

The preference for new imaging techniques in breast cancer screening using multiple performance scenarios

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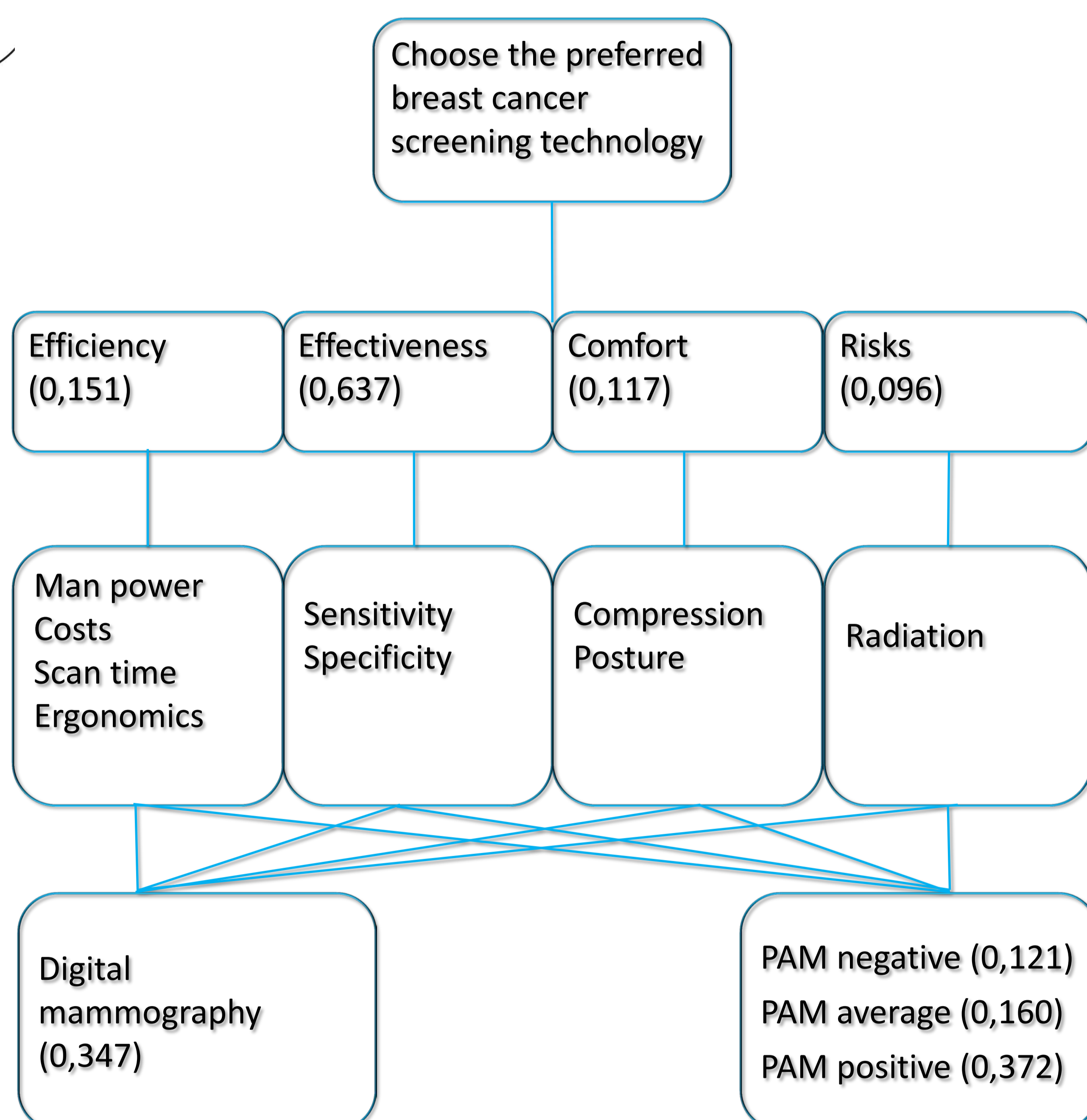
Objectives

- ❖ For the detection of breast cancer, new techniques are in development that are less painful to clients than digital mammography is.
- ❖ One of these technologies in development is Photoacoustic Mammography (PAM).
- ❖ This technique could increase attendance in breast cancer screening programs, and consequently increase health gains of women.
- ❖ However, the conditions of acceptance of such a technique by clients and health care professionals are still unknown.

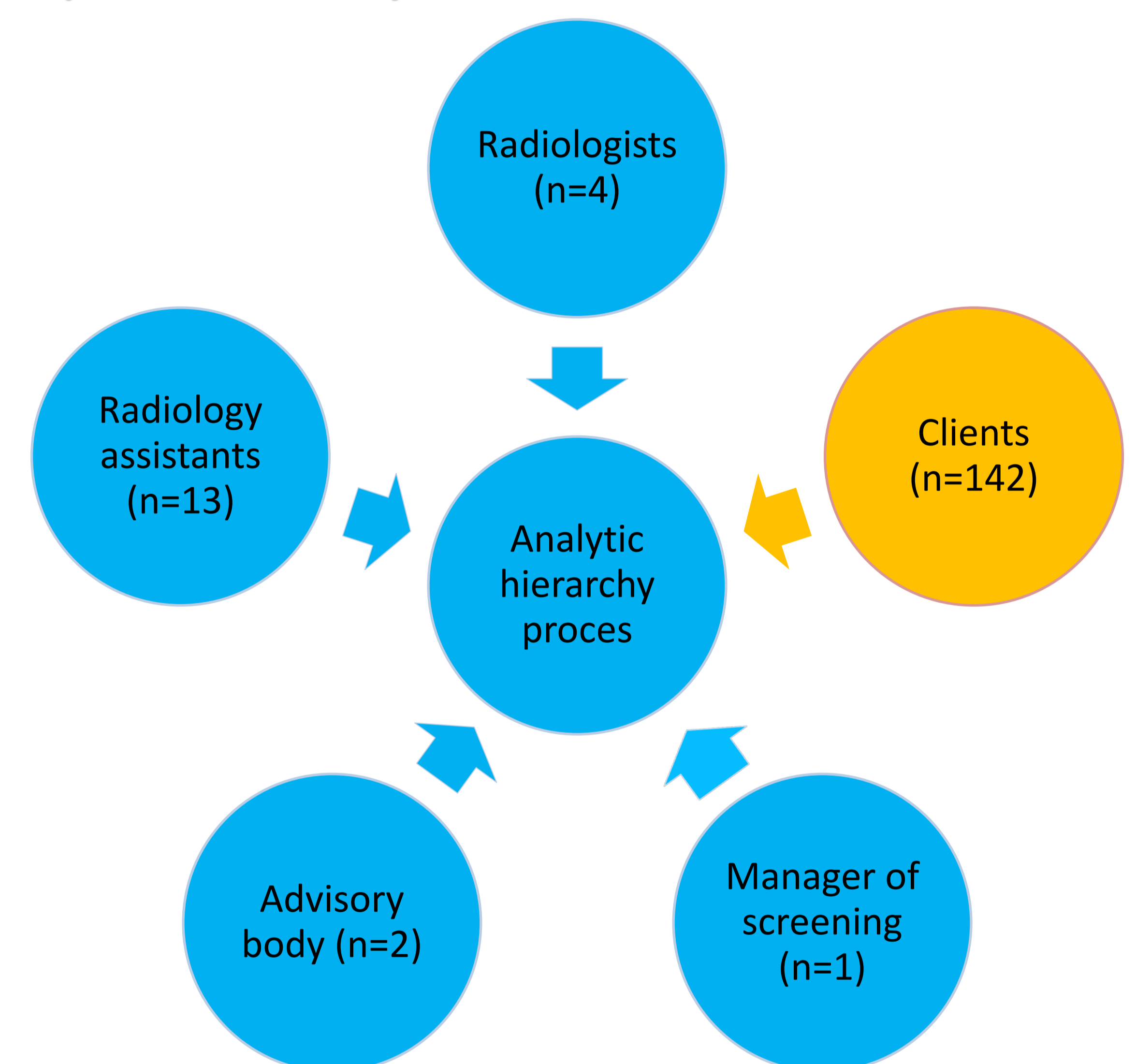
Methods

- ❖ The Analytic Hierarchy Process (AHP), a technique for multi-criteria analysis using pairwise comparisons, is applied.
- ❖ The AHP supported the elicitation of preferences of 142 clients and 20 health care professionals who work in the population screening.
- ❖ Three scenarios with a negative, average, and positive estimation of the diagnostic effectiveness of PAM are included.
- ❖ Preferences for these scenarios of PAM are compared with the preferences for digital mammography.

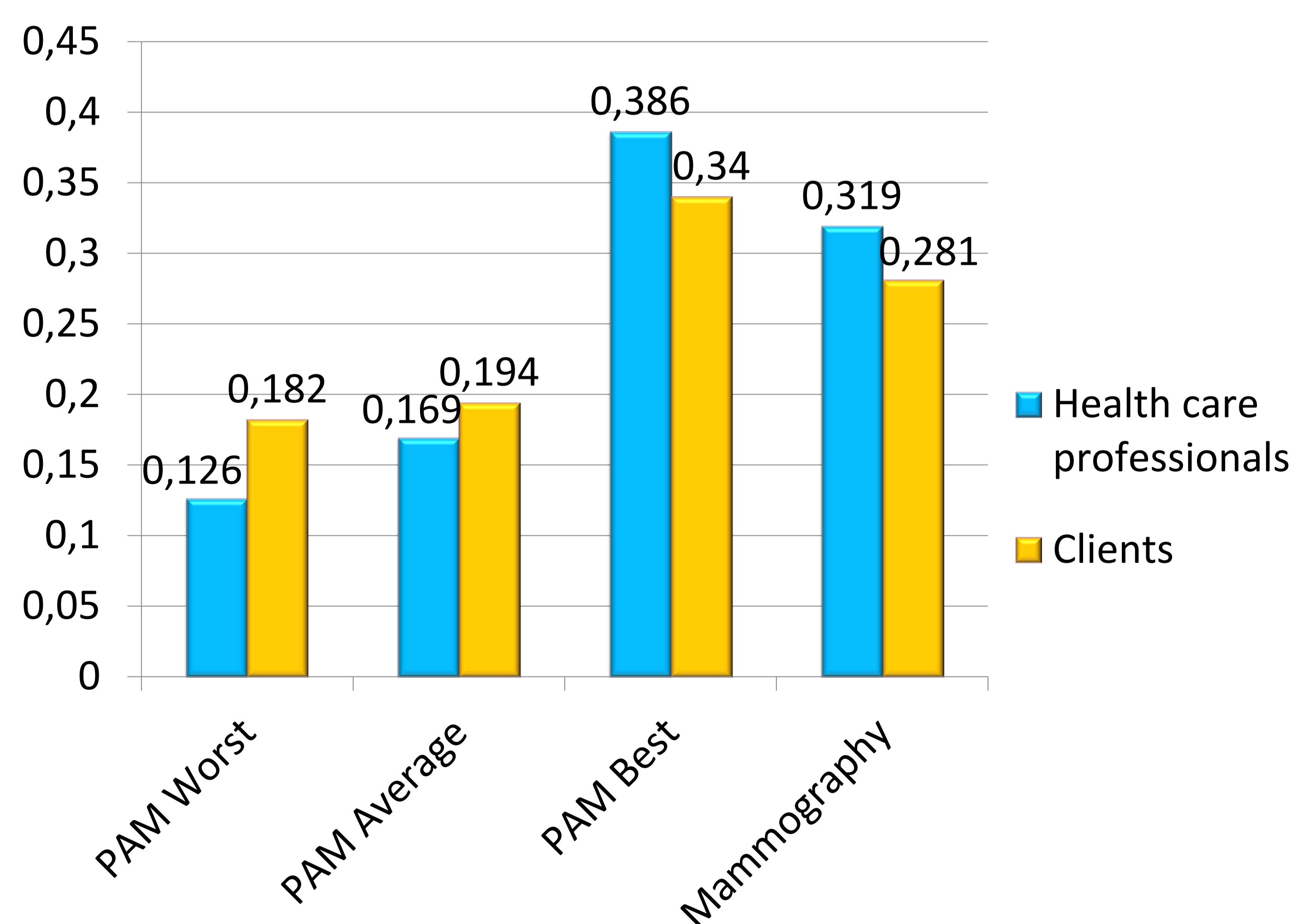
AHP hierarchy



Participants in the study



Preferences for the PAM scenarios



Results

- ❖ The sensitivity of a new screening technique is judged to be the most important criterion in accepting a new screening technology, for both clients and health care professionals.
- ❖ PAM will be slightly preferred over digital mammography only in the positive scenario: to be preferred, its performance on sensitivity and specificity should at least equal the performance of digital mammography.
- ❖ Less client discomfort will hardly increase acceptance of new detection techniques by radiologists and radiology assistants, and slightly increase acceptance by patients.

Conclusion

New techniques to detect breast cancer in screening programs should at least equal the diagnostic effectiveness of X-ray mammography. Additional advantages could slightly increase screening attendance. X-ray mammography has a relatively low diagnostic effectiveness for clients with dense breasts. Therefore, this subpopulation of clients could be the most promising of new, user-friendly detection techniques with a working principle that differs from X-ray mammography.

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