Understanding and Handling Non-Compliance in Clinical Pharmacy

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Who Is Responsible for Compliance?

Janine couldn’t believe what she was hearing. As she conducted a counseling session with a newly-diagnosed Type 2 diabetic, she listened as the 65 year old gentleman explained how he decided to take his glucose-control medications. He told her that he rarely checked his blood sugar, because he didn’t want to get calluses on his fingers. He described how he knew he needed to take his medications, explaining how he “felt” and what “signs” he detected rather than using the medication as directed. He was proud that he could go an entire day without taking it, noting how he was controlling his disease “his way.” Despite the fact that he also suffered from chronic hypertension and elevated LDL, he continued to resist the therapeutic regimen he was given.

Janine felt very frustrated. She had spent considerable time and effort explaining to her patient how important these regimens were, and how the combination of disease states he possessed could quickly affect his long-term viability. She was certain that he understood, but there was no indication that he cared. If he carried on this way, the conditions would likely worsen. But what else could Janine do?

The Conundrum of Non-Compliance

For as long as anyone can remember, individuals have been prone to making adjustments to the recommendations of their health care professionals or the drug information shown on the package. Outside of health care, the typical layperson would probably point to the well-known problem of antibiotic compliance; we have known for
some time that the majority of us don’t take those medications as prescribed. But in health care, professionals know that the problem extends to many areas of practice, and it doesn’t show any signs of disappearing.

For the clinical pharmacist, non-compliance is a real concern because of the clinical nature of the interaction between the pharmacist and the patient. The clinical pharmacy professional is assuming roles in the patient’s life that historically she did not — educationally, motivationally and therapeutically, just to name a few. As a result, the new pharmacy practice approach can act as a platform to encourage patients to follow the prescribed treatment regimens for their conditions. In this article, the importance of this platform will be explored by discussing several issues:

- What does non-compliance mean? Should it be considered differently than “adherence?”
- How prevalent is the problem and what has been done in the past to prevent it?
- What do pharmacy professionals need to know about the psychological roots of non-compliance/non-adherence?
- What strategies are available to the practicing pharmacist to combat the problem, and on what do those strategies depend?

By completing this article, the reader should possess a greater understanding of the patient’s viewpoint with respect to compliance/adherence to medication therapies. The essential contention of this document is that the most effective pathway to improving compliant behavior from patients is to understand the antecedents and expected consequences of that behavior from the standpoint of the patient.

**Defining Our Terms**

A cursory review of the literature dealing directly with failures to take medications as prescribed suggests that “compliance” and “adherence” (or some variant of the terms) seem to be used somewhat interchangeably. Digging deeper, the idea behind the terms most frequently seems to reflect patient behavior that falls short of expected behavior; in
other words, patients don’t do what they are told. Who tells them can vary as well, from humans (doctors, pharmacists) to OTC packaging, but for our purposes, we will emphasize the former since dialogue is at the heart of clinical pharmacy practice. It is critical before beginning any study of a particular problem or phenomenon that we know what we are talking about, specifically defining any important concepts. However, this does not appear to be the norm regarding compliance issues in medication.

So, I must begin by defining terms. Note that I am not recommending or suggesting that everyone must define the terms this way. But, within this article, these definitions will be assumed. First, I believe it is paramount to make a distinction between “compliance” and “adherence,” because they have different connotations. When the medical literature talks about compliance, authors typically include factors such as forgetfulness and distractions that can lead to unintentional lapses in medication regimens. Combining regimen failures stemming from both intentional and unintentional roots into the same concept makes it much more difficult to identify specific causal factors and, subsequently, possible solutions. In addition, human error theory such as that proposed by James Reason includes intent as a critical factor in distinguishing error behaviors. Thus, I propose the following definitions:

- **Non-adherence** should be defined as the gap between perfectly following all therapy requirements and the actual behaviors observed, and this gap **must be attributable to either unintentional causes or causes out of the individual’s control**. These outcomes would be primarily due to what error theorists call “slips” (unintended errors of commission), “lapses” (unintended errors of omission), and “mistakes” (unintended errors based on misapplied knowledge- or rule-based behaviors).

- **Non-compliance** should be defined as the gap between perfectly following all therapy requirements and the actual behaviors observed, and this gap **must be attributable to intentional decisions made by the individual to alter the therapy instructions without prior consent**. These outcomes would be primarily due to what error theorists call “violations” (intended behaviors outside the expected and permitted boundaries of activity).
This typology borrows from literature in both motivation and error research, which regards the intention of the actor as a key factor in explaining the behavior(s) in question. I have assigned the word “adherence” to primarily unintentional behaviors, and “compliance” to primarily intentional behaviors, largely due to the connotation of the word “compliance.” Furthermore, it is important to recognize that intention must be inferred from knowledge of the antecedent conditions present before the behavior is initiated. In other words, we have to know whether the patient meant to change the regimen, or did it for other reasons (misunderstanding, mindlessness, etc.), and to know this, we must understand how the patient views the regimen itself, as well as the disease that has triggered it.

**Prevalence and Causes of Compliance/Adherence Failures**

Several studies have attempted to quantify how often compliance and adherence failures occur. Unfortunately, the data are not that helpful in most cases; the ranges of the estimates are extremely large and there is no standardized way of measuring the phenomenon. About all that can be inferred from the available literature is that the issue of compliance failures is fairly common, regardless of the disease in question or the complexity of the medication regimen.

Perhaps most importantly for this article, however, the literature does provide an extensive list of possible causal factors related to compliance and/or adherence failures. Several of these are listed in the table on the next page, just to provide you with an overview; there are literally hundreds that have been identified at some time.

The causal “suspects” that can be found in the literature vary widely across many levels. For example, there does not appear to be any agreement as to whether compliance/adherence issues are the responsibility of the provider or the patient. While an initial reaction of many would be to focus on the patient, unintentional compliance failures may be attributable to poor instructions from providers or even errors in the medication delivery process. This is another reason why the issue of intention is so critical for our discussion. We simply cannot plan for solutions without a clear vision of the motivational factors underlying the problem.
### Influences on Adherence and Compliance

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Consulting sessions that occur provide a unique opportunity for clinical pharmacists to know their patients more deeply, accessing the variables that can affect a decision to adhere to a medication regimen or that can affect one’s unintentional compliance behavior, and hopefully implementing preventative measures. But first, the pharmacist needs to have some indication as to what he is looking for, and that is the function of this article. Below I list several questions that are important to diagnose potential compliance and/or adherence difficulties before they occur. First, I will address adherence, or the *unintentional* behaviors that lead to problematic medication therapy outcomes.

1) **How well do our patients understand the critical information about their medications?** Clearly, one central purpose of clinical pharmacy consulting dialogues is to inform patients about the substances they are ingesting. However, we know from the organizational training literature that informing employees and being assured that they actually learned something are two different issues. Good training programs in organizations include quantitative assessment of learning once the training is complete, and although it is too much to ask for patients to take a test on what you have told them, some sort of assessment would be useful. One tool that could be utilized is a derivative of
the structured interview technique used in organizational staffing. Structured interviews ask specific questions (often based in important hypothetical scenarios called “critical incidents”) and then score the interviewee’s response based on its conformity to some standard. The clinical pharmacist could use a modified version of such a tool by presenting a situation to the patient, asking them “what they should do if…” For example, perhaps a question could be constructed to tap into knowledge about how to handle a missed dose, or what to do if they feel a certain way after taking the medication. Patient answers could be scored and areas of improvement could be identified. Without this sort of assessment, the pharmacist may believe that she is doing a great job of educating patients, oblivious to the fact that they are not retaining important data.

2) What unique factors in the patient’s life and/or attitudes could impact their ability to comply with the medication regimen? The clinical pharmacist should always remember that the medication therapy you are installing will require a fundamental modification of the patient’s daily existence. While is it true that the modification for some may be relatively minor, change is still change, and most patients will have little idea how to begin adapting to it. While it is not your responsibility to reach the “new normal” for the patient, you can aid in the process by doing what organizational scientists call “managing the change process.” Change induces all sorts of (usually temporary) reactions that are negative and positive — stress, anxiety, self-doubt, excitement, anticipation, etc.; the more all-encompassing the change is with respect to the patient’s daily life, the more salient (and disruptive) these effects can be. The clinical pharmacist can briefly assess these “side effects” in talks with the patient, and propose interventions to handle them going forward. For example, the new diabetic may have a fear of needles, the busy lifestyle of the patient may not be conducive to carrying multiple dosages of several medications, or the man who has never worn a watch may have difficulty executing a medication regimen based on carefully-timed doses. There may also be social or interpersonal stigma associated with the disease state, and the medication can act as a reminder of that stigma. These factors can play into volitional choices to alter therapy (compliance failure) or unintentional alterations that may even occur outside of conscious awareness (adherence failure). The insightful clinical pharmacist may be able to help patients achieve their therapeutic goals
by simply encouraging them to mindfully identify potential roadblocks that exist in their lives, attitudes, or beliefs.

3) **Have the patients done a cost/benefit inventory pertaining to their new therapeutic reality?** This point begins to bridge the gap between adherence and compliance. First, we must acknowledge that individuals make decisions based on perceptions of the incentives and/or punishments available in the environment at the time of the decision. For example, imagine that you pay $12 to see a new release at the theater with a friend. Thirty minutes into the show, you realize that you are dramatically underwhelmed by the film to the point that you are feeling anger and frustration. You begin to consider leaving early. Unfortunately, you have already spent another $12 on refreshments, bringing your total investment to almost $25. *What do you do now?* You have at least two basic options (acknowledging that there are myriad variations on these two themes):

- **You could leave the theater.** While this would spare you from seeing more of a bad film, your friend might be enjoying the show. In addition, you have made a financial investment in the evening that would go for naught.
- **You could stay and finish the movie.** Here you avoid any uncomfortable interactions with your friend and you justify the money you’ve spent, but you must suffer through another 90 minutes of a bad film, time you could have used in a more enjoyable way.

So what would you do? Your answer to that question (and the thought process from which that answer came) will be unique to you, based on your own perceptions of that situation, your previous life history with similar situations, whether $25 is “a lot” of money to you, and several other possible factors. Furthermore, your satisfaction with the choice will be partially due to whatever outcomes you experience, but also partially due to your rationalization of why those outcomes are the most desirable ones to pursue. In other words, motivated behavior is inextricably interwoven with *post hoc* (after the fact) explanations of why we did what we did. For instance, if you stay and finish the film, you may justify that decision *after the fact* by believing that the $25 was too much to pay for 30
minutes of a film, or you may argue that the time spent with your friend was more valuable than the discomfort you experienced from sitting through the film itself.

I would argue that pharmacy professionals must realize that adherence and compliance failures are rooted in the same motivational analyses that humans use ubiquitously as we engage with our environment, and that compliance and adherence are potentially linked over time. Foundationally, first we should state that patients deviate from expected behaviors because they have concluded that such deviation is the best “behavioral value” at the time—the benefits simply outweigh the costs. Following from this premise, we can make a few additional points:

- The first deviation(s) from expected behavior may be quite unintended, thus classified as non-adherent. For example, a medication dose may be skipped because it conflicts with other life responsibilities. The first time this happens, the patient may realize the error, feel regret and disappointment about it, and resolve to “do better.”

- However, one missed dose is not likely to result in any immediate negative consequences for most medications. The patient is able to function and life goes on. Because there is little obvious reason to adjust schedules or other factors to facilitate the problematic dose, other instances of omission are likely to occur, also leading to little if any negative ramifications and quite a few positive ones (i.e., meeting the other responsibilities, etc.).

- Eventually, the patient may decide that the skipped dose is no longer important and can be successfully removed from their regimen. At this point, he is explicitly and consciously intending to deviate from instructions, and the result would be classified as non-compliance.

Again, note that initially intent is not necessary – the first few instances may be non-adherent (unintentional), but as they are rewarded (or not punished) in the near-term for that non-adherence, non-compliance may naturally evolve. An exacerbating factor here is that the benefits of not complying with the therapy regimen are likely to be experienced more quickly than the costs are. In other words, patients are likely to reap the rewards first
and then suffer consequences later. The insightful clinical pharmacist must learn to see the patient's decisions to take medications (or test blood sugar, etc.) as directed or not is ultimately a decision of behavioral economics. With this viewpoint, she can more effectively confront the innocent perceptions and circumstances that could, down the road, lead to non-compliance.

There are ways to tap into the likelihood of non-adherence as the pharmacist is engaged in dialogue with the patient. The logic of this initiative is similar to that of a failure mode effects analysis (FMEA) that is often used when implementing new technology or organizational policies.

- First, ask questions that will hopefully disclose what the patient knows about the ramifications (short-term and long-term) of altering their medication therapies.
- Second, ask the patient to imagine what their lives would be like if they didn’t have to take these medications. It is possible that you can identify some hidden benefits to non-adherence in their fantasies that, when left to their own recognizance, could emerge as salient incentives leading to non-adherence. However, if you do this, be aware that you run the risk of triggering non-adherence rather than defusing it, so be prepared to neutralize those incentives with reasoned arguments.
- Third, you may want to ask the patient to be the expert. Get them to play the role of the clinician and tell you how they think their medication therapy should be structured. Use this strategy if you believe that you have a patient who is (or believes they are) well-informed about their condition(s) and may enter a non-compliant mode of behavior because they simply believe they know better than anyone else, including you.

A pharmacist who is deeply entrenched in the clinical pharmacy model and engaged with her chronic patients should have opportunity to know those patients well enough over time to be able to uncover possible non-adherence triggers in the lives of those persons. One way to facilitate this is to create a cost-benefit inventory for use in your consulting sessions. This could be designed as a paper-and-pencil instrument (or it could
be hosted on a tablet PC or smartphone) that asks patients to identify the negative factors associated with their therapy (the costs) and to note the positive factors as well (the benefits). Encourage the patient to be as thorough as possible and to omit nothing, even if they believe the factor to be completely obvious or ridiculously trivial. This information is likely to be rich with data that could suggest areas of concern that the pharmacist could then target in future consulting sessions.

**Dealing With the Stress of Compliance/Adherence**

Many approaches to the reduction of non-compliance (or improvement of adherence) have been attempted, but they can be grouped into several themes. One main theme is **convenience**, which fits nicely into the cost-benefit approach already discussed. Another theme is **information**, which assumes that failure to comply or adhere is connected directly to ignorance about ramifications or other pertinent data. A third theme is **social support**, rooted in assumptions that the patient fails to adhere or comply because they do not possess strong social connections with individuals who could help to hold them accountable for their behaviors. Unfortunately, none of these approaches were entirely effective for a number of reasons that are beyond our scope to explore. But one important reason why they did not work well may be that many health care environments still do not make it easy to create a psychologically-safe consulting environment. Without this platform, I argue that non-adherence and non-compliance will be virtually impossible to attenuate.

But nevertheless, it is important to examine the underlying themes in prior intervention attempts because they give us a glimpse into another perspective on the compliance/adherence issue. So far we have discussed a motivation-based theoretical structure for compliance and adherence, but one factor that could act as a mediator or moderator in this structure is stress. All of the themes listed above can be directly tied to modern approaches to the study of stress and its remediation. Therefore, we will examine compliance and adherence through a “stress lens.”
First, **the clinical pharmacist must understand how stress is perceived individually and resist the urge to define what is stressful (or not) for their clients.** Many stress researchers agree that a potentially stressful event triggers an “appraisal” process. First, the event is analyzed for its stress effects (primary appraisal), and if the event is deemed to be a stressor, then is compared against the available coping resources that the individual possesses (secondary appraisal). In other words, we first decide if the event is stressful to us, and then we decide if we can handle it. What this means for the MTM pharmacist is that your patient is faced with a constant stressor (their therapy regimen) and so continually must perform these appraisals. The conclusions they come to about the stress they are experiencing could change daily, and the pharmacist must be aware of that.

Second, **the clinical pharmacist must be aware of and able to perceive overt signs of stress in patients.** Some of the more typical signs are what you might expect. The patient may exhibit irritability and negative emotions, or they may have more difficulty concentrating on the conversation you are having. In addition, they could show autonomic signs, such as increased blood pressure or mild tachycardia. They also may have more trouble remembering specific information about the recent past. When these effects (commonly called strains) are present, you can take it as an indication that compliance and/or adherence issues may arise soon.

Third, **compliance and adherence deviations are more likely to occur in the presence of stressor(s).** If the signs of stress are present, the costs of compliance or adherence will increase in proportion to the intensity of the stressor(s) and the patient’s ability to cope with those stressors. The stress essentially becomes something else to manage, and if the patient perceives that the therapy is the source, it is tempting to modify the therapy to reduce the stress.

**A Quick Summary**

Summarizing the literature on compliance and adherence is difficult because the
issues have been approached from so many different directions. However, by reframing the compliance/adherence dilemma as series of motivated choices based on perceived costs and benefits, it becomes easier to see that compliance and adherence are both quasi-rational behaviors, not necessarily indications of irresponsibility, forgetfulness, or ignorance. While it is possible that some patients will be intentionally oppositional regarding their therapies, it is not likely that these constitute the majority of those persons who do not take their medications perfectly.

So how do we intervene if we conclude that compliance and adherence are not necessarily “problems” to be solved and stop chasing the windmills?

**Using Goal Setting To Improve Compliance/Adherence: A Suggested Approach**

So far we have attempted to frame the compliance/adherence issue in terms of a motivational model mediated by attitudes and stress. Thus, a successful intervention should be rooted in the same theoretical soil. Ultimately, a clinical pharmacist can positively affect the patients with whom she works if she can adjust their perceptions to make adherence and compliance seem most beneficial than they are costly. To do this, we have to abandon some old ways of thinking.

First, threatening patients with the “what will happen if” scenarios is not likely to be helpful. As trained medical professionals, the consequences of failing to comply with medication therapy are more salient and much more obvious. Most of your patients are not going to be as impressed with those descriptions because they do not possess your expertise, do not fully understand the integration of their biological systems, and will generally perceive themselves to be at less risk than the general population (“that might happen, but it won’t happen to me”). Further, the ones that are capable of understanding the severity of those possible consequences are probably also astute enough to search other sources of information (i.e., the Internet) for opposing viewpoints that confirm their pre-existing beliefs (psychologists would attribute this to confirmation bias). Finally, there is a chance that excessively warning and scolding will create a power differential that will
strain the relationship between you and the client. If you must discuss potential consequences, mention them in a more informative tone ("here are some negative outcomes that could result if you do not follow your regimen closely – would you like to know more about any of these?") rather than in a controlling tone ("if you don't do as your doctor says, you'll end up worse off than you are now"). Abandon the veritable “Scared Straight” session; it doesn’t work in criminal justice and it won’t work here.

Second, be aware of the natural human tendency to blame internal qualities of the patient for failures to comply or adhere to regimens. Even though in some cases this may have some truth to it, it is an overgeneralization to assume that individuals don’t take their medications because they are lazy, stupid, or irresponsible. Psychologists call this the “fundamental attribution error.” If we fall into this mindset, we run the risk of overlooking important external factors that contribute to a patient’s decision to adjust their medication regimen. Also, we are more likely to get locked into certain intervention strategies (reminders, admonitions, script monitoring) that may not tell the entire story about why the patient is not acting as expected and that may encourage the patient to see you as trying to control them.

Thus, if we accept that the compliance/adherence issue is defined as we have suggested in this article, then we must seek to maximize the benefits (and/or reduce the costs) of taking medications as directed. This becomes especially important because we cannot “watch” the patient be compliant (or not). We must rely on indirect measures such as refill frequencies and patient self-reports, so setting up the “motivational space” appropriately becomes paramount.

The intervention suggested in this section is based in goal theory, which essentially argues that goals can act as targets which generate interest and arousal while directing behavior toward the completion of the goal. Every patient is a unique case, so our discussion here will be somewhat general, but easily applied to a variety of situations where compliance and/or adherence are problems.

First, we must define the goal state. Psychologists know that goals must be
challenging without being overwhelming, so working with the patient to set a compliance goal is crucial. Of course, we would love to have 100% compliance with no deviations at all, but we must remember that this goal is not realistic for some patients. Use your expertise to determine how much the regimen can deviate from 100% compliance without putting the patient at significant risk, and use that range as a starting point for goal-setting.

**Second, use proximal (near-term) goals as “steps” to lead to distal (long-term) goals.** Patients faced with a chronic disease state will have a very difficult time defining goals in terms of long-term health outcomes. In fact, most of us do, because long-term goals often require intermediate successes to be accomplished along the way. For example, if you want your college degree, it will take a number of years, and each semester that you complete is a part of that process. The student that is only focused on the degree, and not on the fact that each semester is a step on that road, will ultimately become frustrated with each passing year that they spend time, money and effort and have nothing to show for it. Encourage the patient to focus on short-term “small wins” that will eventually lead to the desired end state. For example, setting a goal for a diabetic of “not losing an extremity” or “limiting neuropathic pain” doesn’t work. Think instead of what measurable, near-term goals could be used instead (i.e., A1C statistic, blood sugar goals, weight control, diet journals, physical activity goals, etc.). Use your expertise to break down the long-term outcome that would benefit the patient into a series of successive steps and work with the patient to reconstruct her view of her condition similarly.

**Third, allow the patient to participate in the setting of goals.** Note here that, ultimately, participation is a perception, not necessarily a reality. If the patient perceives that he has had the opportunity to communicate with you (“voice”), that those communications have influenced the resulting plans for their future (“perceived control”), and that they were able to make choices along the way (“perceived choice”), then the participation motive has been satisfied. In no way does this require that the expert (the pharmacist) has to let “the inmates run the asylum.” For instance, parents know that we can give our young children choices that aren’t really choices, i.e., “You can have spaghetti or chicken for dinner.” Of course, the trick is that either choice is acceptable, but the child will perceive that she has decided something for herself, and feel a sense of autonomy. This kind of participation is useful in clinical pharmacy practice to defuse the power differential
between expert and non-expert and to give the patient a measure of perceived control over their disease state.

**Fourth, goals rely on feedback.** Every time we interact with the patient, it is critical to review progress on compliance goals. This feedback should be specific to the goals in question, backed up with as much data as possible, and combined with ideas for improvement. As an analogy, imagine driving from Texas to Florida, but all the navigational signs on the highways have been removed. With a compass, you will have a good idea that you are going the right direction, but with such poor feedback, the trip will be meandering and, perhaps, unsuccessful. Those signs give us two kinds of feedback that are crucial for goal pursuit. First, *knowledge of results* is the term psychologists use to symbolize information about the ultimate outcome of a behavior. Second, *knowledge of performance* is the term psychologists use to symbolize information about the way in which that outcome was achieved. For example, if the patient’s goal is 90% compliance and they only achieve 75%, this is knowledge of results feedback. This would be similar to getting out of the car and asking the station attendant if you are in Florida. While this information is useful, imagine that his answer is just “no.” How do you adjust your next route? Instead, in addition to showing the patient his outcome numbers, we also need to look at *how* those numbers were attained (i.e., converse with him about difficulties he had, barriers he experienced, etc.). Continuing our analogy, imagine that the attendant says, “No, this is South Carolina. You must have taken the wrong exit at Atlanta.” Now, you have results and performance data, and goal adjustments can be made more accurately. Use interactions with patients to show the patient how you arrived at those numbers, point out ideas to improve areas of weakness, and allow the patient to explain why the goal was not met from his vantage point.

**Fifth, don’t be afraid to revise the goals that are set.** While it is true that goals are most motivating when they are difficult, it is also true that individuals are less likely to commit to a goal as the difficulty increases. This is one of the most frustrating motivational conundrums – we need goal difficulty to generate motivation, but at the same time we are making it more likely that the individual will abandon the goal completely. One saving grace is that the difficulty of a particular goal is not fixed – it is dependent largely on the individual who must achieve it. If we begin with something relatively easy from our
As the perspective of the expert, it is probable that the patient will see enough challenge in it to be motivating but not overwhelming. It is this “sweet spot” that we are trying to find. Always be mindful that it is quite possible that the first goals for a particular patient may be too hard or misspecified in some way, so revision will be necessary.

Essentially, the previous section describes a practical application of goal theory to reframe the medication regimen as a challenge to be met rather than a burden to be endured. By inducing this perspective, other important factors such as health-related attitudes and intentions will become more malleable, allowing the astute clinical pharmacist to shape the patient’s beliefs about his condition and his future in a more positive light.

**Summary and Conclusions**

There are literally hundreds of studies on compliance and adherence in the medical literature. Many of them focus on specific treatments (i.e., chemotherapy, antiretrovirals, hypertension therapies, etc.) and identify factors related to compliance/adherence with respect to those specific situations. This is an inefficient way to approach the problem, because regardless of the underlying condition, adherence to and compliance with medication therapies invoke the same motivational and attitudinal substrates. This article employs what we believe to be a more beneficial approach to the issue by examining the global factors that can lead an individual to decide to take (or not to take) their medication as directed, and then how a safe and effective clinical pharmacy practice can be utilized to correct perceptual and belief-based factors that can contribute to compliance-based and/or adherence-based deviations from expectation.

I would encourage pharmacists who want to work closely with their clients to educate themselves further on the basic elements of human motivation. I believe you will find the information useful as you work with your patients to achieve the best health-related outcomes for them.