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Patient perceptions of e-prescribing and its impact on their relationships with providers: A qualitative analysis

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Abstract

Objective—To describe patients' perceptions of e-prescribing and its impact on their quality of care, interactions with prescribers and pharmacists, and engagement in health care overall, particularly in regard to medication use.

Methods—Semistructured, one-on-one interviews of 12 patients.

Results—Patients were generally unfamiliar with the functions of integrated e-prescribing systems and did not perceive that use of such technology affected their relationships with providers. Those respondents having positive perceptions of and experiences with e-prescribing mostly cited convenience and improvements in safety and quality, while patients with negative e-prescribing perceptions and experiences primarily expressed concern about loss of control in the medication use process, misdirected prescriptions, and reduced communication with prescribers and pharmacists.

Conclusion—Patients generally felt unaffected by the use of e-prescribing technology.

However, there may be opportunities to better engage and educate patients, particularly at the point of prescribing.

Keywords

health communication; electronic prescribing; health information technology; pharmacists; physician–patient relationships; qualitative analysis

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The electronic transfer of prescription information from the prescriber to the pharmacist has become widely adopted in our health care system. In 2012, 788 million prescriptions were actively routed electronically, an increase of 38% from 2011.¹ The overall goal of electronic prescribing (e-prescribing) is to enhance efficiency and safety, while decreasing costs and improving quality of care.²⁻⁴

Another potential benefit of e-prescribing systems integrated with electronic medical records (EMRs) is the ability to provide real-time medication information (e.g., prescription benefit data and refill history) that may facilitate more meaningful discussions between patients and prescribers.⁵

Overall, previous studies have found prescriber and pharmacist experiences with e-prescribing systems to be generally positive,⁶⁻¹⁰ with 83% of primary care physicians preferring e-prescribing to traditional prescribing.¹¹ Pharmacists have reported perceived improvements in effectiveness and efficiency of care, as well as patient safety.⁷ However, while the goals of e-prescribing are positive, use of the technology does introduce the potential for new medication safety concerns, workflow disruptions, and other challenges.^{12,13} Community pharmacists have reported that e-prescribing has affected their communication and interaction with patients, which they suspect could have medication safety implications.¹⁴

To our knowledge, few studies have addressed patient perspectives on e-prescribing in the United States. Lapane et al. identified positive attitudes of older patients about e-prescribing and a related increase in discussions between patients and prescribers about medication adherence and medication safety.¹⁵ A separate study coauthored by Lapane determined that while patients who received e-prescriptions did not perceive a related increase in medication-related communication with their providers, they were more likely than patients not receiving e-prescriptions to report that their provider always verifies their list of current medications.¹⁶ These studies focus primarily on patient perceptions of the e-prescribing experience, with little attention to the pharmacy experience and patient-pharmacist relationships.

This study seeks to examine the e-prescribing experiences of patients beyond the geriatric population and the perceived impact, if any, that the use of integrated e-prescribing has on patients' engagement in their medication use and interactions with their health care providers, including pharmacists.

Objective

The objective of this study was to describe patients' perceptions of e-prescribing and its impact on their quality of care, interactions with prescribers and pharmacists, and engagement in health care overall, particularly in regard to medication use.

Methods

Design

We conducted semistructured, one-on-one interviews with patients at a grocery store–based chain pharmacy in central Indiana. We employed this approach so that we would have the flexibility to explore patient perceptions. The study was approved by the Purdue University Institutional Review Board.

Participants

We generated a list of prescribers who most frequently send e-prescriptions to the pharmacy and contacted them to verify their use of EMR-integrated e-prescribing systems with access to certain functionalities, including pharmacy benefits data and claims-based prescription refill reports. When e-prescriptions from these prescribers were processed, a flyer was attached to patients' prescription bags to invite them to contact us for information about the study. Patients 18 years of age or older and using at least one regularly scheduled prescription medication (to ensure regular pharmacy visits) were eligible. Patients were offered a \$25 gift card as an incentive to participate.

Data collection and analysis

Our interview guide assessed general prescription routing, adherence, pharmacy benefits, and patient–pharmacist relationships (see Appendix A, available under Supplemental Content on JAPhA.org). The guide was pilot tested with two patients at another pharmacy. Interviews were conducted in a private room at the pharmacy by a single investigator (CKF). Interviews were audio recorded and transcribed verbatim by a commercial medical transcriptionist agency, with transcripts verified against the audio recordings. As part of the interview, limited demographic data were also collected.

Transcripts were read and coded separately by two investigators (CKF and MES) and then discussed to identify inconsistencies and achieve consensus regarding coding decisions. We applied conceptual codes¹⁷ to identify main overarching ideas expressed and completed subcoding to further examine each main idea. The investigators maintained a codebook and audit trail to record decisions. Qualitative analysis was supported by MAXQDA v. 10 (VERBI, Berlin, Germany), and descriptive statistics for demographic data were computed using SPSS v. 19 (IBM).

Results

Between April and October 2012, we conducted 12 interviews lasting approximately 15–60 minutes each. Generally, participants were white (75%), women (58%), older adults (mean age: 65 years) and using an average of six regularly scheduled prescriptions (Table 1). The following describes prominent themes from the analysis. Counts of participants who responded in a certain way are provided for readers. Participant counts may not sum to 12, as responses were not mutually exclusive.

How patients define e-prescribing

The majority of participants were unfamiliar with e-prescribing and could offer limited explanation when asked to describe what it meant to them. Most explained that the prescriber used a computer and that the prescription was sent directly to the pharmacy instead of being handwritten (n = 9). One patient believed e-prescribing was the same as using a mail-service pharmacy, while another thought it synonymous with the automated refill system used by the pharmacy. Those patients with extremely limited knowledge of e-prescribing were provided an explanation of the service. The interview only proceeded after patients developed a clear understanding.

Positive perceptions/experiences

Patients' positive perceptions of and experiences with e-prescribing were mostly related to convenience (n = 6), safety and quality (n = 4), and cost (n = 2). Positive experiences related to cost were reported both in terms of reduced overall cost to the health care system and personal medication expenditures. One patient reported that his physician worked with him using the formulary function of his EMR to identify an alternative agent when the cost of his insulin became too great. Safety- and quality-related issues included a perceived reduction in medication errors, increased access to information for prescribers, and the availability of an after-visit summary.

A 61-year-old woman made the following positive observation: "I have another physician that nobody can read his writing...so with the written prescriptions sometimes dosages were incorrect... And with e-prescribing they don't have to interpret his hieroglyphics...so the dosages are correct."

Negative perceptions/experiences

Those patients with negative e-prescribing perceptions and experiences mostly cited relationship and communication challenges with their pharmacist and prescribers (n = 5), prescriptions being sent to the wrong pharmacy (n = 3), and feeling less control over their prescriptions (n = 3). Several patients reported that their e-prescription had been misdirected to an incorrect community pharmacy or mail-service pharmacy, or it was never received by the pharmacy at all. Relationship and communication challenges with prescribers included worsened interpersonal communications because the prescriber seemed to direct his or her attention to the computer rather than the patient. Relationship and communication challenges with pharmacists included losing an opportunity for interaction during the prescription drop-off step.

Generally, patients associated e-prescribing with a loss of control over their prescriptions, with delays in transmission of a prescription leading to delays in receiving the medication. Patients also noted that written prescriptions allow them to personally access information about what is being prescribed, even if it's just the name of the medication. The two patient statements provided below are examples of negative e-prescribing perceptions/experiences.

- "If I have the prescription in my hand, I can read it," said a 76-year-old woman. "When it is sent electronically or faxed, I don't even know what it is until I see my bottle."

- “I’m a person who likes to know what’s going on with my medications,” said a 61-year-old woman. “My pharmacist is part of my health care team, and I miss the opportunities for interaction... taking it in [to the pharmacy] gives me a chance to ask questions before I’m in a rush and trying to pick it up and everybody’s behind me.”

Despite participants’ identification of advantages and disadvantages associated with e-prescribing, most patients reported no personal impact from the technology or made neutral comments about its use. Specifically, patients reported no change in relation to adherence and adherence-related discussions (n = 5), cost and cost-related discussions (n = 3), physician (n = 1) and pharmacist (n = 8) relationships, and review of their medication list at their prescriber’s office (n = 2).

Discussion

Generally, patients were unfamiliar with e-prescribing and EMRs and felt that use of the technology had little impact on their care. However, patients did report positive perceptions and experiences related to convenience, cost, and safety and quality, as well as negative perceptions and experiences related to communication and relationship challenges with their pharmacist and prescribers, feeling less control over their prescriptions, and misdirection of their prescriptions. Participants in this study did not perceive that adherence-related discussions and reviews of their current medications were emphasized as a result of e-prescribing, which contrasts with earlier findings reported by Lapane et al.¹² Our findings are similar to those reported previously in terms of e-prescribing having a limited impact on patient experience,^{12,13} but we can also see opportunities to use this technology to enhance the patient experience.

Despite limited first-hand accounts of the benefits of e-prescribing and integrated EMRs, some patients did provide specific examples of the technology’s role in enhancing their care. These positive experiences point to the opportunity to optimize technology to improve the general patient experience in the future. One common concern expressed by patients was the loss of opportunities to interact with the community pharmacist during the prescription drop-off step. Some patients reported using this time as another chance to learn more about a medication before deciding to have it filled, which may also provide pharmacists an opportunity to reduce primary nonadherence. Similar challenges with losing this step have been noted elsewhere in the literature.¹⁴

Other patients expressed concern that the use of e-prescribing resulted in not having any information about their prescription, including drug name, until reaching the pharmacy. Such patients could benefit from additional information and resources available through the EMR at the point of prescribing, such as printed patient information and after-visit summaries. Further research may be needed to determine how prescribers can leverage these existing tools to better prepare and educate patients for encounters with their pharmacist, as well as to improve prescribing decisions. Pharmacists should also be aware of potential problems that could stem from miscommunication related to e-prescribing.

Limitations

This study had several limitations. Challenges with patient recruitment resulted in stopping data collection after fewer interviews than anticipated; it is unknown whether additional interviews would have revealed other important themes. Two of the interviews were limited by language barriers, as they involved patients who did not speak English as a first language. While these interviews were included in the analysis, answers to some of the more complex questions were less descriptive and were therefore of limited contribution. The extent to which prescribers access EMR functionalities was not assessed; the investigators only verified that prescribers had access to these features. Finally, patients were recruited from a single pharmacy in central Indiana, so it is unknown how our findings could be transferred to other settings.

Conclusion

Patients reported positive perceptions and experiences related to convenience, cost, and safety and quality, and negative experiences related to prescriptions being sent to the wrong pharmacy, relationship and communication challenges with their pharmacist and prescribers, and feeling less control over their prescriptions. With e-prescribing resulting in loss of the prescription drop-off step, opportunities exist to better educate and engage patients at the point of prescribing to prepare them for their visit to the community pharmacy. Optimizing use of after-visit summaries and patient education materials already available through prescribers' EMRs could improve patient experiences with e-prescribing. Pharmacists should be aware of these potential challenges and opportunities related to e-prescribing.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Sample Demographics (n= 12)

Characteristic		Result
Age, Mean (SD)		64.92 (11.79)
Range		50–89
Male Sex, n (%)		5 (42)
Race, n (%)	White	9 (75)
	Black	3 (25)
Number of Prescriptions, Median (Range)		6 (1–12)
Number of Prescribers, Median (Range)		4 (1–8)
Prescription Payers, n (%)	Commercial Insurance	6 (50)
	Medicaid	2 (17)
	Medicare Part D	1 (8)
	Medicaid/Medicare Dual Eligible	1 (8)
	Tricare	1 (8)
	Uninsured	1 (8)
Greater than One Pharmacy, n (%)	Use of Multiple Community Pharmacies (No Mail Order)	4 (33)
	Use of Multiple Community Pharmacies (Including Mail Order)	2 (17)