

Subjective and electrodermal responses to annoying vehicle sounds: Role of task load and noise sensitivity

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ABSTRACT

In order to study noise annoyance in the laboratory, a total of N=59 participants were exposed to short 5-s segments of pass-by recordings of motor vehicles presented at levels ranging from 50 to 70 dB(A). In Experiment 1, they just rated the annoyance due to sounds on a visual-analogue scale, in Experiment 2, they had to simultaneously perform a visual multiple-object tracking task. Annoyance was judged to be lower when participants were engaged in the cognitively demanding task (in Experiment 2). Presenting sounds spanning two different decibel ranges in separate blocks (in Experiment 1) did not affect the function relating level to perceived annoyance very much, suggesting the judgments to be robust with respect to stimulus range effects. Across both experiments, the magnitude of simultaneously recorded phasic skin conductance responses increased significantly with the sound pressure level of the annoying vehicle sounds. Finally, annoyance ratings tended to be elevated in participants describing themselves as noise sensitive, as assessed using a 52-item questionnaire completed after they had judged the sounds. Observing such systematic relations between noise sensitivity, annoyance, task load during exposure, and psychophysiological responses in the laboratory might contribute to enhancing our understanding of noise annoyance.

Keywords: annoyance, skin-conductance response, noise sensitivity

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