

# An East West Comparison of Patient Behavior

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## Abstract

Patient behavior is often described as disruptive behavior as they have an altered mental stage of fear of being sick, anxious about out of the pocket cost, alteration of lifestyle if suffered from a chronic illness. And the outcomes often faced by providers are inappropriate language, make unreasonable demands, and may even resort to physical abuse. The article comprises a few of this unusual behavior and a simple comparison between patients from developed world with those of the under-developed east.

**Purpose of the study:** Discussion and projection of behavior pattern, health seeking behavior and monitoring status in both developed and under-privileged countries. The pharmacists have a vital role to play which is discussed along with comparison.

**Findings:** Developed or under developed country, patients have a separate behavior pattern which develops and worsen with disease progression mostly. So many factors are behind but one thing clearly understood that the handling of such situation is a provider's function, a challenge they have to face along with treatment intervention.

**Research Limitations:** Very few articles found in matters regarding along with a very less interest paid by general people to talk about healthcare matters. It was very difficult to bring out facts of irrational patient behavior, giving it a substantial figure to discuss in this article. However, the major limitation is the article could be a comparison of behaviors of developed and under-privileged countries which requires an enormous exposure and financial support. However, the sole focus was to detail mysterious patient behavior and a greater part is covered.

**Practical Implication:** The soul of this article was to detail about patient behavior, both in Bangladesh and developed countries. Along with students, researchers and professionals of different background and disciplines, eg. Pharmacists, marketers, doctors, nurses, hospital authorities, public representatives, policy makers and regulatory authorities have to acquire much from this article.

**Social Implication:** Patient behavior is the Sole of healing system and a scope for pharmacists and other healthcare providers to work with in both developed or under developed countries. The article should contribute an integrated guideline for patient compliance, demand rational behavior and last but not the least a silvery lining to better pharmacists' dealings with them in near future.

**Keywords:** Health Beliefs and Perception; Patient Counseling; Patient Comprehension and Recall; Patient Motivation; Patient Feedback; Patient Compliance;

## Introduction

The unusual patient behavior toward providers and towards themselves including medication taking is inevitable. An interesting fact is mostly patients avoid going to visit a doctor or pharmacists and when appeared for treatment their behaviors change dramatically which is still unexplained. A National Health Service survey reveals 30% patients never seek any care due to emotional distress of being ill and again nearly 60% fail to comply treatment guidelines as directed. Social phobia persists in women who need to go for an intervention for any gynecological disorder. Conversely children have phobia with the doctors and hospital settings due to some unknown reason. When came late at an advanced disease state, the patient is already in a highly disturbed mental condition and a few situations raise, providers need to face another challenge to tolerate and mitigate them.

## Materials and Methods

### Research Design and Search Strategy

The research is conducted through secondary data search

from several sources from books, technical newsletters, newspapers, journals, and many other sources. The present study was started from the beginning of 2018. PubMed, ALTAVISTA, Embase, Scopus, Web of Science, and the Cochrane Central Register of was thoroughly searched. The keywords were used to search for different publishers' journals like Elsevier, Springer, Willey Online Library, Wolters Kluwer were extensively followed.

### Inclusion and Exclusion Criteria

Studies regarding psychological and social behaviors were given priorities. Several factors that influence medication taking behavior was collectively analyzed and added to the article. Issues regarding economic and cultural barriers were found to be different from subcontinents, countries and even states. A few interesting features of patient motivation and satisfaction through pharmacist's intervention were added afterwards to maintain a logical sequence. Drug factors, environmental factors and provider-patient interaction followed by pharmacist's role in handling patients and to change or correction of behavior were added to reveal their effect on patient compliance which is

the ultimate goal of therapeutic guidelines. Many studies found regarding patient compliance of different health conditions in different countries found to be not within the scope of this article.

## Results and Discussion

### Types of Medication Taking Behavior

- a) Compliance:** Understanding how medication should be used and its benefit, with sufficient positive motivation, intentions and act accordingly.
- b) Adherence:** The extent to which a person takes medication as prescribed. Adherence is broadly viewed as related to instructions concerning medicine intake, use of medical device, diet, exercise, life style changes, rest and return for scheduled appointments.
- c) Concordance:** A process by which a patient and clinician make decisions together about treatment.
- d) Persistence:** A person's ability to continue medical advice for the intended course, which may range from few days to life long [1].

### Types of patient behavior

**a) Health behavior** that is preventive in nature generally is referred to as preventive health behavior. Expanding on the original definition, preventive health behavior is defined as actions taken to prevent illness and maintain physical, emotional, intellectual, spiritual, and social well-being [2]. Examples of preventive health behaviors include

1. Participation in health screening programs
2. Following healthy diet recommendations
3. Participation in relaxation and cardiovascular exercises
4. Creating and maintaining close personal relationships

**b) Illness behavior** is any activity undertaken by individuals who perceive themselves to be ill that defines the state of their health and aids in discovering a suitable remedy [3].

Illness behavior is the way persons respond to bodily indications that they experience as abnormal; thus, it involves the manner in which persons monitor their bodies, define and interpret their symptoms, and seek health care.

1. Individuals attempt to ascribe cause and meaning to their illness symptoms and may self-diagnose and treat.
2. Alternatively, individuals may visit a doctor or another prescriber and a pharmacist in order to obtain a prescription drug.

**c) Treatment behavior** is actions taken to restore health or halt disease progression traditionally has been referred to as sick-role behaviors and now are referred to as treatment behaviors [4].

Model of Health Services Utilization suggested that three main factors affect an individual's use of health services:

**Predisposing factors:** are those factors that vary an individual's inclination to use services. These predisposing factors include demographic variables such as age and gender; social structure variables such as education, occupation, and ethnicity; and health beliefs about medical care, physicians, disease, and medication use.

1. **Enabling factors:** those factors influencing the individual's ability to use services, thus they reflect the fact that an individual's ability to use services depends on individual family and community resources.

2. **Need factors:** those factors related to the individual's belief in the seriousness of illness symptoms and the necessity of intervention. Need factors are separated into two categories, perceived need and evaluated need [5].

## Factors That Influence Patient Behavior

### Patient Factors

**a) Age:** Older people tend to use health services more than younger people, they account for 34% of total pharmaceutical expenditures. Nearly 40% of the elderly have three or more chronic conditions, while about 1/3rd of the nonelderly have at least one chronic condition. Younger patients were more likely than older patients to know how their prescribed drugs worked, when it started working, common side effects, how to manage side effects, and how long their physician wanted them to take the medication [6].

**b) Sex:** Women tend to use health services more than men. The self-reported use of OTC medications in the rural older population also shows that women take more OTC medications than men [7]. Sex also makes a difference in psychotropic medication use. Marked gender differences have been reported; women are affected twice as often as men [8]. In addition, women are twice as likely as men to report a positive family history of mood disorder, which is associated with a younger age of onset of depression [9]. Men receive more consultation from pharmacists. If considering the children, girls are encouraged to express their pain, whereas boys are encouraged to deny their pain and avoid feminine or sissy-like behaviors [10].

**c) Socio-economic level:** Higher levels of both income and education are associated with lower rates of mortality [11]. Five themes emerged for patients who presented late for treatment: lack of knowledge, fear of hospitals, denial, living alone, and preexisting health concerns, found among stroke patients [12].

**d) Ethnic Background:** Jewish and Italian patients tended to have a more emotional response to pain; they felt freer to discuss their pain, complain about it, groan and cry, and ask for relief. In contrast, patients from other backgrounds tried to deny their pain and appear more stoic. The primary chronic health problem among Mexican Americans in the US is non-insulin-dependent diabetes mellitus [13].

**e) Communication Barriers, Financial Problems, And Cultural Barriers**

Latino patients are often very polite to doctors, so polite that rather than discuss their diabetes care, the patients nod their heads and agree with the doctor. Latino patients with limited

- English skills may be less likely to take prescribed diabetes medications than other diabetics in the U.S. The “nod of the head” in response to a physician’s instructions or comments may therefore represent a socially required gesture of respect, rather than understanding or agreement [14].

Patients often do not believe that the medication supplies are free and therefore do not take the necessary diabetic supplies as often as needed.

- Other patients believe that receiving government assistance in medical supplies will decrease chances of US citizenship [15].
- For the families that do pay for medical supplies, a different problem arises. Expenses for a woman’s needs often are considered secondary to the good of her family, and therefore expenditures for diabetes medications and supplies are considered less important than other family necessities [16, 17].
- Finally, traditional folk remedies, such as aloe, cactus, and garlic, compete with the use of prescribed diet and medications, because patients (and possibly providers) are not aware that treatments can be combined [18].

**f) Emotional Factors:** Particular concern when the patient has been diagnosed with a terminal illness, an illness with a social stigma, or an illness that requires change in daily behavior. **Factors of concern to patients include ~**

- Uncertainty of what to expect with this new illness or symptom
- Dependency on providers to give the best treatment and on family to help with daily life
- Fear of change and death; pain and discomfort
- Lack of privacy in physical examinations
- Loss of identity as a healthy person
- Isolation from usual support systems such as coworkers, teammates, and friends; conveying social support also is important, because people are more likely to trust or respond positively to another person if they have an emotionally satisfying relationship with that person [19, 20].

**Drug Factors**

Drug regimens can be complex. The complexity of a drug regimen often is measured in the ~

1. Total number of medications taken daily,  
Number of daily doses,
2. Duration of treatment,
3. The extent to which the regimen is tailored to daily routines,

4. The side-effect profile [21].

**Medications may require special behaviors, for example:**

Having to take a dose 1 hr. Before or 2 hr. after a meal

1. Avoiding foods that are common in the diet
2. Taking doses three or more times in a day,
3. Refrigerator storage, or skill in administration.
4. In addition, just learning the name of the drug prescribed, purpose of the drug, proper dose, when to begin taking it, frequency of dosing, and when to stop treatment is complex.
5. The complexity of a therapeutic regimen may prevent patients from adhering completely. Complex regimens may produce information overload [22].
6. Alternatively, medications requiring behaviors that are difficult to fit into regular daily activities are less likely to be taken as prescribed by a patient [23].

**Environmental Factors**

Patients given more autonomy and opportunities for self-determination tend to show greater health and morale improvements. The structural layout of many community pharmacies does not include an area for private consultation and dialog between the patient and the pharmacist. In addition to this lack of privacy, pharmacists often experience other environmental barriers to meaningful interaction with their patients, including

1. Insufficient supportive personnel,
2. A heavy workload and backlog,
3. People waiting to present prescriptions or receive pharmacist assistance,
4. Incoming phone calls and requests for information or help from coworkers,
5. Interns, and other staff, and
6. Inadequate computer technology, software, and
7. Preparation for new consultation roles [24].

**Provider Patient Interaction**

Patients can play an important role in improving patient safety by becoming actively involved in their health care. Patients can act as ‘safety buffers’ during their care but the responsibility for their safety must remain with the health care professionals [25]. Clinical practice often fails to optimize patient participation in decisions about serious illness. Patients prefer that the physician have most of the control over decisions [26, 27]. Patients use three main sources of information when making decisions about their illness and treatment:

1. Their personal experience with the illness and various treatments;
2. Information obtained from family, friends, and the larger culture;

### 3. And their interaction with health professionals.

The patient-clinician relationship has both emotional and informational components – termed emotional care and cognitive care [28]. Emotional care includes mutual trust, empathy, respect, genuineness, acceptance and warmth [29]. Cognitive care includes information gathering, sharing medical information, patient education, and expectation management. Providers who adopt an autocratic approach assume a dominant or controlling role, speaking with an authoritarian tone and giving directions without seeking patient input. In contrast, providers who adopt a participatory approach collaborate with the patient to develop a mutually acceptable treatment plan, *providing decisional support* or guidance without ignoring patient views and demanding compliance with a certain therapeutic plan [30].

#### a) Provider Instruction on Patient Comprehension and Recall

Physicians and pharmacists continue to be the main sources of drug information and advice given to patients. Patients often receive information about the drug name and recommended dose and dosage frequency, but the majority of patients still receive no specific oral counseling about the purpose of therapy, how long to take their medication, side effects, other precautions, and when the medication will begin to work [31]. In fact, the quality of medication instruction by a provider is a better predictor of patient comprehension and recall than the patient's age and education. Limited literacy has repeatedly been linked to problems comprehending health information, although the majority of studies to date have focused on reading various print health materials. Many older adults may have difficulty remembering verbal instructions conveyed during clinical encounters. Greater provider awareness of the impact of low health literacy on the recall of spoken instructions may guide providers to communicate more effectively and employ strategies to confirm patient understanding [32]. Research also has shown that there are substantial gains in patient comprehension and recall when providers use~

Written reinforcement and visual aids, including printed leaflets or information sheets,

1. Expanded prescription labels and stickers,
2. Calibrated liquid measuring devices,
3. And special containers or calendars that indicate exactly when each dose is to be taken.

It is estimated that close to half of the U.S. population has limited health literacy. Patients with Limited Health Literacy (LHL) are more likely to have poor health status, higher rates of hospitalization, and a nearly twofold higher mortality rate. They are also more likely to experience disparities in health and health care access, have lower rates of screening and preventive services, and obtain their care in the emergency department. Furthermore, patients with LHL are more likely to have poorer knowledge about their disease processes, medication regimens, and methods for managing their disease. LHL also has a negative

effect on doctor-patient communication [33]. The difficulty and length of informational materials can interfere with the patient's ability to comprehend and recall advice. In general, patients have fewer difficulties if providers *simplify instructions* by avoiding medical jargon and using shorter words and sentences. In fact, the patients who received the difficult leaflet made nearly the same number of medication errors as those who received no information [34, 35].

#### b) Provider Support on Patient Motivation and Evaluation of care

Being ill and undergoing treatment can involve

1. A variety of stresses, practical problems, and
2. Other concerns that adversely affect patients' evaluations of treatment and their motivation to perform difficult tasks such as changing an unhealthy life-style, taking multiple medications, tolerating adverse events, and maintaining a positive self-image and outlook

Patients also develop more positive attitudes and achieve better treatment outcomes when their caregivers make a systematic effort to *reinforce* the value of therapy.

#### This reinforcement can take multiple forms, such as

1. Giving feedback to patients about their conditions during follow-up medical and pharmacy visits,
2. Encouraging patients to monitor their own conditions with special devices, or making home visits to increase family support and reinforcement. For example, experimental studies in hypertension management have documented substantial gains in patient adherence and clinical outcomes if patients receive regular blood pressure monitoring and feedback about their condition from a pharmacist or nurse [36, 37].

#### c) Provider Monitoring on Patient Feedback and Satisfaction

Surveys suggest that patients experience a wide variety of subjective and objective problems and concerns that contribute to nonadherence, dissatisfaction with care, and treatment dropout. These *barriers* to treatment adherence include ~

Doubts about the physician's diagnosis or need for treatment,

1. Misunderstandings about the regimen,
2. Difficulties remembering each dose,
3. Doubts about the effectiveness of the prescribed drug for their condition,
4. Concerns about side effects and other bothersome features of a drug,
5. And fears about the long-term effects of treatment or social stigma associated with certain conditions or treatments [38].

At the same time, physicians and pharmacists do not always ask patients about their medication concerns, beliefs, understandings, and behaviors. While these patient concerns

can have detrimental effects on the patient's behavior; many patients are reluctant to complain or ask their providers about their medications. Providers who ask carefully designed, open-ended questions about patient concerns and adherence will be more likely to receive accurate patient feedback than those who wait for their patients to volunteer this information. Community pharmacists should equip themselves with appropriate knowledge and competencies in order to tender efficient and outstanding pharmaceutical health care [39, 40].

### Behavior: An East West Analogy

As reported by the WHO, patient adherence to long-term therapies is alarmingly low in both developed and developing countries [41]. Nearly 50% of antibiotics are purchased and consumed without any medical supervision in most parts of the world [42]. Evil spirits are blamed for epilepsy in most part of the world. Healthcare providers' understanding of their patients' healthcare beliefs, values, and preferences is an important feature of patient-centered care. The use of herbal medicinal products and supplements has increased tremendously over the past three decades with not less than 80% of people worldwide relying on them for some part of primary healthcare [43]. Medication nonadherence remains a substantial public health problem. Worldwide, between 25% to 50% of patients do not take their medications as recommended. In the USA, suboptimal adherence has been associated with 125,000 deaths, 10% of hospitalizations, and costs 300 billion USD annually [44]. The economic impact was also in PubMed and Scopus in September 2017, which shows an increase in total healthcare cost (>80%), pharmacy costs (70%), inpatient and outpatient costs (50%), emergency department visit and medication costs (<30%), and hospitalization costs (<20%) [45]. Across South Asia, overall hypertension prevalence is estimated to be 27%. Prospective Urban Rural Epidemiology study has shown more than 50% are unaware of it and up to 80% of hypertensive patients have low adherence to medication [46]. Uncontrolled BP was found more than 50% in Bangladesh, 70% in Pakistan and almost 60% in Sri Lanka [47]. American Diabetes Association and the European Association for the Study of Diabetes guidelines in 10 developing countries from Africa (Egypt, South Africa), Middle East (Israel, Saudi Arabia, United Arab Emirates, Iran and Lebanon) and South Asia (Bangladesh, India and Pakistan) shows more than 25% and around 70% patients did not have any follow-up visit by a diabetologist or a GP, respectively. More than 35% patients did not receive any diabetes education [48].

### Behavior: An East West Comparison

#### Health Expenditure and Utilization in Western Countries

Surveys suggest that patients experience a wide variety of subjective and objective problems and concerns that contribute to nonadherence, dissatisfaction with care, and treatment dropout. These *barriers* to treatment adherence include ~

1. 25% of Hispanic patients reports fear that insulin causes blindness. Patients need information that may not appear obvious to providers [49].

In 2015, nearly \$3 trillion USD were spent on healthcare in the United States. 5% of the total population consumes 50% of all healthcare spending [50].

2. Just over half (54%) of healthcare funding in the United States comes from private sources, in contrast to just under one-third in Canada (30%) and Australia (32%) and under one-fifth in the United Kingdom (18%). Public sector spending per capita is more consistent across countries (Canada's expenditure is 5% greater than that of the United Kingdom and 20% greater than Australia's). During the year 2016, 91.2% of Americans had health insurance coverage. Overuse has been best documented HICs [51].
3. Australia has the highest number of MRI machines among OECD countries (13.4) per million people but has the lowest MRI exams (27.6) per 1000 people [52].

### Misbeliefs, Superstitions and Poor Compliance in South Asian Countries

In Pakistan, 10% ethnic respondents rely on arm bracelet for pressure control and neem (*Azadirachta indica*) for diabetes measure; nearly 30% rely neem chicken pox and measles cure; 16% went to maulvis for treatment of jaundice; for epilepsy management, 20% of patients were made to smell shoes and 11% were taken to peers and faqirs (folk healers) [53]. "Coining", a similar belief in China, Indonesia and many South Asian countries that rubbing coin along with the skin will bring bad blood to surface. Culturally in many parts of India, menstruation is still considered to be dirty and impure. A nearly 90% of women in India sometimes resort to using ashes, newspapers, dried leaves and husk sand to aid absorption [54]. The trend towards finding healers first and then doctors covers all fields of medicine in India and beyond. It cannot be wrong to show respect for cultural traditions and belief, but if pursued without heed to possible harms that arise from not seeking timely professional help the situation could change. Furthermore, the situation described is not unlike that which is commonly found in China, where the two different types of medicine (traditional and allopathic) generally work in parallel, and have done for many years. In Bangladesh, diarrhea and pneumonia cause death of more than ten lac children every year. Majority parents seek treatment from homeopaths, PCs (folk healers), retailers or non qualified allopath [55]. A recent study shows that half of the antibiotics are sold without prescription in most of the South Asian countries; people prefer self-medication rather than visiting a doctor [56].

### Pharmacists' Role

#### Pharmacists Role in Improving Patient Behavior

1. Establish a relationship
2. Improve the patient and caregiver knowledge base
3. Utilizing digital health technology tools.
4. Providing incentives
5. Involve the caregiver [57], [58]

### **Importance of Patient Counseling**

Patient counseling is necessary to reduce medication errors and improve patient healthcare. This leads to several potential benefits

1. Improved therapeutic outcomes and decreased adverse effects
2. Improved patient adherence to the treatment plan
3. Decreased medication errors and misuse
4. Enhanced patient self-management by involving the patient in designing the therapeutic plan
5. Potential for decreased health care costs due to appropriate use of medications and prevention of adverse events. The pharmacist also benefits in this process. Potential benefits to the pharmacist in this process include:
  - a. Enhanced professional status in the view of patients and other health care providers
  - b. Establishment of an essential component of patient care that cannot be replaced by technicians or automation
  - c. Enhanced job satisfaction through improving patient outcomes
  - d. A value-added service to offer patients
  - e. Revenue generation through payment for counseling services—limited at present but growing
  - f. In short, it ensures positive outcomes on the management of disease, including improved drug compliance, better treatment endpoints, and patient satisfaction [69].

### **Benefits of Patient Compliance**

The improvement of compliance will result in a situation in which all parties benefit. Most importantly patients benefit from the enhancement of the efficacy and safety of their drug therapy. Pharmacists benefit because there is an increased recognition and respect for the value of the advice and service that they provide. Pharmaceutical manufacturers benefit from the favorable recognition that accompanies the effective and safe use of their drugs as well as from the increased sales resulting from the larger number of prescriptions being dispensed. Finally, society and the health care system benefit as a result of fewer problems associated with noncompliance. Although an increase in compliance will result in more prescriptions being dispensed and a higher level of expenditures for prescription medications, this increase in costs will be more than offset by a reduction in costs (e.g., physician visits, hospitalizations) attributable to problems due to noncompliance [60], [61].

### **Conflict Resolution and Problem Solving**

Because providers and patients are likely to have different viewpoints and agendas, some interpersonal conflict or disagreement is inevitable during their interaction. This conflict is especially likely after patients have gained more experience with their illness and recommended treatments. For example, providers may want patients to comply as fully and rapidly as possible with their ideal treatment plan, whereas patients may prefer a slower or less aggressive approach or even request alternative therapies that providers would consider ineffective, inappropriate, or unnecessary. Providers also may consider certain side effects or drug-taking problems to be clinically insignificant or trivial, while patients consider the same side effects or problems to be intolerable. As a result, providers often are confronted with both explicit and subtle forms of negative feedback from their patients (e.g., complaints about the drug or dosage schedule, admissions of nonadherence, reported difficulties administering or paying for medication, expressions of fear and uncertainty about drug efficacy or safety). In contrast, the participatory/collaborative approach involves acknowledging the legitimacy of patient concerns, assessing patient concerns in a more thorough and respectful manner, tailoring or adjusting drug regimens to fit patient routines and preferences, and negotiating mutually acceptable solutions. Patient adherence is significantly improved if the dosage schedule has been tailored to the patient's daily routine, if the patient is allowed to change the regimen within a preapproved protocol, and if the patient identifies the areas in which he or she would like assistance [62], [63].

### **The Health Collaboration Model**

Health Collaboration Model highlights the central role of patient feedback and collaborative problem solving in health care. Each box represents a different set of provider behaviors or background factors affecting the collaboration process; whereas, each circle represents a different set of patient cognitions, beliefs, behaviors, or clinical outcomes affected by collaboration and background factors [64]. Health Collaboration Model highlights the central role of patient feedback and collaborative problem solving in health care. The diagram is best understood by beginning at the left side of the diagram and following each arrow in numerical order. Each box represents a different set of provider behaviors or background factors affecting the collaboration process; whereas, each circle represents a different set of patient cognitions, beliefs, behaviors, or clinical outcomes affected by collaboration and background factors [65]. (Figure 1)

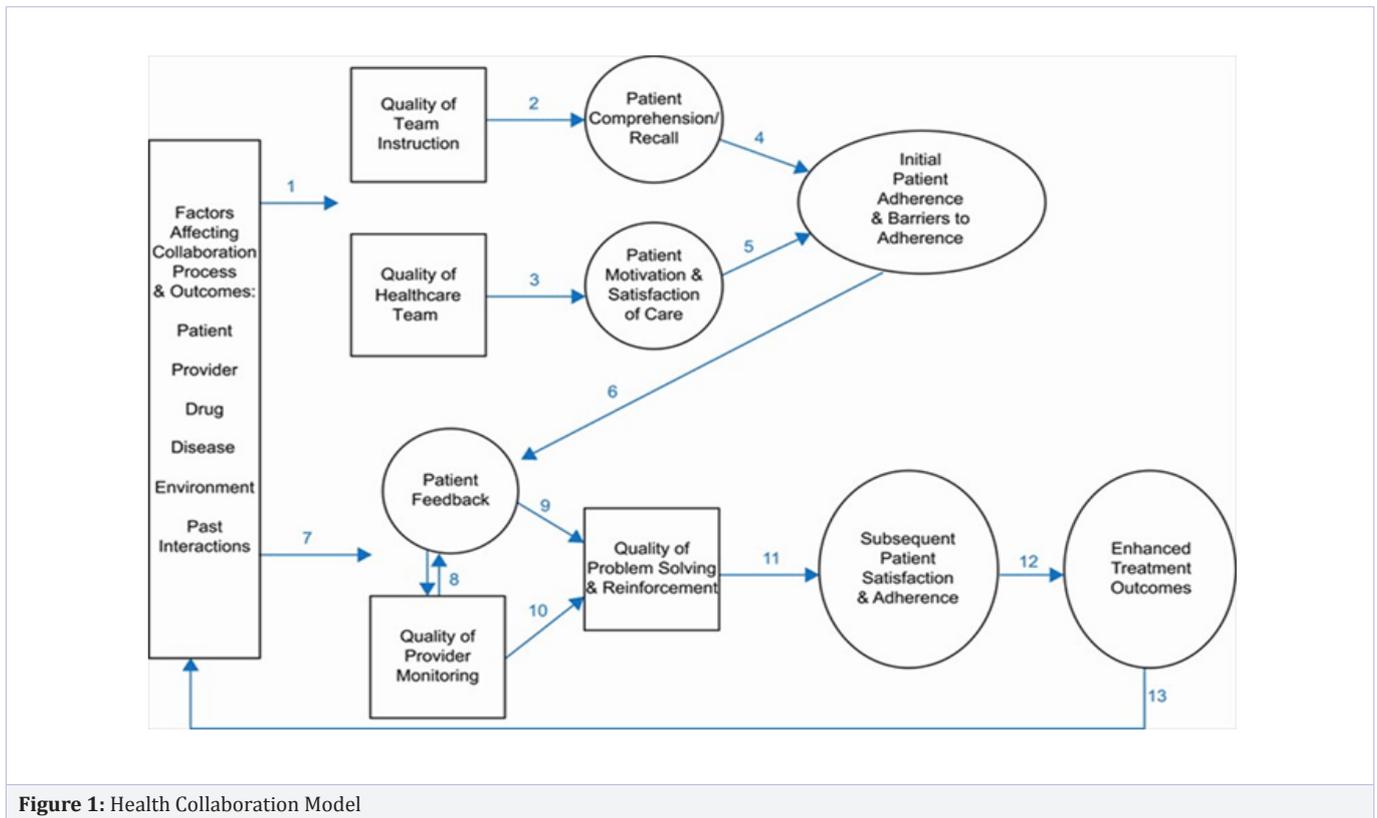


Figure 1: Health Collaboration Model

The top part of the model (arrows 1–5) emphasizes the various factors that can impact the patient’s initial reactions after receiving a new prescription or other new regimen; whereas, the bottom part of the model (arrows 6–13) emphasizes the various factors that can impact the patient’s behavior after he/she has experienced the drug and barriers to adherence. First, we see that patient, provider, drug, and environmental factors (arrow 1) can impact both provider and patient behavior during the initial stages of collaboration and treatment, including the quality of provider instruction and support, patient comprehension/recall and motivation, and initial patient adherence and barriers to adherence. During the initial stages of collaboration, the provider plays a critical role in facilitating and verifying patient comprehension/recall of the regimen (arrow 2). The provider also plays a critical role in facilitating and verifying the patient’s initial motivation and satisfaction with the regimen (arrow 3). It is not enough to give drug information. Rather, the provider must assess the individual’s initial understandings and beliefs and make adjustments as necessary. In some cases, he/she will need to provide additional instruction or reinforcement to make sure the patient will understand and remember the dosage schedule. In other cases, he/she will need to provide additional informational, social, or technical support to address the individual’s initial doubts or concerns about the drug and its short-term or long-term effects. If effective collaboration occurs at this stage, then the patient will have greater comprehension/recall and greater motivation which, in turn, lead to greater initial adherence and fewer barriers to adherence (arrows 4–5). The bottom part of the model draws attention to the fact that patients actively

monitor their reactions to drug therapy and experience a variety of barriers to adherence after initiating therapy. They may find it difficult to remember each dose or simply question whether the drug is still needed or working for them. They also may experience unwanted effects or have concerns about high drug costs, possible dependence, or unknown long-term effects. Since these patient-perceived barriers seriously undermine the patient’s willingness and ability to continue therapy as prescribed, patient feedback plays a central role in follow-up visits with the provider (as shown in Fig 1). Soliciting accurate patient feedback is a complex process that depends on: the patient’s personal experience with the drug (arrow 6); background characteristics and expectations of the patient and provider, characteristics of the drug and environment, and past patient-provider interactions (arrow 7); and quality of provider monitoring. Providers who regularly ask carefully designed, open-ended questions in a supportive, non-accusatory manner can be very successful in soliciting negative patient feedback even among patients who initially appear reluctant or hesitant to share their personal doubts, difficulties, and concerns. The provider who is able to solicit accurate patient feedback is then able to resolve patient-specific problems and provide appropriate reinforcement as necessary (arrows 9–10). This type of two-way communication and collaborative problem-solving leads to greater patient satisfaction and adherence (arrow 11) and enhanced treatment outcomes (arrow 12). The final arrow (14) illustrates the importance of past interactions and treatment experiences in establishing and maintaining a trusting relationship that is the cornerstone of effective health and pharmaceutical care.

Health Collaboration Model can play an important role in pharmacy practice and research.

It enables pharmacy practitioners and researchers to organize large amounts of information that would otherwise be confusing or difficult to interpret and use.

1. It enables pharmacists to identify potential connections and implications that are not obvious when examining results from a single study or set of observations.
2. It can be used as a stimulus and guide for further discussion, evaluation, and practice development.
3. It helps us see that the patient's behavior depends more upon the patient's beliefs, feelings, and interactions than on the patient's medical diagnosis or severity of illness.
4. It also helps us see pharmacists who have a good understanding of patient behavior can have a positive impact on treatment outcomes by providing quality instruction, support, monitoring, and collaborative problem-solving and reinforcement [66], [67].

## Conclusion

The comparative study shows different perspective of patient behavior in modern world and in Bangladesh. Reasons are found to cultural and economic differences. Pharmacists and other healthcare providers also have different strategies to promote patient behavior change, spent times with patients. High patient activity change support system should validate their efficiency and professionalism. But reality is that no graduate pharmacist is working in retail pharmacies or Government hospitals of Bangladesh except very few tertiary private hospitals. To attain the ideal healthcare service doctor, pharmacist, nurse and other healthcare professionals must work together. It is noteworthy to mention that any interruption in the team work will disrupt the whole health system and patient care service will never be achieved. At the same time, physicians and pharmacists do not always ask patients about their medication concerns, beliefs, understandings, and behaviors. While these patient concerns can have detrimental effects on the patient's behavior, many patients are reluctant to complain or ask their providers about their medications. Providers who ask carefully designed, open-ended questions about patient concerns and adherence will be more likely to receive accurate patient feedback than those who wait for their patients to volunteer this information.

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