Preventive Cardiology – Rehabilitation and Sports Cardiology, Cardiovascular Rehabilitation, Exercise Programmes

Technology acceptance of the EXPERT tool for guideline-based exercise prescription is strongly influenced by the organizational context

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Background: An impressive amount of evidence exists on the effectiveness of guideline-based exercise for cardiac rehabilitation and secondary prevention. Also, studies show that exercise prescriptions are sub-optimal and not compliant with ESC/EAPC exercise guidelines. Decision support systems (DSS) for guideline-based exercise prescription, such as the EAPC endorsed EXPERT tool, have the potential to implement the guidelines in daily practice in an accessible way. This follows the assumption that a DSS for exercise prescription is readily adopted in clinical practice.

Purpose: While the general usability of the EXPERT tool has iteratively been studied and improved, no former study investigated its associated technology acceptance. The current study hypothesized that the technology acceptance of a DSS is influenced by internal and external factors, and by perceived barriers.

Methods: The technology acceptance (TA) study was embedded in a study on exercise prescription compliance, and on the training effect of the EXPERT tool. The intervention in this prospective, non-randomized intervention study was a one-month training with the EXPERT tool. At baseline and post-intervention, prescription compliance for three fictive patient cases with different complexity, with the ESC/EAPC guidelines was assessed. At the same points in time, questionnaires on TA (a modified TAM questionnaire) including possible barriers for adoption of clinical DSS, were presented to the participants.

Results: The current data analysis focused on findings in 24 participants that completed the study with the EXPERT training tool, out of 122 initial participants. All of them were Belgian physiotherapists, with varying experience. 15 participants (62.5%) were female, and the majority (66.7%) was younger than 31. 15 participants (62.5%) worked in a hospital, 5 of them were also involved in a private practice. No significant differences were found in responses to the TA questionnaire before and after the intervention. Significant negative correlations were found between the employment in a hospital and the "Perceived usefulness" (p=0.001), "Perceived ease of use" (p=0.019), "Attitude" (p=0.002) and "Subjective norm" (p=0.007). "Technological infrastructure in the workplace" was ranked as the main external barrier to usage of a DSS for guideline-based exercise prescription. Next on the list were "Time", "Evidence on the effectiveness of the system", "Organizational structure" and "Compatibility with standards of practice". The highest ranked internal barrier was "Experience" followed by "Familiarity" and "Knowledge". 16 out of 24 participants (66.7%) indicated that they are not aware of existing clinical DSS.

Conclusion: The results reveal that organizational factors and barriers are more decisive to technology acceptance than individual beliefs or technological attributes of the DSS. Aligning organizational practices with ESC/EAPC guidelines is essential and should be ambitioned.