



KEY POINT SUMMARY

OBJECTIVES

This study was designed to assess how interior amenities within and around medical professionals' workspaces might moderate patient-related work stress on the health of hospital medical directors.

Moderating Role of Interior Amenities on Hospital Medical Directors' Patient-Related Work Stresses

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Key Concepts/Context

Prior research has shown that senior physicians with management positions report lower self-rated health due to the high stress associated with their jobs. Research has looked to assess how the built environment can support stress management and promote wellness for patients within healthcare facilities. However, little has been done to understand the impact of the physical environment and interior features on staff outcomes.

Methods

For this study, a structured survey was developed based on existing literature, in-depth interviews, on-site observations of hospital environments, and current design theories. The structured survey consisted of four sections: (1) patient-related work stress, (2) interior amenities, (3) self-rated health, and (4) personal characteristics and work status. A total of 2,245 medical directors within Taiwan-accredited hospitals were targeted for this study. Of those targeted, 737 valid responses were used for the final analysis.

Patient-related work stress was evaluated through two common factors: (1) physician-patient relationship stress and (2) patient condition stress. Each factor was comprised of five items. Physician-patient relationship was analyzed through patient expectations of medical professionalism, patient expectations and demands of high quality care, patient expectations of medical outcomes, patient expectations of physicians' public image and reputation, and patients' negative emotions. Patient condition stress was analyzed through malpractice; disease uncertainty; urgent cases; pain complaints of patients; and dying, death, or suicide of patients. Responses for this section were measured by having participants rate each item on a four-point scale with 0 = no perceived stress, 1 = small stress, 2 = medium stress, 3 = significant stress.



DESIGN IMPLICATIONS

This research supports that the inclusion of plants within medical environments has a moderating effect on physician-patient relationship stresses. Interventions incorporating plants into physician workspaces should be considered when designing medical facilities. Consideration should also be given to incorporating music, art, and private or personalized spaces within the design of medical facilities to moderate patient condition stresses. Further innovations pertaining to moderating physician-patient relationship stress should also be considered.

The interior amenities used for this study were: (1) indoor plants, (2) aquariums, (3) music, (4) art and exhibitions, and (5) private or personalized spaces. Responses for this section were measured by having respondents indicate with “yes” or “no” whether the interior amenity existed in their working area(s).

Self-rated health was reported through four health indicators: (1) self-rated health compared to the same-age population, (2) self-rated health compared with medical peers, (3) short-term health complaints (manifested within the past month), and (3) long-term health complaints (experienced for more than six months). For indicators (1) and (2) participant responses were measured by choosing one of five descriptors: “much worse,” “worse,” “fair,” “better,” and “much better.” Indicators (3) and (4) were measured by participants responding with “yes” or “no” to 26 health complaints.

Personal characteristics included: age, gender, marital status, single or companioned living status, family, children, and elders. Work status included: specialties, facility ownership, medical experience, facility working years, income, and life or workplace event interruptions.

Analysis for this study was done using a conceptual model of risk and protective factors that was developed using hierarchical regression. This model consisted of four steps. In the first step, hierarchical regressions were performed for each of the four dependent variables pertaining to self-rated health and the personal characteristics and working status of hospital medical directors. In the second step, two work stress factor scores were included in the model as risk factors. The third step inputted the five interior amenities into the model to test their primary effects. In the fourth step, interactions between interior amenities and work stresses were entered into the model.

Findings

Findings from this study revealed that the majority of medical directors in this study were male (92%), married (94%), living with partners (92%), possessed a seven-year medical degree (63%), and had a monthly income ranging from \$6,668 to \$10,000 (42%). The average age was 49 years old with 21 years of medical experience. Half of the respondents worked in private hospitals and within the last few months had experienced a special life or work interruption.

Scores for the two work stresses revealed that physician-patient relationship stresses have more negative effects than do patient condition stresses, and these are significantly associated with a worse health status when compared to that of the same age general population ($p < 0.01$). Physician-patient relationship stresses were also significantly associated with a higher amount of short-term and long-term health complaints ($p < 0.001$). Patient condition stress was found to be significantly associated with number of reported short-term health complaints ($p < 0.01$).



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After controlling for work stress, interior amenities were reported to have a significant direct effect on hospital medical directors' health status. Compared to that of the same age population, music and private or personalized spaces were shown to positively relate to self-rated health status.

Upon entering interactions between interior amenities with work stresses within the model, three partial predictions were found with medical directors' self-rated health at the statistical significance level of 0.05: (1) indoor plants moderating the influence of physician-patient relationship stresses on short-term health complaints, (2) music and private or personalized spaces moderating the influence of patient condition stress on short-term health complaints, and (3) art and exhibitions moderating the influence of patient condition stress on short-term and long-term health complaints.

Limitations

The greatest limitation to this study is that it is a cross-sectional survey, which is unable to confirm a causal relationship between the variables studied. However, the findings from this research open the door to numerous other possible studies that could begin to explore the mechanism supporting the correlations found within this study. Generalizability could also be limited when referring to female medical directors, as the majority of participants were men. Another limitation to this study is the minimal amount of interior amenities within the physical environment that were assessed, and the lack of detail surrounding those amenities.

This research supports that the inclusion of plants within medical environments has a moderating effect on physician-patient relationship stresses. Interventions incorporating plants into physician workspaces should be considered when designing medical facilities. Consideration should also be given to incorporating music, art, and private or personalized spaces within the design of medical facilities to moderate patient condition stresses. Further innovations pertaining to moderating physician-patient relationship stress should also be considered.