Compliance with prescribed drugs: challenges for the elderly population

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Abstract
Compliance with prescribed drug regimens is particularly important among the elderly because of their increased vulnerability to a greater burden of chronic disorders. This narrative review discusses the factors that are important to compliance, with particular reference to the elderly. These factors are the patient's perceptions of his disease and it's treatment, the physician's perceptions, the manner the physician assumes and the language he uses to communicate with the patient, the patient's living situation, regular medication review, and a continuity of health care provision. Since it is the patient who decides how to use the therapy, his or her involvement in the process of explaining and understanding it is the key to improved compliance.

Accepted July 1999

People over the age of sixty-five years account for one-eighth of the population but receive approximately one-third of all health care expenditures, including prescribed drugs [1 2]. These fractions are increasing as the elderly increase as a percentage of the total population, both because the “baby-boom generation” is approaching retirement age and because people now live longer. Patient compliance with medical prescription is thus an increasingly relevant issue. This article reviews some of the most important determinants of compliance with prescribed medication, with special reference to the elderly, and suggests ways in which it can be improved.

Compliance

Definition
Compliance with prescribed medication is defined here as the extent to which an individual's behavior coincides with medical advice [3]. Compliance implies a positive act in which the patient is motivated sufficiently to adhere to the prescribed treatment because of a perceived benefit. The word compliance may lead the reader to believe that the patient is not expected to take responsibility for his or her treatment, and therefore some researchers use the terms adherence or concordance to emphasize the importance of the involvement of the patient [4 5].

Noncompliance with prescribed medication includes both intentional and unintentional underuse and overuse, as well as erring in how and when doses are taken. Underuse of drugs, for instance omission of doses due to forgetfulness or confusion, is the most prevalent type of noncompliance, especially when several drugs are taken concurrently. Overuse includes occasions when the patient takes drugs prescribed for others or drugs not currently prescribed; the patient may believe that more drug will speed recovery or may have forgotten that he had already taken the dose [6].

Compliance as a correlate of age
Compliance with long-term medication regimens is generally about 50% [7]. Age and other demographic factors (sex, socioeconomic status) have been investigated, but either no relationship with compliance has been observed or the results have been inconsistent [5 8-13] and in some studies older patients have been found to be more compliant than younger patients [7 15]. An association has, however, been found between compliance and race [14].

Illness and medications related to aging

Multiple diseases, chronic disorders
The elderly have an increased burden of symptoms and disease and receive more medications than younger patients [4 6 7]. Elderly patients’ impairments are the cumulative result of conditions persisting over many years, and the prevalence of chronic ailments is high–arthritis, hearing impairment, vision impairment, heart conditions, hypertension, and diseases of the kidney and liver [18 19]. Compliance with medications varies with the nature of the disease. In asymptomatic diseases such as hypertension or hypercholesterolemia, medication compliance is likely to be lower because no obvious symptoms appear when drugs are discontinued or if the disease recurrs [3].

Multiple and extended medications
Polypharmacy–defined as the concurrent use of multiple prescription and OTC medications [22]–is common among elderly patients [4 6 7]. Its potential consequences are unwanted comedication, adverse drug reactions, drug-drug interactions, impairment of clinical condition, decreased quality of life, and additional financial costs [22]. Some studies have found no significant association between the number of drugs and compliance [12 23-26]. Other studies have shown a negative relationship [3 6 8 11], while a positive relationship was observed in a single study [7]. By contrast, it is clear that compliance decreases as the total number of daily doses increases [4 8 9 11 15 16 24 27], with once- or twice-daily dosing clearly favored over three-times daily or more [6 26]. However, some studies have not observed a significant relationship between dosage regimen and compliance [25].

An extended duration of treatment correlates with decreased medication compliance [3 4 5 11 16 25 27]. In one study, only 10% of the patients filled
enough prescriptions to acquire the amount of drug prescribed if taken according to instructions during one year of follow-up [7]. Other studies have shown that compliance with long-term therapy is 40-60% in elderly people with serious clinical disorders [22]. Compliance is also associated with type of medication [4].

**Sensor/motor challenges**

In the elderly, hearing, vision or memory problems may hinder compliance even in willing patients [4]. Patients may not understand or remember the physician’s or pharmacist’s instructions. The patient’s capacity to understand a regimen should thus be evaluated before initiating therapy [28]. One of the more common problems that elderly patients have is in reading medication labels [6]. In one study, elderly patients were asked to describe all medications that they were prescribed: 64% had the drug name correct, 72% knew the purpose of the drug, 75% knew the regimen and 84% could read the label [23]. The type of container is important. People of all ages complain of having difficulty opening individually wrapped tablets or capsules, and safety caps or flip-off lids are especially difficult for elderly patients to open [6 23 24].

**Knowledge and perception**

**The patient**

Compliance with medical advice is related to the patient’s perceptions of numerous factors—the severity of the disease, the patient’s susceptibility to it, the expectations of treatment effectiveness, the expected duration of treatment, the duration of previous medication use, and the perceived cause of illness [4 5 9 11 13 30 31]. The patient’s beliefs regarding the benefits of a newly prescribed medication are important predictors of initial defaulting (i.e., patients not starting therapy) and compliance with long-term medication [16 31 32].

Compliance is associated with the accuracy of the patient’s perceptions of what the physician expects, which in turn is related to the amount of physician instruction [11]. Perhaps surprisingly, more knowledge of the disease and the importance of treatment does not necessarily mean better compliance [3-5 9 12]. However, improved understanding of the drug regimen does increase compliance [4 6 8 12 16 22].

The patient’s perceptions, expectations and behavior regarding medical illness and treatment are usually estimated through a Health Belief Model questionnaire [9 11 30 31]. This may include assessment of the patient’s health locus of control, which can be internal (health status as a consequence if one’s own actions), chance (health status depends on chance factors), or powerful others (health care professionals) [30]. A patient commonly tests a therapy before accepting it. Patients may reject, passively accept, or actively modify the prescribed regimen [32]. The latter is sometimes referred to as intelligent noncompliance and is performed by certain individuals who have a rational basis for altering the dosage of their medication and still attain good treatment. Compliant or noncompliant behavior may change over time. If the potential consequences of noncompliance are not impressed upon the patient, the patient often establishes his own beliefs and expectations with respect to his drug therapy, and if the therapy does not fulfill those expectations, noncompliance is greater [3].

Drug treatment signifies illness and accepting the treatment requires an acceptance of the illness. Patients may accept a drug treatment by considering the treatment as trivial or harmless and making it a part of life, or they may attempt to deny their illness and can symbolically do so by reducing or stopping treatment. Paradoxically, therefore, emphasizing a drug’s importance could reduce the amount taken [32]. Many elderly people think “nothing can be done”, they may be afraid that they will be told they are terminally ill or that they should no longer live alone, and so delay obtaining medical care [18]. Conversely, maturity per se may exert a positive influence on the patient’s likelihood of complying with prescribed medications.

**The physician**

The physician’s predictions of patients’ compliance are no better than chance [4 33]. Educating the physician about therapy and compliance problems increases compliance through emphasizing patient education during the office visit and promoting skepticism regarding patient compliance. The patient will then become more knowledgeable about the drug therapy and the illness; furthermore, his beliefs will be more appropriate regarding the dangers of the disease and the effects of drug therapy [35]. Compliance by the patient is associated with compliance by the health professional with health care recommendations [3].

**Communication between the health care provider and patient**

**Characteristics of the health care provider**

Compliance is highly dependent on communication between the patient and the health care provider [3 16 17 31 32 36]. Because compliance is influenced by the patient’s satisfaction with care, the health care provider must treat the patient as an active participant in informational discussions about his condition and its treatment, and should encourage the patient to ask questions [3 11 31]. Respect for the patient and a realistic appraisal of the circumstances of the individual patient are essential. Patients who are satisfied with their health care provider, who feel that their expectations have been met through the encounter with the health care provider, and who have a partnership-type of relationship with their health care provider are more likely to comply with medical advice and treatments [4]. Patients are more compliant if the health care provider projects a friendly demeanor [11] clearly emphasizes what he expects from the patient, and provides explanation and justification for the prescription [3 9 12]. Doctors who are described by their patients as responsible, organized and intelligent will achieve greater compliance [9 11].

**Characteristics of the patient**

Patients are more compliant when they ask for the health care provider’s suggestions, express agreement