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Cover Page Footnote

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Improving the patient experience through patient portals: Insights from experienced portal users

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Abstract

Background: Patient portals have become part of the ecosystem of care as both patients and providers use them for a range of activities both individually and collaboratively. As patients and providers gain greater experience using portals, their use and needs related to portals may evolve. **Objective:** This study aimed to learn from experienced patient portal users to improve our understanding of their perspectives on portal use for collaboration and engagement as well as explore how using a portal influenced their experiences with primary care providers. **Methods:** Qualitative study involving 29 semi-structured interviews with family medicine patients from a large Academic Medical Center (AMC). Interviewees were patients with chronic conditions who had been identified by their providers as experienced portal users. Interview transcripts were analyzed using rigorous qualitative methods. **Results:** Common themes emerged around both logistical and psychological benefits of portal use. Logistical benefits included increased efficiency, improved ability to track their health information, and better documentation of communications and information during and between office visits. Psychological benefits were a greater sense of collaboration in care, increased trust in providers, and enhanced engagement in health care activities. **Conclusion:** Experienced portal users discussed ways in which patient portals improved both their ability to manage their care and their relationships with providers. Frequent users described a sense of collaboration with their providers and greater trust in the relationship. These findings suggest that portal use may be a mechanism through which patients can increase patient engagement and improve the patient experience.

Keywords

Patient portals, patient engagement, patient experience, communication, qualitative research

Introduction

Patient engagement, defined as “actions that people take for their health and to benefit from care,” has been referred to as the “next blockbuster drug of the century”¹. Given this potential, policymakers and health advocates suggest the utilization of tools that can empower patients to increase engagement, including patient portals². Patient Portals – a class of Personal Health Records (PHRs) that provide access to information in the patient’s Electronic Health Record (EHR) – are becoming a part of the ecosystem of care. Portals commonly include functionalities that facilitate engagement such as tracking lab and test information, allowing secure messaging between patients and providers, and providing easily accessible patient education materials³. Portals may be central to patient engagement, potentially changing the physician-patient relationship and enabling better disease self-management^{4-9 10}.

Early studies of ambulatory portals suggest that patients want accurate, timely, personalized information, provided across the continuum of care, and the ability to

communicate with providers in a secure and trusted manner^{11 12 13}. Additionally, patients with special and ongoing health care needs, including multiple chronic conditions, have the greatest interest in patient portals^{14 15}, and the presence of chronic conditions can predict both adoption and intensity of patient portal use¹⁶. However, as patients gain greater experience with using portals both individually and collaboratively with their providers, there is still much to understand about why, how, and which patients use portals, and how the healthcare system can best support them. Little is currently known about what motivates patients to adopt and continue to use patient portals, or about what functionalities patients consider important to enable improved self-management of their conditions^{17 18}.

Particularly relevant to engaging patients in the management of their care is the potential of portals to facilitate collaboration between the patient and provider. Through the portal, information flows directly between patients and providers. Early research on this type of bi-directional communication via secure messaging suggests positive results on patient outcomes, disease management

and satisfaction in ambulatory settings¹⁹. Patient access to physician records through a portal can also improve patient-physician communication, and result in improved access and adherence. One large study giving patients the ability to view doctors' notes via a portal found that patients accessed care notes frequently, improved understanding of their care, and increased their medication adherence¹⁰. In another study, Ammenwerth and colleagues²⁰ found no difference in clinical outcomes associated with portal use, but noted that patients using a portal had a decrease in visit rates, higher awareness of the care they received and why, better adherence to treatment, and were twice as likely to be up to date with all preventive services. Notably, these benefits were seen with patients' use of a portal without secure messaging²¹, suggesting that patient portals enabling bidirectional communications may further facilitate patient-physician communication²²⁻⁵.

Patient barriers to portal use include usability problems²³⁻²⁷, low health and technological literacy²⁸⁻³², and concerns about a loss of interpersonal contact^{28,29,33} as well as concerns about the privacy and security of electronic patient portals^{26-28,34,35}. Providers share this latter concern in particular, noting worries about patient and provider privacy and the potential for personal health information breaches³⁶⁻³⁹. Providers have also reported concerns about an increased workload^{35,39-42} as well as the lack of a reimbursement model for time spent engaging with patients through the portal^{38,39,43,44}. However, many of these published studies were conducted prior to portal implementation, or in the early stages of portal implementation. Little is known about how experience with a portal shapes use and attitudes, and how these experiences impact the patient's experience in health care^{45-46,47}.

We aimed to fill this gap in the literature by exploring the perspectives of experienced patient portal users. Our guiding research questions were "How and why are patients' using an ambulatory portal?" and "How do experienced patient users view the benefits and challenges of portal use?"

Methods

Study Design and Setting

This study took place at a large Midwestern Academic Medical Center (AMC) that had been using Epic's MyChart outpatient portal since 2012. MyChart is a tethered patient portal through which patients can view lab and test results, request medication refills, schedule appointments and send secure messages to providers. A descriptive analysis of AMC portal use data conducted by the study authors found that across AMC departments, Family Medicine providers had the highest percentage of active MyChart users (65% of their patients); other departments averaged between 35%-50%. Overall, users

were more likely to be female, white, and between 36 and 54 years of age. Of the patients who had created an account, the majority logged on at least once. Messaging and viewing results were the most commonly used features, followed by appointment scheduling.

To recruit study participants, we asked Department of Family Medicine physicians to identify patients who had one or more cardiopulmonary conditions and were frequent portal users. We selected diagnoses associated with heart and lung diseases such as cardiovascular disease, congestive heart failure, and chronic obstructive pulmonary disease. We were interested in learning from experienced portal users because we felt their experience would provide a deeper understanding of how portals can benefit patients and also about how to improve portal technology. This study was approved by the study site's Institutional Review Board.

Data Collection

Semi-structured interviews with patients took place in the summer and fall of 2015. Interviews lasted approximately 30 minutes, used a semi-structured interview guide, and were conducted by trained and experienced interviewers. The interview guide addressed reasons for using MyChart, ways in which patients use MyChart, thoughts about the impact of MyChart, descriptions of in-person interactions with patients' providers, and asked for perspectives about additional features they would like to have available on the portal. All interviews were conducted by telephone, recorded, and transcribed verbatim to allow rigorous analysis.

Analysis

We utilized both inductive and deductive methods following the constant comparative analytic approach⁴⁸. A coding team consisting of the three study authors initially identified broad themes based on our semi-structured interview guide and previous experience to create a preliminary non-mutually exclusive coding dictionary. This dictionary was used to code a sample of transcripts, and new codes were proposed and iteratively added to the dictionary as patterns emerged (56). After the coding team made initial coding decisions, regular meetings of the entire study team, consisting of the study authors – three established qualitative researchers from the fields of health services research and patient engagement – and three first year medical students, enabled discussion to resolve discrepancies and reach consensus about the themes we report. Atlas.ti (version 6.0) qualitative data analysis software was used to support this analysis.

Results

We conducted interviews with 29 patients who had been identified by their family medicine physicians as experienced MyChart users. Across the interviews, patients

Table 1: Summary of qualitative findings

Theme	Definition
Logistical Benefits	Benefits related to the practical aspects of using MyChart
Increased Efficiency	Patient medical data available electronically
Improved Tracking of Health Information	Ability to easily refer to previous diagnoses and medications
Record of Provider Communications	An electronic record of past secure messaging discussions with a provider
Psychological Benefits	Benefits related to the feelings associated with using MyChart
Increased Collaboration	Sense of partnership with healthcare providers
Improved Trust in Providers	Belief in the information offered by the healthcare provider
Enhanced Engagement	Participation in health care
Suggested Improvements to MyChart	Ways in which MyChart could be modified or enhanced to facilitate use

commonly reported they liked to use MyChart and found many of the features convenient in comparison to their experiences before MyChart was available. Analysis of the interviews revealed common themes related to both logistical and psychological benefits of portal use, as well as suggestions about how to improve the patient portal tool itself. Table 1 provides a description of the themes identified, and below we further explicate these themes and provide representative supporting quotations.

Logistical Benefits

Increased Efficiency: Across interviews, 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. First, with respect to efficiency, one patient described the efficiency of communicating on his own time: “I don’t call the office at all anymore. And I think sometimes I did—well, and she wasn’t always available and so it would take her calling back at the end of the day and maybe I wasn’t available then. So this is much more, the question is here, whenever you get a chance respond to it.” Another patient noted how the portal increased efficiency because his medical data was now available and visible to him: “...it’s better to view the MyChart than calling or having to go there and wait when it’s all right there for you.”

Improved Tracking of Health Information: Regarding tracking of one’s health condition, one patient noted, “And I have gone back in on the medication list too, to see like last year’s spring allergy... what nasal spray was I using. And then I can more accurately, when I’m requesting a refill, you know, say this is what I was using last year.” Another patient similarly explained this benefit: “I’m getting a little bit better with looking at my test results and understanding things, I mean, I can look at things myself. And I think it’s a good tool for somebody who wants to monitor themselves and look at what’s going on in their health.”

Record of Provider Communications: Patients reportedly appreciated the ability to track communications with their provider using MyChart. As one explained, “...sometimes you go in for an appointment and it’s hard to remember everything that was said. All the suggestions of if this, then do that and/ or if that happens, then do that. And if I need to check on any of that, really before MyChart I didn’t have a way to do that. Because most of the time there’s nobody else in the room with you. And I couldn’t even call the nurse in that case to say, ‘Hmm, do you remember when he said that?’ And with MyChart I can say, ‘I kind of remember you said this. Is that what you meant?’” Another patient similarly noted, “I may not remember exactly everything he’s telling me at the time I’m at my appointment, but now I have a tool where I can go out there and I can pull up the information and I can say okay, he said, you know, he may have told me this, I guess I forgot but here’s the information, here’s the numbers, this is the test,

this is what they did. Dab, dab, dab. And I can, you know, I get the tool because I'm not going to remember everything he said."

Psychological Benefits

Experienced users also discussed three psychological benefits: increased collaboration, increased trust in their providers, and increased engagement in their healthcare. Below we discuss these findings further, and we present more evidence supporting these themes in Table 2.

Increased Collaboration: Patients felt that their ability to communicate with their providers via MyChart between visits enhanced their sense of collaboration with their provider in their care. As one explained, "So I think it makes the relationship better because then when you go to your office visit, you guys can talk about what was said on MyChart, you know, more in depth if necessary." Another patient echoed this thought when talking about accessing information from her electronic record via MyChart: "Yeab, with more knowledge-based information in my head that, you know, I can, 'Oh, I've researched this. What does this mean?' And then she can just tell me, 'Oh well this is the track one, we're not looking at that. This is, you know... ' It makes the office visit go smooth."

Increased Trust in Providers: Patients also noted that they felt a greater sense of trust in their provider when they were able to communicate as needed via MyChart. As one patient described the benefit, "it's more trusting because it's not like someone that I see once a year. It's someone that I've built up a relationship with that I can email and he responds." Another patient appreciated the time her provider spent responding and noted that she felt that increased her trust: "It was just that he would take the time to read it and respond without like coming in and paying for an appointment just increased my trust. I guess, that when a lot of things these days seem to be for the money, he had my well-being in mind. So I think it was very positive that way." A third patient summarized, "so I think it makes the relationship better."

Increased Engagement in their Healthcare: Patients discussed an increase in their feelings and actions of engagement in their healthcare arising from their actions accessing the information within MyChart and engaging in secure communications with their providers. One patient noted that access to their health information electronically empowered them to engage during the visit: "You can print a copy for your reference and then you can ask better questions. Then you can be more informed. To—to me it helps my healing. That's just how I feel because the person who is in charge of my family practice, I call him my quarterback." Another patient agreed with the benefits of access to his health record:

"I think that it helps a lot with managing your own care, which is what they are always talking about anymore it seems, about people having to take more responsibility for their own medical care. Again, we aren't doctors, at least most of us, and we have to be careful to not jump to any conclusions or make life changing decisions on data that

we may not understand. But at the same time a lot of what we get is pretty straightforward. Look, my cholesterol is high, according to this test. I guess I need to keep an eye on that. Or this test on my liver came back and it indicates something. I better go talk to the doctor."

Patients also discussed increased engagement in their care arising from secure messaging specifically. One patient described how secure messaging facilitated asking questions that arise which he otherwise would have forgotten: "Yeab. It encouraged me to ask more questions. These are questions that I might not have asked or just written down and maybe forgot when I went to see, you know, my physician ... Now I don't have to wait anymore. I just type up the information and just send it to him." This link between secure messaging and increased patient engagement in their healthcare was summarized as, "It keeps me better in touch with the doctor and I keep on top of everything better."

Suggestions for Improving MyChart

While patients were generally pleased with using MyChart, they offered suggestions for ways to improve the patient portal tool. These suggestions related to having the ability to view provider notes, desiring interoperability with systems outside of this AMC, wanting more education information and explanations of results, and noting the need for technical improvements such as addressing the appearance of the portal on the screen and providing the ability to synchronize data from biometric tracking applications with their medical record data via the portal. For instance, one patient told us, "I would like to see the notes, you know, what are his impressions when we do the visits... The only thing is, maybe like if you had the notes, you could see what the doctor says are your goals. Because I know—I don't know about you, but sometimes when I go to the doctor, I don't remember everything that we discuss." Another patient discussed interoperability of records so that information can be shared across health systems: "I know this is an inter-hospital issue. It would be nice if like the couple times I went to somebody outside the [health] system, I don't know if there was a way for me to get that—what went on there over to my primary care person. That's probably coming in the future, but to have some collaboration between folks, it would be really nice."

Discussion

Healthcare systems are putting significant effort and resources into tools such as patient portals to help patients become more engaged in their care and ultimately experience better health outcomes. The most frequently utilized feature of the portal was secure messaging, which is the most interactive and collaborative feature and thus most likely to facilitate increased patient engagement with their providers and their care. As patients gain greater experience with the portal, their input is essential to understanding use preferences and additional benefits.

Table 2: Patient’s perceptions of the psychological benefits of portal use

Perceived Benefits	Verbatim Comment from Patient Interviewee
Increased Collaboration	<p><i>“So, we went that—we went that direction and I had side effects. So then I emailed him and said ‘I’m having side effects, I waited two weeks, I thought maybe it would go away—It’s not going away, you know, what do you—what do you recommend now that this—my course didn’t work because of side effects?’ He said ‘well, I think that we should try this direction’ and since that is what we’ve done and it seems to be working perfectly. I just send a question. ‘I think this is a little high, what do you think?’ And it felt like a collaboration.”</i></p>
	<p><i>“Yeah, with more knowledge-based information in my head that, you know, I can, ‘Oh, I’ve researched this. What does this mean?’ And then she can just tell me, ‘Oh well this is the track one, we’re not looking at that. This is, you know...’ It makes the office visit go smooth.”</i></p>
	<p><i>“I didn’t have to make the decision on my own and do something unnecessary.”</i></p>
	<p><i>“It was like a mutual... collaboration. And I felt that we were collaborating about my health.”</i></p>
Increased Trust in Provider	<p><i>“It can be 3 in the morning and I could write a note. And whenever he gets to see it, I get a response to that note. It makes the relationship stronger. You get to communicate with your doctor and...pose questions. And concerns and that type of thing. And... and it’s like this is something I can rely on. Because anything I wanna know, I can get an answer to.”</i></p>
	<p><i>“It was just that he would take the time to read it and respond without like coming in and paying for an appointment just increased my trust. I guess that when a lot of things these days seem to be for the money, he had my well-being in mind. So I think it was very positive that way.”</i></p>
	<p><i>“He saw that I was in the emergency room for whatever and—and they called me based on getting that report to check on how I’m doing. And it just makes the interaction deeper. And more valuable. It’s like... complete care rather than incomplete.”</i></p>
	<p><i>“It generates a good level of confidence, you know, in knowing that... you know, you can speak with somebody, or ask questions, get answers ... to your questions... and those type of things.”</i></p>
	<p><i>“So I think it makes the relationship better.”</i></p>
Increased Engagement in their Health Care	<p><i>“Take control for your own health rather than, um, leaving it all into the hands of the medical—like the staff at the office calling you for your appointments, you know, reminding you of your appointments. You can actually get on there, see your meds list, request your refills. Well that just takes control of... your health care.”</i></p>
	<p><i>“I think that it helps a lot with managing your own care, which is what they are always talking about anymore it seems, about people having to take more responsibility for their own medical care. Again, we aren’t doctors, at least most of us, and we have to be careful to not jump to any conclusions or make life changing decisions on data that we may not understand. But at the same time a lot of what we get is pretty straightforward. Look, my cholesterol is high, according to this test. I guess I need to keep an eye on that. Or this test on my liver came back and it indicates something, I better go talk to the doctor.”</i></p>
	<p><i>“Yeah. It encouraged me to ask more questions. These are questions that I might not have asked or just written down and maybe forgot when I went to see, you know, my physician ... Now I don’t have to wait anymore. I just type up the information and just send it to him.”</i></p>
	<p><i>“I feel like I am an active participant in my health decisions. It’s just a really good thing.”</i></p>
	<p><i>“It’s informative. Not everything do I understand from that because it’s so much terminology and all, and yet it just makes you feel more on board with the information that the doctor has.”</i></p>
	<p><i>“And he sort of talked to me and then I started going out looking at their information out there. Look at that test results, look at that test. Then I started really looking into it and I could see from the beginning when they first started doing those tests, I was outside of all these ranges. And then I started understanding by looking at the numbers that [inaudible] it was coming back within the range. I mean I may not understand all of it but I can easily start to understand that, yeah, the things that they were testing me for within my blood test now they were getting better. I’m finally within the range. And it was because they told me my congestive heart failure had gotten so much better that I didn’t need an operation. Well now I got information on here that I can go out there and read and try to understand these searches and read on my own, for me to understand what they’re telling me.”</i></p>

In our study of experienced portal users with chronic conditions, we found that patients noted important logistical benefits of using a patient portal to manage their health. Overall, they felt using a portal was straightforward and helped them track and manage their medications and symptoms. Patients specifically noted that asynchronous communication and having a written record of their communications with their providers were useful elements of the portal that facilitated management of their chronic conditions. The logistical convenience of the patient portal may thus be helping to enhance patient engagement in their care given the efficiency and usefulness of the portal as a care management tool.

Moreover, we found patients reported important psychological benefits of portal use that they noted facilitated greater engagement in their care. Patients felt that communicating with their provider between visits facilitated a sense of collaboration with their providers and increased their trust in the relationship. This finding is new in the literature and points to benefits of portal engagement that may only emerge when studying experienced users. These psychological factors may be the mechanisms through which portal use can lead to the benefits touted by policy-makers - enhancing the physician-patient relationship and enabling better chronic disease self-management (2-5, 8-11,14). While previous research has highlighted the opportunity of portals to improve patient-physician communication – from the perspectives of both patients^{33,49-52} and physicians^{27,53-55}, ours is the first study to explicate how increased communication through portal use reportedly influences the patient experience and patient engagement. We suggest that improved communication empowers patients to ask questions and seek clarity on their plans of care, resulting in improved quality of care (e.g., reduced medication errors). This, in turn, increases patient engagement through improved shared decision-making, and potentially improves efficiency of the healthcare system by shifting usage through improved communication (e.g., shifting consumers to less costly levels of care).

As experienced users of their patient portal, participants in our study were able to identify additional features that could facilitate even greater engagement and improve their experience using the portal. Patients expressed a desire to have the ability to view provider notes, and to have access to more education on how to interpret results and tests. Another area of improvement noted by our interviewees was the need for interoperability of records across health systems. Currently most PHRs that incorporate secure communication and access to a patient's EHR are tethered to a specific health system. In noting this as a limitation of the portal we studied, experienced patient users join researchers and policy makers in highlighting the importance of this issue⁵⁶.

Limitations

Our study was implemented in only one health system and involved a single patient portal. While the features available in this portal are common to other portals available in other health systems, implementation and guidelines for use may differ by organization and may result in different experiences for patients from those described here. In our interviews we reached saturation of the topics raised, but it is possible that other types of patients and those receiving care from other departments at this health system or from other health systems may have different perspectives. Additionally, it is certainly possible that more engaged patients seek to use the portal at higher rates, in addition to portal use facilitating engagement. However, the proposed mechanisms of engagement discussed by interviewees – such as tracking capabilities and increasing efficiency – are aspects unique to portal use that could reduce the transaction cost to engagement for even those patients least motivated to engage in their care.

Conclusion

As portal use increases, particularly among patients attempting to manage their chronic conditions, the value of these tools for improving patient engagement becomes clearer. Patients in our study noted that not only did portal use help them to better manage their disease, including improving their ability to track and monitor lab and test results, but also conferred psychological benefits such as increasing trust in their providers and improving their sense of collaboration with their care providers. We suggest these impacts are potential mechanisms through which portal use in general, and secure messaging in particular can increase patient engagement in disease self-management. Patients were also able to identify specific elements of a patient portal they felt would improve their ability to engage. These findings can inform administrators and providers as they work to expand portal use in response to policy pressures to increase patient engagement in care. Our findings also suggest that as patients gain more experience with portals, these tools have the potential to take an increasingly greater role in facilitating patient engagement.

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