



KEY POINT SUMMARY

OBJECTIVES

The objectives of the study were to develop pediatric measurement instruments that measured the following:

- (1) parent and staff satisfaction with the built environment of the existing pediatric health care facility,
- (2) parent satisfaction with the health care services provided to their child, and
- (3) staff satisfaction with their coworker relationships.

Evaluation of the Built Environment at a Children's Convalescent Hospital: Development of the Pediatric Quality of Life Inventory (TM) Parent and Staff Satisfaction Measures for Pediatric Health Care Facilities

Varni J. W., Burwinkle T. M., Dickinson P., Sherman S. A., Dixon P., Ervice J. A., Leyden P. A., Sadler B. L.

2004 / *Journal of Developmental and Behavioral Pediatrics*
Volume 25, Issue 1, Pages 10-20

Key Concepts/Context

The expectation that the hospital built environment may affect the health and satisfaction of patients and their families continues to interest health care providers and hospital administrators as they differentiate and distinguish the quality and health outcomes of their services. In preparation for the design, construction, and postoccupancy evaluation of a new Children's Convalescent Hospital, focus groups were conducted and measurement instruments were developed to quantify and characterize parent and staff satisfaction with the built environment of an existing pediatric health care facility, a 30-year-old, 59-bed, long-term, skilled nursing facility dedicated to the care of medically fragile children with complex chronic conditions. The measurement instruments were designed in close collaboration with parents, staff, and senior management involved with the existing and planned facility.

Methods

The modules developed for this study followed the Pediatric Quality of Life Inventory (PedsQL) instrument development methodology previously used, which consists of a review of the existing literature, focus groups and individual focus interviews, item generation, cognitive interviewing, pretesting, and subsequent field testing of the new measurement instrument in the target population. A



convenience sample of 11 parents and 26 staff members participated in focus groups of semi-structured interviews. The focus groups were used to develop the scale items. Items were generated from a review of the existing literature, the focus groups' coded qualitative information, and discussions with both health care providers and senior management. The 5-point Likert-scale instrument consisted of several modules: a built environment module (e.g. the structure, aesthetics, and for staff, the work environment); a healthcare satisfaction module (r.g. information, inclusion of family, technical skill, services communication, overall satisfaction); and for staff, a staff satisfaction scale-coworkers module. The mailed surveys resulted in 40 parents completing the parent survey (68% response rate) and 72 staff completing the staff survey (73% response rate), both considered adequate to represent the population surveyed. The 5-point Likert-type scales for the response categories were linearly transformed into a 0 to 100 scale to facilitate interpretation of the results, with higher scores indicating greater satisfaction. Initial scale validity was determined in two ways, and computing the intercorrelations among scales provides initial information on the construct validity of an instrument.

Findings

The Pediatric Quality of Life Inventory (TM) scales demonstrated internal consistency reliability (average $\alpha = 0.92$ parent report, 0.93 staff report) and initial construct validity. As anticipated, parents and staff were not satisfied with the existing facility, providing detailed qualitative and quantitative data input to the design of the planned facility and a baseline for postoccupancy evaluation of the new facility. Consistent with the a priori hypotheses, higher parent satisfaction with the built environment structure and aesthetics was associated with higher parent satisfaction with health care services. Higher staff satisfaction with the built environment structure and aesthetics was associated with higher coworker relationship satisfaction.

Limitations

The authors identified several potential limitations.

- The mail survey methodology limits generalizability of the findings to other pediatric health care facilities.
- Because the mail survey was anonymous, investigators were unable to test any differences between participants and nonparticipants that may limit representativeness of the findings.
- The sample size precluded the use of factor analysis to empirically derive the subscale structure, which was drawn instead from the existing literature.
- Given the complexity of their health condition, pediatric patients were not included in the evaluation process.



- Although investigators hypothesized that parents with higher satisfaction with the built environment would also be more satisfied with satisfaction with health care, the direction of this relationship cannot be fully validated; it may be that parents who perceive good care are more likely to feel positively about the built environment.

Additionally, the survey was developed in the context of a pediatric long-term care facility, where concerns may differ from other types of pediatric facilities.

Design Implications

On a general level, the study points to the importance of multiple points of view for successful facility design. The development of standardized measurement instrument allows for the comparison of different pediatric health care facilities' ability to meet the needs of children, their parents, and staff.

Specific to a pediatric long-term care facility, the results of the survey generated several architectural design changes. Addressing the parental perspective, these changes included:

1. larger bathrooms with bath/shower;
2. a lower resident/bathroom ratio (one full bathroom with bath/shower per four residents);
3. extra closet space in residents' rooms;
4. increased parking capacity;
5. a larger more comfortably furnished family room;
6. a well-landscaped, centrally located, sunny outdoor recreation area;
7. two nursing stations in close proximity to resident rooms;
8. garden-like areas adjacent to each bedroom for both natural lighting and a view of nature; and
9. more and larger windows for additional natural lighting.

To address the staff perspective, changes included:

1. larger closets in residents' rooms;
2. expansion of shower space in bathrooms;
3. larger activity spaces;
4. a separate, spacious staff break room;
5. a large dining room to accommodate all residents;
6. wheelchair storage built into each child's bedroom;



The Center for Health Design: Moving Healthcare Forward

The Center for Health Design advances best practices and empowers healthcare leaders with quality research providing the value of design in improving patient and performance outcomes in healthcare facility planning, design, and construction, optimizing the healthcare experience and contributing to superior patient, staff, and performance outcomes.

Learn more at
www.healthdesign.org

7. extra storage space for other equipment;
8. counter space at nursing stations for charting;
9. a well-landscaped, sunny outdoor recreation area with additional seating and tables; and
10. one full bathroom with a bath/shower for every four residents