HHS Public Access

Author manuscript

J Am Pharm Assoc (2003). Author manuscript; available in PMC 2015 March 24.

Published in final edited form as:

J Am Pharm Assoc (2003). 2011 ; 51(6): 746–755. doi:10.1331/JAPhA.2011.10190.

Pharmacists' perspectives on promoting medication adherence among patients with HIV

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Abstract

Objectives—To provide pharmacists' perspectives on medication adherence barriers for patients with human immunodeficiency virus (HIV) and to describe pharmacists' strategies for promoting adherence to antiretroviral medications.

Design—Multisite, qualitative, descriptive study.

Setting—Four midwestern U.S. states, from August through October 2009.

Participants—19 pharmacists at 10 pharmacies providing services to patients with HIV.

Intervention—Pharmacists were interviewed using a semistructured interview guide.

Main outcome measures—Barriers to medication adherence, pharmacist interventions, challenges to promoting adherence.

Results—Pharmacists reported a range of adherence barriers that were patient specific (e.g., cognitive factors, lack of social support), therapy related (e.g., adverse effects, intolerable medications), and structural level (e.g., strained provider relationships). They used a combination of individually tailored, patient-specific interventions that identified and resolved adherence barriers and actively anticipated and addressed potential adherence barriers. Pharmacist interventions included medication-specific education to enhance patient self-efficacy, follow-up calls to monitor adherence, practical and social support to motivate adherence, and patient referrals to other health care providers. However, the pharmacists faced internal (e.g., lack of time, lack of trained personnel) and external (e.g., insurance policies that disallowed patient enrollment in automatic prescription refill program) challenges.

Conclusion—Pharmacists in community settings went beyond prescription drug counseling mandated by law to provide additional pharmacy services that were tailored to the needs of patients with HIV. Given that many individuals with HIV are living longer, more research is

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Disclosure: The authors declare no conflicts of interest or financial interests in any product or service mentioned in this article, including grants, employment, gifts, stock holdings, or honoraria.

Previous presentations: XVIII International AIDS Conference, Vienna, Austria, July 18–23, 2010; Department of Pharmacy Practice and Science, University of Kentucky, Lexington, March 5, 2010; and CAIR, Medical College of Wisconsin, Milwaukee, November 16, 2009.

needed on the effectiveness and cost effectiveness of pharmacists' interventions in clinical practice, in order to inform insurance reimbursement policies.

Keywords

Clinical interventions; pharmacists; patient-centered care; barriers; medication adherence; health promotion; human immunodeficiency virus

Despite newer antiretroviral therapies for human immunodeficiency virus (HIV) with fewer adverse effects, longer lasting drug effects, and reduced pill burden, patient adherence to antiretroviral medications continues to be a challenge in clinical practice.[1–3] For many individuals with HIV, the full benefits of therapy (improved immune function, lower incidence of morbidity, and higher health-related quality of life), are not realized as a result of poor adherence.[4,5] Adherence is a complex phenomenon that involves more than just remembering to take medications. It includes social, cultural, economic, and personal factors that affect access to medications and motivation to adhere to therapy.[6] Adherence behavior is dynamic: It may deteriorate over time as HIV illness improves, symptoms diminish, or adverse effects increase.[1,7,8] The individual and public health implications of inconsistent adherence patterns have been documented extensively in the literature.[2,7–12]

Antiretroviral adherence research, which is now in its second decade, has provided valuable information regarding optimal levels of adherence; barriers, facilitators, and factors associated with adherence; the impact of adherence on clinical outcomes; and the efficacy of structural and behavioral interventions to promote adherence.[1,9] The theoretical models that explain patient adherence-related behavior, including the social cognitive theory and the information–motivation–behavioral models that have provided the conceptual framework of adherence intervention studies, are well developed.[13] Reviews of adherence interventions note that no single intervention can address the complexity of factors influencing patients' ability to adhere to antiretroviral medications. Therefore, a multifaceted and interdisciplinary approach to promoting adherence is recommended.[6,13]

Despite our theoretical understanding of adherence models and the success of adherence interventions in clinical trials, many patients with HIV continue to struggle to achieve therapeutic goals: only about one-half of those on treatment are able to achieve undetectable viral loads in clinical practice compared with 60% to 90% of individuals participating in randomized controlled trials.[5,8,14–16] Further, how these adherence models can be combined in practice to inform strategies for interventions is not known, and the mechanisms that relate to the success of adherence interventions are not fully understood.[17,18] Thus, a continued need exists for research to guide the process of implementing effective clinic-based strategies for promoting adherence that have demonstrated efficacy in clinical trials.[1,2,4,18]

Pharmacists are well positioned to take on the translational challenge of implementing adherence strategies in clinical practice that have proven efficacious in clinical trials. First, pharmacists are potentially more accessible than physicians because of extended hours of operation and more convenient locations and can serve as a source of information and support for patients with HIV and their families.[19–21] Second, pharmacists are the last health

professional in contact with patients before they take their medications and therefore are uniquely positioned to reinforce adherence messages received from other health care providers. Third, pharmacists have education and training in drug effects and the management of adverse effects. Fourth, pharmacists have played an effective role in disease management of other chronic conditions such as diabetes and heart disease, for which their direct involvement improved patient health outcomes and reduced medical care costs.[22,23] Last, pharmacist-led interventions including patient education, reinforcement of regimen self-management, and individualized one-on-one patient counseling have demonstrated efficacy in clinical trials.[1,7,8,24–29]

The pharmacy profession has experienced a paradigm shift in the philosophy of pharmacy practice from a product-specific to a patient-centered approach and in the pharmacy organizational structure through the growth of specialty pharmacies. In providing patient-centered pharmacy services, the pharmacist communicates and collaborates with other health care providers to identify, resolve, and prevent actual and/or potential medication-related problems through designing, implementing, and monitoring a patient therapeutic plan.[30,31] Through patient-centered pharmacy services, pharmacists go beyond the prescription dispensing service mandated by law to improve patients' health outcomes and enhance their quality of life. These paradigm shifts toward more patient-centered pharmacy practice and increased numbers of specialty pharmacies have important implications for pharmacists' potential roles in promoting antiretroviral adherence, reducing medication-related morbidity and mortality, and improving the health outcomes and health-related quality of life for patients with HIV.

Objectives

We sought to document pharmacists' experiences in providing patient-centered pharmacy services to patients with HIV in community settings. Specifically, we provide pharmacists' perspectives on adherence barriers that affect patients with HIV and describe pharmacists' strategies for addressing these barriers and promoting antiretroviral adherence.

Methods

We used a qualitative approach to explore the experiences and strategies of pharmacists for promoting patient adherence to antiretroviral medications. We used in-depth interviews to allow pharmacists to identify the full range of adherence barriers from their perspective and describe strategies for promoting adherence to antiretroviral medications. The semistructured interview guide focused on select adherence topics and provided flexibility to probe pharmacists in order to gain more insight on pharmacists' perceptions and reasoning.[31–35]

We used purposive sampling methods to identify three pharmacy organizations: one specialty-only pharmacy organization and two community chain pharmacy organizations in the midwestern United States. Specialty pharmacies focus on high-cost pharmacy products for chronic conditions (e.g., cancer, HIV) and tend to serve a narrow, expensive-to-treat patient population. The specialty-only and community chain pharmacy organizations

represent the range of community pharmacy settings in which patients with HIV fill antiretroviral medications. We recruited pharmacists and pharmacy managers to obtain a procedural and administrative perspective of adherence barriers and organizational factors affecting pharmacist efforts to promote antiretroviral adherence. Participants who completed the interview were given a small gift to compensate them for their time and contribution to the study. The study procedures were reviewed and approved by the Medical College of Wisconsin Institutional Review Board.

We sought permission for the study by contacting the corporate office of each pharmacy organization. One community chain pharmacy organization declined to participate in the study. We proceeded with two pharmacy organizations (one specialty-only pharmacy and one community chain pharmacy). We identified four states in the midwestern United States based on the distribution of the two organizations' pharmacy networks and the HIV population. We contacted the district supervisors in charge of each metropolitan city, and they identified the pharmacies for the study and provided us with the contact information of the pharmacy managers.

We then initiated contact with each pharmacy manager and invited them to participate in the study. We conducted a telephone screening to ensure that participating pharmacies met eligibility criteria (i.e., that the HIV population was at least 3% of the total pharmacy business). The managers also were asked to provide the name of one pharmacist providing patient-centered pharmacy services to patients with HIV. We contacted each pharmacist and invited them to participate in the study. All of the managers and pharmacists contacted met the study eligibility criteria (i.e., were licensed pharmacists and provided patient-centered pharmacy services to patients with HIV) and consented to participate in the study.

We conducted pilot interviews at both pharmacy organizations in August 2009. The objective of the pilot study was to test the appropriateness of the interview questions and refine the final interview guide. The final phase of the study began in September 2009 and ended in October 2009. Managers and pharmacists were interviewed individually at their pharmacy regarding the following topics: (1) barriers to adherence from their perspective, (2) how these barriers were addressed, (3) other strategies used to promote patient adherence, and (4) facilitators and challenges faced while promoting adherence to antiretroviral medications. We asked managers to provide general information on their pharmacy and patient demographics.

Data analysis

The digitally recorded interviews were transcribed verbatim and verified for accuracy. The transcripts then were imported into MAXQDA (version 10; Verbi Software, Marburg, Germany), which is a qualitative software program for text-based data management and analysis. All interviews were grouped together to preserve confidentiality of the pharmacy organization.

Transcript coding was done in four steps. In the first step, the first author read all interview transcripts in order to identify broad themes that emerged from the interviews. In addition to themes used to develop the interview guide, other themes emerged in the process of coding

and analyzing the interview transcripts. Second, both authors clustered the themes into core categories, then segments were coded again. Third, the first author tested the initial coding scheme using two additional transcripts to ensure that no new themes and/or codes emerged. Fourth, the second author reviewed the initial coding scheme using the interview transcripts and made suggestions for refining the coding scheme. Disagreements were discussed and full consensus reached before a final coding scheme was developed. The remaining transcripts were coded by the first author and verified by the second author. Last, both authors grouped and categorized codes, then identified patterns and variations in pharmacists' responses. The quotes in the RESULTS section were selected to provide the range of pharmacists' experiences and opinions and do not represent the perspectives of all pharmacists interviewed.

Results

We interviewed 19 pharmacists (10 managers and 9 pharmacists). Interviews took between 40 and 100 minutes and were recorded digitally. Two-thirds of the pharmacists interviewed worked in specialty pharmacies, and one-third worked in proximity of hospitals (i.e., on-site settings). None of the pharmacists was affiliated with the hospital or health system in which patients received care. Of the 19 pharmacists, 7 were recent graduates (<5 years postlicensure experience) and 3 had more than 10 years postlicensure experience. The pharmacist characteristics are summarized in Table 1.

The majority of pharmacists reported that most of their clients had other chronic conditions (oncology and organ transplant). A total of seven pharmacists reported that patients with HIV were more than 50% of their clientele, three pharmacists reported 10% to 50%, and nine pharmacists reported less than 10%. Regarding race/ethnicity, 40% of pharmacists reported that their patients with HIV were mainly white, 33% reported mainly minorities, and 27% indicated racial diversity. Most pharmacists reported that their patients with HIV were of low socioeconomic status and on public health insurance.

Pharmacists reported using prescription refill history and patient self-report to assess adherence and identify patients who were having problems adhering to antiretroviral medications. Pharmacists' encounters with patients ranged from 10 minutes spent answering questions at the checkout window, to 45-minute private consultations with new patients starting therapy, and to 3-hour targeted interventions with patients struggling to adhere to therapy. Based on pharmacist's responses, we identified three broad types of barriers to antiretroviral adherence: patient specific, therapy related, and structural level. Table 2 provides a summary of our findings.

Patient-specific barriers

Patient-specific barriers were the most commonly cited reasons for poor adherence to antiretroviral medications. We identified the following patient-specific factors: cognitive; health literacy related; lack of social support; psychological, mental health, and substance abuse; and economic.

Cognitive factors—Patients may forget to take their dose for various reasons, such as storing medications in an inconspicuous location (e.g., refrigerator) or running out of medications. Interruptions in the daily routine (e.g., travel, social activities) also may cause patients to forget to take medications because of the absence of activities/routines that cue them to take medications. In addition, patients may forget to take medications because their dosing times are inconvenient and do not fit into their daily schedule.

Pharmacist intervention: At the start of therapy, pharmacists reported spending time counseling patients on appropriate places to store medications (e.g., next to the coffee pot), planning for travel, and always bringing medication when away from home. Other proactive strategies used by pharmacists included enrolling patients in automatic prescription refill programs and making reminder telephone calls to patients a few days before a prescription was due to arrange for delivery. Pharmacists also provided adherence reminder tools (e.g., alarms, calendars), adherence support tools (e.g., pill boxes, pill organizers), and blister-packed medications to help patients remember to take their medications. Pharmacists educated patients to refill prescriptions early to avoid running out and provided an emergency supply of medications to patients in order to avoid interruptions in therapy. Pharmacists also helped patients think through their daily routine in order to identify a convenient dosing time when medication adverse effects would not interfere with their daily life. One pharmacist described how he helped a patient with HIV adjust his antiretroviral administration schedule, which was affecting his adherence and having an adverse impact on the patient's ability to function at work:

> "I had a gentleman who was on [emtricitabine/tenofovir/efavirenz] once a day, and he was just taking it in the morning. He was hallucinating and having a difficult time during the day staying awake. He had been on it for probably a year, and no one ever explained to him to take it on an empty stomach or what time to take it to minimize some of the adverse effects. So he was forgetting to take his dose in the morning and just kind of taking it once every 3 days. He had a weird job routine. We got him switched over from his morning routine to a night routine. He went from missing three doses a week down to one or two a month, which was a big deal for him" (Pharmacist, <1 year experience, 60% HIV patients).

By asking the patient specific questions about his work and dosing routine and medication-specific adverse effects, the pharmacist was able to identify the reason for the patient's erratic adherence. The pharmacist educated the patient on proper medication dosing and helped him to identify a convenient dosing time to minimize adverse effects.

Health literacy–related factors—Patients may have misconceptions about what constitutes good adherence and may self-tailor their antiretroviral regimens. Although patients know that taking antiretrovirals is important, few may understand why they are taking a specific drug or combination of drugs or the reason for frequent dosing of medications. Patients may know that inconsistent adherence can lead to drug resistance, but they may not understand that they could develop cross resistance to multiple drugs. Patients may not take medications as prescribed because they have problems reading prescription label instructions, identifying pills, or understanding how to take medications.

Pharmacist intervention: Pharmacists conducted medication-specific education for patients about to begin therapy, changing their antiretroviral regimen, and experiencing problems adhering to medications. Medication-specific education involved correlating a specific drug to a disease condition and health outcome, and explaining the function of each drug and the importance of adherence in maintaining adequate drug concentrations to suppress the virus and reduce its replication. Pharmacists educated patients on how to catch up with missed doses and the importance of documenting and reporting missed doses to their physician. Other strategies included the use of visual aids, such as pictures of antiretroviral drugs to demonstrate how resistance reduces future treatment options, and graph plots of CD4 count and adherence to motivate patients to engage in their health and set therapy goals. For patients with comprehension problems who required more guidance, one pharmacist opened each pill bottle, showed the medication to the patient, and explained proper administration:

> "Sometimes you have to break it down: 'take the blue one, a white one, and an orange one.' It gets that basic: 'every color, every day, and you will be fine'" (pharmacy manager, 3 years experience, 96% HIV patients).

Pharmacists tailored their medication adherence communication to a level consistent with patients' literacy and cognitive ability.

Lack of social support—Patients with HIV may lack a social network for helping them cope with their diagnosis or providing practical support such as reminding them to take their antiretroviral medications. A patient's close social network can provide feedback on behavior or mood changes and help distinguish between medication-induced and non–medication-induced behavioral changes. Patients with HIV without a good social support system may have a hard time coping with the demands of antiretroviral therapy.

Pharmacist intervention: Pharmacists may provide direct support to socially isolated individuals who are unable (e.g., because they lack family or close friends) or unwilling (e.g., because they fear being stigmatized or discriminated against) to disclose their HIV status. Pharmacists encouraged patients to enlist social support, referred patients to HIV-related social networks, and directly provided emotional and/or informational support to patients with HIV, as illustrated by the following comment:

> "We have a patient that is acquired immunodeficiency syndrome (AIDS) defined and has a lot of AIDS dementia. He is an adult in his 40s. In the last 6 months, he has included his mom in his life so his mom now understands what is going on with him. She did not know before. His mom is very involved now in his care and has been a tremendous asset in helping him be adherent. I think that sitting down with him and going through the importance of those significant others to help him take meds and provide emotional support made a difference. We can give him all the tools, but if he does not know that somebody cares and if we can't get somebody to work with us and the patient, it makes it harder" (pharmacist, 2 years experience, <5% HIV patients).

The patient had multiple barriers, including mental health issues and lack of social support, that made it difficult to cope with the demands of antiretroviral treatment. Following the

pharmacist's intervention, the patient's mother provided practical help and an emotional connection so that the patient felt understood and supported by someone who loved him.

In addition to providing pharmacy services to patients with HIV, pharmacists reported having other roles that were both time consuming and emotionally involving:

> "I am a PharmD [pharmacist], but I feel more of a social worker. [I] talk to patients who come in sad, some who come in angry. [I] make sure that they are okay, and let them know that we are here for them. Basically hand holding, 'What is stopping you from coming in?,' 'What is going on?' It's more social support, I would have to say. I spend more time with nonpharmacy stuff. I wish I could hire a social worker to work here" (pharmacy manager, 3 years experience, 96% HIV patients).

This pharmacist asked her patients questions that were not routine during a "normal" pharmacy visit. Although the pharmacist felt ill equipped to solve all problems, her ability to empathize with patients may have had a positive psychological effect. Instead of feeling overwhelmed by her patients' needs, the pharmacist could have referred them to social services and other professionals with the resources and expertise to meet the patients' specific need(s).

Psychological, mental health, and substance abuse barriers—Patients with HIV and mental health comorbidities (e.g., anxiety, depression) may be unable to cope with HIV and the demands of antiretroviral therapy. Some patients may refuse to take their antiretroviral medications because they do not want to confront their HIV diagnosis. Patients with HIV can engage in risky behaviors (e.g., substance abuse) that can socially isolate them, interfere with their ability to adhere to medications, and reduce the effectiveness of antiretroviral therapy.

Pharmacist intervention: Pharmacists educated patients on harm-reduction strategies, created awareness of the adverse effects of addictive behaviors, and referred patients to mental and substance abuse treatment centers. Pharmacists also worked closely with other health care providers to identify potential adherence problems and kept them informed of patient issues.

Economic-related factors—Economic-related factors include physical, financial, and environmental barriers that have an underlying economic cause. Patients with HIV may be unable to physically refill prescriptions at a pharmacy because they lack transportation, have poor mobility related to health issues, or are living in a rural area without a pharmacy that dispenses antiretroviral medications. Financial barriers that impede access to expensive antiretroviral medications relate to a lack of or inadequate health insurance: unemployed patients who do not qualify for public insurance may not have insurance, and patients on high-deductible or spending-limit plans may have inadequate private insurance. Environmental barriers such as crowded housing situations can be a treatment barrier for patients who are afraid to disclose their HIV status.

Pharmacist interventions: To address physical barriers, pharmacies delivered medications through U.S. mail or FedEx to a convenient location (e.g., home) at no additional cost to the

patient. To address financial barriers, pharmacists provided manufacturer coupons, waived copays, made referrals to financial assistance programs (e.g., state AIDS Drug Assistance Programs), and worked with physicians to identify cheaper alternatives. However, financial barriers may persist for patients who do not know that their copays can be waived, as demonstrated by the following comment:

> "A lot of them, even though they have Medicaid, it's like a $1 or $2 copay, they couldn't afford it. I told them over and over again: 'We can waive the copay. Come in and get your meds.' [We] can waive the copay [for state Medicaid] if the patient says he doesn't have the money. We waive a lot of the copays here, not just for HIV patients but also for the general public" (pharmacist, 2 years experience, <5% HIV patients).

Pharmacists collaborated with social workers to meet the socioeconomic needs of patients with HIV, as shown by the following comment:

> "She [the patient] would come and talk to me because she felt comfortable. I was a pharmacist, giving her medicine and talking to her about her medications. We would talk about daily life, and she told me what was going on. She was moving from place to place and didn't want to stay in one place. People wanted to know why she was taking all of this medicine. So I talked to the social worker, and we were able to get her a place to stay. She would bring in her medication box and we would fill it up for her, and she would bring it back at the end of month. We would make sure that she was taking her medicine" (pharmacy manager, 12 years experience, 80% HIV patients).

Unlike the previous pharmacist who felt overwhelmed with patients' unmet needs, this pharmacist had access to and was able to work with a social worker to secure housing for the patient. The pharmacist also provided support tools and closely monitored the patient to ensure medication adherence.

Challenges addressing patient-specific barriers

Despite pharmacists' willingness and ability to actively promote adherence, they still faced challenges in addressing patient-specific barriers. First, some patients with HIV were not interested in adherence counseling because they did not want to talk about their condition or had not come to terms with their HIV status. Second, some patients who had not disclosed their HIV status refused to use adherence reminder tools that would compromise their privacy. Third, pharmacists felt unprepared to deal with psychological and substance abuse problems among patients with HIV. Fourth, pharmacists faced barriers related to insurance policies. Although many states allowed pharmacists to waive copays for patients with HIV on public insurance, financial barriers persisted for patients who were not aware of this policy and refused to fill their prescription for financial reasons. Other insurance policies that impeded pharmacists' efforts included mandates to fill prescriptions at a mail service facility and policies that disallowed patient enrollment in automatic prescription refill programs.

Therapy-related barriers

We identified the following therapy-related barriers affecting adherence to antiretroviral medications: adverse effects, intolerable medications, polypharmacy (i.e., too many drugs), and unresolved medication-related concerns.

Adverse effects—Newly diagnosed patients may be reluctant to start taking antiretroviral medications, despite having filled their prescriptions due to fear of adverse effects that are embarrassing (e.g., diarrhea) or physically draining (e.g., fatigue). These patients may have heard "horror stories" about medication adverse effects (e.g., nightmares) or may know people who died despite being on medications that can make them question the potency of antiretroviral drugs. Patients may discontinue therapy because they experience unanticipated and/or intolerable adverse effects.

Pharmacist intervention: Pharmacists used a combination of proactive strategies (e.g., medication-specific education on potential adverse effects, symptoms and duration of adverse effects, ways to manage adverse effects) at the start of therapy to normalize the adverse effect experience, as demonstrated by the following comment:

> "If we don't tell them, they go home and have a lot of diarrhea and say, 'I'm not taking this medication ever again.' If we tell them, 'You are going to have diarrhea and it's going to last a matter of weeks and then it will get better,' they are more likely to persevere through that adverse effect and continue the medication" (pharmacy manager, 6 years experience, 50% HIV patients).

Pharmacists managed adverse effects in multiple ways, including helping patients identify medications with tolerable adverse effects, recommending over-the-counter medications (e.g., antidiarrhea drugs), and advising patients not to discontinue therapy without first contacting their physician. For patients initiating therapy or changing their antiretroviral regimen, pharmacists made follow-up telephone calls within a few days to ensure that patients were taking medications and not experiencing adverse effects.

Intolerable medications—Patients may discontinue therapy because they cannot tolerate the taste of their antiretroviral medications.

Pharmacist intervention: Pharmacists worked with patients and their physicians to identify medications that were more tolerable to the patients (e.g., capsule prescription in place of solution-formulated prescription). For patients who found their liquid medications distasteful, pharmacists provided them with large gel capsules to put their medications in so they did not have to taste it. One pharmacist reported collaborating with the physician to design an antiretroviral regimen:

> "A horridly nonadherent patient diagnosed with AIDS had esophageal ulcers that made it painful for her to swallow. The physicians had switched her regimens so many times because she just wouldn't take certain ones. I took her aside and spent 3 hours with her one day, and with the physician's consent had her taste test all the liquid formulations of every med that was out there. Not a full dose, so we weren't worried about [drug] resistance happening, but going through and helping her

> figure out which ones she would be willing to take, and then coming up with an appropriate regimen, all based off her taste testing everything. We came up with something the physician approved. She agreed to the liquids plus the small pills" (pharmacy manager, 12 years experience, 80% HIV patients).

This pharmacist was willing to spend time working with the patient to identify an antiretroviral regimen despite not being compensated for his time. This intervention underscores the importance of getting patients to participate and cooperate in the design of their antiretroviral therapy to increase the likelihood of adherence.

Polypharmacy—Patients with HIV taking medications for other chronic conditions may feel overwhelmed and confused by the high number of medications they are taking. Other patients may have drugs that have expired, are duplicated, or are contraindicated with their antiretroviral medications. Having too many drugs makes patients with HIV at risk for medication-related problems and/or nonadherence.[18]

Pharmacist intervention: Pharmacists asked patients to bring all medications to the pharmacy, then sorted them and removed inappropriate drugs (expired, contraindicated, and/or discontinued drugs). Some pharmacists reported preparing a medication list using information from patients, their physician, and the pharmacy records.

Unresolved medication-related concerns—Patients may have unresolved medication-related concerns (e.g., how to take their medication, dealing with adverse effects) that may prevent them from adhering to therapy.

Pharmacist intervention: To ensure that patients and/or caregivers had access to someone who could address their questions and concerns in a timely manner, pharmacies had a telephone hotline that was answered only by a pharmacist during working hours and a pager number for an on-call pharmacist accessible after hours.

Challenges addressing therapy-related barriers

The main challenge pharmacists faced in addressing therapy-related barriers was a lack of understanding of physicians' prescribing decisions. First, some pharmacists felt that physician antiretroviral prescribing patterns were nonstandard, which made it difficult to understand the treatment plan if patients with HIV failed their current antiretroviral regimen. Second, some noninfectious disease physicians (e.g., cardiologists) prescribed medications that were contraindicated with antiretroviral medications. Although physicians do not normally consult pharmacists before prescribing drugs, pharmacists expressed a desire to be consulted before the physician prescribed antiretroviral medications under certain circumstances. These circumstances included when a noninfectious disease physician is unfamiliar with how the medications they prescribe interact with antiretroviral medications and when a physician does not have a complete patient medication list. Pharmacists were of the opinion that a team approach to health care delivery in which physicians used the expertise of pharmacists in tailoring medication regimens was in the best interest of patients with HIV.

Structural-level barriers

Two structural-level barriers to medication adherence were identified: strained patient–provider relationships and a depersonalized health care system.

Strained patient–provider relationships—Patients and their providers may have a strained relationship because of factors that break down trust, including poor communication, lack of rapport, disrespect, and lack of provider responsiveness.

Pharmacist intervention: Pharmacists improved patient–provider relationships by counseling patients on the importance of keeping appointments with other health care providers and reinforcing adherence messages received from providers. Pharmacists also reported mediating in patient–case manager relationships about incomplete insurance paperwork to ensure payment of antiretroviral medication costs. One pharmacist used his professional connections to refer a patient to an infectious disease specialist:

> "When he first came in, he was getting discharged from the hospital and did not look good at all. We sat down and talked, and he admitted he had a lot of personal and drug abuse problems. He decided to start over, and I explained to him, 'Tell us what you need and we will do it.' He had problems with some of the physicians. The physicians upstairs had dismissed him from their practice. There is another HIV practitioner down the street who I knew from going to dinners and professional events. I was able to get him an appointment. The guy down there is very approachable and patients really seem to like him. They have a great relationship. Since then, he has been very compliant with his medications. When he is late refilling, it's 5 or 6 days and not 2 months. He hasn't been back in the hospital" (pharmacy manager, 5 years experience, 7% HIV patients).

The pharmacist was willing to listen to the patient and offer practical support. The pharmacist's intervention improved the patient's antiretroviral adherence and, by preventing hospital readmission, saved health care costs.

Depersonalized health care system—In a large health care setting, patients may feel like they are being passed along and therefore disconnected with their health care providers. This feeling of disconnection may depersonalize patient encounters with health care providers and affect adherence adversely.

Pharmacist intervention: Pharmacists made efforts to humanize their patients' experience at the pharmacy by establishing and maintaining relationships with them. One pharmacist reported that she was not afraid to hug her patients and hold their hand. Noting that the initial encounter with each patient is like meeting a stranger, this pharmacist noted the following:

> "You have to provide them with the right information. When they come through the door, you need to know their name, the name of their dog, the name of their kids, you need to know everything. Then after that, you have made a mark and you are invested in them." (pharmacist, 5 years experience, 70% HIV patients).

When pharmacists take time to learn about patients' life situations, trusting relationships can be built in which patients feel that the pharmacist is vested in their health and well being.

Challenges addressing structural-level barriers

In addressing structural-level barriers, pharmacists encountered challenges such as inadequate pharmacy resources and noncollaborative provider relationships. First, pharmacists in a busy community setting may not have the time to build relationships with patients with HIV. Pharmacies may not have enough trained personnel to provide specialized care to HIV patients with psychological, mental health, or other problems. Second, not all physicians are available (e.g., because they are busy) or willing (e.g., because they do not understand the importance) to consult with pharmacists about patients with HIV. As noted earlier, collaborative pharmacist–provider relationships that are characterized by continual sharing of important patient information and reinforcement of adherence messages by all providers would help improve HIV patient care.

Discussion

To our knowledge, the current study is the first to examine pharmacists' perspectives on barriers and strategies to promoting patient adherence to antiretroviral medications in clinical practice. Pharmacists identified patient-specific, therapy-related, and structural-level factors that directly and indirectly influenced HIV patients' access to antiretroviral drugs, self-efficacy in adhering to medications, and motivation to actively participate in their therapy. To address these barriers to adherence, pharmacists tailored interventions to each patient's cognitive ability and socioeconomic circumstance. Pharmacists provided medication-specific education to enhance patient self-efficacy, made follow-up telephone calls to monitor adherence, collaborated with other health professionals through patient referrals and reinforcing adherence messages, and mobilized social support to motivate adherence to antiretroviral therapy. Studies have shown that interpersonal, multifaceted, long-term interventions are effective in producing sustained improvements in both adherence and clinical outcomes (e.g., viral load, CD4 cell count) for patients with HIV on antiretroviral treatment.[36]

Pharmacists' ability to identify adherence barriers, work with other health care providers to mobilize interdisciplinary efforts, and access resources such as time, trained personnel, and patient monitoring software greatly influenced their ability to promote adherence. Whether the patient barrier was financially based, related to concerns about privacy and fear of HIV status disclosure, or based on strained provider relationships, pharmacists required good communication and interpersonal skills. Pharmacists' ability to show genuine interest in things that mattered to patients, willingness to spend time talking to patients, and skills in asking nonjudgmental questions to detect adherence problems affected their ability to reactively address patient barriers and proactively promote adherence to antiretroviral medications.

Pharmacists faced external and internal challenges to promoting adherence that have policy implications for future pharmacist-centered interventions. One external challenge was the lack of compensation for providing pharmacy services beyond prescription counseling

mandated by law that is covered by the dispensing fee. Although some insurance companies compensate pharmacies for providing services that are independent of the medication product (i.e., medication therapy management), none of the pharmacists interviewed reported being compensated for counseling patients with HIV or providing them with these additional services and resources. This lack of compensation may affect a pharmacies' ability to employ more trained personnel to provide individualized patient care. The second external challenge was insurance mandates that required patients to fill prescriptions only at mail service pharmacies. The impact of mail service pharmacies on adherence to antiretroviral medications is not well known and requires more research. A related external factor was insurance prohibitions against enrolling patients in automatic prescription refill programs, which affected pharmacists' ability to closely monitor patient adherence to therapy.

Internal challenges reported by some pharmacists included time, logistical factors (e.g., lack of trained personnel), and inexperience dealing with the psychological and mental health aspects of HIV. Pharmacists reported wide variation in the amount of time spent interacting with patients with HIV (between 10 minutes and 3 hours). Many pharmacists reported that they did not have enough time to dedicate to a single patient during peak pharmacy hours. To address these logistical constraints, pharmacies may need to reorganize their work procedures and train advanced pharmacy technicians to take up pharmacist responsibilities (e.g., verifying prescriptions), in order to free up pharmacist time for patient care. Nonspecialty pharmacies also can invest in technological software support systems that facilitate patient monitoring and follow-up. Last, to address pharmacists' training needs in the psychology and mental health of HIV, continuing professional education courses should include relevant segments in their curriculum. Pharmacists also can refer patients to mental health and substance abuse professionals with expertise in HIV care.

Limitations

First, 12 of the 19 pharmacists interviewed reported that less than one-half of their patients were HIV patients, which suggests that their observations were based on limited experience. Further research comparing the experiences of pharmacists across different settings (i.e., high versus low proportion of patients with HIV) is needed. Second, findings should be interpreted in light of the limitations of qualitative studies: self-presentational bias (e.g., pharmacists may report what they would like to do and not what they do in order to appear professional and competent) and participants' poor recall of events and processes.[31–35] Third, we were not able to confirm pharmacists' reports that their interventions improved adherence to antiretroviral medications. We plan to conduct a larger study that will use both quantitative and qualitative methods for examining pharmacists' experiences in providing care to patients with HIV in different community pharmacy settings. This study also will seek to report the perceptions of patients with HIV regarding the effect of pharmacist interventions on their adherence and health-related quality of life.

Despite the limitations, the current study has several methodological strengths: It provides perspectives of pharmacists with a broad range of training (e.g., those highly trained in HIV and non–HIV-trained pharmacists), with a wide range of experiences (e.g., newly licensed

and those with many years of experiences), located in different settings (e.g., off- and on-site locations), serving diverse patient populations, and working in four different metropolitan cities.

Conclusion

Pharmacists used a combination of educational, behavioral, and social support interventions to proactively anticipate and prevent barriers before and during the first weeks of therapy and to reactively address actual barriers that interrupted the antiretroviral therapy of patients with HIV. This study can provide insights on the feasibility of integrating pharmacist-centered interventions in nonspecialty settings. Given the breadth of pharmacy services that patients with HIV receive in specialty pharmacies and the finding that nonspecialty pharmacies do not actively promote adherence, this study raises the question of whether the choice of a pharmacy matters. Do patients with HIV in nonspecialty pharmacies who are not receiving the same pharmacy services as their counterparts in specialty settings have different adherence rates and health outcomes? As more individuals with HIV continue to live longer, and because adherence to antiretroviral therapy is a major determinant of health-related quality of life for patients with HIV and has implications for public health, a need exists for more research on the facilitators and barriers to pharmacist involvement in caring for patients with HIV.

Acknowledgments

To the participating pharmacists and pharmacy organizations and to Steven D. Pinkerton, Michelle Anderson-Lamb, Jean Gust, and the Center for AIDS Intervention Research (CAIR) Writing Group.

Funding: Grant P30-MH52776 from the National Institute of Mental Health and a CAIR Developmental Core grant.

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At a Glance

Synopsis: Pharmacists providing services to patients with human immunodeficiency virus (HIV) were interviewed to elicit perspectives on barriers to and strategies for promoting antiretroviral medication adherence. Patient-specific, therapy-related, and structural-level factors that directly and indirectly influenced HIV patients' access to antiretroviral drugs, self-efficacy in adhering to medications, and motivation to actively participate in their therapy were identified. Medication-specific education to enhance patient self-efficacy, follow-up calls to monitor adherence, practical and social support to motivate adherence, and referrals to other health care providers were among the interventions used. Pharmacists also faced internal (e.g., lack of time and support staff) and external (e.g., insurance policies that disallowed patient enrollment in automatic prescription refill program) challenges.

Analysis: Pharmacists' ability to show genuine interest in matters of interest to patients, willingness to spend time talking to patients, and skills in asking nonjudgmental questions to detect adherence problems affected their ability to address barriers and promote adherence. One external challenge identified in the current work was lack of compensation for providing pharmacy services beyond prescription counseling mandated by law that is covered by the dispensing fee. This lack of compensation may affect a pharmacies' ability to employ more trained personnel to provide individualized patient care. To address constraints such as lack of time, lack of trained personnel, and inexperience dealing with the psychological and mental health aspects of HIV, pharmacies may need to reorganize their work procedures and train advanced pharmacy technicians to perform certain pharmacist responsibilities so that pharmacists can spend more time engaging in patient care.

Table 1

Characteristics of pharmacists interviewed regarding adherence barriers affecting patients with HIV and strategies to promoting antiretroviral adherence

Characteristic	n
Specialty	
Specialty pharmacist	13
Semispecialty pharmacist	6
Location/setting	
On-site specialty pharmacy	7
Off-site specialty pharmacy	6
Semispecialty pharmacy	6
Employment position	
Pharmacist manager	10
Pharmacist	9
Gender	
Men	9
Women	10
Race/ethnicity	
White	17
Nonwhite	2
Postlicensure experience (years)	
≤5	7
6–10	9
>10	3

Abbreviation used: HIV, human immunodeficiency virus.

Table 2

Pharmacists' strategies to addressing barriers to antiretroviral adherence

Patient-specific barriers	Therapy-related factors	Structural level barriers
Cognitive factors: (1) Educated patients on integrating medication dosing and handling into daily routine. (2) Provided adherence reminder and support tools. (3) Enrolled patients in automatic prescription refill programs. (4) Made follow-up phone calls. (5) Addressed patient health misconceptions. (6) Scheduled doses with patient.	Adverse effects: (1) Provided medication-specific education on nature and duration of adverse effects. (2) Managed adverse effects with over-the-counter medications. (3) Identified medications with tolerable adverse effects. (4) Counseled patients to consult their physician about medication changes.	Strained patient–provider relationships: (1) Intervened in strained provider relationships. (2) Made patient referrals to other providers.
Health literacy–related factors: (1) Discussed health treatment relationships. (2) Provided patient-specific medication-related information. (3) Provided tailored medication-specific education. (4) Demonstrated pill taking.	Intolerable medications: (1) Recommended formulation substitutions for improved tolerability and administration. (2) Worked with patients and physicians to tailor regimens for tolerability and ease of administration.	Depersonalized health care system: Established and maintained relationships with patients.
Lack of social support: (1) Referred patients to HIV-related social services and social networks. (2) Counseled patients to enlist social support. (3) Provided emotional and informational support.	Polypharmacy: Sorted and reconciled patient medications, and developed a single medication list.	
Psychological, mental health and substance abuse: (1) Collaborated with other health care providers. (2) Educated patients on harm reduction strategies and the effects of substance abuse.	Unaddressed patient concerns: Established pharmacy hotline, accessible to patients at all times.	
Economic-related factors: (1) Referred to AIDS Drug Assistance Program. (2) Physically delivered medications. (3) Waived copays, provided manufacturer coupons. (4) Collaborated with providers to address patient needs.		