



KEY POINT SUMMARY

OBJECTIVES

To test the nauseogenic (motion-sickness inducing) potential of a specific pattern by a lab-based experiment.

DESIGN IMPLICATIONS

Patterns on rugs, or other surface finishes, should be carefully considered and tested before implementing in healthcare environments.

Research in the field of perception on "visual stress" could provide additional insights.

The Sickening Rug: A Repeating Static Pattern that Leads to Motion-Sickness Like Symptoms

Bonato, F., Bubka, A., Graveline, V.

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Key Concepts/Context

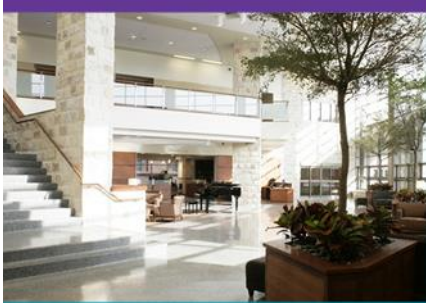
Flooring is a prominent component of hospital design, with surprisingly little research on the subject. An issue that has not been researched is the impact of patterns on health and perception related issues. This paper undertakes a simulated exercise on the impact of viewing specific patterns on motion-sickness like symptoms. Although there is some research on the impact of visual patterns on epilepsy patients, the effect on people without neurological disorders has not been explored. Although this study is not in a healthcare setting, and the findings are preliminary, it establishes a possible area of investigation for design research within healthcare.

Methods

The research was initiated based on a complaint that was brought to the perception lab about a particular black and white patterned rug that caused disorientation, dizziness, headaches and nausea when the owners looked at it. The issue was investigated by the lab by simulating the visual conditions. Naive observers viewed a 1:1 scale image of the black and white patterned rug, and a homogeneous gray region (with equivalent luminance) in a counterbalanced, within-subjects research design. Subjects were asked to view the image for 5 minutes after which their symptoms were assessed via a simulator sickness questionnaire (SSQ).

Findings

Total SSQ scores, and sub-scores for nausea, oculomotor symptoms, and disorientation were all higher for the rug simulated condition.



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Observers in the rug condition reported a higher self-motion perception during the experiment even though they were seated.

Results suggest that even neurologically normal individuals can view a static, repeating pattern and experience unpleasant systems similar to motion-sickness.

Limitations

Author identified limitations include: lack of objective measures such as head and body movement, and tracking eye movement. Also it is difficult from SSQ to tease apart symptoms of motion sickness from symptoms of visual stress.

Additionally, authors don't explore the specific characteristics of the rug that may cause the effect. Is it the high contrast (black and white), or size of the patterns, or the overall size of the image. These visual contexts could help to put findings in the design context.