

THE IMPORTANCE OF PATIENTS' USER EXPERIENCE WITH A TELEHEALTH SYSTEM FOR THEIR EVALUATION OF ITS PSYCHOSOCIAL IMPACTS

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Telehealth system

- Telehealth system (THS) is the remote exchange of physiological data between a patient at home and medical and/or nursing staff to assist in diagnosis and monitoring.
- THS have demonstrated to be beneficial for healthcare outcomes.
- THS can enhance access to healthcare services, enhancing care coordination and integration, enabling self-management, supporting decision making by clinicians and enabling monitoring, risk analysis and proactive intervention.

Background and the research question

Conceptual framework

- Unified theory of acceptance and use of technology (UTAUT).
- Focus on usability and acceptability as important criteria on which patients decide how well a THS accommodates their needs in terms of effectiveness, affordability, operability and dependability.

Research question

- How patients' user experience (UX) with a home THS shapes their perceptions of its utilization on their functional independence, well-being, and quality of life?

Intervention design

Intervention study was based on a baseline-follow up approach:

- Ambulant patients of a Slovenian Community Health Centre.
- Recruitment by health professionals, who participated in the intervention.
- A non-probability purposive sample of 55 patients with chronic diseases (type 2 diabetes and/or hypertension) was selected based on several inclusion (e.g., ability to operate the THS) and exclusion criteria (e.g., severe cognitive impairment).
- The trial period extended over 5 months during which patients measured their vital signs according to clinical protocols.

Questionnaire administration

Fig. 1 3-stage questionnaire-based evaluation



Telehealth equipment

- THS involved ISO-certified medical devices: blood glucose and blood pressure monitor connected to a tablet or smartphone app to transmit measurement data to the professional health team via a secured line.

Fig. 2 The tested telehealth equipment.



Instruments

Dependent variable

- Psychosocial impacts of patients' THS utilization (PIADS-10).

Independent variables

- Usability (Telehealth Usability Questionnaire - TUQ)
- Acceptability (Service User Technology Acceptability Questionnaire - SUTAQ).

Control variables

- Physical and mental health status (SF-12).
- Patient knowledge, skills and confidence for self-management (Short version of Patient Activation Measure, PAM).
- Frequency of the home THS use (THS use).

Results

- The psychological impacts of patients' THS utilisation at home were strongly influenced by the usability of THS.
- No significant association was found between psychosocial impacts and technology acceptance of the THS.
- Patients' physical and mental health status, their knowledge, skills, and confidence for self-management as well as frequency of THS use have no direct impact on psychosocial impact of the THS on their quality of life.

Table 1 Multiple linear regression model with PIADS-10 as dependent variable

| Variables | B | SE(B) | β | p |
|-------------------------------|--------|-------|---------|------|
| Intercept | -1.400 | | | .214 |
| TUQ | 0.387 | 0.140 | 0.553 | .009 |
| SUTAQ | -0.062 | 0.251 | -0.048 | .806 |
| PAM | 0.018 | 0.013 | 0.220 | .175 |
| SF12 (PCS) | -0.001 | 0.012 | -0.013 | .928 |
| SF12 (MCS) | -0.009 | 0.010 | -0.128 | .400 |
| THS use (1 = At least weekly) | -0.259 | 0.308 | -0.126 | .405 |

Notes: N = 45, F(6, 38) = 2,971, $p = .018$, adj. $R^2 = 0.21$.

Discussion

- Patient's UX with THS seems to be strongly conditioned by usability of THS equipment and operation, whilst acceptance of THS plays a less important role according to the psychosocial impact of patients with the utilization of THS assistance.
- However, THS acceptance and patients' capacity to evaluate its positive outcomes might be conditioned by the short trial period of 3 months.
- Further research is needed on how THSs can be incorporated within conceptual frameworks that would consider the specifics of telehealth acceptance and its long-term utilization.
- In particular, the theory-driven understanding of the association between different dimensions of UX and psychological outcomes needs to be strengthened by contextualised and customised variations of the UTAUT model for studying the acceptance and outcomes of home THS.