

Chapter 1

Reasons for Nonadherence



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Introduction

Poor patient adherence is especially challenging in the field of dermatology, where only 50% of patients with chronic skin conditions adhere to the treatment plan outlined by their provider [1]. About one-third of patients never redeem their prescriptions from a dermatology clinic. Even if patients do fill the prescriptions, adherence often drops off after a few days. Poor adherence leads to poor health outcomes and increased financial expenditure for patients. By recognizing and addressing common barriers to treatment adherence, providers may help patients successfully incorporate and adhere to treatment regimens. Improving patient adherence may provide a convenient way to improve patient outcomes and decrease healthcare costs.

While there are various reasons for nonadherence, one conceptual model of barriers to adherence focus on patient, prescriber, and healthcare system factors [2]. Nonadherence can also be categorized into three phases: *initiation*, *implementation*, and *persistence*. *Initiation* includes failure to fill and begin taking a prescription [3]. *Implementation* is the patient's ability to agree, comprehend, and translate the healthcare provider's instructions. Finally, *persistence* involves maintaining the recommended treatment regimen [3, 4].

This chapter will first discuss barriers specific to patients, providers, and healthcare systems, then it will discuss common barriers that are shared between patients and providers.

Patient-Centered Barriers

Patient barriers create a significant practice gap in all specialties. A patient-centered approach may help providers investigate potential risks for nonadherence. To bridge practice gaps, patient barriers must be recognized. Patients may fail to take their medication unintentionally or intentionally. Unintentional nonadherence may be related to forgetfulness, complex treatment regimens, and

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Table 1.1 Intentional and Unintentional Reasons for Nonadherence [1–14]

| Intentional | Unintentional |
|-------------------------------------|-------------------------------------|
| Patient beliefs | Forgetfulness |
| Fear of adverse effects | Lack of health-related education |
| Patient preference | Psychiatric illnesses |
| Complex treatment regimen | Poor communication |
| Medication cost | Failure to refill medication |
| Insurance difficulties | Limited access to healthcare |
| Poor patient-physician relationship | Poor patient-physician relationship |

psychiatric illnesses [5–8]. Reasons for intentional nonadherence may include patient beliefs, fear of adverse effects, and patient preference (Table 1.1) [9].

A patient’s beliefs can influence whether they initiate, implement, and persist with therapy. A patient may believe he received the wrong diagnosis, and therefore wrong medication, from his provider. If a patient feels he was not adequately examined and understood, he may be less likely to fill or take the suggested medication. A patient might also believe his condition is only temporary, and therefore prematurely stop therapy after some improvement. This can be especially challenging in chronic conditions that require continuous treatments [10].

A common reason for intentional nonadherence is a patient’s fear of adverse effects due to the medication [11]. “Steroid phobia” describes negative feelings and beliefs about using topical corticosteroids. Common concerns about topical corticosteroids include skin thinning, the potential of topical corticosteroids to affect growth and development, and nonspecific long-term effects [12]. In one study, prevalence of steroid phobia in caregivers of children with atopic dermatitis (AD) reached about 38% [12]. If patients or caregivers fear of the topical corticosteroid side effect profile, they may be less willingness to use the medication as prescribed.

Patient preferences can impact adherence; therefore, a patient-centered approach may be helpful. Addressing and reconciling patient goals and preferences can help providers and patients agree on a feasible treatment regimen [13]. For example, some patients with severe psoriasis may prefer oral over injectable medications, even if the injectable medication is more likely to result in better disease control. Patient preference of a particular vehicle formulation for their topical medication may also impact their level of adherence [14, 15]. Subjects satisfied with their prescribed medication are more adherent than unsatisfied subjects ($P < 0.001$) [16].

Prescriber-Centered Barriers

Although the responsibility for poor adherence is often placed on patients, there is much that physicians and the healthcare system can do to enhance adherence behavior (Table 1.2). Providers may contribute to patients’ poor adherence by prescribing expensive medications that patients cannot afford, recommending complex regimens that are difficult to follow, and failing to adequately educate patients on the medication’s benefits and side effects. All of these factors lead to a poor patient-provider relationship, which can also result in poor adherence [11]. By recognizing and addressing provider-specific barriers, providers can standardize how they prescribe and improve adherence outcomes in patients.

The high cost of prescription drugs means many patients cannot afford their medications. Patient may fail to pick up their medications, skip doses to make the medication last longer, or stop treatment early due to the cost. However, providers are often unaware how much medications will cost patients. Providers and patients often fail to seek out pricing information before filling prescriptions. Prescribing generic prescriptions increases the likelihood that the patient can afford a medication [17].

Table 1.2 Patient, prescriber, and Healthcare-Centered Barriers to adherence [1–9, 11–18]

| Patient-centered barrier | Prescriber-centered barrier | Healthcare-centered barrier |
|--------------------------|-----------------------------------|------------------------------|
| Forgetfulness | Complex treatment regimen | Limited access to healthcare |
| Psychiatric illness | Prescribing high cost medications | Restricted formularies |
| Patient beliefs | Poor communication | Medication cost |
| Fear of adverse effects | | Switching formularies |
| Patient preference | | Copayments |

Complex treatment regimens often confuse patients and decrease their motivation, leading to poor adherence. Prescribing multiple medications after one office visit or adding prescriptions on top of a large list of medications, can reduce patient adherence. Simplifying treatment regimens reduces the burden of treatment and increases the likelihood that patients will adhere. Patients are more likely to follow a once daily treatment compared to twice daily. Combination medications also reduces the burden of treatment and increases adherence [11, 18, 19].

Poor communication by the provider to the patient can also result in poor adherence. Providers may not adequately explain the patient’s condition, the need for medication, treatment expectations, and potential adverse effects. Patient education is be a key component of the clinical encounter. It offers an opportunity to address patient concerns and build a strong patient-provider relationship. By failing to communicate basic information, healthcare providers may jeopardize a patient’s disease and treatment understanding and overall adherence [11, 20, 21].

Prescribers who fail to create a strong bond with their patient may increase the risk of nonadherence. Using a patient-centered approach may strengthen trust between both parties and prevent a poor patient-provider relationship [11, 22–24].

Healthcare-Centered Barriers

Healthcare-associated barriers to adherence include limited access to healthcare, restricted formularies, switching to a different formulary, and high costs for medications, copayments, or both [25–27]. The patient, provider, pharmacies, hospitals, insurance, and pharmaceutical companies are all components of the healthcare system [28].

Factor that create poor access to healthcare— including living in an area with poor access, lack of transportation, lack of adequate insurance, financial issues, and absence of other resources— also influence adherence [17, 29]. Other healthcare-associated factors that may influence adherence include extensive waitlist for an appointment with a specialist, lengthy wait time within the clinic, and confusing healthcare referral systems [30–32].

Insurance also has a strong influence on healthcare-associated nonadherence. Insurance issues include difficulty finding in-network healthcare providers, drug plans that do not cover certain prescription medications, and unaffordable copayment [11, 22, 23, 33]. For example, providers may not prescribe the best medication if it does not fall in a patient’s restricted network formulary [34]. Such limitations impact the patient, provider, and healthcare system.

Common Barriers of Patients and Providers

Most adherence barriers are described as patient-oriented, but reframing common barriers as provider-oriented can help physicians influence adherence [11]. The focus of this section is to identify and discuss barriers to medication adherence that are common to both patients and providers

Table 1.3 Common barriers for patients and providers [6]

| Patient | Provider |
|---|--|
| <i>Treatment education</i> | |
| Poor health literacy | Poor communication skills |
| <i>Beliefs and perception of symptoms</i> | |
| Fear of adverse effects | Believing patients are adherent |
| Treatment dissatisfaction | Failure to acknowledge patient beliefs |
| <i>Forgetfulness</i> | |
| Failure to remember regimen | Failure to provide instructions |
| <i>Psychiatric illness</i> | |
| Depression | Failure to recognize psychiatric comorbidities |
| Anxiety | Failure to provide appropriate referrals |
| <i>Cost and insurance</i> | |
| Lack of insurance | Writing expensive prescriptions |
| Expensive copay | Failure to provide patient assistance |
| <i>Complex treatment regimen</i> | |
| Polypharmacy | Prescribing multiple medications |
| Inability to follow instructions | Failure to offer prompt return visit |

(Table 1.3). Examining shared barriers from both patients and providers highlights each of their specific responsibilities to address these concerns.

Treatment Education

Patient

Poor patient education is a common cause of unintentional nonadherence [4]. Patients may have insufficient understanding of the reasons, benefits, and adverse effects of the prescription medication [17]. A patient's capacity to process and understand basic medical information is defined as health literacy. [35, 36] In the United States, an estimated 90 million have poor health literacy skills [37]. In a study investigating health literacy in the United States, 12% of adults had proficient health literacy, 53% had intermediate, 22% had basic, and 14% had below basic health literacy [38]. Limited health literacy is associated with poorer patient-physician communication, health-related skills, and health outcomes. Poor health literacy is also associated with nonadherence [39]. Patients may not understand the importance of continuously using their medication in chronic conditions, as the terms controlled and cured may be confusing [40]. When psoriasis subjects were asked about their reasons for not applying topical corticosteroids, 20% reported inadequate knowledge about their disease [16]. Recognizing poor health literacy and explaining the rationale behind the prescribed medication can bridge patient education gaps.

Provider

There is a link between patient adherence and provider-patient communication, Communication contributes to the patients' understanding of the illness, the need for medication, and the risks and benefits of treatment. However, if a provider insufficiently addresses these areas, patients may leave feeling confused about their diagnosis, their medication, and their treatment plan [17]. Providers may also cause nonadherence by not providing a definitive diagnosis, providing too much information, or avoiding simple language [4, 41, 42].

One study investigated whether dermatologists provide inadequate education to their patients. A checklist containing diagnosis, treatment duration, frequency of application, dosage, drug effect, medication name, and possible adverse effects assessed whether the physician provided basic education. Patients were then asked about their education 10 days after the clinic visit. During the clinic visit, no physician mentioned drug price or potential adverse effects, and only 18% of physicians mentioned dosage. While all physicians mentioned the medication name and frequency of application, only 65% mentioned diagnosis and treatment duration. At Day 10, 12% of subjects knew the medication dosage, 35% knew treatment duration, 41% knew their diagnosis, 47% were concerned about side effects, and 71% knew the application frequency [20].

Beliefs and Perception of Symptoms

Patient

Patient beliefs, such as misconception of disease severity, perceived ineffectiveness of treatment, and fear of adverse effects, can impede patient adherence [43, 44]. Some patients believe they are invulnerable to illness and therefore refuse the recommended treatment [45]. Other patients stop treatment prematurely because they believe the treatment is ineffective. Common reasons for nonadherence in psoriasis patients include perceived low efficacy of treatment, time consuming regimens, and poor aesthetic appearance of treatment [46]. Patient belief of disease clearance can cause patients to decrease their dosage or completely discontinue treatment [4]. If patients do not perceive therapeutic effectiveness from their treatment, their motivation and adherence, to treatment could decrease.

Provider

Healthcare provider's assumption that their patient is adherent may pose a barrier. A cross-sectional study explored how many primary care providers believed that their patients were adherent to their medication and how many of those patients were actually adherent. About 50% of primary care providers incorrectly estimated that their patients were adherent to their medication. Of the primary care providers who incorrectly estimated, providers were more likely to overestimate than underestimate the number of adherent patients ($P = 0.05$) [47]. Another study reported 9% of healthcare providers believed their patient would truthfully admit in failing to fill their prescription; however, 83% of patients admitted they do not mention their unfilled prescription to their primary care provider [48]. Reasons why patients might withhold such information include fear of embarrassment, punishment, or the provider's overreaction [40].

Forgetfulness

Patient

Forgetfulness may be the most common reason for nonadherence [49–53]. When acne subjects were asked why they were nonadherent, 66% specified “forgetting” their medication, and 15% stated they were just too busy [54]. In an online survey of psoriasis subjects being managed with biologic therapy, 44.4% of adalimumab treated subjects and 3.2% of ustekinumab treated subjects reported nonadherence secondary to forgetfulness [55]. Similar findings in AD reported 92% of subjects forgot to take their medication at one point in time [56].

Provider

Around 50% of patients cannot recall physician instructions after a clinical visit [57, 58]. Focusing patient management by improving forgetfulness through behavioral and commercial services may bridge this barrier to adherence [17]. Written action plans are a promising intervention to improve adherence. A prospective clinical trial enrolling 35 pediatric AD subjects were given an eczema action plan at baseline visit and were followed for 12 months. The action plan contained instructions on daily medication use. Efficacy was measured by disease severity. At 12 months, 80% of subjects improved and 68% of caregivers felt the action plan was helpful [59]. Commercial services that may help include reminder devices, mobile applications, games, and other modes of technology although efficacy is limited [60].

Psychiatric Illness

Patient

Depression may be a foremost predictor of adherence [11, 61]. Depression is more prevalent in psoriasis patients (9.1%) compared to the general population (5.4%, $P < 0.001$) [62]. Elderly patients with psoriasis suffering from depression are less likely to maintain adherence to topical corticosteroids ($P < 0.01$) [63]. In addition to depression, anxiety is prevalent in 6.3% of psoriasis subjects compared to non-psoriasis control ($P < 0.001$) [62]. Psoriasis patients with minimal anxiety have better adherence rates to biologic therapy than patients with severe anxiety [64]. Recognizing and acknowledging psychiatric comorbidities could improve treatment outcome.

Provider

Due to the prevalence of psychiatric comorbidities in dermatology, failure to recognize such limitations in the patient may jeopardize adherence and treatment outcome [62, 65–67]. Dermatologists do not routinely screen for depression, so the prevalence of depression in dermatology patients may be underestimated [68]. Recognizing depression in dermatology patients, recommending treatment of psychiatric illnesses, and referring them to proper mental health services during the clinical encounter may help improve quality of life and overall treatment outcome, as well as decrease the risk of non-adherence [17, 69].

Cost and Insurance

Patient

The most common reason for nonadherence in biologic therapy was cost. In survey responses, 18.5% of patients reported adalimumab as unaffordable, whereas 22.6% of patients reported ustekinumab as unaffordable [55]. Due to increasing drug costs, 11 to 26% of patients insured by Medicare skip doses, divide the medication dose, and refuse to fill the prescription [70–74]. Risk factors associated with financial-related nonadherence includes socioeconomic status, minorities, and comorbidities [72, 74, 75]. A cross-sectional survey study exploring cost-saving strategies that may influence adherence

reported 39.6% of survey responders used at least one cost-saving strategy. Subjects who received free samples (OR = 1.18; $P = 0.04$), split their medication (OR = 1.45; $P = 0.001$), and were being managed with more than 10 medications (OR = 1.65; $P < 0.0001$) were more likely to be nonadherent [74]. Increased out-of-pocket spending increases the risk of nonadherence [76, 77].

Provider

The current nature of healthcare costs suggests a negative impact on drug prices, premiums, and poor drug coverage [78–80]. Such economic changes impact a patient's ability to adhere to their medication regimen as patients cannot take their prescribed medication when they cannot afford it. In only 2.2% of office visits do physicians ask how much a patient was paying for their medication, and in only about 1.4% of office visits do physicians ask patients if medication cost was a problem. Physicians provided a solution to the cost problem in about 17.9% of visits [81]. A similar study in an outpatient dermatology clinic stated no dermatologist mentioned drug costs while educating their patient [20]. Prescribing affordable generic medications and providing a number for the pharmacist to contact in case medications are too expensive are cost-saving approaches [17].

Complex Treatment Regimen

Patient

Complex treatment regimen may dissuade even the most motivated patient from adhering [11]. Polypharmacy, along with frequency, location of application, and dosage can complicate treatment outcome and adherence [4, 82, 83]. In dermatology, complex regimens may involve the use of multiple topical agents that need frequent application. Patients may become confused about which medications are for what location, and how often each medication should be applied. For example, although treatment of scalp psoriasis often involves multiple agents (e.g. topical corticosteroid, keratolytic agent), patient motivation to adhere may decrease with complicated instructions [84].

Provider

Poor provider awareness in prescribing complex treatment regimens may predispose to nonadherence. Although a tendency exists for physicians to add another medication when the initial treatment fails, having a short follow-up visit may offer providers an opportunity to discover the initial medication may have been too complex or burdensome for their patient. Such findings may help providers tailor their management appropriately [85]. Healthcare providers may influence adherence by offering fewer and simpler medications in shorter dosing schedules [17].

Conclusion

Intentional and unintentional reasons for nonadherence may be categorized into patient, prescriber, or healthcare-centered barriers. Providers may recognize and address such barriers to help prevent unfilled prescriptions, maintain treatment, and improve clinical outcome.

Conflicts of Interest Dr. Steven Feldman has received research, speaking and/or consulting support from a variety of companies including Galderma, GSK/Stiefel, Almirall, Leo Pharma, Boehringer Ingelheim, Mylan, Celgene, Pfizer, Valeant, Abbvie, Samsung, Janssen, Lilly, Menlo, Merck, Novartis, Regeneron, Sanofi, Novan, Qurient, National Biological Corporation, Caremark, Advance Medical, Sun Pharma, Suncare Research, Informa, UpToDate and National Psoriasis Foundation. He is founder and majority owner of www.DrScore.com and founder and part owner of Causa Research, a company dedicated to enhancing patients' adherence to treatment.

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