Good Evaluation - Better Digital Health
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Transforming Rehabilitation: Physiotherapy Students' Expectations on Electronic Health Information Systems and Digital Services

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Abstract. Digitalisation is one of the transforming forces in rehabilitation. This study aims to describe physiotherapy students' perceptions of digital documentation, their expectations of using electronic health information systems (HIS), and the transformation of digital services in rehabilitation work. Two workshops for second-year physiotherapy students were performed. The workshop participants (n=40) wrote their responses in small groups on a digital research platform. The inductive content analysis was applied to data analysis. Three main themes emerged for expectations of HIS: system, environmental, and individual factors. Further, the expectations for the transformation of digital services were categorized into three main themes: the possibility of service quality deterioration, improvement of service quality, and changes in operational culture. In conclusion, physiotherapy students identified meaningful features of HIS that affect rehabilitation, with key expectations of digitalisation around service quality and operational culture. Placing technology adoption within the future user's context provides valuable insights for transforming rehabilitation.

Keywords. Physiotherapy, Qualitative Research, Health Information System, Digital Health

1. Introduction

Digital services and information systems have become more common in rehabilitation, transforming clinical practices [1]. At the same time digitalisation has increased the skill requirements for allied health professionals [2]. The future work increasingly emphasizes

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the capability to process information and use information systems and other digital tools in client work [3]. Physiotherapists are important to the global healthcare workforce and routinely capture extensive patient data in electronic health information systems (HIS). The curriculum must prepare allied health professionals for digital work [2]. Current practices cannot be directly transferred to digital services, making it important to design rehabilitation content and identify information and processes that support professionals' clinical work [4].

Additionally, the specific characteristics of rehabilitation must be considered. There is a lack of research on rehabilitation professionals' experiences with HIS and their views on the impact of digital tools on clinical practices [5]. Students bring new perspectives on digital work to workplaces, but new graduate physiotherapists often face challenges in clinical documentation due to varying levels of preparedness and unfamiliar clinical contexts [6]. They encounter the realities of healthcare and the possibilities of digitalisation, making their views particularly important in transforming rehabilitation.

The aim of this study is to describe physiotherapy students' perceptions of digital documentation, their expectations of the use of electronic HIS, and their views on transformation of digital services in rehabilitation work.

2. Methods

Study participants were second-year physiotherapy students. Information about the study was provided in writing beforehand and verbally at the beginning of the study. Participation was voluntary, and everyone was given the opportunity to ask additional questions and decline to participate at any time. Research permission was obtained from the University of Applied Sciences that educates physiotherapists. No personal data was collected in the study, and the data has been processed completely anonymously.

The data was collected in two workshops in October 2024 by two researchers. The workshop participants (n=40) were divided into small groups (n=8) of 4-6 students. All small groups were asked the same questions: 1) What factors promote digital documentation? 2) What factors hinder digital documentation? 3) What are your expectations for smooth patient record documentation? 4) What are your expectations for a good HIS? 5) How do digital services and digital tools transform rehabilitation work? The small group participants wrote their responses on a digital research platform. The timeframe for the workshop was 30 minutes, and all the time was utilized.

The data was analysed with inductive content analysis. The responses consisted of single words to topics no longer than two sentences, and each response was one unit of analysis. One response was excluded due to unclarity. The responses were transferred to an MS Excel, after which the data was reviewed by reading it multiple times. Then, the original expressions (n=199) were simplified and abstracted by combining them into subcategories and upper categories. The responses to questions 1-4 related to HIS were combined at the upper and finally at main category level forming the first theme. The responses to question 5 related to digital work and digital tools formed independent subcategories, upper categories, and main categories as the second theme. The research team discussed the analysis until a unanimous consensus was reached.

3. Results

Of the total number of participants (n=40), 60% were under 25 years old, and most (72%) had used an electronic HIS in clinical work. The students were interested in being among the first to use new technologies at least fairly rarely (42%), and no one responded that they were not interested at all. Most participants reported adopting new technology among the first fairly often (50%) or often (8%).

The expectations for electronic health information systems and their use consisted of system, environmental, and individual factors (Table 1). The system factors included versatile usage possibilities of the system. Students described a system with easy, simple and feasible use, which enables text dictation and analysis, and is available on multiple devices. Students described the logical structure of the system to be single-step with an illustrative interface that considers the specific features of the rehabilitation and includes situation-specific documentation templates. Digital tools of the system included students' descriptions of AI assisting with documentation, for example, by integrating the ICF coding system. Regarding the reliability of the HIS, students described it to be functional and secure, with sufficient processing system capacity.

Table 1. Perceptions of physiotherapy students about expectations for electronic health information systems and their use, and the transformation of digital services and tools in rehabilitation work.

Theme	Main category	Upper category
Expectations for electronic health information systems and their use	System factors	Versatile usage possibilities of the system Logical structure of the system Digital tools of the system Reliability of the system
	Environmental factors	Technology Information and operational structures User support Usage context
	Individual factors	Attitude Competence Consideration of humanity
Expectations for the transformation of digital services and tools in rehabilitation work	Possibility of service quality deterioration	Increasement of risks in client work Increasement of services accessibility risks for patients Increasement of safety risks
	Service quality improvement	Performance improvement of the organization and employees Improvement of client experience
	Changes in operational culture	Expanding the range of services and digital tools Streamlining work processes Reducing the carbon footprint of the service

Physiotherapy students described the expectations regarding environmental factors with technology referring to modern and functional devices and communication networks for using the system. Information and operational structures were mentioned as a smooth and clear documentation process, with uniform documentation practices and sufficient resources by participating students. User support was wanted to include appropriate training and instructions and 24/7 availability. Furthermore, the students described the usage context including a physical environment taking ergonomics into account, multidisciplinary collaboration, and societal development.

Individual factors included positive attitude towards the system and belief in the smoothness of documentation. Competence included students' views on knowledge, abilities, and skills to use the system and the development of professionalism through familiarity with the documentation process. Consideration of humanity included students' descriptions of a client-oriented HIS that supports the professional's recovery and well-being by including features such as automatic break reminders.

The expectations for the transformation of digital services and tools in rehabilitation work consisted of service quality deterioration becoming possible, or improving, and changes in operational culture (Table 1). Possibilities of service quality deterioration included increasement of risks in client work, which students described as a deterioration in client interaction. Increasement of accessibility risks of the service was described in the students' opinion as a deterioration in service availability and an increase in costs. Furthermore, increasement of safety risks was stated by students as an increase in cybersecurity risks and the obligation to pay more attention to the security culture.

However, students were describing service quality improvement regarding the performance improvement of the organization and employees. They implied this as improving service availability, enhancing rehabilitation, and bringing time savings and well-being to the employee. In addition, in the student's opinion, the improving client experience included increased client orientation and improved rehabilitation experience.

Moreover, the changes in operational culture were implied by students as an expanding range of services enabling and increasing the implementation of remote rehabilitation and therapy. New digital services and remote technology are expanding the range of offerings and digital tools. Streamlining work processes included students' views of changes in communication and appointment scheduling, in the meantime simplifying employees' work. Students also described expectations about reducing the carbon footprint of the service when environmental sustainability increases.

4. Discussion

This study revealed several, future-oriented expectations of the digital documentation in HIS, and the transformation of digital services in rehabilitation work by physiotherapy students. Expectations concerning information systems, their usage, and the systems themselves included environmental and individual factors. Furthermore, the expectations for the transformation of digital services and tools in rehabilitation work were implying service quality determinants and inevitable changes in operational culture of organizations. The findings highlight the need for integration of digital competencies, and digital workflow management into physiotherapy curriculum to enhance digital rehabilitation processes and support uniform documentation practices.

Based on the results, the development process of electronic HIS should consider the characteristics of the rehabilitation, as the low cooperation support and reliability of information systems have identified psychological distress [7]. Similarly, modern technological possibilities need to be utilized, so that rehabilitation work becomes a visible part of the multidisciplinary process. Students expected digitalisation to bring many opportunities to improve rehabilitation processes, which requires digital competences such as IT skills and work in digital work processes [2].

This study was conducted in accordance with the ethical principles of good scientific research [8]. The strength of the study lies in its novel and future-oriented view from students with open-minded attitude towards the rehabilitation work and digitalisation.

The data reveals students acknowledging the themes about electronic HIS and digital health services by writing their answers freely and frankly, every participant being voluntary. However, when interpreting the results, it is important to consider the students' limited clinical experience in rehabilitation and using electronic HIS. Thus, in accordance with the nature of qualitative research, these results collected from students may not be generalizable to the entire rehabilitation. Furthermore, the reliability of the results may have been affected by the primary researcher's background in nursing rather than rehabilitation. From another perspective, the primary researcher had no preconceived notions about rehabilitation that could have influenced the interpretation of the findings The multidisciplinary research team included several physiotherapists whose expertise was utilized in the study.

5. Conclusions

This study highlighted the need to consider the perspectives of future professionals who use electronic HIS and digital services in the developing digitalisation in rehabilitation. Placing technology adoption within the future user's context provides valuable insights into transforming the curriculum and rehabilitation.

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