

# Disturbing sounds at the workplace: a burden for employees

## 38 baua: Facts

Many employees are exposed to disturbing sounds at their workplace on a daily basis. This can be caused not only by booming machines but also by traffic noise or the conversations of colleagues in the office. It is well known that incessant noise at high sound pressure levels can have a detrimental effect on hearing. However, disturbing sounds can also have non-auditory (so-called extra-aural) effects on employees and can be associated, for example, with a lower sense of well-being.

### Who is affected?

In the representative BIBB/BAuA Employment Survey 2018, 14,754 full-time employees were interviewed, among other things, about their working conditions and their health situation. One of the questions was how often the interviewees are exposed to disturbing sounds during their working hours. Possible answer categories were "frequently", "sometimes", "rarely" and "never". The survey shows that one quarter (25.3 %) of full-time workers are frequently exposed to disturbing sounds during work. This is slightly more common among men (27.6 %) than among women (21.1 %).

Looking at the economic sectors and professions, it becomes clear why men are affected somewhat more frequently. Disturbing sounds are frequently reported in the male-dominated economic sectors of "industry" and "crafts". In line with that, it is employees in building construction and civil engineering occupations (frequently: 55.5 %), as well as in metal production and metal processing occupations (frequently: 52.3 %), who report this more often than average. Disturbing sounds are reported less often by people in the service sector and in the public sector. Employees who are least frequently affected are those in financial services, accounting and tax consultancy (frequently: 10.3 %) and law and administration (frequently: 11.3 %).

If interviewees reported frequent disturbances due to sounds, they were also asked whether they felt burdened by it. Overall, 58.0 % said they did, with women agreeing more often (70.1 %) than men (53.4 %).

### Causes of burdening sounds

People who perceive disturbing sounds as a burden were also asked about the main cause of the sounds (n = 2,170).

In relation to four given answer categories, 57.3 % stated that machinery or technical devices were the main cause; 30.4 % stated human speech as the main cause; 7.4 % mentioned sounds from the outside (such as road traffic or adjacent production areas); 4.9 % referred to other sound sources.

### Who names which causes?

Taking a closer look at the two most frequently named causes, it becomes apparent that the sources of sounds also differ significantly by economic sectors and occupations. As Figure 1 shows, machinery or technical devices are named as the main cause of burdening sounds in the crafts sector (90.1 %) and in industry (78.5 %). Speech is mentioned as the main cause of burden, especially in the public sector (50.5 %), followed by machinery and technical devices at 30.0 %. In the service sector, the interviewees named speech and machinery or technical devices almost equally often as the main cause of feeling burdened by sounds (speech: 39.3 %; machinery or technical devices: 41.3 %). The fact that both speech and machinery or technical devices are prevalent sources of the sounds in the public and service sectors may be due to the diversity of professions within these sectors.

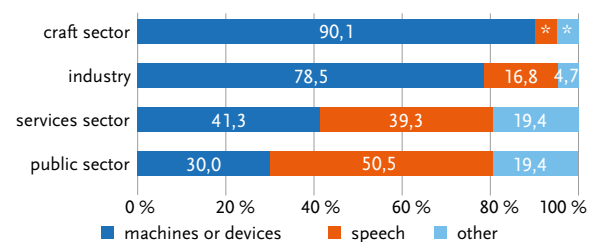


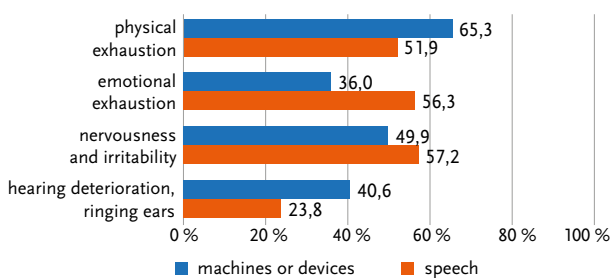
Fig. 1 Main causes of burdening sounds for four economic sectors (people who are frequently affected and feel burdened, n = 2,170). \*Case numbers n < 50

Looking at the occupations, more than 80 % of workers in mechanical and vehicle engineering occupations (87.7 %) and metal production occupations (98.4 %) name machinery or technical devices as the main cause of burdening sounds. Speech is the most frequent cause for people in teaching and training occupations (76.2 %) and in occupations in the field of social and domestic work (72.8 %).

### What health complaints do those affected report?

Those who are frequently affected by disturbing sounds, in contrast to people who only sometimes, rarely or never are affected, are more likely to report certain health complaints. This is evident, for example, in physical exhaustion (frequent: 51.9 %; not-frequent: 31.4 %), general fatigue and exhaustion (61.6 % vs. 44.6 %) and irritability (40.2 % vs. 24.1 %). The complaints occur more often than average in people who also state that they feel burdened by the sounds. Comparable complaints of affected persons were also investigated in other studies in connection with sounds and noise<sup>1</sup>.

If people who frequently are exposed to disturbing sounds and experience this as a burden are subdivided according to the respective main cause of burdening sounds, the following picture with regard to health complaints is being revealed: If machinery or technical devices are the main cause of the experienced burden, then physical exhaustion (65.3 %; speech: 51.9 %) and hearing deterioration/ringing in the ears (40.6 % vs. 23.8 %) are named more frequently. If speech is the main cause, it is emotional exhaustion (56.3 %; machinery: 36.0 %) and nervousness/irritability (57.2 % vs. 49.9 %; Fig. 2). Whether these are direct or indirect interrelations needs to be investigated in further studies.



**Fig. 2** Selected health complaints according to the cause of noise exposure (people who are frequently affected and feel burdened, n=2,160).

### Suggested citation:

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### Conclusion

Almost six out of ten interviewees report feeling burdened by disturbing sounds when they are frequently affected. Some health complaints, such as exhaustion or general fatigue, are mentioned more often by people who are frequently exposed to disturbing sounds at work. The health complaints reported also vary by the source of the disturbing sound. The extent to which these are causal relationships would have to be specifically investigated in further studies.

Machinery and technical devices were often named as the sound sources. The "Buy Quiet" approach offers employers an opportunity to fulfil their legal obligation to select work equipment with a focus on noise reduction, by giving preference to quieter machinery when purchasing them<sup>2</sup>. Even in work areas where no (loud) machines are running, disturbing sounds must be reduced as much as possible through technical and organisational protective measures. The Technical Rules for Workplaces "Noise"<sup>3</sup> (ASR A3.7) contain examples of possible noise control measures. This document also lists measures that can be taken to reduce disturbances caused by speech irrelevant to one's own work, e.g. by providing alternative rooms for meetings or telephone calls.

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doi: 10.21934/baua:fakten20210324

### Further information

- 1 A. Liebl, M. Kittel, 2016. Psychische Gesundheit in der Arbeitswelt – Lärm. 1. Auflage. Dortmund: Bundesanstalt für Arbeitsschutz und Arbeitsmedizin. DOI: 10.21934/baua:bericht20160713/4a
- 2 Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, 2019. Buy Quiet – Empfehlungen für den Einkauf leiserer Maschinen. baua: Fakten. 1. Auflage. Dortmund. DOI:10.21934/baua:fakten20190318
- 3 Technische Regeln für Arbeitsstätten. Lärm. (ASR A3.7). GMBI 2021, S. 543, (Stand: 2021).