SYNOPSIS

KEY POINT SUMMARY

OBJECTIVES

The objective of this study was to examine relationships between LEED-certified and non-LEED hospital environments and employee engagement, turnover, illness, and injury.

Return on investment of a LEED platinum hospital: The influence of healthcare facility environments on healthcare employees and organizational effectiveness

Harris, D. D. 2014 | *Journal of Hospital Administration*. Volume 3, Issue 6, Pages 37-55

Key Concepts/Context

The author mentions that there is increasing evidence that indicates the connection between facility design and staff satisfaction. In comparison, there are few rigorous studies that examine the impact of sustainable building design and outcomes pertaining to patients, staff, and organizational goals. The healthcare system (the study setting in this research) opened a Leadership in Energy and Environmental Design (LEED®) platinum-certified hospital (LPC), and two non-LEED hospitals (NL1 and NL2) in the following years. In this study, the new LPC hospital is compared with the two new non-LEED hospitals and three older non-LEED hospitals of the same healthcare system vis-à-vis healthcare employees' perceptions and human resource outcomes. The results of this study indicate that healthcare workers' perceptions of their work environment affects employee engagement and employee health and well-being.

Methods

A multi-method research design was adopted for this study. Healthcare workers of the five non-LEED and one LPC hospitals were surveyed about employee engagement (EE), employee health and well-being (HWB), and on perceived quality of indoor environment (PQIE). De-identified employee data pertaining to employee turnover (2002-2012) and illnesses and injuries (2002-2011) were obtained from the healthcare system's human resources and occupational health departments. All data were analyzed statistically (t-tests, ANOVA, Spearman's and Pearson's correlations, Kruskal-Wallis ANOVAs, z-tests, chi-square analyses). A total of 1991 survey responses were received.

DESIGN IMPLICATIONS

This study provides evidence in favor of LEED certification for healthcare facilities. Further, the following aspects of the indoor physical environment were rated higher by employees in LEED-certified hospital than by those in non-LEED hospitals – personal work space, access to window views, daylight, indoor air quality, adequate artificial lighting, comfortable sound and temperature levels, and layouts.

Findings

The study yielded the following findings:

With regard to employee engagement (EE):

- There was no significant differences among survey respondents regarding age, gender, race, education levels, years of employment, or facility.
- Overall satisfaction with place of work was significantly positive and moderate to very strong (P=0.04).
- The mean response to other statements on EE was between 'somewhat agree' and 'agree.'
- There was a positive correlation between PQIE satisfaction and EE, and PQIE agreement and EE (P<0.001).
    - A one-unit increase in PQIE satisfaction was correlated, with 0.12 unit increase in EE.
    - A one-unit increase in PQIE agreement was correlated, with 0.22 unit increase in EE.

With regard to health and well-being of healthcare workers (HWB):

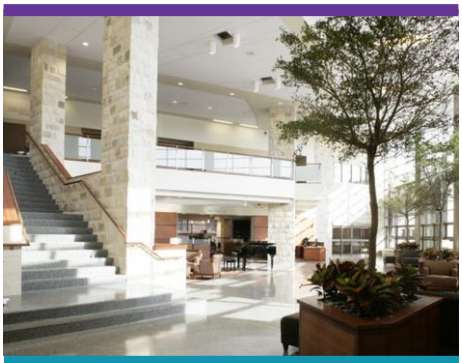
- HWB had a significant positive association with age (P<0.001).
- There were no significant differences among responses for HWB of participants by gender, race, or facility.
- There was general consent among participants about the importance and meaningfulness of their work.
- The average mean rating was higher for the LPC hospital than for the other hospitals regarding emotional fulfilment from work and time for family and friends.
- There was a negative correlation between PQIE satisfaction and HWB, PQIE agreement and HWB (P<0.001).
    - A one-unit increase in PQIE satisfaction was correlated, with 0.08 unit decrease in EE.
    - A one-unit increase in PQIE agreement was correlated, with 0.18 unit increase in EE.

With regard to perceived quality of the indoor environment (PQIE):

- Respondents in the LEED hospital rated their personal work space, the indoor environment of their department, and their facility higher than those in the non-LEED hospitals.
- With regard to the 13 survey statements on PQIE, the LEED hospital was rated higher than all non-LEED hospitals combined. However, the LEED hospital was rated much higher than the non-LEED hospitals on the following aspects:
    - Access to window views
    - Daylight
    - Indoor air quality
    - Aesthetics
- On the following aspects, the non-LEED hospitals had similar levels of ratings to the LEED hospital (the latter was still higher):
    - Sufficient artificial lighting
    - Easy wayfinding
    - Comfortable sound levels
    - Comfortable temperature levels
    - Efficient layout and organization of spaces
- Organizational effectiveness: Overall, employees' perceptions of the quality of indoor environments impacted employee engagement and health workers' well-being. Based on a 7-point Likert scale
    - A one-point increase in PQIE satisfaction and PQIE agreement affected a 5% increase in overall EE.
    - A one-point increase in PQIE satisfaction and PQIE agreement affected a 5% increase in HWB agreement scale.
    - A one-point increase in PQIE satisfaction and PQIE agreement affected a 4% decrease in negative HWB responses.

Human resource outcomes:

- Total employee turnover at the LEED hospital was lower than the two new non-LEED hospitals and less than the combined turnover rates of the older hospitals.
- Injuries and illnesses at the LEED facility were lower than the other facilities (P=0.05).



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- Compared with the hospital it replaced, the LEED hospital had
  - A significantly lower rate of employee turnover (P<0.05)
  - An annual cost savings of $2.17 million
  - A 7% reduction in injuries (P=0.05)

Limitations

Although no limitations were identified for this study, the author mentions that a simultaneous patient survey would have yielded more beneficial findings.

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AIA Academy of Architecture for Health of the American Institute of Architects

ASHE American Society for Healthcare Engineering, A personal membership group of the American Hospital Association

AAHF Academy of Architecture for Health Foundation

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Research Design Connections