



## KEY POINT SUMMARY

### OBJECTIVES

This exploratory study identified the extrinsic risk factors, including (a) patient room setting and design, (b) hospital equipment, and (c) manpower concerns, for inpatient falls in hospital rooms both from incident reports and nurse and nursing attendant interviews.

### DESIGN IMPLICATIONS

This study provides an interesting research design to be replicated. The small and limited geographic size limits direct application in design and construction, but outcome variables involving the built environment should be considered in future study.

## The Extrinsic Risk Factors for Inpatient Falls in Hospital Patient Rooms

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*2008 / Journal of Nursing Care Quality  
Volume 23, Issue 3, Pages 233-241*

### Key Concepts/Context

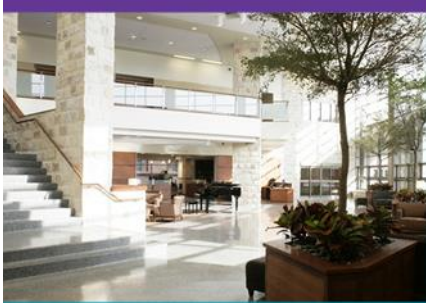
A hospital can be a dangerous place for inpatients because of its unfamiliar physical environment and changes in patients' medical conditions. Some research shows that a better physical facility design leads to better healthcare outcomes, such as fewer patient falls in acute-care hospitals. Eliminating the extrinsic risk factors for inpatient falls by improving hospital environment and design may decrease fall rates and fall-related injuries, although this link has not been examined systematically.

### Methods

The authors proposed a typology of the extrinsic risk factors for inpatient falls on the basis of previous studies. They included the following three dimensions: (a) patient room setting and design, (b) hospital equipment (not standard furniture in patient rooms), and (c) manpower concerns. These categories were used to elicit data across the fall incident reports and nurse and nursing attendant interview transcriptions.

Nine staff nurses and 4 nursing attendants volunteered to participate in the study and were interviewed individually by one of the investigators. All interviews were recorded. Each interview took 45 to 60 minutes. A semistructured interview design was used to collect data. The proposed three-dimensional typology was used to guide each interview. A trained research assistant transcribed the completed interviews into Microsoft Word documents for further analysis.

A review was conducted on 104 fall incident reports (also including the narrative description of each fall incident) that occurred in the study unit between January 1, 2005, and December 31, 2006. Descriptive analyses were generated. Content analysis was used to code the narrative descriptions of falls.



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## Findings

Sixteen extrinsic contributing factors were abstracted from the fall incident reports; 4 were related to patient room design and settings, 3 were linked to hospital equipment, and 9 were related to manpower concerns.

For the dimension of patient room design and settings, issues classified as external and stable included, for example, the distance and path from the bed to the bathroom, patient's bed being too high, and insufficient floor lighting at night. Factors classified as external and unstable included, for example, insufficient room space when unused equipment was left in the rooms and poor bed maintenance. Issues categorized as internal and unstable were, for example, the ceiling lift system and the bed pressure alarm not being used regularly. Only one factor was being classified as internal and stable (nurses not being familiar with bed functions). All the issues in the dimension of hospital equipment were classified as external and stable, such as problems with the bedside commode and portable lift systems not being readily available in the unit. For the dimension of manpower, issues classified as external and unstable included, for example, patient assignments not being in close proximity and sitters' efforts in promoting patient safety. Only one issue was classified as external and stable (sitters' ability on fall precaution actions). Two factors were classified as internal and stable (patient-care priorities and nursing staff's misconception about the purpose of call lights). Issues classified as internal and unstable included, for example, difficulty in implementing timed observation and toileting plans and call lights not being answered in time.

## Limitations

The authors noted that these results should be interpreted cautiously. According to the attributional theory of success and failure, respondents tend to attribute the causes of failure to external control ones, which may be stable or unstable characteristics. In addition, more information was abstracted from the staff nurse interview transcriptions than from the nursing attendant interview transcriptions.

The reasons may be that nurses are primarily responsible for their patients' care and safety, whereas nursing attendants assist nurses. Consequently, nurses may have a more thorough understanding than nursing attendants about the extrinsic risk factors for inpatient falls.