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Patients vs. Healthcare Providers: A Comparative Analysis of Technology Acceptance Using the UTAUT Model

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Abstract. This study examines the differences in technology acceptance of electronic Patient Empowerment Platforms (PEP) and Personalised Care Plan Management Platforms (PCPMP) between two distinct user groups: patients/caregivers and healthcare providers, across three linguistic and cultural contexts (Danish, Hebrew and Russian). Using the Extended Unified Theory of Acceptance and Use of Technology (UTAUT) model and framework, we analysed responses from 92 participants. Our findings reveal differences in the perceived usability factors and facilitating conditions between patients and healthcare providers, suggesting the need for tailored interventions to improve PEP/PCPMP adoption among diverse user groups. These results offer insights into the development of more user-centred systems in healthcare.

Keywords. UTAUT, Technology Acceptance, Patient Empowerment Platform

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1. Introduction

The adoption of Patient Empowerment Platforms (PEP) and Personalised Care Plan Management Platforms (PCPMP) can transform healthcare delivery, improve access to patient information and support better clinical decision-making [1]. However, user acceptance is an important determinant of their adoption, and varies significantly across different user groups. Understanding the factors that influence such adoption using reallife data in culturally diverse healthcare environments is crucial to enhancing the effectiveness and usability of these systems.

Among existing models developed to evaluate adoption, the Unified Theory of Acceptance and Use of Technology (UTAUT) has been widely used to understand technology adoption in different fields [2]. The model was originally introduced by Venkatesh et al. in 2003 [3] to explain how users accept and use technology, based on eight theoretical models including the Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB), and Theory of Reasoned Action (TRA), among others. UTAUT focuses on four main constructs namely Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions [4]. Performance expectancy is built on the belief that using technology will improve performance, effort expectance states the ease of use associated with the new technology, social influence shows the degree to which others influence the user's decision to adopt the technology, and facilitating conditions highlights the support provided for using the new technology [5]. These constructs, along with other variables such as age, gender, experience, and voluntariness of use, help predict the likelihood of technology acceptance and adoption in various settings [6]. Actual usage is subsequently shaped by Behavioural Intention and facilitating conditions. While the UTAUT model has been applied in various sectors, limited studies have examined it in healthcare [7].

This study aims to compare the perceptions of PEP/PCPMP technologies between patients/caregivers and healthcare providers through the ADLIFE project [8], which provides integrated care solutions for people over 55 with advanced long-term conditions, across three different linguistic and cultural contexts (Danish, Hebrew, and Russian), using the extended UTAUT model, translated from English. We seek to identify factors influencing technology acceptance within each group, to provide recommendations for improving electronic platforms for care planning and patient empowerment adoption.

2. Methods

This cross-sectional study utilised the extended UTAUT model through a validated questionnaire to evaluate the acceptance of ICT-based healthcare solutions across pilot sites within the ADLIFE project: Odense University Hospital (OUH) in Denmark and Samson Assuta Ashdod University Hospital (AMCA) in Israel. We incorporated additional constructs, such as Technology Anxiety, Adoption Timeline, Behavioral Intention, and Usability Factors to enhance our understanding of user acceptance. Technology Anxiety evaluates the extent to which users feel apprehensive or uncomfortable when interacting with new healthcare technologies, which can influence their willingness to adopt the system [9]. Adoption Timeline assesses the timeframe in which users are likely to integrate the technology into their daily routines, providing insights into the speed and barriers to adoption [10]. Behavioural Intention refers to the users' motivation and intent to use the platform, which is a key predictor of actual

technology use. Usability Factors measure the ease of use, accessibility, and user experience of the healthcare solution, ensuring that the technology is intuitive and practical for users. The four non-English versions of the extended UTAUT questionnaire (Danish, Hebrew, Russian and Spanish) were developed through translation and back-translation process, and cultural adaptation through pilot testing and expert opinion. We distributed the survey to two user groups: 1-Patients or their informal caregivers if they were the main system users, and 2-Healthcare providers across healthcare facilities in the respective linguistic regions.

A total of 92 participants were recruited, consisting of 73 patients/caregivers and 19 healthcare providers. A convenient sample of patients/caregivers and healthcare providers who participated in the ADLIFE project were invited to participate. Participants were informed about the aim of the study, consented to respond anonymously to the survey.

Data were collected online, through the Qualtrics platform with participants answering the extended UTAUT items related to performance expectancy, effort expectancy, social influence, and facilitating conditions, as well as four context-specific predictors added to the original UTAUT model, Technology Anxiety, Adaption Timeline, Behavioural Intention and Usability Factors. The domain scores were reported as percent of achievable score. Demographic data were also gathered, including age, gender, and their role. Data collection started in July 2024 and lasted until October 2024. The responses were analysed using descriptive statistics to summarise the demographic characteristics. Independent t-tests were conducted to compare the UTAUT factors between the two groups. Qualitative feedback was also collected from open-ended questions to provide additional context.

3. Results

This study reports results from 92 participants including 73 patients (41% female), and 19 healthcare providers (84% female). Seventy percent of the patients were above 65 years, while healthcare providers were predominantly in the 55-64. Among healthcare providers, 53% had previous experience of using digital health platforms, of whom 50% had more than 8 years of experience.

Comparative analysis of the UTAUT factors revealed that healthcare providers scored higher than patients in most domains, with average scores ranging from 60% to 73% for healthcare providers and 49% to 73% for patients. The only domain where both groups had equal scores was usability factors. Statistically significant differences were found in social influence (p: 0.007), technology anxiety (p: 0.017), adoption timeline (p: 0.037), and behavioural intention (p: 0.002). Healthcare providers reported greater social influence from colleagues and more technology anxiety compared to patients, who struggled more with usability issues. (Figure 1).



Figure 1. Extended UTAUT Model Factor Comparisons

Participants' comments showed that providers viewed the PCPMPs as essential tools for improving clinical outcomes, while patients were more concerned with accessing their health data and care plans. Patients reported greater difficulty in navigating the platform compared to healthcare providers. Patients expressed concerns about the complexity of the interfaces and the lack of user-friendly features. Healthcare providers highlighted a lack of adequate support and training as barriers to effective platform use, while patients expressed fewer concerns in this area, reporting that they received sufficient technical support and resources. Cultural differences also influenced responses. For example, Danish healthcare providers highlighted the importance of organizational policies in facilitating PEP/PCPMP adoption.

4. Discussion

This study uncovered important distinctions in how patients and healthcare providers perceive and accept PEP/PCPMP platforms, offering valuable insights into technology acceptance within the healthcare sector. Healthcare providers reported higher levels of performance expectancy and social influence, similar to studies in diverse settings [11], likely due to their greater experience with digital platforms and the perceived impact of these systems on their clinical work. They also exhibited higher technology anxiety, a factor that should be addressed through better training and support [12].

Conversely, patients, particularly those over 65 years old, faced greater challenges with usability, reflecting the need for simpler, more intuitive platform interfaces. Lower scores of social influence was observed in other studies in elderly population [2], suggesting that patients are more self-directed in their technology use, focusing primarily on ease of access and personal benefits rather than external recommendations or peer usage.

The significant differences in behavioural intention between the two groups point to a need for customized strategies to enhance platform adoption. Healthcare providers may benefit from more seamless integration of PEP/PCPMP platforms with their existing clinical tools, while patients could be encouraged to adopt the technology through targeted interventions aimed at simplifying user interfaces and improving perceived ease of use. This study is limited by its reliance on self-reported data, which may introduce response bias. Also, the sample sizes for each linguistic group were not equal, which could affect the generalizability of the results. Additionally, the platforms used in different pilot sites varied in some features and functionalities.

5. Conclusions

The comparative analysis of patients and healthcare providers underscores the need for tailored approaches to electronic platform development for care planning and patient empowerment adoption. Healthcare providers require integrated systems with technical and usage support. By addressing these needs, healthcare organizations can improve the overall effectiveness of digital systems and ensure higher adoption across diverse groups. Future research should use longitudinal data to assess changes in technology acceptance over time and expand the study to include more diverse linguistic and cultural groups.

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