



KEY POINT SUMMARY

OBJECTIVES

The aim of the study was to analyze the effect of visual art depicting nature (still and video) on patients' and visitors' behavior in the ED.

Impact of Visual Art on Patient Behavior in the Emergency Department Waiting Room

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Key Concepts/Context

Wait times have been reported to be one of the most important concerns for people visiting emergency departments (EDs). Additionally, distrust between the patients and staff of the hospital, patients' consistent focus on their status, and an uncertainty about the waiting time have been identified as contributors to patient anxiety, fear, confusion, and annoyance. Affective states significantly impact perception of wait time and may be impacted by environmental interventions, such as art depicting nature that has been shown to reduce stress levels and anxiety.

Methods

A pre-post research design evaluated an extensive art installation as the study intervention. Three interventions were used for the study:

1. A 20-minute video loop of was developed from 126 nature-based images.
2. Multiple still-art images of varying sizes were installed based on the proportions of the space. (The images were printed on canvas and wrapped around the frame to give a "window-like" effect and were selected based on established guidelines for health care art.)
3. Window films were used - either a large garden scene that provided a window-within-a-window effect or a continuous cloud pattern installed as a border near the top of the windows to reduce glare.

A systematic behavioral observation of patients and visitors in two hospital ED waiting rooms were conducted over a period of four months. The data collection plan was developed based on a uniform sampling of peak and non-peak times, different times of the day, and different days of the week. Thirty hours of data were collected before and after the art was installed at each site and included both



DESIGN IMPLICATIONS

Visual art should be considered in ED waiting environments. For maximum effect, the content of the distraction is important (e.g. serene nature images that follow specific guidelines for selection). This type of intervention may be more affordable than other strategies to address reduced noise; a potential decrease in staff time providing information; improved patient privacy (through reduced staring); reduced patient stress; and increased socializing. It can be readily used in environments where structural changes are not feasible.

continuous and discrete behaviors. Thirteen continuous behaviors were defined as those occurring over time that could be counted (e.g. reading, dozing), while eight discrete behaviors were defined as specific events that could be counted (e.g. changing seats, stretching). Continuous behaviors were annotated using symbols on a plan of the space to obtain a “behavior map,” while discrete behaviors were marked in a table format each time the behavior occurred. The observation instrument consisted of nine frequency counts, four behavior maps, and four noise measurements.

Data were entered into a spreadsheet and totaled for each hour, pre and post-intervention. Each behavior was then represented as a ratio of the total number of people. Summary statistics comparing the pre-post behavior ratio were plotted as percentages to visualize trends in the behaviors. Observational variables were grouped into the following categories: distraction activity; non-distraction activity; and restless/anxious behavior. Two-way analyses of variance (ANOVAs) were conducted for each of these three behavioral groups, and post hoc tests were used to evaluate the interaction effect between behavior and pre and post-test conditions.

Findings

While the most common behaviors at both sites, before and after the intervention remained the same, there was a change in how they were ranked. Additionally, a significant decrease in restless behavior and people watching, out-of seat behavior, pacing and stretching was found at both sites post intervention. Additionally, in ED1 there was a decrease in front desk queries and in ED2 there was a decrease in fidgeting. In ED1 there was a significant increase in talking, but no significant difference in the distraction activities (cell phone usage, TV viewing, reading). In ED2, however, there was a reduction in TV viewing and an increase in looking out the window was found (potentially explained by the reduction in the number of active TV screens showing regular programming). Finally, there was a significant decrease in the average noise level at both sites - an average of 6 dB and noticeable to the human ear as a reduction of loudness. Whereas the difference in noise levels can be attributed to the difference in the number of TVs with sound in ED2, this was not the case in ED1, where there were two screens showing regular TV programming at the same volume both pre and post intervention.

Limitations

Author-identified limitations included:

- A lack of qualitative information from interviews with patients and visitors - Due to the volume and stress-related nature of ED visits, investigators were unable to ask questions about the artwork



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- The inability to triangulate data with patient satisfaction -Due to operational changes during the study period, it was not possible to isolate the impact of the art intervention on satisfaction scores. Additionally, survey instruments typically ask about the overall waiting experience, including the waiting experience in examination rooms and pre-procedure rooms, which was not intended as part of the study.