



KEY POINT SUMMARY

OBJECTIVES

Authors sought to understand the state of empirical research strategies used in health environment research to support future evidenced-based design (EBD) research.

Research methods used in evidence-based design: An analysis of five years of research articles from the HERD Journal

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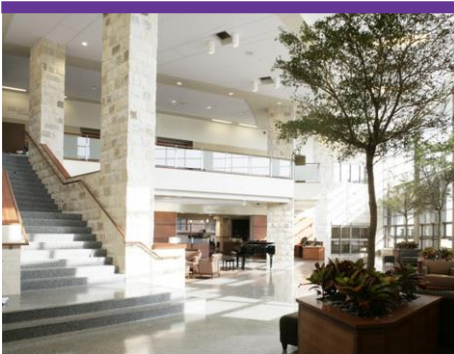
Key Concepts/Context

Few studies report on the current state of research in health environment studies. Understanding common research methods can help inform future studies and identify best practices. The results of this systematic literature review can introduce new students, emerging researchers, and practitioners to the range of topics studied in health environments research.

Methods

Through a systematic literature review of five years of the Health Environments Research & Design (HERD) Journal publication, the authors identified and categorized: (a) key words, (b) disciplines of authors, (c) settings studied, (d) populations studied or sampled, (e) research approach and study design, (f) research strategies, (g) data collection methods, (h) data analysis procedures, (i) design categories and variables, and (j) outcome categories and variables. The following research questions were posed as core to this study: “What are the themes in research methodology for studies published in HERD in 20 issues over five years between 2016 and 2020?” and “What similarities and differences can be concluded across the articles (e.g., research methods, design categories, and outcome categories)?”

All 157 articles published in the HERD Journal between 2016 and 2020 devoted to EBD and research were analyzed. Design and outcome categories were structured around the Center for Health Design’s (CHD) Knowledge Repository (KR) with origins to Ulrich et al.’s Evidence-Based Design Framework. The KR design and outcome categories were used to catalogue all research studies and related documents contained in the KR. The design and outcome variables were evaluated to discover the variables of interest found in each article. A secondary data analysis was done to capture research methods from health environments studies and these



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were then coded and analyzed, the latter using a qualitative, content analysis process. All data were then entered into an Excel spreadsheet and descriptive statistics were used to analyze the data.

Findings

Categories identified from analysis of the articles provide a snapshot of the research methods used in health environments research. However, there was inconsistent use of terminology in research methods across the articles. The analysis yielded 934 key words initially listed in the studies and these key words varied considerably across articles reviewed. Next, the analysis of the various disciplines of HERD authors yielded six disciplines codified as design, engineering, construction, medical and health sciences, social sciences, and other disciplines. Seven coding categories were used to identify various study settings including: outpatient clinics (14), hospitals (36), hospital units or departments (60), rooms (21), senior care settings (14), and a category for 'other' (19). Populations studied or sampled included families (13), patients (58), staff (direct care and other 88), design team members (5), and others (36). Research approaches noted included 70 qualitative, 53 quantitative, and 34 mixed-method. Case studies were the most common research strategy used. The top three data collection methods were questionnaires (86), interviews (62), and observations (40). Data analysis techniques included qualitative content analysis (93), different quantitative methods (126), and modeling (6). The top three design categories studied included unit configuration (60) with room configuration a distant second (38). From the 226 design variables identified from the studies, building/project design, planning, renovation or construction processes (24), patient room layout (15), and critical care unit (11) were the top three design variables considered.

Presenting environmental settings in a hierarchical order from macro to micro scales might help improve clarity. Further, similar design variables could be combined to simplify the structure and allow for a holistic understanding of this field of research.

Limitations

One of the main limitations of this study is that articles from only one journal were included in the analysis. Additionally, while basing design and outcome coding categories on the CHD KR is a good starting point, this strategy may warrant revision because authors combined key words to create a simplified list and subjective interpretations may not have been accurate. Finally, some articles did not include specific categories of information considered for analysis, and the authors again used subjective interpretation to locate information that best represented the article.



Design Implications

The findings highlight commonalities across health environments research used to answer research questions or test theories. Conclusions based on the analysis of research methods to investigate connections between design and outcome categories across these peer-reviewed publications suggest the need to develop a common organizing structure to facilitate collaborations, assist with framing a study for publication, summarize strengths and gaps in the research literature, and identify themes for future research.

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