User-Experience of Patients Portals:
It's Impact in the Healthcare Ecosystem

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ABSTRACT

Patient portals have become an essential tool in modern healthcare, offering patients access to their medical records, communication with healthcare providers, and management of their health information. They've become an increasingly important part of the healthcare ecosystem as they are used for a wide range of activities by both patients and providers. As patient portals continue to evolve, it's important to improve our understanding of the exact uses and needs that patients and providers expect from patient portal systems. This mini systematic review explores the user experience of patient portals and its impact on patients' engagement with their healthcare management. Additionally, it investigates the key factors contributing to patients' satisfaction or dissatisfaction with the user interface and functionality of patient portals. Through a comprehensive analysis of existing literature, this review aims to provide insights into enhancing patient-centered care and improving health outcomes through optimized patient portal design and implementation.

INTRODUCTION

In today's digital era, patient portals, a class of Personal Health Records (PHRs), serve as virtual gateways to our medical information, offering convenience and accessibility like never before. Through these portals, patients gain unprecedented access to their health records, enabling them to review test results, track medications, and monitor their overall well-being—all from the convenience of their own homes. Moreover, patient portals facilitate direct communication with healthcare providers, allowing for timely inquiries, appointment scheduling, and even virtual consultations.

However, amidst the convenience and promise of patient portals, a fundamental question arises: Are these digital platforms truly revolutionizing our engagement with healthcare, or are they merely superficial additions to an already complex system? Diving deeper, we encounter the perplexing reality that while some individuals seamlessly navigate these portals with ease, others encounter roadblocks and frustrations at every turn. The variability in user experiences prompts us to ponder: What factors contribute to these discrepancies? Is it the design and functionality of the portals themselves, or perhaps a broader issue of digital literacy and access?

LITERATURE REVIEW:

Patient portals have the potential to transform the traditional physician-patient dynamic and support better self-management of diseases. Early research on outpatient portals shows that patients value accurate, timely, and personalized information delivered throughout their care journey, along with the ability to securely communicate with their providers[2]. Moreover, individuals with ongoing healthcare needs, especially those managing multiple chronic conditions, show the greatest interest in utilizing patient portals[6].

The role that patient portals play in patient engagement in healthcare has been extensively studied. "Patient engagement" is defined as "actions that people take for their health and to benefit from care," and has been referred

to as the "next blockbuster drug of the century"[2]. Irizarry et al. (2015) conducted a comprehensive review, highlighting the influence of personal factors such as age, ethnicity, education level, and health literacy on patients' adoption and utilization of patient portals[1]. Their findings emphasized the significance of provider endorsement in driving portal adoption, along with the need disease-specific portals to more accurately address patient needs.

The next study examined ,Sieck et al. (2018), provided further insights into patient portal usage through qualitative interviews with experienced users[2]. They identified logistical and psychological benefits of portal use, including increased efficiency and improved communication with healthcare providers. Additionally, they provided suggestions such as having the ability to view provider notes, patient's desire for interoperability with systems outside of their portal, a more detailed explanation of test results, and the need for technical improvements of the appearance of the portal screen.[2]

Dendere et al. (2019) synthesized findings from multiple studies, shedding light on various factors influencing patient portal satisfaction. They highlighted the importance of user-friendly design, patient training, and organizational leadership in optimizing portal utilization and improving patient engagement[4]. Meanwhile, Pillemer et al. (2016) explored the impact of direct release systems on patient engagement and healthcare utilization, offering strategies to enhance these systems and highlighting the importance of clinician interpretation and result presentation for patient comprehension[5].

Lastly, Kerns et al. (2013) conducted a qualitative study to understand patient preferences regarding engagement with personal health records (PHRs). Their findings revealed that patients with chronic disease not only used their portals more, but felt their needs were better met if they had a disease-specific portal[6]. Collectively, these studies provide valuable insights into the complexities of patient engagement through portals, emphasizing the need for user-centered design and ongoing support to improve portal adoption and effectiveness in improving patient outcomes.

OBJECTIVES:

The main goal of this review is to shed light on two questions regarding how user experience of patient portals impacts healthcare:

1) How does the user experience of patient portals influence patients' engagement with their healthcare management?
2) What are the key factors contributing to patients' satisfaction or dissatisfaction with the user interface and functionality of patient portals?

To address these research questions comprehensively, this study will refer to the systematic literature review of several relevant studies between 2013-2020.

METHODS:

To understand how the user experience impacts patient engagement, we can derive from these studies that when patients have a good experience using portals—like finding them easy to use and feeling like they can communicate well with their healthcare providers—they tend to be more active in managing their health. Across interviews of experienced portal users patients described three logistical benefits of MyChart: increased efficiency, improved ability to track their health information, and better documentation of communications and information during and between office visits[2]. Another positive influence is the ease it brings to the pharmaceutical side of healthcare. One of the reviewed studies found that online portals could reduce prescription refill time by up to 80%, which will only continue to make patients more likely to engage in the portal to manage their needs[3].

The key factors identified in the literature which contribute to patient satisfaction of patient portals are:

- Positive Factors:
    - Patients and staff thought that the messaging feature of patient portals was important for patient care [2,3]
    - Patients who used a disease-specific portal were more satisfied than those who used a generic portal [4]
    - Ability to view, download, and transmit personal health record data [1]
    - Direct access to test results facilitates patient engagement [5]
- Negative Factors:
    - Some participants had difficulties using patient portals mainly because of complex portal interfaces [4]
    - Anxiety associated with viewing personal medical information [5]
    - Data security and privacy concerns [4]
    - Lack of encouragement from providers [1]

To address the challenges identified in the user experience of patient portals and enhance patient engagement with healthcare management, two proposed solutions emerge from the literature. Drawing insights from Dendere et al. (2019), prioritizing user-friendly design elements and addressing barriers such as complex interfaces and privacy concerns can enhance the overall user experience[4]. Secondly, integrating features suggested by Sieck et al. (2018), such as viewing provider notes and interoperability with external systems, can further enhance usability to meet the diverse needs of patients[2].
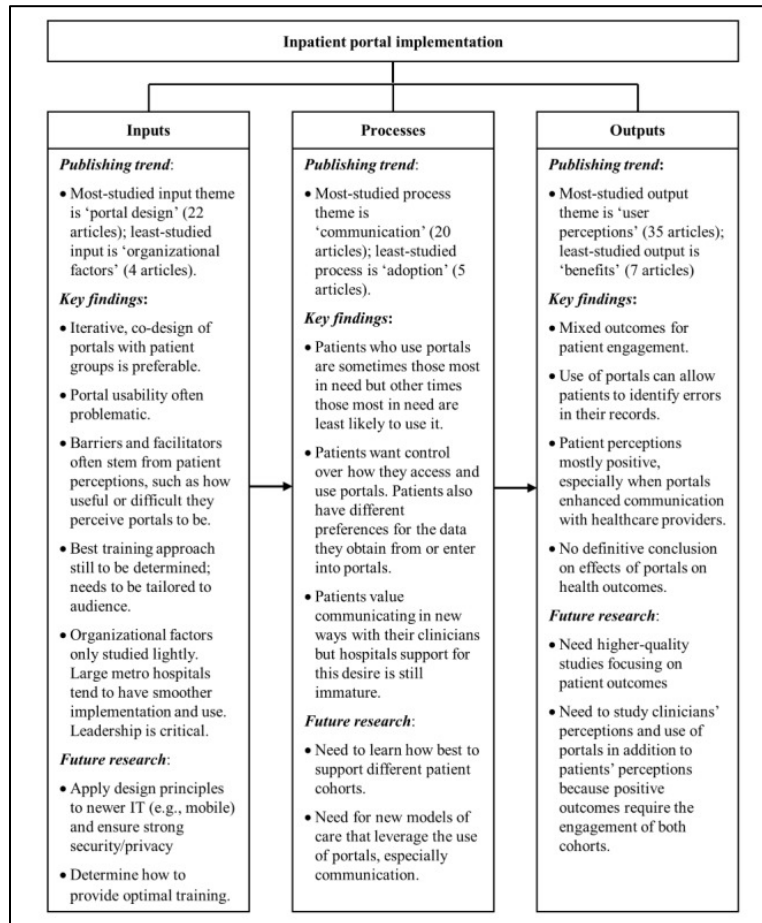
Inpatient portal implementation

Inputs	Processes	Outputs
Publishing trend:	**Publishing trend:**	**Publishing trend:**
• Most-studied input theme is 'portal design' (22 articles); least-studied input is 'organizational factors' (4 articles).	• Most-studied process theme is 'communication' (20 articles); least-studied process is 'adoption' (5 articles).	• Most-studied output theme is 'user perceptions' (35 articles); least-studied output is 'benefits' (7 articles)
Key findings:	**Key findings:**	**Key findings:**
• Iterative, co-design of portals with patient groups is preferable.	• Patients who use portals are sometimes those most in need but other times those most in need are least likely to use it.	• Mixed outcomes for patient engagement.
• Portal usability often problematic.		• Use of portals can allow patients to identify errors in their records.
• Barriers and facilitators often stem from patient perceptions, such as how useful or difficult they perceive portals to be.	• Patients want control over how they access and use portals. Patients also have different preferences for the data they obtain from or enter into portals.	• Patient perceptions mostly positive, especially when portals enhanced communication with healthcare providers.
• Best training approach still to be determined; needs to be tailored to audience.	• Patients value communicating in new ways with their clinicians but hospitals support for this desire is still immature.	• No definitive conclusion on effects of portals on health outcomes.
• Organizational factors only studied lightly. Large metro hospitals tend to have smoother implementation and use. Leadership is critical.	**Future research:**	**Future research:**
Future research:	• Need to learn how best to support different patient cohorts.	• Need higher-quality studies focusing on patient outcomes
• Apply design principles to newer IT (e.g., mobile) and ensure strong security/privacy	• Need for new models of care that leverage the use of portals, especially communication.	• Need to study clinicians' perceptions and use of portals in addition to patients' perceptions because positive outcomes require the engagement of both cohorts.
• Determine how to provide optimal training.		

Figure 1[2]. Conceptual framework summarizing the findings and key areas for future research.

CONCLUSION

To conclude, the user experience of patient portals significantly influences patients' engagement with their healthcare management and their satisfaction with the platform. Important portal features such as messaging software, accessibility to personal EHRs, direct access to test results, and streamlined prescriptions are essential in shaping the user experience and determining patients' attitudes towards patient portals. The review indicates that some challenges such as complex interface, along with security and privacy concerns may hinder the benefits of patient portals, and more research should be done on methods to improve upon these elements. By understanding these factors and addressing them through improved design and implementation strategies, healthcare organizations can enhance patient engagement, improve health outcomes, and promote patient-centered care.

While the findings offer practical strategies to address existing barriers, it's important to acknowledge the limitations of this research. The reviewed studies primarily relied on qualitative methods and may not capture the full breadth of patient perspectives or experiences. Additionally, the rapidly evolving nature of technology and healthcare practices means there should be ongoing research to adapt and refine our understanding of patient portal usage and its implications for healthcare delivery.

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