SYNOPSIS

KEY POINT SUMMARY

OBJECTIVES

This study examined the influence of acoustic conditions on the work environment and staff in a coronary critical care unit (CCU) with eight patient beds.

Acoustics and psychosocial environment in intensive coronary care

Blomkvist, V., Eriksen, C.A., Theorell, T., Ulrich, R., Rasmanis, G., 2005 | *Occupational and Environmental Medicine*. Volume 62, Issue 3, Pages 1-8

Key Concepts/Context

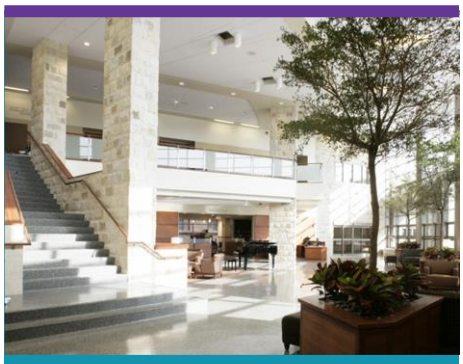
Research suggests that the physical environment of healthcare facilities influences patient satisfaction, pain, and infection. However, there is less research about how the design of healthcare spaces impacts staff outcomes such as job stress, work demands, fatigue, and quality of patient care. Further, little research exists about how acoustic conditions influence stress, strain, and fatigue at the workplace.

Methods

The researchers gathered baseline psychosocial work environment data from the start and end of each individual shift from three shifts (morning, afternoon, and night) for 1-week baseline. They then gathered data during two four-week periods during which either sound-reflecting or sound-absorbing tiles were installed.

Findings

The investigators found that after improving the acoustics, the afternoon staff experienced reduced demands and less pressure/strain and felt more relaxed and less irritable. Staff also reported that speech intelligibility improved after the installation of the new ceiling as well as the perceived noise level. Further, the authors report that it seems likely that improved acoustic conditions in the healthcare environment reduce risks of conflicts and errors. Therefore, the authors conclude that improving acoustics can offer important gains in the psychosocial healthcare work environment.



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Limitations

The authors note that as with any situation in which participants are being observed or know that a study is being conducted, this study could have been influenced by the Hawthorne effect. Another limitation that the researchers mention is that every observation was regarded as an independent observation, which may have influenced the statistical significance levels in some of the analyses. They note that these effects are likely to be marginally in the direction of "improved" p values. Therefore, they suggest regarding all findings that are significant on the 5% level as uncertain.

Design Implications

The study clearly raises the possibility that important gains in the psychosocial work environment of healthcare can be achieved by improving environmental acoustics. The findings imply that an approach for improving healthcare acoustics will be inadequate, however, if it focuses narrowly on reducing sound-pressure levels. Thus, a more effective approach will additionally emphasize environmental design interventions that shorten reverberation time. The importance of improved environmental acoustics for influencing speech intelligibility and perceived work demands point to the need for further research to examine the possible role of acoustics in medical errors and other aspects of patient safety.