



## KEY POINT SUMMARY

### OBJECTIVES

To examine existing healthcare symbols in three different countries and test their comprehensibility in order to determine if people from different countries understand these symbols with the same level of comprehensibility.

### DESIGN IMPLICATIONS

Symbols intended to guide hospital visitors should try to be as universally comprehensible as possible.

Apart from comprehensibility, they should be colored, sized, and hung in a way that maximizes visibility. Hospitals that repeatedly receive high numbers of patients from specific foreign countries might study these trends carefully and consider implementing signage that is more suited to these patients' country of origin.

## Comprehensibility of universal healthcare symbols for wayfinding in healthcare facilities

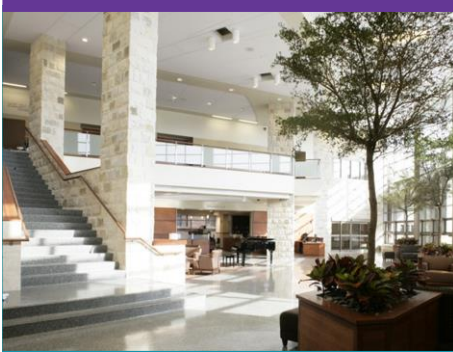
Lee, S., Dazkir, S. S., Paik, H. S., & Coskun, A. 2014 | *Applied Ergonomics* Volume 45, Issue 4, Pages 878-885

### Key Concepts/Context

In today's globalized medical industry, patients might travel to foreign countries to receive higher quality or more affordable forms of healthcare. This modern trend has emphasized the need to develop graphic symbols used in hospitals that allow people from different linguistic and cultural backgrounds to more easily navigate their way around foreign hospitals. The International Organization for Standards (ISO) defines graphic symbols as visually perceptible figures with particular meanings used to transmit information without the use of language.

### Methods

- Three age groups of male and female participants from South Korea, Turkey, and the U.S. were involved in this study: 18-30, 31-50, and over 50 years of age. Each age group from each country included 10 female and 10 male participants for a total of 180 participants. There were no vision impairments reported among the participants.
- Data were collected through a three-part questionnaire featuring a comprehension test, a matching test, and a judgment test. Participants were not allowed to backtrack and alter their previous responses.
- For the first section, an adjusted version of the ISO comprehension test method was administered. Fourteen healthcare symbols developed by Hablamos Juntos were displayed on a single page in 50.8mm x 50.8mm squares, and participants were asked to describe their interpretations of the symbols.
- During the matching test, participants saw the same 14 symbols sized 28mm x 28mm on a single page and were provided a list of healthcare department names with which to match the symbols.
- For the third section, a judgment test created by the ISO was used. Participants were shown a single symbol and informed of its meaning, and



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were then asked to note the percentage of the general population they believed would be able to deduce the symbol's intended meaning.

- The relation of country, age, and gender to symbol comprehension was calculated using the statistics program SPSS 20. Pearson's chi-square tests and logic regression were used to analyze comprehension test data. Cross-country tabulations of successes were used for the matching test, and ANOVA was conducted for the judgment tests.

## Findings

Some of the universal healthcare symbols used in this study were comprehended differently depending on the participant's country of origin. Americans understood American-made universal healthcare symbols better than Koreans or Turks. Some symbols appeared to be well understood cross-culturally, such as the symbols for billing, obstetrics clinic, emergency, surgery, and radiology. The symbol for radiology had the highest level of comprehension across all participant groups, followed by the emergency symbol. It therefore appears possible to create symbols that are accurately understood across cultures, but since many symbols were poorly comprehended by participants from two or three countries at a time, there exists a need to design more effective universal healthcare symbols.

## Limitations

A relatively small sample size was used in comparison to the number of people that might be exposed on a daily basis to symbols within hospitals. All symbols used in the study were developed in America, which may have imbued them with visual cues commonly seen by American participants but not Korean or Turkish participants. There appears to have been no consideration of how much time individual participants spent in hospital environments in the past; familiarity with hospital environments could have affected participant comprehension of the symbols.

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