A Systematic Review of Mixed Methods Research on Human Factors and Ergonomics in Health Care

Pascale Carayon, Sarah Kianfar, Yaqiong Li, Anping Xie, Bashar Alyousef, and Abigail Wooldridge. 2015 | Applied Ergonomics, Volume 51, Issue N/A, Pages 291-321

Key Concepts/Context

This paper presents a systematic review of studies dealing with human factors and ergonomics (HFE) issues in both healthcare technology and in the work of healthcare employees. The researchers employ a mixed methods approach, meaning their review incorporates studies that use both quantitative and/or qualitative data during different stages of the research process. The authors suggest that a mixed methods approach to analysis can lead to a better understanding of work situations and issues within a given context. They also suggest that more attention should be given to published research dealing with mixed methods research so that the breadth and depth of this kind of research can increase.

Methods

Four databases were searched: PubMed, PsycInfo, Web of Science, and Engineering Village. The inclusion criteria were: 1) field of study in healthcare; 2) mixing of quantitative and qualitative data; 3) HFE issues; and 4) empirical evidence. A total of 58 studies spanning from 2002 to 2013 were analyzed. Seven categories were identified through the analysis: IT systems; work of nurses, physicians, and other healthcare employees; worker safety; cognitive and team work; patient safety; medical technologies; and HFE education.
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SYNOPSIS

Findings

Between 2002 to 2013, the number of mixed methods studies of HFE steadily increased, as did mixed methods studies addressing HFE in a healthcare context. The authors suggest that this implies an increased awareness and acceptance of this approach within research communities. Two-thirds of the studies analyzed used a “convergent parallel” study design, in which quantitative and qualitative data were gathered simultaneously before being combined at the end of the study. The authors suggest that studies using only quantitative data could benefit from adding qualitative data into the study design so that results may be better understood.

Limitations

The authors noted several limitations within their study. Only research published in scientific journals was included; mixed methods studies may have been available from other sources. Some mixed methods studies may have been published in separate pieces, which would have led to their exclusion from this study. Mixed methods research approaches involving multiphase designs were also underestimated.

Design Implications

When consulting research for suggestions on how to make improvements in human functions and ergonomics within healthcare environments, reading mixed methods studies may give designers a better idea of the work situations and issues present within a given context.