**Symptoms**

The most common indoor air related symptoms reported by the participants were irritated, stuffy, or runny nose (20%), and itching, burning, or irritation of the eyes (17%) (table 3). When looking at the reported symptoms, which included both work related and other symptoms, the most common symptoms were nasal symptoms (29%), fatigue (28%), dryness of the hands (26%), symptoms of the eyes (22%), as well as hoarse or dry throat (20%).

The greatest differences between the genders in reporting work related symptoms concerned hand and eye related symptoms, nasal symptoms, and fatigue. Women reported work related symptoms more often than men, the difference being statistically significant (table 3). The differences between men and women were accentuated among those participants who had never experienced any symptoms arising from the work environment.

The youngest age groups complained more often about work related fatigue, headache, and dryness of the hands than the two oldest age groups.

Allergic individuals ($n = 5509$) reported more often environmental problems than those who were not allergic. The most significant differences between the groups concerned dry and stuffy air, as well as dust or dirt. Allergic employees also reported more work related symptoms than those who were not allergic. The most significant differences concerned nose and eye related symptoms, as well as hoarse and dry throat.

During 1996–99 the percentage of smokers among the workers in the present survey was 21–22%. In 1996, altogether 22% reported that smoking by others was a

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**Table 1** Indoor air complaints in office environments; the number and percentage of respondents who reported that the problem had existed "every week" in work environment

<table>
<thead>
<tr>
<th>Environmental complaints</th>
<th>Every week All workers ($n = 11154$)</th>
<th>Women ($n = 7819$)</th>
<th>Men ($n = 3240$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Dry air</td>
<td>3638</td>
<td>35</td>
<td>3097</td>
</tr>
<tr>
<td>Stuffy air</td>
<td>3701</td>
<td>34</td>
<td>2925</td>
</tr>
<tr>
<td>Dust or dirt</td>
<td>2703</td>
<td>25</td>
<td>2121</td>
</tr>
<tr>
<td>Draught</td>
<td>2310</td>
<td>22</td>
<td>1850</td>
</tr>
<tr>
<td>Noise</td>
<td>1824</td>
<td>17</td>
<td>1393</td>
</tr>
<tr>
<td>Room temperature too high</td>
<td>1768</td>
<td>17</td>
<td>1347</td>
</tr>
<tr>
<td>Unpleasant odour</td>
<td>1757</td>
<td>17</td>
<td>1404</td>
</tr>
<tr>
<td>Varying room temperature</td>
<td>1371</td>
<td>16</td>
<td>1260</td>
</tr>
<tr>
<td>Dim light or glare/reflections</td>
<td>1465</td>
<td>14</td>
<td>1157</td>
</tr>
<tr>
<td>Room temperature too low</td>
<td>1307</td>
<td>13</td>
<td>1099</td>
</tr>
<tr>
<td>Static electricity</td>
<td>793</td>
<td>8</td>
<td>654</td>
</tr>
<tr>
<td>Environmental tobacco smoke</td>
<td>370</td>
<td>4</td>
<td>271</td>
</tr>
</tbody>
</table>

*p<0.05, **p<0.01, ***p<0.001.
problem at their workplace, and in 1997–99 nearly 20% still had this opinion. Smokers complained of environmental problems more often than non-smokers (table 4). In addition, smokers reported more work related symptoms than non-smokers (table 5).

Those who complained about symptoms in nose, eyes, or hands, or fatigue, also reported environmental problems more often than those who had never experienced any of those symptoms (fig 1). On the other hand, those who reported dry or stuffy air, draught, or dust, reported work related symptoms more often than those who had not experienced any of these symptoms (fig 2).

**DISCUSSION**

The present study presents the causes of complaints about environmental factors and symptoms related to indoor air, reported by over 11 000 office employees. In the future, the present results can be used as reference material for indoor air surveys conducted at other office workplaces. The investigated workplaces were not randomly chosen; an indoor air problem had been suspected in each one before the survey. The number of complaints is thus assumed to be slightly higher than normal.

Indoor air problems can be caused by several factors. An indoor air problem is rarely caused by a single factor such as, for example, the formaldehyde emissions from construction materials in the 1970s. Problems in air conditioning, moisture damage, material emissions, or dust and dirt problems may occur simultaneously at one workplace. On the other hand, the complaints and symptoms reported by employees do not provide a reliable overall picture if the number of individuals voicing their opinion is not large enough. Both the physical and the psychosocial environment affect the reporting of health issues and symptoms; however, personal factors also affect the results. 11 12

Occupational health care personnel need tools for studying indoor air problems. In larger workplaces, a health inspection including an interview cannot be arranged for all the employees. Information thus needs to be gathered by some other means. In these cases, the occupational health personnel may use questionnaire surveys exploring the relations between the work environment and health.

The Indoor Air Questionnaire of the FIOH is based on a Swedish questionnaire which has been tested earlier in offices, schools, and residential buildings. The questionnaire has been condensed into one two-sided page which contains, in addition to the sections on work environment and symptoms, sections on the participant’s allergy history and on the psychosocial conditions at work. The FIOH has been using this short form of the questionnaire since the

### Table 2 Environmental complaints in age groups

<table>
<thead>
<tr>
<th>Environmental complaints</th>
<th>1 18–34 y (n = 2238)</th>
<th>2 35–44 y (n = 3347)</th>
<th>3 45–54 y (n = 3799)</th>
<th>4 55 y (n = 1870)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draught</td>
<td>20 (446)</td>
<td>22 (675)</td>
<td>22 (805)</td>
<td>22 (384)</td>
<td>NS</td>
</tr>
<tr>
<td>Room temperature too high</td>
<td>17 (369)</td>
<td>18 (543)</td>
<td>17 (584)</td>
<td>17 (272)</td>
<td>NS</td>
</tr>
<tr>
<td>Varying room temperature</td>
<td>18 (382)</td>
<td>16 (490)</td>
<td>16 (522)</td>
<td>15 (236)</td>
<td>NS</td>
</tr>
<tr>
<td>Room temperature too low</td>
<td>15 (314)</td>
<td>14 (410)</td>
<td>13 (416)</td>
<td>11 (167)</td>
<td><strong>1 and 4</strong></td>
</tr>
<tr>
<td>Stuffy air</td>
<td>36 (787)</td>
<td>36 (1148)</td>
<td>33 (1179)</td>
<td>30 (524)</td>
<td><strong>2 and 4</strong></td>
</tr>
<tr>
<td>Dry air</td>
<td>35 (757)</td>
<td>37 (1145)</td>
<td>34 (1209)</td>
<td>35 (590)</td>
<td>NS</td>
</tr>
<tr>
<td>Unpleasant odours</td>
<td>16 (351)</td>
<td>17 (523)</td>
<td>17 (592)</td>
<td>17 (291)</td>
<td>NS</td>
</tr>
<tr>
<td>Static electricity</td>
<td>8 (168)</td>
<td>8 (257)</td>
<td>8 (267)</td>
<td>6 (101)</td>
<td><em>2 and 4</em></td>
</tr>
<tr>
<td>Environmental tobacco smoke</td>
<td>3 (73)</td>
<td>3 (89)</td>
<td>4 (140)</td>
<td>4 (68)</td>
<td>NS</td>
</tr>
<tr>
<td>Noise</td>
<td>16 (342)</td>
<td>17 (530)</td>
<td>18 (629)</td>
<td>19 (323)</td>
<td><em>1 and 4</em></td>
</tr>
<tr>
<td>Dim light or glare/reflections</td>
<td>12 (262)</td>
<td>15 (450)</td>
<td>15 (530)</td>
<td>13 (223)</td>
<td><em>1 and 4</em></td>
</tr>
<tr>
<td>Dust or dirt</td>
<td>24 (519)</td>
<td>26 (807)</td>
<td>26 (948)</td>
<td>25 (429)</td>
<td>NS</td>
</tr>
</tbody>
</table>

*p < 0.05, **p < 0.01, ***p < 0.001; NS, statistically not significant.

### Table 3 Symptoms related to indoor air problems; symptom had occurred “every week during past three months”

<table>
<thead>
<tr>
<th>Work related symptom</th>
<th>Every week</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All workers (n = 11154)</td>
<td>Women (n = 7819)</td>
<td>Men (n = 3240)</td>
<td></td>
</tr>
<tr>
<td>Irritated, stuffy, or runny nose</td>
<td>2190</td>
<td>20</td>
<td>1760</td>
<td>23***</td>
</tr>
<tr>
<td>Itching, burning, or irritation of the eyes</td>
<td>1857</td>
<td>17</td>
<td>1554</td>
<td>20***</td>
</tr>
<tr>
<td>Fatigue</td>
<td>1779</td>
<td>16</td>
<td>1464</td>
<td>19***</td>
</tr>
<tr>
<td>Hands dry, itching, red skin</td>
<td>1721</td>
<td>15</td>
<td>1513</td>
<td>19***</td>
</tr>
<tr>
<td>Hoarse, dry throat</td>
<td>1561</td>
<td>14</td>
<td>1270</td>
<td>19***</td>
</tr>
<tr>
<td>Dry or flushed facial skin</td>
<td>1216</td>
<td>11</td>
<td>1042</td>
<td>13***</td>
</tr>
<tr>
<td>Feeling heavy headed</td>
<td>1026</td>
<td>9</td>
<td>888</td>
<td>11***</td>
</tr>
<tr>
<td>Headache</td>
<td>726</td>
<td>7</td>
<td>626</td>
<td>8***</td>
</tr>
<tr>
<td>Scaling/itching scalp or ears</td>
<td>715</td>
<td>6</td>
<td>577</td>
<td>7***</td>
</tr>
<tr>
<td>Cough</td>
<td>542</td>
<td>5</td>
<td>435</td>
<td>6***</td>
</tr>
<tr>
<td>Difficulties in concentrating</td>
<td>367</td>
<td>3</td>
<td>280</td>
<td>4*</td>
</tr>
<tr>
<td>Nausea/dizziness</td>
<td>150</td>
<td>1</td>
<td>128</td>
<td>2***</td>
</tr>
</tbody>
</table>

*p < 0.05, **p < 0.01, ***p < 0.001.
beginning of the 1990s, first to test the form, and later more systematically as a part of field studies on indoor air problems.

**Complaints about environmental factors**

The most common complaints about environmental factors at work were dryness and stuffiness of the air, dust or dirt, draught, and noise. In a previous Danish study, the most common complaints about environmental factors reported at the Copenhagen City Hall were dry and stuffy air, as well as varying temperature, and draught. In a Dutch study covering over 7000 office employees and 61 buildings, the most common complaints concerning indoor air temperature, quality, dry air, lighting (too bright or dim), and noise. The Dutch study did not include buildings in which indoor air problems had been previously encountered.

In the present study, men and women differed clearly in their complaints about environmental factors. Women had more complaints concerning environmental factors than men. Similar observations have been made in other studies as well. The significance of age could not be proven with certainty, based on the results of this study. The complaints concerning environmental factors differed between the age groups. This might at least partially be due to different job descriptions: the complaints might be different in the jobs to which employees of various ages are assigned. On the other hand, the differences might also be explained by the physical changes that occur in the ageing process.

**Symptoms**

The most common work related symptoms were irritation, a stuffy or runny nose, and itching, burning, and irritation of the eyes. Jaakkola and colleagues encountered the effect of mechanical ventilation on SBS symptoms in an office building with 1719 employees. The survey focused on symptoms during the past seven days, both at work and at home. About a half of the participants complained of dryness of the skin, nose, and throat, as well as stuffiness of the nose. In their study, one third reported itchiness of the skin, headache, and fatigue, while one fifth complained about irritated, itchy, or dry eyes. More symptoms prevailed if the room temperature was above 22°C. Stuffy nose, dry skin and throat, fatigue, and headache were more common in the previous than in the present study.

Finnegan and colleagues found fatigue, headache, and mucous membrane and nasal symptoms to be the most common symptoms related to the indoor environment in mechanically ventilated buildings in England. In the study of Burge and colleagues, covering over 4300 employees, the most common symptoms related to the indoor climate were fatigue, stuffy nose, dry throat, and headache. In their study they avoided buildings that were already known as problem buildings. When work related and other symptoms are taken together, the most common symptoms are irritation of the nose, fatigue, and dryness of the hands. Skov and Valbjorn noted that the most common symptoms reported by the workers at the Copenhagen City Hall were fatigue, headache, and irritation of the nose and throat. Furthermore, general symptoms (fatigue, headache, etc) were accentuated compared with other studies. However, the authors noted that the prevalence of the irritation and general symptoms varied significantly between the different buildings. In the present study, symptoms of the upper respiratory tract and eye irritation are the most prevalent.

We found a clear difference between men and women in the reporting of work related symptoms. Women reported

| Table 4 Indoor air complaints and workers’ smoking habits |

| Environmental complaint every week | Smokers | | | | | Non-smokers | | | | | | p value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Drought | 513 | 26% | 1554 | 21% | *** |
| Room temperature too high | 347 | 18% | 1281 | 18% | NS |
| Varying room temperature | 357 | 19% | 1083 | 16% | ** |
| Room temperature too low | 261 | 14% | 866 | 13% | NS |
| Stuffy air | 724 | 36% | 2598 | 35% | NS |
| Dry air | 799 | 40% | 2429 | 34% | *** |
| Unpleasant odours | 377 | 19% | 1242 | 17% | ** |
| Static electricity | 221 | 11% | 484 | 7% | *** |
| ETS | 10 | 1% | 315 | 4% | *** |
| Noise | 392 | 20% | 1262 | 17% | ** |
| Dim light or glare/reflections | 299 | 15% | 990 | 14% | NS |
| Dust and dirt | 599 | 30% | 1735 | 24% | *** |

*p<0.05, **p<0.01, ***p<0.001; NS, not significant.

| Table 5 Work related symptoms and smoking habits |

| Work related symptom | Smoker | | | | | Non-smoker | | | | | | p value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatigue | 403 | 19 | 1216 | 16 | ** |
| Feeling heavy headed | 242 | 12 | 691 | 9 | *** |
| Headache | 154 | 7 | 490 | 6 | NS |
| Nausea/dizziness | 32 | 2 | 103 | 1 | ** |
| Difficulties in concentrating | 70 | 3 | 244 | 3 | NS |
| Itching, burning, or irritation of eyes | 399 | 19 | 1247 | 16 | ** |
| Irritated, stuffy, or runny nose | 450 | 21 | 1471 | 19 | * |
| Hoarse, dry throat | 323 | 15 | 1053 | 14 | NS |
| Cough | 117 | 6 | 369 | 5 | NS |
| Dry or flushed facial skin | 263 | 13 | 788 | 10 | *** |
| Scaling/itching scalp or ears | 147 | 7 | 481 | 6 | NS |
| Hands dry, itching, red skin | 382 | 18 | 1159 | 15 | ** |

*p<0.05, **p<0.01, ***p<0.001; NS, not significant.
more work-related symptoms than men. A similar observation has also been previously reported by others. Gender-based differences may arise from differences in the work tasks and work arrangements of men and women, or differences in the psychosocial work community, as well as in other spheres of life, such as home and family relations. In a previous study, it was estimated that women describe changes in their health more easily than men; it was suggested that the overall life situation, both at home and at work, should be considered when assessing the reports of the symptoms.

In indoor air surveys, factors that affect the reporting of symptoms include the physical and social work environment, as well as physiological and psychological characteristics of the employee. In studies on indoor air, it is important to consider the symptoms and sensations of the participants, even though the mechanisms affecting them are not known. The observed differences between the genders are real, and they are partly explained by work-related factors, factors outside the work, and physiological factors. When looking at the results of the survey, the gender based differences should be considered especially when a workplace is clearly dominated by either sex.

Stenberg and Wall have stated that the only environmental complaint which influenced women’s work-related symptoms was dry air. Experiencing the air as dry, on the other hand, could be linked to symptoms of the eyes and facial skin, but not necessarily to the level of moisture in the air. Neither did their study find a connection between the women’s marital status or number of children and the symptoms. The authors noted that certain organ-related factors could increase symptoms in women. For example, women more often have diseases which cause dryness of the eyes and mouth; hormonal factors could also have an effect on eye symptoms. According to Stenberg and Wall, the most important factor behind SBS symptoms that is not associated with the building itself is gender. Other factors are atopy, psychosocial working conditions, computer-related work, and “paperwork.”

The differences in reporting symptoms between the different age groups in the present report may depend on the participant’s stage in work life or other life situation. Burge and co-workers noted that employees aged 21–40 years reported symptoms more commonly than older or younger age groups. In the study by Zweers and colleagues, no clear connection between age and the frequency of complaints was found.

In the present survey, the prevalence of allergy and atopy was higher than in the general Finnish population. Clinically confirmed IgE mediated allergy is usually less frequent than the prevalence of allergy based on inquiry surveys. People tend to overestimate the presence of allergic diseases which

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Figure 1 Indoor air related symptoms in eyes by environmental complaints. ***p<0.001.

Figure 2 Indoor environment complaints due to dust and dirt by work related symptoms. ***p<0.001.
may also explain the high prevalence in the present
survey.
We found that allergic individuals reported environmental
problems related to the work environment and work-related
symptoms more often than non-allergy persons. Similar
results have been found earlier in a Dutch study. Further-
more, based on over 100 indoor air symptom surveys,
Andersson stated that atopic persons had more symptoms of
the mucous membranes and skin symptoms than non-atopic
persons. Allergic individuals may react to environmental
factors earlier than others, and their awareness of their
sensitisation helps them to pay attention to different hazards
known to cause symptoms.

Based on these results, smokers reported more environ-
mental problems and work-related symptoms than non-
smokers. However, Zweers and colleagues did not find a
connection between the participants’ smoking and the
complaints. A clear connection between exposure to ambient
tobacco smoke and complaints about environmental factors
and symptoms has nevertheless been found. The material of
the present study has been collected after 1995, when the
renewed Tobacco Act was launched to reduce exposure to
tobacco smoke at work in Finland. When questioned about
environmental problems in 1997–99, nearly 20% of the
employees who participated in this survey reported smoking
by others to be a problem. This shows that, at least then, the
Tobacco Act was not enforced sufficiently in workplaces, and
the tobacco smoke spread throughout the premises.

The prevalence of the complaints about environmental
factors and problems related to indoor climate presented in
this study can be used as reference material when conducting
indoor air surveys at other workplaces. It should be noted
that symptoms related to work and working conditions are
reported also in “healthy” buildings. However, if the level of
complaints rises exceptionally high, it can point to problems
in the building and in the air conditioning system. When
using the Indoor Air Questionnaires of the Institute of
Occupational Health, the basic rules are: for work related
complaints about environmental factors (the hazard is
experienced every week), a rate of over 30% is considered
higher than normally found at workplaces; for the prevalence
of symptoms (that is, the symptom is work related and is
experienced every week), a rate of over 20% is considered
higher than normal. Such results warrant further investiga-
tions. It should be noted, however, that a lower prevalence of
complaints can be significant, and therefore each problem
site should be examined as an entity, taking into account
other information gathered from the workplace. In addition,
the employees’ individual characteristics affect the com-
plaints about environmental factors and the prevalence of the
symptoms, thus complicating interpretation of the question-
naire results.

The individual characteristics of the employees and of the
work environment should be considered as their own entity,
especially when the solution to the problem is delayed,
despite proper repair measures. The psychosocial atmosphere
of the work community, work arrangements, and problem
solving processes play a significant role in the solving of
indoor air problems at work. Solving an indoor air problem requires systematic work, in
which the indoor air questionnaire serves as an aid for the
occupational health personnel; it is part of a more compre-
hsensive process to clarify and evaluate risks. When solving an
indoor air problem, one should pay attention to distribution
of tasks, responsibility, information, goal-directed activities
that activate the participants, as well as a follow up of the
effects. The indoor air survey provides a possibility for each
employee to personally take part in the process to solve an
indoor climate problem.

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