

Chapter 2

The Classic View

Abstract A purely descriptive analysis of factors playing a role in patient adherence, related to the patient, her disease and the health care system, will not easily reveal the underlying psychodynamic processes that shape a patient's adherence. To go further, various behavioral models have been proposed to put these different factors into a conceptual framework that accounts for their interactive production of adherent or nonadherent behavior: The Health Belief Model, the Theories of Reasoned Action and of Planned Behavior, the Theory of Interpersonal Behavior, the Self-Regulatory Model, the Transtheoretical Model of Change and the Reversal Theory will be briefly described in this chapter. These models demonstrate statistical correlations between mental states and certain behaviors; but, as is well known, statistical correlations do not imply causal relations. Psychological models have therefore a major limitation: They cannot explain why an individual is or is not adherent to the medical advice that she is given. At the level of the individual, specific behaviors remain wholly unexplained and mysterious. In other words, behavior averaged out over a population is no longer sufficient for our investigation; rather, I shall focus on what a given patient is actually doing and why (i.e. for what reasons) she is doing it. I seek to establish a theory, taking its roots in the philosophy of mind, that defines what is meant by the 'reasons of care' and which shows how these reasons bring about caretaking—therapeutic—actions, supporting a causal relationship between Mind and Care.

Nonadherence to medical treatment has initially been attributed to ignorance on the part of the patient. Nowadays, it is understood that this explanation falls well short of capturing the many reasons why treatment doesn't happen as planned. If simple ignorance were the only reason for treatment nonadherence, then patient education would eliminate the problem. Both clinical experience and research suggest that knowledge is not enough. For example, Meichenbaum and Turk have shown that there is little correlation between the extent of a patient's knowledge of disease and adherence to her treatment (Meichenbaum and Turk 1987, 61). This is not to say that patient information has no role to play: Public health measures to encourage hand washing, safe sex, and helmet use have all proven successful in increasing healthful behaviors. It is also the case that for some patients, more knowledge leads to improved adherence, while for other patients it has little effect.

Patient information is essential in the care of chronic disease; however, it is not sufficient to lead to patient adherence. Informing patients is one thing, but motivating them is yet another.

We may divide the factors contributing to nonadherence into two categories: Those that are *intrinsic* to the patient—her knowledge based on the explanations she has received, her beliefs, and so on—and those *extrinsic* elements related to the disease and its treatment, the patient’s economic and social status, and other features of the local environment.

2.1 Determinants of Nonadherence to Long-Term Therapies

2.1.1 *Intrinsic Factors*

2.1.1.1 Lack of Knowledge

Knowledge of one’s illness is an important—though neither necessary nor sufficient—factor determining adherence. Similarly, knowledge regarding the treatment is important, but in ways often overlooked by the physician. The crux of diabetes treatment, for instance, is maintaining proper insulin levels in the patient’s body through insulin dose adjustment. And while this is true from a pathophysiological point of view—the dominant view in modern medicine—it is not sufficient to bring about a successful treatment. An endless number of distinct actions and decisions are needed to enact the seemingly simple concept of “maintaining proper insulin levels.” Each facet of treatment is a point of potential breakdown: It is an unwise doctor indeed who brushes aside these “trivial” matters. And yet, these issues have little to do with pathophysiology *per se*.

Communication is yet another concern in providing education to the patient and in implementing treatment. In the United States, for example, around 25 % of physicians are from other countries, and many Americans do not speak English as their mother tongue. The chances are high that a doctor and her patient will have some communication difficulties simply on this basis. However, a linguistic barrier may exist even when the patient and her doctor speak the same language (Reach 2009). In addition, there is the oft-criticized tendency of physicians to speak too quickly and using too much jargon. Patients complain of inadequate opportunity to ask questions, or even time to formulate questions before their physician has breezed out of the exam room.

2.1.1.2 Wrong Beliefs

The beliefs which a patient brings to the physician’s office are vital in determining the course of the treatment. How does the patient envision her illness, her treatment, her vulnerability, her capacity to take care of herself, and the power

of medicine to make a difference in the progress of the disease? Meichenbaum and Turk give some particularly revealing examples of the beliefs that can lead to nonadherence to treatment. To mention just a few: ‘If you take the medication too often, you can develop a resistance to it’, or ‘you become addicted to it’, or ‘the medication doesn’t do anything’, ‘they are trying to poison me’, ‘God will cure me of the disease’, ‘complications only happen to others’, ‘how will I know that I don’t need the medication anymore if I continue to take it’ or ‘nothing works for me’, etc. (Meichenbaum and Turk 1987, 47). These facts are not necessarily derived from the doctor’s explanations and might not even be conscious (Laplantine 1997, 246–265). They typically come from the patient’s family, culture, or ethnic origin, and the patient’s prior experiences: Competing ideas about an illness and its treatment may be found in books, magazines, on television, and the Internet, and patient beliefs are shaped by all these sources and then some.

2.1.1.3 Biases

Amos Tversky and Daniel Kahneman observed that people, when they have to make decisions in a context of uncertainty, usually do not behave according to the predictions of the classical Expected Utility Theory, where one makes choice on the basis of the value (the “utility”) of the outcomes and their respective probabilities. Instead, they use “heuristics”: These are simple and efficient rules which work well under most circumstances but which in certain cases lead to systematic errors or cognitive biases. One of these heuristics is known as the availability heuristic (Tversky and Kahneman 1974): Suppose you are asked to evaluate the relative frequency of cocaine use in Hollywood actors, you may assess how easy it is to retrieve examples of celebrity drug-users (Gilovich and Griffin 2002, 1–18). Using this heuristic may obviously introduce a bias in the estimation.

This effect may be relevant in our context. For instance, suppose a patient trying to evaluate the relative risk of hypoglycemia after increasing the dose of insulin. She may do it by assessing how easy it is to retrieve examples of hypo in her past experience. Since we usually remember more readily unpleasant events (Baumeister et al. 2001), she will overestimate the risk. Accordingly, she will not do what she was taught: To increase the dose when blood glucose is high.

In addition, the Prospect Theory proposed by Kahneman and Tversky suggests that in our mind, a loss of X \$ is more aversive than a gain of X \$ is attractive (Kahneman and Tversky 2000, 1–16). This loss aversion may also be relevant for the issue of insulin dose adjustment: Just consider the risk aversion effect on weighing the risk of hypoglycemia (loss) versus the gain linked to getting a better blood glucose (Reach 2013).

2.1.1.4 The Effect of Uncertainty

Patients may not follow clinical advice because of awareness that this advice is ill-funded, or even may change over time. Interestingly, Anderson, in a review

entitled: “*The Psychology of Doing Nothing*” (Anderson 2003), proposed that a major reason for privileging status quo (nonadherence—not taking the pill is a form of status quo) is the difficulty of the choice. Among the many factors which can result in making difficult a decision and to lead to the inaction *in general*, one can retain the following: The difficulty in adopting a clear strategy by lack of time, the multiplicity of the options, uncertainty on the preferences, the fact that the choice is badly defined, perhaps the personality of the agent, even her culture.

2.1.1.5 Emotions

Emotional states affect treatment adherence. Depressed persons are more likely to judge treatment to be pointless or even undeserved. Highly anxious persons may avoid going to the doctor for fear of what bad news they may receive. Grandiose or euphoric patients may stop treatment as soon as they please; some emotionally disturbed patients may sabotage their own treatment as a way to rebel against their physician.

Some patients are especially sensitive to losing control. The onset of a new illness, and a doctor’s orders for its treatment, may set in motion an instinctive “push back”—what psychologists call “reactance”—which can lead to nonadherence (Brehm 1966). Persons who see themselves as freely making their own choices in life may rebel against any infringement upon this freedom. Indeed, presenting a medical prescription in an authoritative way was shown to lead to patient reactance and nonadherence (Fogarty 1997; Fogarty and Youngs 2000).

Interestingly, this prideful, “I’ll be damned” retort may happen even in the face of full knowledge of the health consequences. Some smokers, for example, see smoking as a measure of their independence and freedom. Cigarette advertisements often highlight this: The Marlboro man on the open plain, the liberated woman smoker (“you’ve come a long way, baby.”). Smoking by teens is sometime nothing but a way to show their independence or even rebellion. One may also note that the recent social debate about ending public smoking was often centered around issues of liberty and freedom.¹ Thus, some smokers felt that they control events rather than being subjected to them: For them, the important moment is the lighting of the cigarette (Elster and Skog 1999, 14).

By contrast, our recent observation that the behavior of fastening seatbelt when seated in the back of a car is more frequent in adherers to medication may be explained by the fact that some patients are adherent simply because they are, in general, obedient (Reach 2011a). This idea is consistent with the typological distinction between “critical” and “traditional” adherers proposed by Bader et al. for people living with AIDS, in which traditional (“unquestioning”) adherers have the ability and willingness to follow a therapeutic regimen exactly as prescribed by a medical authority, based on a traditional, asymmetric doctor-patient relationship (paternalistic model). Among “traditional” adherers, Bader et al. described a

¹ I am grateful to John Meyers for these remarks.

subtype of “faithful” patients who are “obedient and yield readily in a subservient way to doctors’ orders (Bader et al. 2006).”

In other cases and probably less consciously, some patients don’t take their medication because it reminds them too much of their illness, and that’s precisely what they would like to forget.

2.1.1.6 The Patient’s Interpersonal World

Social/group forces in treatment adherence may be formidable. Young persons, in striving to fit into their peer group, may eschew treatment if they fear it will lead to ostracism. Risk taking behavior is typically increased by the presence of other people, and risk-taking and treatment nonadherence go hand-in-hand. Conversely, social isolation can reduce treatment adherence if this means less support and encouragement for the patient. There may be difficulties with one’s children, lack of time, limited resources, the loss of a job, the breakup of a relationship, or social deprivation, to name just a few (Daley and Zuckoff 1999, 25).

2.1.1.7 The Patient, Her Doctor and Medicine

Of course, the physician’s qualities are important in treatment adherence. A proper match between a physician’s approach and the patient is critical in establishing and sustaining a productive doctor-patient relationship. Meichenbaum and Turk give a list of factors associated with adherence: The perception by the patient of the friendly and open character of the physician. Is she treated with respect and dignity? Does she participate in the decisions, does the physician take into account her expectations? Does the physician pay attention to her particular case, giving explanations to motivate her? Patient satisfaction with the physician and the treatment regimen is an important correlate of adherence (Meichenbaum and Turk 1987, 63–64).

It is perhaps most distressing of all to admit that the healthcare system itself can contribute to nonadherence. Beyond physician-patient relations, there is the very organization of the health care system: How easy it is to get an appointment, the quality of the reception, the frequency of the appointments. Subtler factors are at play: The coherence of what all the different members of the medical team are saying, the continuity of treatment, whether the patient is treated by the same doctor from one visit to the next. Hospital care can be very distressing in this respect; a patient might feel that she is being treated by an anonymous group rather than by “her doctor”.

2.1.2 Extrinsic Factors

2.1.2.1 The Patient with a Silent Disease

Treatment for troublesome symptoms is usually adhered to more assiduously: The patient has an immediate and pressing motivation to stick with the prescribed

treatment. Indeed, sometimes this leads to nonadherence of another sort: The patient may take more of the medication than prescribed, or use non-prescribed medications in conjunction with those prescribed. However, this is not always true. Consider the example of gout: Treatment aims to decrease uric acid levels below 6 mg/dl, and is only given after the patient has experienced a gout flare-up, which typically is exquisitely painful. Surprisingly, it is the chronic disease where adherence is the worst (Briesacher et al. 2008; Reach 2011b). Even more surprisingly, a recent study showed that use of non-steroidal anti-inflammatory drugs in the year prior to urate-lowering drug initiation (suggesting the occurrence of a crisis) was a significant predictor of poor adherence to subsequent gout therapy (Harrold et al. 2009).

Illnesses which are asymptomatic—including hypertension, diabetes, high cholesterol, and many cases of cardiac disease—present difficulties which bedevil treatment adherence. Medications may not be taken on schedule, the prescription not refilled, check-ups skipped, lifestyle modifications not made. It is ironic that modern medicine has fostered this problem by having so many effective, symptom-eliminating treatments available. Hypothyroidism, for example, was once a cause of much morbidity and mortality, but has been transformed by modern treatment to a silent disorder with few or no symptoms. No wonder that nonadherence sometimes occurs in hypothyroidism (Briesacher et al. 2008). This was referred to as “levothyroxine pseudo-malabsorption” (Ain et al. 1991).

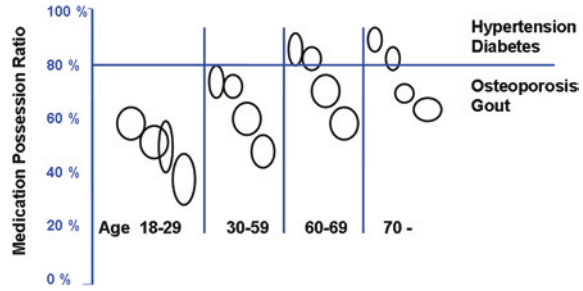
2.1.2.2 Chronic Diseases: The Patient and Time

In general, treatment of chronic diseases is beset by more adherence issues than is treatment for acute diseases. Nevertheless, even treatment for acute illness is often stopped prematurely—as for example when patients do not finish a course of antibiotics—or adhered to selectively (taking the painkillers but not doing the exercises). Sometimes, a chronic illness is not recognized as such by the patient, who imagines that once a particular crisis is resolved, no more treatment is warranted. In the same vein, in the treatment of hypertension, the patient may wonder: Why should I continue to take the medication which lowers my blood pressure if the blood pressure is now normal? Some patients might interrupt the treatment either voluntarily or unconsciously, in an attempt to verify what she has been told: That the treatment must continue for the rest of her life.

Thus, a common thread runs through each of these common impediments to treatment adherence: An inability to maintain a sustained vision of treatment in the long-term. When immediate concerns routinely overwhelm longer term goals, incontinence—and treatment nonadherence—may be the result. The initial enthusiasm to “fight” an illness—or the excitement of a “flight into health”—typically wanes with time. As these energetic but short-lived emotions wane, so does treatment adherence.

A large part of this book will be devoted to this aspect of the problem. Treatment duration is a major extrinsic factor which bears upon adherence. In general, patients tend to drop out the longer the treatment. Briesacher and his

Fig. 2.1 Nonadherence is more frequent in younger people, originally published in Briesacher et al. (2008). Modified with kind permission of © Wiley 2008 and of the author. All Rights Reserved



colleagues observed that an index of adherence, the Medication Possession Ratio (the ratio of the total days supply of medication that was dispensed divided by the number of days of the evaluation period) was lower in younger people (Fig. 2.1) (Briesacher et al. 2008).

This effect of duration can also be observed over a short period: For example, a study has shown that adherence to iron supplements progressively diminishes over the course of the three trimesters of pregnancy (Meichenbaum and Turk 1987, 60). However, as will be discussed later, there are important and fascinating reasons why *some patients* are better with long-term treatment than short-term. Clearly, this effect of duration will be the key to understand adherence.

2.1.2.3 Hic et Nunc: The Powerful Temptations of Advertising

We are surrounded by a quintessential extrinsic factor: Advertising. Much advertising is tailored to encourage us to buy and consume now rather than later, and advertising certainly works, at least from the seller's point of view. We are then confronted to a choice between a temptation, offered by ads, which is immediate and concrete, and the desire to remain healthy, which is remote and abstract.

Consumers are not passive in the purchasing/consuming process, of course; but by the same token, "caveat emptor" hardly scratches the surface of the complexity of the psychology of advertising, even if we adjudge it adequate in the legal arena. Advertisements for cigarettes, though now much curtailed, continue to have influence on certain target populations, such as teens. Alcohol is heavily advertised; television ads for hard liquors can now be seen on some cable channels. Vending machines for junk food may be found in schools and medical clinics. Stairways in public buildings are often hidden away, dissuading people from using them for even this modest bit of exercise. There is a direct correlation between the surge in obesity during the last 40 years and the number of cars per household as well as the number of hours spent watching television per week.

As we can see, the list of factors playing a role in patient adherence is long. But a purely descriptive analysis will not easily reveal the underlying psychodynamic processes that shape a patient's adherence. To go further, we must put these different factors into a conceptual framework that accounts for their interactive

production of adherent or nonadherent behavior. This is the goal of the various behavioral models delineated in the next section of this chapter.

2.2 Behavioral Models of Patient Adherence

Several models attempting to understand how a health behavior can be changed have been proposed in the psychological literature. These models were often constructed at the request of public health authorities to help increase the efficacy of measures such as screenings for tuberculosis or anti-smoking campaigns. Given this, it should be unsurprising that their value is primarily statistical. As a science, health psychology strives to find statistically significant correlations between health behaviors and their putative determinants through rigorous ‘empirical’ research involving observable data—for instance, individuals’ answers on questionnaires, findings on physical exam, results of lab tests, and the like. If the methods of information collection and the studied population are defined rigorously enough, the results of the research can be reproduced, demonstrating all the qualities of ‘scientific’ research, where the results do not depend on the investigator.

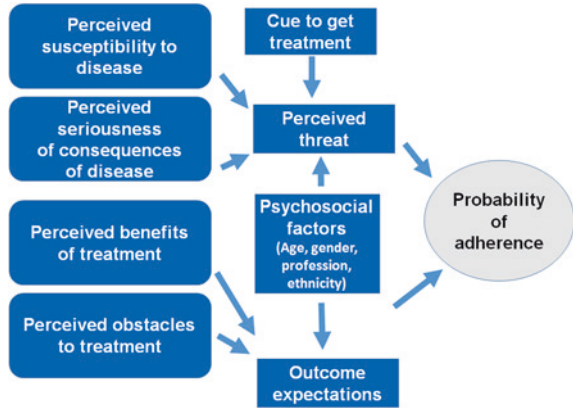
Let us consider a few of these models: The Health Belief Model, the Theories of Reasoned Action and of Planned Behavior, the Theory of Interpersonal Behavior, Leventhal’s Self-Regulatory Model, the Transtheoretical Model of Change and the Reversal Theory.

2.2.1 *The Health Belief Model*

The first model to include cognitive factors in the determination of behavior was the *Health Belief Model*, developed in the early 1950s by Godfrey Hochbaum, Stephen Kegels and Irwin Rosenstock (Becker and Maiman 1975).

This model superimposes the perception of threats and expectations onto a socio-demographic background, which includes, for example, age, gender, ethnicity, profession, etc. To make the decision to adopt a new health behavior the agent must feel personally vulnerable, regardless of what the “objective” situation might be. Threats include the perception of the individual’s own vulnerability in the face of a health problem and her perception of the problem’s severity. The model considers severity not only in terms of health, (including pain, discomfort, and the risk of death), but also as regards its professional, social and family consequences. The expectations are the benefits that the individual anticipates from the health behavior, the individual’s perception of her capacity to perform the action (self-efficacy), and her perception of the obstacles to performing it. Once the individual, having weighed the pros and the cons, has decided to submit to treatment, a cue might be necessary to trigger its implementation. This might be an internal event (the appearance of the first symptom, for example) or an external one (a media campaign or the loss of a relative to the same illness) (Fig. 2.2).

Fig. 2.2 The Health Belief Model and patient adherence. Modified from a figure published in Janz and Becker (1984). Reprinted by permission of SAGE Publications



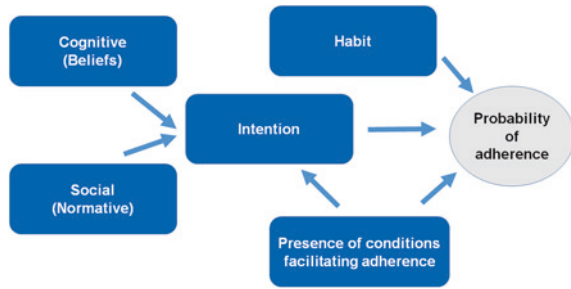
2.2.2 The Theories of Reasoned Action and of Planned Behavior

The Theory of Reasoned Action was developed in 1967 by Martin Fishbein and Icek Ajzen (Fishbein and Ajzen 1975). Its title implies that individuals are rational beings who use the information at their disposal and consider the consequences of their actions before performing them. This theory maintains that the behavior depends essentially on the intention of the subject to perform it. Here intention is described as the indication of the strength of the subject’s desire to perform the behavior and the efforts that she plans to invest in order to reach this goal.

The intention of the individual to perform a particular behavior depends on two types of factors. The first factor is the individual’s attitude towards the behavior, consisting of the positive or negative evaluation of the behavior. The attitude in turn depends on different beliefs of the patient concerning the consequences, positive or negative, of adopting the behavior. The second type of factor are the subjective norms, or the beliefs concerning the way the behavior is perceived by the people important to the patient (for instance, family, friends, the physician, the police) and her more or less intense desire to follow their advice. Ajzen later modified this model by another factor, how the patient perceives her own capacity to control her behavior, leading to a new conceptual framework, the Theory of Planned Behavior (Ajzen 1985). According to this theory, the triggering of the behavior depends on the presence of particular circumstances or on the possession of resources (for example, time, money, a certain skill, cooperation of other people).

These theories have been applied to behavioral changes such as quitting smoking, beginning a physical activity, a diet, safe sex practices or adherence to a treatment for hypertension, bipolar disorder or urinary infection.

Fig. 2.3 Theory of Interpersonal Behavior and adherence. Modified from Triandis (1979) © Nebraska University Press



2.2.3 Theory of Interpersonal Behavior

In the *Theory of Interpersonal Behavior* (Fig. 2.3), developed in the late 1970s by Harry Triandis, three factors participate in the genesis of a behavior: The strength of habit in performing a certain behavior, the intention to perform it, and the presence of conditions that make performing the behavior easy or difficult.

This theory's major contribution is the importance accorded to the strength of habit: The degree of a behavior's automaticity (Triandis 1979). Later in this book, I will discuss in detail the crucial role that habit plays in patient adherence.

2.2.4 Leventhal's Self-Regulatory Model

Leventhal's theory (Leventhal et al. 1997) maintains that there is a regulatory cycle originating with the patient's representation of her illness, and proceeding to the measures that she takes. For the patient, it is a question of solving the problem posed by her illness or any other threat to her health. The patient responds in three stages: an interpretation of her illness, which can be triggered by internal signals (symptoms) or external signals (a doctor's diagnosis); the choice of adjustment measures or coping; and finally the evaluation of the results of her action—which, in turn, may modify her initial interpretation.

Adherence or nonadherence can be interpreted as one strategy among many of coping, each used to deal with the disease as perceived by the individual. For example, one may take an aspirin as a strategy to relieve a headache, and this strategy may be chosen thanks to the individual's belief that aspirin is usually a quick cure for headaches. If during the stage of evaluation the patient notices that the pain persists, she may change her strategy of coping (take a stronger pain medication) or reevaluate her representation of the illness (if the aspirin didn't work, maybe it's something more serious). According to this theory, the interpretation of the illness is based on a holistic picture that takes into account the problem's identity (what illness do I have?), its causes (how did this happen?), its consequences (what might happen?), and its curability (will this treatment work?).

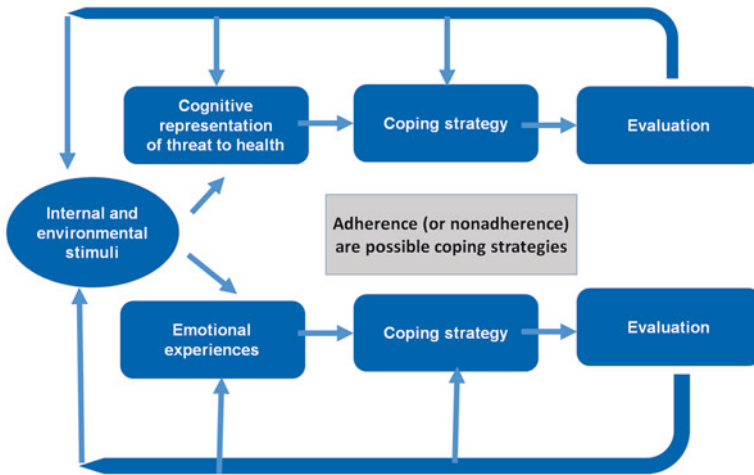


Fig. 2.4 Self-Regulatory Model and adherence. Originally published in Lange and Piette (2006). Modified with kind permission of © Springer 2006. All Rights Reserved

This theory, developed by Howard Leventhal in the 1970s, is unique for explicitly introducing two parallel paths for the three stages, one cognitive and one emotional (Fig. 2.4).

2.2.5 *Transtheoretical Model of Change*

The Transtheoretical Model of Change (Fig. 2.5) (Prochaska and DiClemente 1983; Prochaska and Norcross 1994) describes the different stages leading up to the adoption of a behavior. Developed by James Prochaska in the beginning of the 1980s, this model has been used to understand various behaviors: Smoking, alcoholism, drug addiction, routine exercise, weight loss, condom use, sun-screen use, mammography screening, and others. The model has also been called *transtheoretical* because it is a synthesis of the different psychological theories that were used at the time.

While other theories describe the adoption of a behavior as an event (stopping drinking, quitting smoking, beginning a diet), this model gives a progressive description and identifies five stages in the process leading up to the adoption of a behavior. Change is seen as the endpoint of an evolving process.

In the *precontemplation* stage, the individual is not conscious of having a problem, and so she has no intention to modify her behavior in the foreseeable future. A patient may be unaware of her problem thanks, for example, to a lack of information, or because she refuses to believe that there is a problem, or because she has already tried to resolve it, has failed and has given up. During this period, the individual avoids talking, thinking, and obtaining information about the problem,

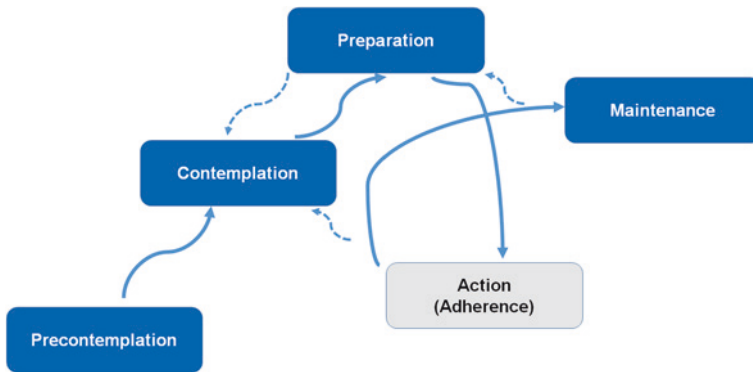


Fig. 2.5 Prochaska's Transtheoretical Model of Change and adherence. Originally published in Prochaska et al. (1992). Modified with kind permission of © The American Psychological Association 1992. All Rights Reserved

and is deaf to the words of others on the subject—it couldn't be otherwise, she knows nothing of it! In the pre-contemplation stage, the person either never heard about the problem, or, through a process of denial, refuses to see that there is a problem.

In the *contemplation* stage, the individual has begun to realize that there is a problem and considers doing something about it. For instance: She has weighed the benefits and drawbacks of taking action, but has not yet reached a decision; she puts off the decision to another day. Unfortunately, this state of procrastination can last a very long time.

During the *preparation* stage, the individual intends to act in the near future, and studies the ways of resolving the problem: She talks to her doctor, buys books on the subject, picks a start date for her diet or exercise plan, etc. The *action* stage is when the individual actually changes her behavior; and while the change in behavior may be quite dramatic—the alcoholic who puts down the bottle after years of steady drinking, for example—this model suggests that it is preceded by a long, and sometimes painful, germination.

Finally, the *maintenance* stage is the more or less prolonged period of time when an effort is required to avoid relapse.

Progression is seldom linear. There are frequent steps back, for instance with brief relapses. Usually the regression does not go all the way back to the *pre-contemplation* stage, but stops at the *preparation* or *contemplation* stages.

This model's primary contribution is to show that different interventions are needed at different stages of change. It is essential to establish where a patient may be on this journey before deciding how to intervene. The individual's position can be determined by questioning her about the arguments she is currently considering for and against the new behavior, or by evaluating where the individual places herself on the spectrum of self-efficacy, and in the perception of her vulnerability to temptation.

2.2.6 *The Reversal Theory*

Another theory, developed by Michael Apter in the beginning of the 1980s, the *Reversal Theory* (Apter 1982), maintains that an individual's perception of her situation can reversibly waver between two opposite states. For instance, a 'telic' state is opposed to a 'paratelic' state. The 'telic' state (from Greek *telos*, goal) is a state of mind oriented towards the future, in the context of serious long-term projects. The 'paratelic' state, on the other hand, is one where the current activity is being enjoyed for itself, for the immediate pleasure it can bring. The other pairs of mental states are the conforming vs. negativistic states (we once again find the normative beliefs of the models described above), the mastery versus sympathy states (the world is seen either as a battle field or as a place open to generosity) and the autic versus alloic states: They refer to whether one is motivated by self interests (personal accountability and responsibility) or by the interests of others (altruism and transcendence).

2.3 Limitations of Psychological Models

The models just reviewed demonstrate statistical correlations between mental states and certain behaviors; but, as is well known, statistical correlations do not imply causal relations. In the foregoing illustrations, then, the arrows connecting mental-state-boxes to behavior-boxes represent only associations. On this basis, we can at most predict that if an individual, let's say Jane, believes that smoking is bad for her health, then Jane has a better chance of quitting smoking than if she does not hold this belief. But such a prediction remains simply statistical: It only indicates that belonging to the group of people who hold this belief gives Jane a better chance of belonging to the group of people who quit smoking than to the group of people who do not. And if one day Jane really does quit smoking, it does not follow that she did it because of this belief. She may have done it for a completely different reason, for example to please her daughter or because the price of cigarettes went up. Jane could also continue smoking, even though she believes it's bad for her health. She might be just as convinced that if she were to quit, she would gain thirty pounds like her neighbor, an idea that's unbearable to her. These models therefore have a major limitation: They cannot explain *why an individual* is or is not adherent to the medical advice that she is given. At the level of the individual, specific behaviors remain wholly unexplained and mysterious in these models.

To illustrate this problem, consider a taxi driver, Jeremy, who stops at a red light: The passenger in the back seat understands why they stopped, and he does not need to ask. But let us consider what a statistical study might tell us about this case. It would only show that *most people* stop when the light turns red. However, this does not mean that *John* stopped because the light was red—it might be that John never respects the law. No, that day John stopped because the bakery at the corner was open and he wanted to buy a pastry (Descombes 1995). Even though it

is a fact that the great majority of people stop at red lights, if we are interested in *this particular event*, then this fact has no explanatory value. What explains why he stopped are *John's reasons*.

Can we perhaps find specific, non-statistical explanations for patient adherence? Can we formulate a theory according to which an individual's mental states *cause* her behaviors, just as insulin actually lowers blood glucose levels—not just as a statistical probability, but by virtue of a *mechanism*? Is it possible to describe the *mental mechanisms* of adherence to long-term therapies?

2.4 A New Perspective

If we seek a full explanation of adherence, we must change our point of view entirely. We must return to the individual; the resulting account will be unavoidably subjective (and maybe lose its “scientific” value), but it will allow us to infer conclusions applicable to particular individuals—nearly always the foremost concern of the practicing physician. In other words, behavior averaged out over a population is no longer sufficient for our investigation; rather, we shall focus on *what a given patient is actually doing and why (i.e. for what reasons) she is doing it*. We seek to establish a theory that defines what is meant by the ‘reasons of care’ and which shows how these reasons bring about caretaking—therapeutic—actions: A causal relationship between Mind and Care. Our theory must grasp the mechanisms of adherence at the level of the individual patient; only if we can achieve these aims will we have a genuine theory of care.

The models described earlier suggest a simplistic, stimulus-response behavioral schema—not coincidentally, the schema most amenable to quantitative psychological research. However, as effective as behaviorist models have been in explaining certain phenomena, they fall short of the mark with complex, real-world behaviors. In behaviorist models, human behavior is no different than, say, the solubility of sugar: When it is added to water its behavior is to melt. Reactions of these sorts, however, are not the same as *actions*—and it is actions which concern us, not just behaviors.

One feature which distinguishes a behavior from an action is the quality of intentionality. Just what do philosophers of mind mean by this concept of intentionality? Alfred Mele, a philosopher of mind, wrote:

Remove the intentional altogether from intentional action, and you have mere behavior: brute bodily motion not unlike the movement of wind-swept sand on the shores of Lake Michigan (Mele and Moser 1994).

And Jean-Paul Sartre had noted that

We should observe first that an action is on principle *intentional*. The careless smoker who has through negligence caused the explosion of a powder magazine has not *acted*. On the other hand the worker who is charged with dynamiting a quarry and who obeys the given orders has acted when he has produced the expected explosion; he knew what he was doing or, if you prefer, he intentionally realized a conscious project (Sartre 2003, 559).

There are two good reasons to examine adherence from the angle of action rather than behavior. First, it makes us consider each act of the treatment separately instead of

confining ourselves to global patterns in behavior. This reflects reality: As we saw earlier, adherence is not an all or nothing phenomenon, it can sometimes have what we could call a regional character, as in the example of patients who take their medication but do not stay on a diet or quit smoking, even if we also noticed that these behaviors are often linked. Second, while the mechanisms underlying behavior are not self evident (we can see the sugar melting, but not its solubility), it is much easier to analyze the driving force behind an action; this analysis shall be the subject of this book.

In order to respect this distinction, we must from now on use a different, novel vocabulary, a *philosophical* vocabulary. Here, agency is treated as an event, independent of the investigator, which depends on an individual's intentional performance for certain 'reasons' that are her own. Among the 'reasons' there are, of course, 'mental states' such as knowledge, skills, beliefs, emotions, desires. In the philosophical vocabulary these mental states are called 'intentional', meaning that they have a 'content'. For instance, 'exercise makes one lose weight' and 'lose a few pounds' are, respectively, the contents of the belief and the desire in the thought: 'I believe that *exercise makes one lose weight* and I want to *lose a few pounds*' and this thought leads me to join a gym. This thought is the *reason* for this action. Having this definition of intentional mental states in mind, we may want to propose an intentionalist model of adherence and nonadherence to replace the behaviorist one, i.e. the "classic" view.

But the patient must not only perform the act of taking her pill; she will have to do it every day as long as it is necessary for an acute illness, and often for the rest of her life, in the case of a chronic disease. It is of little use to take the pill only once or only once in a while, just as driving under the influence of alcohol or failing to buckle one's seatbelt are not to be avoided only from time to time. The patient must acquire a behavior consisting of first accepting her treatment and then of accepting to perform it, if not each time, then at least of getting used to performing it as often as possible. This behavior is composed of *repeated actions*. To acquire such a behavior boils down to *usually* performing the acts (actions) of the treatment; thus, it becomes appropriate to invoke *habits* in the explanation of adherence. Following this analysis, we are tempted to replace the classic definition of adherence, "the concordance between the behavior of the patient and the medical prescriptions" by something like: "Accepting to repeatedly perform all the recommended health oriented actions". In the case of a chronic disease, it will be a long-term health goal.

2.5 In Search of Mental Mechanisms in Psychology and Philosophy

Attempting to describe adherence and nonadherence in terms of *repeated actions* rather than in terms of behavior leads us away from the domain of psychology, 'the science of behavior'. As Pascal Engel notes,

We would search in vain among scientific psychology for a discipline that could be called 'psychology of action'. What everyday speech calls actions is redefined either by the psychology that considers only their corporal or physical aspect, such as behavioral

psychology, or by psychology in general, which considers actions from the angle of general traits such as personality, and that would be the psychology of ‘conduct’ (Engel Engel 1996, 146–147).

On the other hand, concepts developed by the philosophy of action are now available to our analysis. The essence of analytic philosophy is well described in one of Ramsey’s last essays:

Philosophy must be of some use and we must take it seriously; it must clear our thoughts and so our actions. Or else it is a disposition we have to check, and an inquiry that this is so (...) In philosophy we take the propositions we make in science and everyday life, and try to exhibit them in a logical system with primitive terms and definitions, etc. (...) In order to clarify my thought the proper method seems to be simply to think out with myself ‘What do I mean by that?’ ‘What are the separate notions involved in this term?’ ‘Does this really follow from that?’ etc., and to test identity of meaning of a proposed *definiens* and the *definiendum* by real and hypothetical examples. (...) We are driven to philosophize because we do not know clearly what we mean (Ramsey 1990, 1–6).

As we saw above, the different models describing the adoption of a health behavior have been developed in order to try to explain certain observations: For instance, the observation of a link between a particular health belief and quitting smoking. This link is represented by an arrow connecting two boxes, one representing the belief, the other representing the behavior—quitting smoking. But one could follow Ramsey’s recommendation and ask: “What do I mean by belief?” “does quitting smoking really follow this belief?” *Is it correct to put an arrow between the two boxes*, in other words, are we justified in assuming that a certain belief *causes* one to quit smoking?

To answer these questions, are we not driven to philosophize?

We could formulate the question differently: How is it that one *never* finds *any* references to philosophers in the works on psychology of health or in the numerous books dealing with adherence to treatment? I believe this is in part due to the separation of disciplines and the lack of interdisciplinary work and also perhaps to historic reasons: As we saw, the major psychological models date to the 1950s–1970s. The works of analytic philosophy, which I will quote in the next part of this book, are generally more recent. Let’s recall that the classic paper by Donald Davidson “How is weakness of will possible?” was first published in 1970, that the papers on weakness of will and *akrasia* by Gary Watson and Amelie Rorty were published in the late 1970s and that Alfred Mele published his book on *akrasia* in 1987. Similarly, the concepts of intertemporal choice and of multiple self, which are used to explain the weakness of will, derived from George Ainslie’s first publications in the early 1970s and were mainly popularized in “The Multiple Self”, edited by Jon Elster in 1986, and in his “Picoeconomics” published in 1992, the year when the first textbook on intertemporal choice, “Choice over Time” was edited by Jon Elster and George Loewenstein. Or, said in other words: The question on patient adherence I ask is essentially metaphysical—concerning the nature of an individual’s actions, while the approach by psychologists is maybe more sociological.

2.6 Observation, Explanation and Mechanisms

So it can be *observed* that a particular belief is related to a refusal to quit smoking. Can we be content with *observing* this relationship without trying to understand its *mechanism*? Obviously not. If one wants to improve patient adherence, it is necessary to understand its mechanisms, exactly as discovering the mechanisms of diseases have made it possible to develop new therapies. The question is then, is it possible, when dealing with the mind, as in somatic psychology, to speak of *mechanisms*?

Before continuing, two precautions are in order. First, we will not describe but only allude to the neurophysiological mechanisms underlying psychological processes. This is the subject of neuroscience, even though, as we shall see later in the book, bridges are being built: We are beginning to be able to precisely locate the cerebral centers involved in the genesis of decisions or of emotions (Damasio 1994; LeDoux 1996), for instance. Our task will be limited to describing mental states *logically*: In brief, they are dispositions toward certain expressions, in word or in deed. For instance, Peter's fear that he is suffering from hypoglycemia may be expressed in an assertion—Peter says: "I'm afraid of hypoglycemia", or as an action—John reduces his insulin dose.

Second, in contrast to the natural sciences, we shall not be concerned with laws. The logical interactions of 'mental states', assertions, and actions don't have the form of laws, where A always brings about B. In the 'physiology of mind', A may bring about B *or* C, where C might be the opposite of B. For instance, the alcoholism of parents may lead to the children being alcoholics *or* sober, fear may lead to immobility *or* flight *or* fight. Thus, rather than use the word laws, it is better, as suggested by Jon Elster, to speak of mechanisms; these can be used afterwards to explain the observed behavior (Elster 1998, 45–73; Elster 2003, 25–82). Here is Elster:

Are there lawlike generalizations in the social sciences? If not, are we thrown back on mere description and narrative? In my opinion, the answer to both questions is No. The main task of this essay is to explain and illustrate the idea of a *mechanism* as intermediate between laws and descriptions. Roughly speaking, mechanisms are frequently occurring and easily recognizable causal patterns that are triggered under generally unknown conditions or with indeterminate consequences. They allow us to explain but not to predict (Elster 1998).

2.7 Patient and Agent

Let's quote Descartes' *The Passions of the Soul*:

To begin with, I take into consideration that whatever is done or happens afresh is generally called by the Philosophers a Passion with respect to the subject it happens to, and an Action with respect to what makes it happen. Thus, even though the agent and the patient

are often quiet different, the Action and the Passion are always a single thing, which has these two names in accordance with the two different subjects it may be referred to (Descartes 1989, 19).

In his book, *Le Complément de sujet*, Vincent Descombes comments:

Descartes here evokes the general idea of an event: something that is done or happens. He notes that an event can be attributed to a patient, in which case it is called his 'passion' (in the physical sense of 'to suffer a change') or it can be attributed to an agent, in which case it is called an 'action' (Descombes 2004, 54–55).

In other words, a 'patient' is a subject to whom events happen, whereas an 'agent' is a subject who brings about that they happen.

Neither Descartes nor Descombes, it seems, are thinking of the most usual sense of the word 'patient', when used in the medical field. And yet putting these passages in our context suddenly gives them a somewhat strange resonance: Is the 'patient', in the medical sense of the word, condemned to remain a 'patient', in Descartes' sense of the word, one for whom the event of her illness (the new event) 'happens' and that she will then 'suffer'? How can the ill individual become the 'agent' performing 'actions', the *events* of her treatment?

This is the question this book asks.

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