

The impact of sound on nurses' task performance in hospitals

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The impact of the indoor sound environment on building occupants has received an increasing amount of attention over the past years. It is well recognized that the sound environment can cause stress, disturbance, and

affects cognitive task performance. The Ph.D. research of Jikke Reinten, who will defend her thesis on 9 September 2020, focused on the sound environment in hospitals and its effect on nurses' task performance, which plays an important role in patient outcomes and patient satisfaction.

The effects of [sound](#) on cognitive performance have been long recognized, but an adequate translation of such effects to applied settings such as hospitals is challenging. Generalizing results of lab studies to the field requires the task to be representative of the complex task in the applied setting. Additionally, sound conditions have to be representative of the conditions these tasks are performed in. The work presented in Jikke Reinten's thesis aims to overcome these challenges through a well-designed in-situ observational study, followed up by a dedicated laboratory experiment.

Reinten's research focuses on a specific aspect of a nurse's cognitive [task](#), which is to carry out intended activities at the right moment or time. This requires prospective memory (PM), a topic relatively unexplored in the context of nursing. Examples of typical PM tasks in the context of nursing are remembering to administer medication at a specific time or turning a patient every hour. The observational study showed that during a large percentage of time nurses are exposed to intelligible background speech while forming prospective memory intentions. Reinten also found that prospective memory failures were the cause of over 40% of non-executed care tasks (which accounted for about 10% of all care tasks).

Based on these findings Reinted conducted an experimental study, for which a [board game](#) was designed to measure nurses' PM performance in different (realistic) sound conditions. The results indicate that background speech with a high intelligibility during the forming of intentions for tasks impairs the timely execution of these tasks. The

thesis concludes with practical insights that can be used to improve the working conditions of nurses, such as physically separating activities according to the type of work (activity-based design).

More information: Exploring the effect of the sound environment on nurses' task performance. [research.tue.nl/en/publication ... -on-nurses-task-perf](https://research.tue.nl/en/publication/...-on-nurses-task-perf)

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