

Doctoral thesis abstract

The Effect of Technological Literacy Education on Older Women's Acceptance of Sports Apps

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ABSTRACT

1. BACKGROUND

Maintaining physical health through regular physical activity is an important component of successful ageing (Wong et al., 2023; Zhao et al., 2024), yet older adults face various barriers that limit their ability to remain active (Patel et al., 2024; Ribeiro et al., 2025). Sports apps may provide an accessible means of addressing some of these barriers by supporting the management and maintenance of physical activity (Aslam et al., 2020; Yerrakalva et al., 2019). However, the use of such apps depends not only on their accessibility but also on individuals' technological literacy, which, in the context of health technologies, can be expressed through eHealth literacy – the ability to find, understand, evaluate, and apply health information obtained from electronic sources (Norman & Skinner, 2006). Data from the Digital Economy and Society Index (DESI) show that technological literacy levels are significantly lower among individuals aged 55 and older than among younger age groups (European Commission, 2024). Women may face additional challenges, as they tend to have lower digital skills and self-efficacy, lower confidence in technology, and more limited access to technological resources (Jung et al., 2026; Long et al., 2023). These factors may, in turn, hinder acceptance and use of sports apps, limiting their potential to support physical

activity management. Given that technological literacy can be improved through the targeted development of technology-related skills, educational interventions may play an important role in addressing these challenges (Soto-Bagaria et al., 2023). Previous interventions have primarily focused on developing general digital skills rather than the specific skills required to use sports apps (Quialheiro et al., 2023; Yoo, 2021), and their effects on sports app acceptance and behavioural intentions related to physical activity remain insufficiently explored. Therefore, this dissertation aimed to evaluate the effects of targeted technological literacy education on factors influencing sports app acceptance and behavioural intentions to engage in physical activity among older women.

2. METHODS

A quantitative research strategy comprising a cross-sectional study and an educational experiment was employed. Ethical approval was obtained from the Social Sciences Research Ethics Committee of the Lithuanian Sports University (Approval No. SMTEK-271, 29 June 2024).

Sports app acceptance was assessed using constructs from the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) (Venkatesh et al., 2012), and eHealth literacy using the eHEALS (Norman & Skinner, 2006).

The cross-sectional study aimed to assess the initial research context, test the proposed theoretical



model, and validate the research instrument. The sample comprised 414 participants (89.4% women; 10.6% men), with a mean age of 64.6 ± 5.0 years (range: 55–78 years).

The educational experiment evaluated the effects of technological literacy education on sports app acceptance among older women and included baseline assessment, educational intervention, and post-intervention assessment. Only the experimental group received the intervention. Participants were allocated to the experimental and control groups using stratified block randomisation (1:1 ratio; block size of four), based on age (57–67 and 68–77 years) and sports app use status (current and former users). Complete pre- and post-intervention data were available for 63 women (experimental, $n = 32$; control, $n = 31$), with a baseline mean age of 67.0 ± 4.6 years. The trial was registered under ClinicalTrials.gov identifier NCT07515898 on 7 April 2026.

Structural relationships within the proposed theoretical model were examined using structural equation modelling (SEM), while intervention effects were evaluated using paired-samples *t*-tests and mixed-design analysis of variance (ANOVA).

3. RESULTS

The cross-sectional study showed that eHealth literacy had significant direct and indirect effects on behavioural intentions to use sports apps, mediated through health consciousness and sports app acceptance factors. Behavioural intentions to use sports apps significantly predicted both behavioural intentions to engage in physical activity and actual sports app use.

The educational experiment showed that the technological literacy intervention significantly improved eHealth literacy and sports app acceptance factors, including performance expectancy, effort expectancy, social influence, habit, hedonic motivation, facilitating conditions, self-efficacy, and personal innovativeness, as well as behavioural intentions to use sports apps and be physically active. No significant effect on health consciousness was observed.

4. CONCLUSIONS

The cross-sectional findings support the proposed theoretical model and indicate that eHealth literacy may be considered an important factor influencing acceptance of sports apps, linking health consciousness, acceptance factors, and behavioural intentions to use apps. These findings suggest that acceptance of sports apps among older adults can be explained not only by UTAUT2 factors but also by eHealth literacy and health consciousness.

The findings of the educational experiment allow technological literacy education to be conceptualised as a process that contributes not only to strengthening eHealth literacy competencies but also to enhancing acceptance of sports app and behavioural intentions to engage in physical activity.

Keywords: Technological literacy education, older adults, sports apps, physical activity

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Clinical Trial Registration: Clinical trial number: NCT07515898, 7 April 2026.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study

Ethical Approval: The study was conducted in accordance with the Declaration of Helsinki and approved by the Social Sciences Research Ethics Committee of the Lithuanian Sports University (Approval No. SMTEK-271, approved on 29 June 2024).

Conflicts of Interest: The author declares no conflict of interest.

Data Availability Statement: The data presented in this study are available from the corresponding author upon reasonable request.

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