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Press Relations Officer: Martin Ittershagen
PR-staff: Anke Döpke, Dieter Leutert,
Fotini Mavromati, Theresa Pfeifer, Martin Stallmann
Address: Postfach 1406, 06813 Dessau-Roßlau
Telephone: +49 340/21 03-2122, -2827, -2250, -2318, -3927, -2507
E-Mail: pressestelle@uba.de
Internet: www.umweltbundesamt.de



Noise: Stress starts in childhood

UBA study identifies transport and leisure activities as frequent sources of noise

Daily life exerts constant stress on children's ears. Tests conducted by the Federal Environment Agency (UBA) about noise exposure and the impact of noise on 1,048 children aged 8-14 demonstrate that one in every eight children suffer considerable impairment of hearing ability. One in every six children lives along roads with heavy traffic, and the child's bedroom in nearly three thirds of the households in this group faces the street. The latter group shows a tendency to have moderately higher blood pressure as compared to others. One in every six among the 11-to-14-year-olds registered stress due to daytime or night-time road traffic noise. Children from families in the lower socio-economic bracket are generally much more exposed. "We must become aware that we live in a world that is too loud. Noise is a stress factor for adults as well as children. High sound levels lead to hearing damage that is aggravated in the course of a lifetime. We must therefore take precautions against noise, especially for children and adolescents", said Dr. Thomas Holzmann, Vice President of UBA.

Data was collected during the German Environmental Survey 2003/06 (GerES IV) for Children (Kinder-Umwelt-Survey), during which UBA carried out a representative study from 2003-2006 on the health effects on children of environmental factors in Germany. In the survey module on noise, children underwent listening screening and had their blood pressure checked. They were surveyed on their leisure time activities that might potentially damage hearing, hearing symptoms, and stress experienced through environmental noise. The questionnaire and a short-term mean assessment of noise levels helped UBA experts to determine the stress levels which homes are exposed to through road traffic noise. The survey illustrates first and foremost the levels of stress exerted on children through external and behaviour-related noise exposure as well as the potential effects of noise.

The results have now been evaluated and differentiated according to age, gender, socio-economic background, migrant status, size of municipality and regional association (eastern or western Germany). Accordingly, 12.8 percent of children show conspicuous hearing impairment in at least one ear for sounds of medium and high pitch (1-6 kHz frequency) and louder than 20 decibels (dB). If only the pitch with which most noise-related hearing loss is considered (4-6 kHz frequency range), this figure is 10.6 percent. Boys' hearing in these tested ranges is poorer than girls'. 11.4 percent of children complain of temporary ringing of the ears (tinnitus) after listening to loud music. No direct correlation between the information in the questionnaire

about the use of music players with headphones (e.g. MP3 players) and hearing capacity has yet been established among young children. 44.6 percent of the children aged 8 to 10 and 70.3 percent aged 11 to 14 use such equipment to listen to music. In the latter age group average listening time is one half hour per day, of which five percent claim to listen to music with headphones for at least two hours daily. 23.5 percent of all users of music players say they listen to music at loud volume, with 11.4 percent saying the volume control is always on full power. Children in lower socio-economic brackets use such players longer and at louder volumes.

16.5 percent of children live along roads with heavy through traffic, and this is more often the case among families in the low socio-economic bracket. In total, nearly half of all children's bedrooms (47.7 percent) face the street, and even more in homes located on loud roads (61 percent). In the group aged 8 to 10, 7.3 percent report daytime stress associated with road traffic noise, and 6.8 percent experience night-time noise stress. The levels are somewhat higher in the 11-to-14-year-old age group (16.4 and 7.9 percent, respectively). In comparison to representative studies among adults, however, children as a whole experience less stress due to road traffic noise. The German Environmental Survey 2003/06 (GerES IV) for Children is part of the German Health Interview and Examination Survey for Children and Adolescents by the Robert Koch Institute.

The noise report for the German Environmental Survey 2003/06 (GerES IV) for Children is available for download (in German) at:

http://www.umweltbundesamt.de/uba-info-medien/mysql_medien.php?anfrage=Kennummer&Suchwort=3617.

For further information about the German Environmental Survey 2003/06 (GerES IV) for Children see:

<http://www.umweltbundesamt.de/gesundheit/survey/us03/uprog.htm>

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