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A lot to lose:

noise exposure and tinnitus



plug'em

“I take full responsibility for it, I should have worn earplugs for gigs - I didn't do it until it was too late and the ringing didn't stop.”

Contents

Introduction	3
Executive summary	4
About Tinnitus UK	5
About tinnitus	5
Causes of tinnitus	6
Noise exposure	6
Our survey of tinnitus and noise exposure	7
People's experiences of noise exposure and use of hearing protection	8
What caused your tinnitus?	11
The impact of tinnitus caused by noise exposure	12
Call for action	14
Contact details	14
Tables and statistics	15



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Introduction



Our vision is a world where no one suffers from tinnitus.

A core strand of our work is actually working to make sure people won't need our services in the future, and that they avoid the sometimes life-changing impacts of tinnitus.

Getting a prevention message across is one of the toughest tasks in the health and wellbeing sector. None of us like to think that our wellbeing could deteriorate, and none of us like to have it pointed out that our behaviours – whether through a deliberate action or through lack of knowledge or omission – may be harming our health.

However, it is important that we talk about the risks to our hearing from everyday noise exposure.

I hope that this report and the campaigning that the Tinnitus UK team, our partners and supporters will take during Tinnitus Week 2023 and beyond will raise awareness of the importance of using hearing protection in loud situations.

I hope that everyone takes the message "When it's loud... Plug'em!" to heart.

Caroline Savage

Interim CEO, Tinnitus UK



Executive summary

Tinnitus – the sensation of hearing a sound when there is no external source for that sound – affects around one in seven adults in the UK.

There is currently no cure for tinnitus, and the impact of the condition on quality of life and mental health can be severe.

Noise exposure is the most common preventable cause of tinnitus and hearing loss.

Noise starts to become a risk to hearing at 80dB, and in a working environment, hearing protection should be provided at 85dB or above. Although there is legislation in place to protect hearing in the workplace, there is no such legal status for noise outside of the working environment.

Studies have shown that the use of hearing protection in certain groups, such as musicians and young people, is quite low. We conducted a broader survey asking about tinnitus and noise exposure in December 2022.



Our survey showed that:

- Over one third (35%) of people believed that their tinnitus was caused by loud noise exposure. This could mean that 2.7 million adults in the UK had their condition triggered by noise.
- Twice as many men (48%) as women (24%) claimed noise exposure as a reason for their tinnitus
- Shockingly, four out of ten (39%) respondents who were exposed to noise at work “never” used hearing protection and only a quarter (24%) “always” or “sometimes” used hearing protection.
- These numbers were even lower for the use of hearing protection for leisure activities, with numbers ranging from 8% to 29% for the most commonly undertaken pursuits.

That’s why we are calling for people to:

- Always wear appropriate hearing protection when in a loud place, and working with loud equipment
- Avoid being exposed to excessive noise for long periods
- Replace hearing protection if it is worn or damaged
- Have their hearing checked regularly.

About Tinnitus UK

Tinnitus comes in many types, but Tinnitus UK is here for everyone living with tinnitus.

We are striving for a world where no one suffers with tinnitus.

That's why we provide free support to anyone with tinnitus or caring for someone with tinnitus.

That's why we are leading the charge for more investment in tinnitus research.

That's why we are connecting the research community to people living with tinnitus to ensure those searching for new treatments and a cure understand the impact of tinnitus on everyday lives.

That's why we work with healthcare professionals to ensure you receive the right information to manage your tinnitus.

For every seven adults in the UK, one will have tinnitus. Think about that the next time you're in the supermarket, on the bus, or walking down the street.

Tinnitus affects 7.6 million people in the UK – with 1.5 million of them having severe tinnitus.

To everyone living with tinnitus our message is clear – your struggle is our cause.

"My tinnitus is a constant concern and I have a high-pitched squeal in my ear 24/7"

A lot to lose: noise exposure and tinnitus

About tinnitus

Tinnitus affects around one in seven adults in the UK.

Tinnitus is unique to the person experiencing it. But ultimately it is the sensation of hearing a sound when there is no external source for that sound. Someone with tinnitus may hear ringing, buzzing, hissing, whistling or other noises. Tinnitus can be there all the time or come and go. The volume of someone's tinnitus can vary from one episode to the next.

The impact of tinnitus on quality of life and mental health can be severe. 9.3% of people with tinnitus have had suicidal thoughts or thoughts of self-harm in the last two years.

At present, there is no known cure for tinnitus, and research has shown that a majority of tinnitus sufferers feel current treatment options are insufficient and often ineffective.



Causes of tinnitus

It is not clear what causes tinnitus, but it can be associated with:

- Hearing loss
- Ear infections
- Stress and anxiety
- Exposure to loud noise

Noise exposure is the most common preventable cause of tinnitus.



Noise exposure

Hearing can be damaged by sustained exposure to loud noise, and this may lead to tinnitus.

The intensity of sound is measured in decibels (dB(A)). Noise becomes a risk to hearing health at levels of 80dB or above. In a working environment of 85dB or higher, hearing protection should be provided, as this is the level at which noise becomes unsafe without the use of hearing protection.

Employers have a duty to protect their employees and should be taking steps to reduce the risks caused by a noisy environment or noisy equipment. Employees have a legal duty to:

- Co-operate with their employer to do what is need to protect their hearing
- Wear any hearing protection given (and training should have given on how to do this properly)
- Look after their hearing protection
- Attend regular hearing checks
- Report any problems with noise control devices or hearing protection.

In social environments, there are no rules to protect customers. At a gig or in a nightclub or bar, employees should be given training about noise exposure and offered hearing protection. Yet it is up to customers to make their own judgements and provide their own hearing protection in the same environment.

Similarly, sound levels in the home can reach dangerous levels, but there is no legislation mandating the use of hearing protection.

Decibel level and maximum exposure time

This chart shows the average intensity of a sound made by different things and the amount of time it is safe to be exposed to this without needing hearing protection.

Decibel level dB	Source of sound	Length of time
85	Kitchen blender	8 hours
88	Forklift truck	4 hours
91	Tube train	2 hours
94	Lawnmower	1 hour
97	Industrial fire alarm	30 min
100	Bulldozer; hand held drill	15 min
103	MP3 player at full volume	7 min 30 sec
106	Motor bike	3 min 45 sec
109	Crying baby	1 min 42 sec
112	Live rock band	1 min 6 sec
115	Ambulance siren	33 sec

Table 1 Sound intensity and maximum exposure time for various devices

Our survey of tinnitus and noise exposure

We were aware from previous research that the use of hearing protection in certain groups, such as musicians and young people, was quite low.

We were keen to see whether this behaviour differed in a wider population, and across a range of job roles and leisure activities.

In December 2022, Tinnitus UK invited people to answer questions about their tinnitus and noise exposure, inviting responses from Tinnitus UK members, mailing list subscribers and social media followers.

Over 750 people completed an online survey.

Respondents broadly followed the expected demographics for age (Table 2) and gender (Table 3) and with the large sample size, we believe that we captured a representative cross-section of the tinnitus community.

"It's been a constant companion for over half my life (and I'm still only 34). It's a constant noise 24 hours a day, 7 days a week. I have good days and bad days but after 19 years I'm come to a place where I recognize it will not go away and I've accepted that so it's just a case of managing it."

People's experiences noise exposure and use of hearing protection

All the respondents who completed the survey had tinnitus, although that was not a qualification for inclusion.

The survey findings emphasized the chronic nature of tinnitus, with only 3% of respondents saying that they had had tinnitus for a year or less (Table 4). One quarter (25%) had been living with tinnitus for 20 years or more, and a further 22% for between 10 and 20 years. Another 22% of respondents had had tinnitus for between five and 10 years.

Overwhelmingly, respondents described their tinnitus as "continuous" with 9 out of 10 living with the noise 24 hours a day, 7 days a week (Table 5). Over half described the noises that they heard as "loud". Only four out of ten (39%) believed that they were managing their tinnitus successfully (Table 6).

In addition to the challenges of living with tinnitus, almost two-thirds of those surveyed (62%) were also living with a hearing loss (Table 7). Despite this, only one in five respondents (21%) attributed their tinnitus to hearing loss (Table 8).

The most frequently mentioned tinnitus trigger in our survey was noise exposure. More than one in three (35%) people attributed their tinnitus to loud noise. This could mean that 2.7 million adults in the UK are living with tinnitus caused by noise exposure. For some, this was from exposure at work, for others it was from leisure activities and for some it was both.

Twice as many men (48%) as women (24%) claimed noise exposure as a cause (Table 9).

This may be because men were more likely to say that they had been exposed to noise at work, or that they participated in noisy leisure activities, with the exception of playing music or drying their hair.

Noise exposure at work

Shockingly, four out of ten (39%) respondents who were exposed to noise at work "never" used hearing protection and only a quarter (24%) "always" or "sometimes" used hearing protection (Table 10).

A number of older respondents commented that – particularly early on in their careers – hearing protection was either not available or rarely used.

There is now legislation to ensure people do not suffer damage to their hearing at work, which puts the responsibility on employers to reduce risks from noise and to take action if noise reaches dangerous levels.

This includes providing hearing protection and making sure that it is used properly if noise levels are over 85dB.

"During work when I was younger, it wasn't even thought about to protect your ears. Now when it's noisy I do wear ear protection."

"In my early days in the water industry (1970s), health and safety was more or less optional and ear defence was not a major consideration. Later (1990s) it was more available and in the 2000s it was mandatory."

"At times it was impossible to wear hearing protection (live firing exercises etc) and the protection at the time wasn't really adequate."

Noisy leisure activities

The current noise regulations do not apply to non-work activities, or when people make an informed choice to go to noisy places.

This means that the responsibility is on an individual to look after their own hearing, to assess the potential risk of any activity, and to choose whether to use hearing protection.

"I take full responsibility for it, I should have worn earplugs for gigs - I didn't do it until it was too late and the ringing didn't stop"

Unfortunately, this approach does not appear to have encouraged awareness of the dangers of noisy leisure activities, nor the use of hearing protection whilst participating in them.

Our survey asked about activities that people would consider noisy, as well as some that many do not realise can reach harmful noise levels (Table 11) and examined their use of hearing protection when in noisy situations (Table 12).

Despite power tools such as drills reaching 100dB, only a quarter (26%) of DIYers "regularly" or "sometimes" use hearing protection. Even fewer – 23% of attendees – use hearing protection at live music events, where safe exposure times can be as short as 1 minute, as levels can reach over 112dB.

Even fewer music performers, whether they play professionally or for fun are also unlikely to wear hearing protection, with only 17% of respondents "regularly" or "sometimes" wearing hearing protection.



Similarly, music listeners rarely use hearing protection, with only one in five (19%) saying that they wear it.

Bikers are also putting themselves at risk of tinnitus and hearing loss when out on their motorbikes, with only a third (29%) "regularly" or "sometimes" using hearing protection. Riding noise levels vary, and are a combination of engine noise, road noise and wind turbulence but they are generally around 85-95 dB at speeds up to 35 mph, climbing to 110-116dB at 65mph.

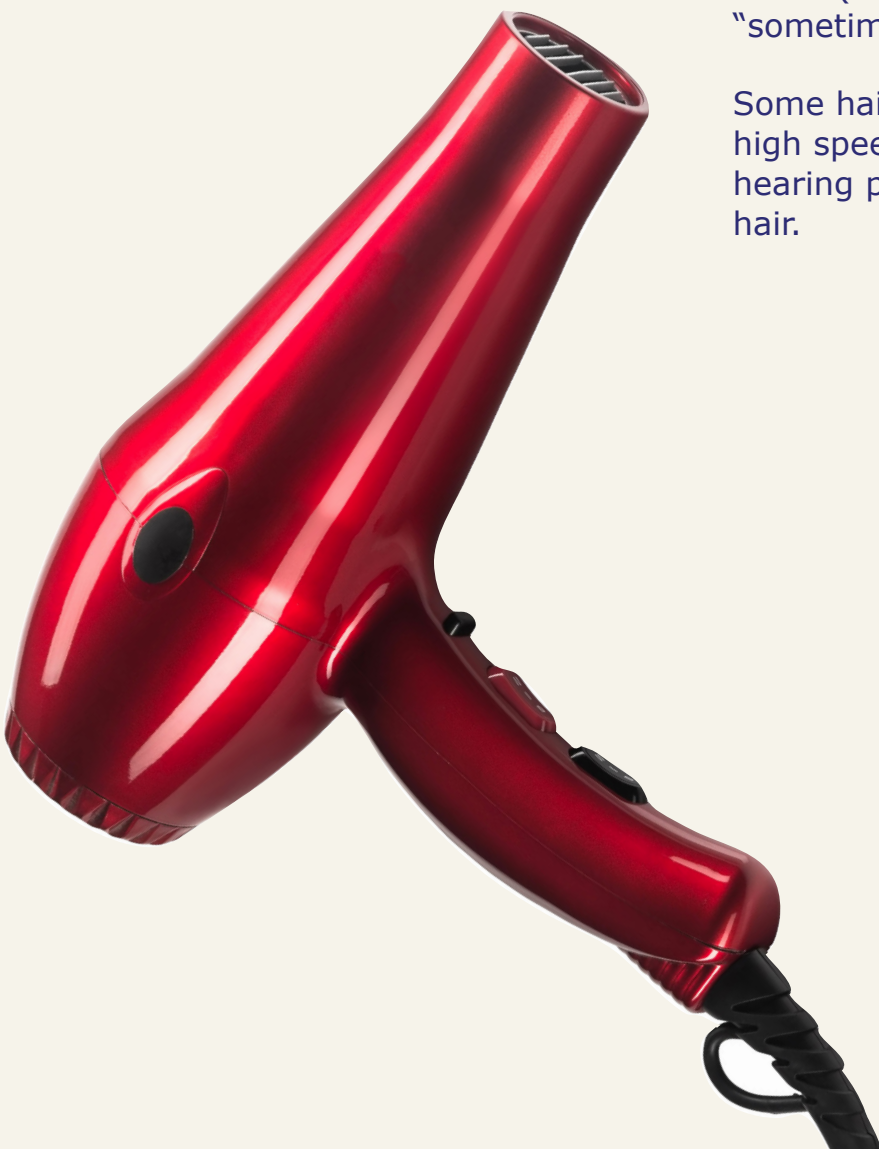
Participants in motor sports and fans are also at risk of hearing loss and tinnitus due to the noise generated by vehicles racing at high speed. Around one third (33%) of participants in motor sports "regularly" or "sometimes" used hearing protection, but that number fell to only 15% of spectators.

As one of the loudest sources of single bursts of noise, over half (54%) of shooting enthusiasts use hearing protection. However, this is still alarming as the decibel level from a firearm can cause damage instantaneously.

Also alarming, due to the nearly universal cinema attendance of our respondents, is that fewer than one in eight (12%) use hearing protection, despite research showing that sound levels in cinema auditoriums can range from 74 to 104dB. At the higher end of the scale, this can cause hearing damage in less than the time for one trailer, never mind a feature film.

Although experienced every day by millions of people, there is little awareness that certain common encounters with noise can be potentially damaging. A number of Tube lines can reach almost 110dB, yet less than one in ten (8%) of Tube users "regularly" or "sometimes" use hearing protection.

Some hairdryers can reach 95dB at high speed, but only 8% of people use hearing protection when drying their hair.



What caused your tinnitus?

"Being a bit too close to a couple of terrorist secondary explosive devices when they detonated"

"Too many front row Whitesnake gigs in the 80s!"

"Loud noise from hand and big hair dryers when I was a hairdresser"

"Driving lorries on motorways"

"A PE master at school fired a starting pistol in a very small enclosed room."

"Sudden acoustic trauma caused by a close encounter with a loud, high-pitched smoke detector alarm."

"Working in a printing press factory. I always wore foam earplugs with headband ear protectors over the top. Trouble is, these did not filter out the high-end noise from vacuum pumps and compressor units. The sound from these units was all I could hear at work for 10 years!"



A lot to lose: noise exposure and tinnitus

The impact of tinnitus caused by noise exposure

Our respondents were given the opportunity to explain how their tinnitus impacted their daily lives. Many spoke movingly about the burden it places on them. (Some names* have been changed to protect privacy).

Wesley's* tinnitus and hearing loss began during his time as armed forces aircrew and led to a medical discharge. He explains:

"I try my best to ignore it but can often be very loud when trying to sleep.

At work it is not a problem until I have to join in a meeting, do online training or just talking to someone. With the Covid lockdown I have learnt that I have become very reliant on lip reading and if I can't lip read then I do not

take in what is being said."

For Rowan*, tinnitus means that she never hears silence. She told us:

"Tinnitus impacts my day to day. I can always hear it and it can be very distressing when I realise that I am 25 and have to deal with this for the rest of my life. I have to work with either white noise or music. I can never sit in silence. It feels like it's crushing my head. I have to come to terms with the fact that I will never experience true silence again. It's heart-breaking and it's exhausting."

Jag's tinnitus has restricted both his social life and his professional one. He said:

"It changed my life. I can't go to events, restaurants, bars

"It does get me down and I have to have a little chat with myself almost everyday. I find running helps, and white noise at night when I am trying to sleep. It is also one of the reasons for the breakdown of my marriage"



etc. I can't work in a busy office. It's worse when I have a cold and sleeping is difficult."

Mervyn's experience is similar:

"Tinnitus restricts my everyday activities, forcing me to wear earplugs when outside and ear defenders when driving. I can no longer attend any concerts or football games and have to avoid any 'lively' pub or restaurant. It makes me depressed."

For some, has been more than restrictive, it has shattered lives and dreams. Shirley* told us:

"It destroyed my career as a musician, my social life, my sleep, and my composure."

"It affects me on a daily basis, I am not working because of it, I barely sleep and when I do it's not deep sleep as my brain is constantly alert to it, as a result I am exhausted every day, it's like I have insomnia. My memory has been affected, my concentration levels and focus, I can't take in or retain information written or spoken, it's affected my social life and has caused me to have even worse social anxiety"

For Angela*, the impact on their mental health has been severe, and even led to thoughts of taking their own life:

"It has robbed a lot of my life. I have had suicidal thoughts. I never make plans with confidence. Don't take holidays."

Although it may be too late for these people, we want to prevent their experiences being repeated in the future. This is why we are calling for action now.



Call for action: why hearing protection is important

Noise exposure is the single biggest preventable cause of tinnitus, and it is clear from our research that people appear to be unaware of the risks.

Hearing damage is irreversible, so this Tinnitus Week, we are calling on people to:

- Always wear appropriate hearing protection when in a loud place, and working with loud equipment
- Avoid being exposed to excessive noise for long periods
- Replace hearing protection if it is worn or damaged
- Have their hearing checked regularly

If you're doing something that's loud, even for a couple of minutes, use hearing protection.

Our message is clear:

When it's loud... Plug'em!



Contact details

For more information on the report or for an interview with one of our experts or story tellers, please contact

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Tables and statistics

Age of survey respondents

This was a free text field, data has been grouped by the author.

Age	Number	Percent %
18-24	10	1
25-34	36	5
35-44	48	6
45-54	97	13
55-64	226	30
65-74	203	27
75 & over	68	9
Not disclosed	68	9

Table 2 Age of survey respondents

Gender of survey respondents

This was a free text field, data has been grouped by the author.

Gender	Number	Percent %
Female	10	1
Male	36	5
Gender fluid/Non binary/ Trans	48	6
Not disclosed	97	13

Table 3 Gender of survey respondents

Duration of tinnitus

This was a free text field, data has been grouped by the author.

Duration	Number	Percent %
Less than 1 year	20	3
More than 1 year, less than 2 years	79	10
More than 2 years, less than 5 years	106	14
More than 5 years, less than 10 years	169	22
More than 10 years, less than 15 years	97	13
More than 15 years, less than 20 years	65	9
More than 20 years, less than 25 years	38	5
More than 25 years	149	20
Not disclosed/unclear	33	4

Table 4 Duration of tinnitus



Responses to the question "How would you describe your tinnitus?"

Respondents were allowed to make multiple selections.

Description	Number	Percent %
Continuous	680	90
Comes and goes	77	10
Loud	433	57
Quiet	104	14
Pulsatile	86	11
Musical	31	4
In one ear	189	25
In both ears	487	64
Other	247	33

Table 5 Responses to the question "How would you describe your tinnitus?"

Responses to the question "Would you say you have learned to manage your tinnitus?"

Answer	Number	Percent %
Yes	294	39
No	78	10
Sometimes	382	51
Not disclosed	2	0

Table 6 Responses to the question "Would you say you have learned to manage your tinnitus?"

Responses to the question "Do you have a hearing loss?"

Answer	Number	Percent %
Yes - diagnosed by a professional	402	53
Yes - I think I do, or other people tell me I do, but I haven't had a diagnosis	65	9
No - and this has been confirmed by a professional	131	17
No - I don't think I do	103	14
I don't know	55	7

Table 7 Responses to the question "Do you have a hearing loss?"

Responses to the question "What do you think triggered your tinnitus?"

More than one answer was permitted. *mostly descriptive, expanding on answers

Cause of tinnitus	Number	Percent %
Noise exposure	268	35
Hearing loss	155	21
Stress and anxiety	188	25
Ear infection	79	10
Ear wax	46	6
Medication	63	8
Illness	59	8
Covid-19	32	4
Getting older	102	13
I don't know	197	26
Other*	268	35

Table 8 Responses to the question "What do you think triggered your tinnitus?"

Tinnitus and noise exposure by gender

Description	Number	Percent %		
		Total survey population	Population of those exposed to noise	Gender population
Female whose tinnitus caused by noise exposure	85	11	32	24
Male whose tinnitus caused by noise exposure	153	20	57	48

Table 9 Tinnitus and noise exposure by gender

Noise exposure and use of hearing protection at work

Exposed to noise at work and used hearing protection	Number	Percent %		
		Total survey population	Population of those exposed to noise at work at all	Population of noise exposure as cause
Always	38	5	14	14
Usually	26	3	10	10
Sometimes	61	8	23	23
Rarely	44	6	16	16
Never	14	14	39	39
Used any at all	169	22	63	63

Table 10 Noise exposure and use of hearing protection at work

Noise exposure during leisure activities

Noise exposure	Regularly		Sometimes		Rarely		Never		No answer	
	Number	Percent %	Number	Percent %	Number	Percent %	Number	Percent %	Number	Percent %
Ridden a motorbike/quad bike	58	8	87	12	96	13	315	42	200	26
Taken part in motorsport	10	1	12	2	27	4	481	64	226	3
Been a motorsport spectator	20	3	72	10	111	15	339	45	214	28
Piloted/ridden in a light aircraft/helicopter	7	1	23	3	133	18	377	50	216	29
Used the Tube or other underground railway	107	14	230	30	233	31	52	7	134	18
Used a shotgun for clay or game shooting	17	2	28	4	89	12	415	55	207	27
Used a firearm for target shooting	5	1	37	5	74	10	420	56	220	29
Listened to loud music	126	17	313	41	164	22	36	5	117	15
Played an instrument or sung in a band for fun or for payment	59	8	77	10	68	9	362	48	190	25
Visited live music venues, clubs and festivals	105	14	257	34	231	31	46	6	117	15
Visited the cinema	122	16	373	49	177	23	7	1	77	10
Used a hairdryer	259	34	103	14	133	18	126	17	135	18
Used power tools for DIY	68	9	186	25	205	27	145	19	152	20
Used power tools or motorised tools in the garden	94	12	202	27	174	23	138	18	148	20

Table 11 Noise exposure during leisure activities

Use of hearing protection during leisure activities

Leisure activity	Regularly		Sometimes		Rarely		Never		Not applicable		No answer	
	Number	Percent %	Number	Percent %	Number	Percent %	Number	Percent %	Number	Percent %	Number	Percent %
Riding a motorbike/quad bike	47	6	24	3	16	2	186	25	286	38	197	26
Taking part in motorsport	7	1	9	1	4	1	129	17	380	50	227	30
Being a motorsport spectator	11	1	20	3	20	3	201	27	284	38	220	29
Piloting/riding in a light aircraft/helicopter	34	4	16	2	19	3	151	20	320	42	216	29
Using the Tube or other underground railway	21	3	26	3	31	4	436	58	72	10	170	22
Using a shotgun for clay or game shooting	59	8	14	2	14	2	132	17	325	43	212	28
Using a firearm for target shooting	46	6	16	2	11	1	124	16	341	45	218	29
Listening to loud music	37	5	75	10	70	9	386	51	45	6	143	19
Playing an instrument or singing in a band for fun or for payment	16	2	18	2	16	2	225	30	218	29	263	35
Visiting live music venues, clubs and festivals	46	6	88	12	52	7	381	50	50	7	139	18
Visiting the cinema	23	3	58	8	46	6	463	61	37	5	129	17
Using a hairdryer	31	4	28	4	19	3	394	52	127	17	157	21
Using power tools for DIY	44	6	76	10	66	9	271	36	134	18	165	22
Using power tools or motorised tools in the garden	54	7	68	9	45	6	292	39	139	18	158	21

Table 12 Use of hearing protection during leisure activities



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