Thinking Ahead: American Heart Association

Noncompliance as a Hidden Health Threat

The American Heart Association used to calculate the cost of doing business for organizations as a way of showing managers and executives what the personnel losses and financial costs would be for cardiovascular disease in their businesses and organizations. In 1980, it was estimated that one in four men between forty-five and sixty-five years of age would be affected and that 3 in 1,000 would retire prematurely. What is the role of excessive work behavior in cardiovascular problems? After a young manager dropped dead at his desk at Ford, Robert McNamara, then president of the company, sent out a memo that said, “I want everybody to be out of the office by 9:00 p.m.” In 2001, cardiovascular disease continues to be the leading cause of death for Americans, both men and women alike. Although women often experience the fatal effects of heart disease ten to fifteen years later in life than men, it can be just as lethal.

There are a number of risk factors for cardiovascular disease, including family history, smoking, lack of exercise, poor diet, hostile and competitive behavior, and high blood pressure. A number of these risk factors for heart disease are ones over which individuals may exercise some degree of control or influence, such as exercise and smoking; for others, the individual has limited influence, such as family history and inherited vulnerabilities. A person who has untreated severe high blood pressure has an average of $14,582

Learning Objectives

After reading this chapter, you should be able to do the following:

1. Define motivation.
2. Explain how Theory X and Theory Y relate to Maslow’s hierarchy of needs.
3. Discuss the needs for achievement, power, and affiliation.
4. Describe the two-factor theory of motivation.
5. Describe how inequity influences individual motivation and behavior.
6. Explain seven different strategies for resolving inequity.
7. Describe the expectancy theory of motivation.
8. Describe the cultural differences in motivation.
in annual medical bills due to complications and illness, while the effective
treatment of the disease can reduce the cost to an average of $895. This is a sav­
ings of more than $13,000 per person and only for the risk factor of severe
hypertension.

While the old standard of care was to treat people whose blood pressure
exceeded 160/90 (systolic/diastolic), medical experts are increasingly motivated
to intervene sooner rather than later and to intervene at lower levels than
160/90. Thus, a systolic blood pressure of 140–160 is now considered moderate
or borderline high blood pressure. Research has found that untreated or
noncompliant individuals with moderate high blood pressure average annual
medical bills of $5,646, compared to an annual cost of $760 for individuals who
are compliant with the treatment recommendations of their physicians. There­
fore, individuals with moderate or severe hypertension and who are noncom­
pliant with treatment recommendations generate significantly higher medical
costs than those who are compliant with their physician’s recommendations. In
addition to the difference in cost, there is a difference in severe to fatal health
outcomes for individuals with this heart disease risk factor. Is an individual’s
health simply a hygienic factor in life, and they only act to improve their health
when something bad happens? How can physicians help motivate individuals to
be compliant and help prevent risks from becoming personal health problems?

This is the first of two chapters about motivation, behavior, and performance
at work. A comprehensive approach to understanding motivation, behavior,
and performance must consider three elements of the work situation—the
individual, the job, and the work environment—and how these elements inter­
act. This chapter emphasizes internal and process theories of motivation. It
begins with individual need theories of motivation; turns to the two-factor the­
ory of motivation, which foreshadows theories of job design discussed in Chap­
ter 14; and finishes by examining two individual–environment interaction or
process theories of motivation. The next chapter (Chapter 6) emphasizes exter­
nal theories of motivation and focuses on factors in the environment to help
understand good or bad performance.
Motivation and Work Behavior

*Motivation* is the process of arousing and sustaining goal-directed behavior. Motivation is one of the more complex topics in organizational behavior. *Motivation* comes from the Latin root word *movere*, which means "to move."

Motivation theories attempt to explain and predict observable behavior. The wide range and variety of motivation theories result from the great diversity of people and complexity of their behavior in organizations. Early attempts were made to develop universal theories of motivation, but more recent research recognizes the limitations as well as the power of the various theories and classes of theories. Motivation theories may be broadly classified into internal, process, and external theories of motivation. Internal theories of motivation give primary consideration to variables within the individual that give rise to motivation and behavior. The hierarchy of needs theory exemplifies the internal theories. Process theories of motivation emphasize the nature of the interaction between the individual and the environment. Expectancy theory exemplifies the process theories. External theories of motivation focus on the elements in the environment, including the consequences of behavior, as the basis for understanding and explaining people's behavior at work. Any single motivation theory explains only a small portion of the variance in human behavior. Therefore, alternative theories have developed over time in an effort to account for the unexplained portions of the variance in behavior.

**Internal Needs**

Philosophers and scholars have theorized for centuries about human needs and motives. During the past century, attention narrowed to understanding motivation in businesses and other organizations. Max Weber, an early German organizational scholar, argued that the meaning of work lay not in the work itself but in its deeper potential for contributing to a person’s ultimate salvation. From this Calvinistic perspective, the Protestant ethic was the fuel for human industriousness. The Protestant ethic said people should work hard because those who prospered at work were more likely to find a place in heaven. Challenge 5.1 gives you an opportunity to evaluate how strongly you have a pro-Protestant versus a non-Protestant ethic. Although Weber, and later Blood, both used the term *Protestant ethic*, many see the value elements of this work ethic in the broader Judeo-Christian tradition. We concur.

A more complex motivation theory was proposed by Sigmund Freud. For him, a person’s organizational life was founded on the compulsion to work and the power of love. *Psychoanalysis* was Freud’s method for delving into the unconscious mind to better understand a person’s motives and needs. Freud’s psychodynamic theory offers explanations for irrational and self-destructive behavior, such as suicide or workplace violence. The motives underlying such traumatic work events may be understood by analyzing a person’s unconscious needs and motives. Freud’s theorizing is important as the basis for subsequent need theories of motivation. Recent research suggests that people’s deeper feelings may transcend culture, with most people caring deeply about the same few things.

Internal needs and external incentives both play an important role in motivation. Although extrinsic motivation is important, so too is intrinsic
Challenge 5.1

Protestant Ethic

Rate the following statements from 1 (for disagree completely) to 6 (for agree completely).

1. When the workday is finished, people should forget their jobs and enjoy themselves.
2. Hard work makes us better people.
3. The principal purpose of people's jobs is to provide them with the means for enjoying their free time.
4. Wasting time is as bad as wasting money.
5. Whenever possible, a person should relax and accept life as it is rather than always striving for unreachable goals.
6. A good indication of a person's worth is how well he or she does his or her job.
7. If all other things are equal, it is better to have a job with a lot of responsibility than one with little responsibility.
8. People who "do things the easy way" are the smart ones.

Total your score for the pro-Protestant ethic items (2, 4, 6, and 7).
Total your score for the non-Protestant ethic items (1, 3, 5, and 8).

A pro-Protestant ethic score of 20 or over indicates you have a strong work ethic; 15–19 indicates a moderately strong work ethic; 9–14 indicates a moderately weak work ethic; 8 or less indicates a weak work ethic.

A non-Protestant ethic score of 20 or over indicates you have a strong non-work ethic; 15–19 indicates a moderately strong non-work ethic; 9–14 indicates a moderately weak non-work ethic; 8 or less indicates a weak non-work ethic.


motivation, which varies by the individual. Therefore, it is important for managers to consider both internal needs and external incentives when attempting to motivate their employees. Further, managers who are more supportive and less controlling appear to elicit more intrinsic motivation from their employees.

External Incentives

Early organizational scholars made economic assumptions about human motivation and developed corresponding differential piece rate systems of pay that emphasized external incentives. These organizational scholars assumed that people were motivated by self-interest and economic gain. The Hawthorne studies confirmed the beneficial effects of pay incentives on productivity but also found that social and interpersonal motives in behavior were important.

Those who made economic assumptions about human motivation emphasized financial incentives for behavior. The Scottish political economist and moral philosopher Adam Smith argued that a person's self-interest was God's providence, not the government's. Gordon E. Forward, a member of the board of Texas Industries (TXI), believes people are motivated by "enlightened" self-interest. Self-interest is what is in the best interest and benefit to the individual; enlightened self-interest additionally recognizes the self-interest of other...
people. Adam Smith laid the cornerstone for the free enterprise system of economics when he formulated the "invisible hand" and the free market to explain the motivation for individual behavior. The "invisible hand" refers to the unseen forces of a free market system that shape the most efficient use of people, money, and resources for productive ends. His theory of political economy subsequently explained collective economic behavior. Smith's basic assumption was that people are motivated by self-interest for economic gain to provide the necessities and conveniences of life. This implies that financial and economic incentives to work are the most important considerations in understanding human behavior. Further, employees are most productive when motivated by self-interest.

Technology is an important concept in Smith's view, because he believed that a nation's wealth is determined by two circumstances: (1) the skill, dexterity, and judgment with which labor is applied and (2) the proportion of the nation's population employed in useful labor versus the proportion not so employed. He considered the first circumstance to be more important. The more efficient and effective labor is, the greater the abundance of the nation. Technology is important as a force multiplier for the productivity of labor in creating products or delivering services.

Frederick Taylor, the founder of scientific management, was also concerned with labor efficiency and effectiveness. His central concern was to change the relationship between management and labor from one of conflict to one of cooperation. Taylor believed the basis of their conflict was the division of the profits within the company. Instead of continuing this conflict over how to divide the profits, labor and management should form a cooperative relationship aimed at enlarging the total profits.

**Maslow's Need Hierarchy**

Abraham Maslow, a psychologist, proposed a need theory of motivation emphasizing psychological and interpersonal needs in addition to physical needs and economic necessity. His theory was based on a need hierarchy later applied through Theory X and Theory Y, two sets of assumptions about people at work. In addition, his need hierarchy was reformulated in an ERG theory of motivation using a revised classification scheme for basic human needs.

**The Hierarchy of Needs**

The core of Maslow's theory of human motivation is a hierarchy of five need categories. Although he recognized that there were factors other than one's needs (for example, culture) that were determinants of behavior, he focused his theoretical attention on specifying people's internal needs. Maslow labeled the five hierarchical categories as physiological needs, safety and security needs, love (social) needs, esteem needs, and the need for self-actualization. Maslow's *need hierarchy* is depicted in Figure 5.1, which also shows how the needs relate to Douglas McGregor's assumptions about people, which will be discussed next.

Maslow conceptually derived the five need categories from the early thoughts of William James and John Dewey, coupled with the psychodynamic thinking of Sigmund Freud and Alfred Adler. Maslow's need theory was later tested in research with working populations. For example, one study reported

---

**need hierarchy**

The theory that behavior is determined by a progression of physical, social, and psychological needs by higher order needs.
Web Sighting

Successories is a company that helps individuals realize their potential through the manufacture of motivational products that encourage excellence in professional and personal endeavors. Are these inspirational products based upon internal or external theories of motivation? Which needs in Maslow's hierarchy seem to be targeted by the messages communicated by Successories products?

http://www.successories.com

2. Explain how Theory X and Theory Y relate to Maslow's hierarchy of needs.

Theory X
A set of assumptions of how to manage individuals who are motivated by lower order needs.

Theory Y
A set of assumptions of how to manage individuals who are motivated by higher order needs.

that middle managers and lower level managers had different perceptions of their need deficiencies and the importance of their needs. More recently, Motorola adapted motivational techniques aimed at social and interpersonal needs for its teamwork from its Penang operations in Malaysia to its 2,300-worker factory in Plantation, Florida. One distinguishing feature of Maslow's need hierarchy is the following progression hypothesis. Although some research has challenged the assumption, the theory says that only ungratified needs motivate behavior. Further, it is the lowest level of ungratified needs in the hierarchy that motivates behavior. As one level of need is met, a person progresses to the next higher level of need as a source of motivation. Hence, people progress up the hierarchy as they successively gratify each level of need. For example, an employee may satisfy security needs by obtaining two big promotions and then be motivated by developing good working relationships with coworkers. The problem with the progression hypothesis is that it leaves no way to move down the hierarchy, which could occur, for example, if a person at the esteem level lost a job and was now worried about security.

Theory X and Theory Y

One important organizational implication of the need hierarchy concerns how to manage people at work (see Figure 5.1). Douglas McGregor understood people's motivation using Maslow's need theory. He grouped the physiological and safety needs as “lower order” needs and the social, esteem, and self-actualization needs as “upper order” needs. McGregor proposed two alternative sets of assumptions about people at work based on which set of needs were the motivators. He labeled these sets of assumptions Theory X and Theory Y. They are included in Table 5.1. Regardless of people's motivation to work, McGregor saw the responsibility of management as being the same. Specifically, “management is responsible for organizing the elements of productive enterprise—money, materials, equipment, people—in the interest of economic ends.”

Part 2 • Individual Processes and Behavior
TABLE 5.1  McGREGOR’S ASSUMPTIONS ABOUT PEOPLE

<table>
<thead>
<tr>
<th>THEORY X</th>
<th>THEORY Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>• People are by nature indolent. That is, they work as little as possible.</td>
<td>• People are not by nature passive or resistant to organizational needs. They have become so as a result of experience in organizations.</td>
</tr>
<tr>
<td>• People lack ambition, dislike responsibility, and prefer to be led.</td>
<td>• The motivation, the potential for development, the capacity for assuming responsibility, and the readiness to direct behavior toward organizational goals are all present in people. Management does not put them there. It is a responsibility of management to make it possible for people to recognize and develop these human characteristics for themselves.</td>
</tr>
<tr>
<td>• People are inherently self-centered and indifferent to organizational needs.</td>
<td>• The essential task of management is to arrange conditions and methods of operation so that people can achieve their own goals best by directing their own efforts toward organizational objectives.</td>
</tr>
<tr>
<td>• People are by nature resistant to change.</td>
<td></td>
</tr>
<tr>
<td>• People are gullible and not very bright, the ready dupes of the charlatan and the demagogue.</td>
<td></td>
</tr>
</tbody>
</table>


According to McGregor, people should be treated differently depending on whether they are motivated by lower order or higher order needs. Specifically, McGregor believed that Theory X assumptions are appropriate for employees motivated by lower order needs. Theory Y assumptions, in contrast, are appropriate for employees motivated by higher order needs, and Theory X assumptions are then inappropriate. In addition, McGregor believed that in the 1950s, when he was writing, the majority of American workers had satisfied their lower order needs and were therefore motivated by higher order needs.

Employee participation programs are one consequence of McGregor’s Theory Y assumptions. Ford Motor Company’s first step in revitalizing its workforce through an employee involvement (EI) program was based on Theory Y assumptions about human nature.20 Southwest Airlines is another company that uses Theory Y concepts in its management, as illustrated in Organizational Reality 5.1.

Gordon E. Forward, a member of the board of Texas Industries (TXI), considers the assumptions made about people central to motivation and management.21 He views employees as resources to be developed, not labor costs to be charged off. A future-thinking, enlightened executive, Forward has fun at work and at play. Using Maslow’s need hierarchy and Theory Y assumptions about people, he cultivated and developed a productive, loyal workforce in TXI’s Chaparral Steel unit.

ERG Theory

Clayton Alderfer, while recognizing the value of Maslow’s contribution to understanding motivation, believed that the original need hierarchy was not quite accurate in identifying and categorizing human needs.22 As an evolutionary development of the need hierarchy, Alderfer proposed the ERG theory.
Southwest Airlines is the only low-fare airline to achieve long-term success and become the nation’s seventh largest airline with 63.7 million passengers and earnings topping $625 million in 2000. Herb Kelleher became the much-studied celebrity CEO of Southwest who was able to generate fierce loyalty from his employees with his wild management style and who became widely known for his high-jinks approach to motivating employees. Southwest employees accept responsibility and challenge while Kelleher creates space for growth and achievement. This is true for Southwest executives, managers, pilots, secretaries, and airport ramp employees.

With Kelleher's transition to the single duty of chairman of the board on June 19, 2001, opportunities were created for Colleen Barrett to become president and chief operating officer and for James F. Parker to become CEO of Southwest. In addition, Jim Wimberly, Gary Kelly, and Donna Conover moved into executive vice president positions, enhancing their growth and development. The transition at Southwest was an exceedingly orderly one which saw the internal advancement of employees in contrast to external recruitment of executives. This approach is consistent with the Southwest culture of nurturing and developing employees to achieve their full potential. Colleen Barrett has ensured that all employees are recognized for their contributions, often suggesting that COB Herb write a note to the baggage handler or ticket agent who did something special.


Part 2 • Individual Processes and Behavior

of motivation, which grouped human needs into only three basic categories: existence, relatedness, and growth. Alderfer classified Maslow’s physiological and physical safety needs in an existence need category; Maslow’s interpersonal safety, love, and interpersonal esteem needs in a relatedness need category; and Maslow’s self-actualization and self-esteem needs in a growth need category.

In addition to the differences in categorizing human needs, ERG theory added a regression hypothesis to go along with the progression hypothesis originally proposed by Maslow. Alderfer’s regression hypothesis helped explain people’s behavior when frustrated at meeting needs at the next higher level in the hierarchy. Specifically, the regression hypothesis states that people regress to the next lower category of needs and intensify their desire to gratify these needs. Hence, ERG theory explains both progressive need and gratification up the hierarchy and regression when people are faced with frustration. Figure 5.2 shows the relationship between Maslow’s hierarchy of needs and Alderfer’s ERG theory.
A second major need theory of motivation focuses on personality and learned needs. Henry Murray developed a long list of motives and manifest needs in his early studies of personality. David McClelland, a psychologist, was inspired by Murray's early work. McClelland identified three learned or acquired needs he called manifest needs. These manifest needs were the needs for achievement, for power, and for affiliation. Individuals and national cultures differ in their levels of these needs. Some individuals have a high need for achievement, whereas others have a moderate or low need for achievement. The same is true for the other two needs. Hence, it is important to emphasize that different needs are dominant in different people. For example, a manager may have a strong need for power, a moderate need for achievement, and a weak need for affiliation. Each need has quite different implications for people's behavior. The Murray Thematic Apperception Test (TAT) was used as an early measure of the achievement motive and was further developed, both qualitatively and quantitatively, by McClelland and his associates. The TAT is a projective test, and projective tests were discussed in Chapter 3.

**Need for Achievement**

The *need for achievement* concerns issues of excellence, competition, challenging goals, persistence, and overcoming difficulties. A person with a high need for achievement seeks excellence in performance, enjoys difficult and challenging goals, and is persevering and competitive in work activities. Questions that address the need for achievement are ones like these: Do you enjoy difficult, challenging work activities? Do you strive to exceed your performance objectives? Do you seek out new ways to overcome difficulties?

McClelland found that people with a high need for achievement perform better than those with a moderate or low need for achievement, and he has
Goalmanager.com is one of the leading online resources for developing employee incentives. The site instructs businesses on how to motivate employees and find the perfect rewards to create a positive company culture and retain important human assets. Visit the site and identify specific ways goalmanager.com addresses the needs for achievement, power, and affiliation.

http://www.goalmanager.com

need for power
A manifest (easily perceived) need that concerns an individual's need to make an impact on others, influence others, change people or events, and make a difference in life.

need for affiliation
A manifest (easily perceived) need that concerns an individual's need to establish and maintain warm, close, intimate relationships with other people.

noted national differences in achievement motivation. Individuals with a high need for achievement have three unique characteristics. First, they set goals that are moderately difficult yet achievable, because they want both challenge and a good chance for success. Second, they like to receive feedback on their progress toward these goals. Because success is important to them, they like to know how they are doing. Third, they do not like having external events or other people interfere with their progress toward the goals. They are most comfortable working on individual tasks and activities that they control.

High achievers often hope and plan for success. They may be quite content to work alone or with other people—whichever is more appropriate to their task. High achievers like being very good at what they do, and they develop expertise and competence in their chosen endeavors. An example of a person with a high need for achievement is an information systems engineer who declines supervisory or managerial responsibility and devotes her energy to being the very best information systems engineer she can be.

Recent research shows that need for achievement generalizes well across countries with adults who are employed full-time. In addition, international differences in the tendency for achievement have been found in global research on achievement. Specifically, achievement tendencies are highest for the United States, an individualistic culture, and lowest for Japan and Hungary, collectivistic societies.

Need for Power
The need for power is concerned with making an impact on others, the desire to influence others, the urge to change people or events, and the desire to make a difference in life. The need for power is interpersonal, because it involves influence attempts directed at other people. People with a high need for power like to be in control of people and events. McClelland makes an important distinction between socialized power, which is used for the social benefit of many, and personalized power, which is used for the personal gain of the individual. The former is a constructive force in organizations, whereas the latter may be a very disruptive, destructive force in organizations.

A high need for power was one distinguishing characteristic of managers rated the “best” in McClelland’s research. Specifically, the best managers had a very high need for socialized power, used for the collective well-being of the group, as opposed to personalized power. These managers are concerned for others; have an interest in the organization’s larger goals; and have a desire to be useful to the larger group, organization, and society.

Social and hierarchical status are important considerations for people with a high need for power. The more they are able to rise to the top of their organizations, the greater is their ability to exercise power, influence, and control so as to make an impact. Successful managers have the greatest upward velocity in an organization; they rise to higher managerial levels more quickly than their contemporaries. These successful managers benefit their organizations most if they have a high socialized power need. The need for power is discussed further in Chapter 11, on power and politics.

Need for Affiliation
The need for affiliation is concerned with establishing and maintaining warm, close, intimate relationships with other people. People with a high need for
affiliation are motivated to express their emotions and feelings to others while expecting other people to do the same in return. They find conflicts and complications in their relationships disturbing and are strongly motivated to work through any such barriers to closeness. The relationships they have with others are therefore close and personal, emphasizing friendship and companionship.

People who have moderate to low needs for affiliation are more likely to feel comfortable working alone for extended periods of time. Modest or low levels of interaction with others are likely to satisfy these people’s affiliation needs, allowing them to focus their attention on other needs and activities. People with a high need for affiliation, in contrast, always hope to be included in a range of interpersonal activities, in or away from work. They may play important integrative roles in group or intergroup activities because they work to achieve harmony and closeness in all relationships.

Over and above these three needs, Murray’s manifest needs theory included the need for autonomy. This is the desire for independence and freedom from any constraints. People with a high need for autonomy like to work alone and to control the pace of their work. They dislike bureaucratic rules, regulations, and procedures. Figure 5.2 is a summary chart of the three need theories of motivation just discussed; it shows the parallel relationships between the needs in each of the theories. While Maslow and Alderfer would refer to higher and lower order needs, McClelland does not make a similar distinction.

**Herzberg’s Two-Factor Theory**

Frederick Herzberg departed from the need theories of motivation and examined the experiences that satisfied or dissatisfied people at work. This motivation theory became known as the two-factor theory. Herzberg’s original study included 200 engineers and accountants in western Pennsylvania during the 1950s. Herzberg

**4. Describe the two-factor theory of motivation.**
motivation factor
A work condition related to satisfaction of the need for psychological growth.

hygiene factor
A work condition related to dissatisfaction caused by discomfort or pain.

Herzberg and his colleagues believed that people had two sets of needs—one related to the animalistic avoidance of pain and one related to the humanistic desire for psychological growth. Conditions in the work environment would affect one or the other of these needs. Work conditions related to satisfaction of the need for psychological growth were labeled motivation factors. Work conditions related to dissatisfaction caused by discomfort or pain were labeled hygiene factors. Each set of factors related to one aspect of what Herzberg identified as the human being’s dual nature regarding the work environment. Thus, motivation factors relate to job satisfaction, and hygiene factors relate to job dissatisfaction. These two independent factors are depicted in Figure 5.3.

**Motivation Factors**

Job satisfaction is produced by building motivation factors into a job, according to Herzberg. This process is known as job enrichment. In the original research, the motivation factors were identified as responsibility, achievement, recognition, advancement, and the work itself. These factors relate to the content of the job and what the employee actually does on the job. When these factors are present, they lead to superior performance and effort on the part of job incumbents. These factors directly influence the way people feel about their work. Figure 5.3 also shows that salary is a motivational factor in some studies. Many organizational reward systems now include other financial benefits, such as stock options, as part of an employee’s compensation package. In the accompanying Scientific Foundation, research found job satisfaction positively linked to earnings and changes in earning, as well as voluntary turnover.

Motivation factors lead to positive mental health and challenge people to grow, contribute to the work environment, and invest themselves in the organization. During the 1980s, recognition was used as an important motivation factor at the former Perpetual Financial Corporation, which hosted a company-wide “Salute to Associates” to thank employees. However, programs like this one require constant supervision and do not eliminate the need for other rewards.

According to the theory and Herzberg’s original results, the absence of these factors does not lead to dissatisfaction. Rather, it leads to the lack of satisfaction. The motivation factors are the more important of the two sets of factors, because they directly affect a person’s motivational drive to do a good job. When they are absent, the person will be demotivated to perform well and achieve excellence. The hygiene factors are a completely distinct set of factors unrelated to the motivation to achieve and do excellent work.

**Hygiene Factors**

Job dissatisfaction occurs when the hygiene factors are either not present or not sufficient. In the original research, the hygiene factors were company policy and administration, technical supervision, salary, interpersonal relations with one’s supervisor, and working conditions, salary, and status. These factors relate to the context of the job and may be considered support factors. They do
FIGURE 5.3 The Motivation-Hygiene Theory of Motivation

SOURCE: Reprinted from Frederick Herzberg, *The Managerial Choice: To Be Efficient or to Be Human* (Salt Lake City: Olympus, 1982). Reprinted by permission.

not directly affect a person’s motivation to work but influence the extent of the person’s discontent. These factors cannot stimulate psychological growth or human development. They may be thought of as maintenance factors, because they contribute to an individual’s basic needs. Excellent hygiene factors result in employees’ being *not dissatisfied* and contribute to the absence of complaints about these contextual considerations.

When these hygiene factors are poor or absent, the person complains about “poor supervision,” “poor medical benefits,” or whatever hygiene factor poor. Employees experience a deficit and are dissatisfied when the hygiene

<table>
<thead>
<tr>
<th>Hygiene: Job dissatisfaction</th>
<th>Motivators: Job satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company policy and administration</td>
<td>Achievement</td>
</tr>
<tr>
<td>Supervision</td>
<td>Recognition of achievement</td>
</tr>
<tr>
<td>Interpersonal relations</td>
<td>Work itself</td>
</tr>
<tr>
<td>Working conditions</td>
<td>Responsibility</td>
</tr>
<tr>
<td>Salary*</td>
<td>Advancement</td>
</tr>
<tr>
<td>Status</td>
<td>Growth</td>
</tr>
<tr>
<td>Security</td>
<td></td>
</tr>
</tbody>
</table>

*Because of its ubiquitous nature, salary commonly shows up as a motivator as well as hygiene. Although primarily a hygiene factor, it also often fulfills some of the properties of a motivator, with dynamics similar to those of recognition for achievement.*
A study examined the effects of changing wage inequalities on job satisfaction across cohorts of young men in the United States and West Germany from 1978 through 1988 and 1996. The research links job satisfaction with voluntary job turnover, arguing that more satisfied workers are less likely to leave their jobs voluntarily. This panel research found that shocks to earnings are in fact reflected in job satisfaction, but that persistent inequality of earnings had little relationship with job satisfaction. The effects of shocks to earnings do dissipate, thus the influence of early-career expectations on job satisfaction disappear over time. While the research confirms the link between earnings, job satisfaction, and voluntary turnover, it did not find that the link between earnings and job satisfaction is simply a positive, linear relationship. Further, the results of this research imply that external shocks that widen the distribution of earnings also raise turnover among low-wage workers. As a result, organizations are less prone to invest in firm-specific human capital at the low-wage levels. However, the opposite is likely to occur among high-wage earners in whom organizations are more likely to invest. Investments among high-wage earners are more likely to generate future returns for the organization. The research is clear that changes in earnings affect job satisfaction; money is a motivator—it does matter. What is not clear in the research is the mechanism whereby changes in earnings have their effects.


The combination of motivation and hygiene factors can result in one of four possible job conditions. First, a job high in both motivation and hygiene factors leads to high motivation and few complaints among employees. In this job condition, employees are motivated to perform well and are contented with the conditions of their work environment. Second, a job low in both factors leads to low motivation and many complaints among employees. Under such conditions, employees are not only demotivated to perform well but are also discontented with the conditions of their work environment. Third, a job high in motivation factors and low in hygiene factors leads to high employee motivation to perform coupled with complaints about aspects of the work environment. Discontented employees may still be able to do an excellent job if they take pride in the product or service. Fourth, a job low in motivation factors and high in hygiene factors leads to low employee motivation to excel but few complaints about the work environment. These complacent employees have little motivation to do an outstanding job.

Two conclusions can be drawn at this point. First, hygiene factors are of some importance up to a threshold level, but beyond the threshold there is little value in improving the hygiene factors. Second, the presence of motivation factors is essential to enhancing employee motivation to excel at work. Challenge 5.2 asks you to rank a set of ten job reward factors in terms of their importance to the average employee, to supervisors, and to you.
Challenge 5.2

What's Important to Employees?

There are many possible job rewards that employees may receive. Listed below are ten possible job reward factors. Rank these factors three times. First, rank them as you think the average employee would rank them. Second, rank them as you think the average employee's supervisor would rank them for the employee. Finally, rank them according to what you consider important.

<table>
<thead>
<tr>
<th>Employee</th>
<th>Supervisor</th>
<th>You</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. job security</td>
<td>2. full appreciation of work done</td>
<td>3. promotion and growth in the organization</td>
</tr>
<tr>
<td>4. good wages</td>
<td>5. interesting work</td>
<td>6. good working conditions</td>
</tr>
<tr>
<td>7. tactful discipline</td>
<td>8. sympathetic help with personal problems</td>
<td>9. personal loyalty to employees</td>
</tr>
<tr>
<td>10. a feeling of being in on things</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Critique of the Two-Factor Theory

Herzberg's two-factor theory has been criticized. One criticism concerns the classification of motivation and hygiene factors. Data have not shown a clear dichotomization of incidents into hygiene and motivator factors. For example, employees almost equally classify pay as a hygiene factor and as a motivation factor. A second criticism is the absence of individual differences in the theory. Specifically, individual differences such as age, sex, social status, education, or occupational level may influence the classification of factors as motivation or hygiene. A third criticism is that intrinsic job factors, such as the work flow process, may be more important in determining satisfaction or dissatisfaction on the job. Finally, almost all of the supporting data for the theory come from Herzberg and his students using his peculiar type of critical-incident storytelling technique. These criticisms challenge and qualify, yet do not invalidate, the theory. Recent research has found his theory valid in a government research and development environment.® Herzberg's two-factor theory has important implications for job enrichment and the design of work, as discussed in Chapter 14.
Social Exchange and Equity Theory

Equity theory is a social exchange process theory of motivation that focuses on the individual–environment interaction. In contrast to internal needs theories of motivation, equity theory is concerned with the social processes that influence motivation and behavior. Peter Blau suggests that power and exchange are important considerations in understanding human behavior. In the same vein, Amitai Etzioni developed three categories of exchange relationships or involvements people have with organizations: committed, calculated, and alienated involvements. The implications of these involvements for power are discussed in detail in Chapter 11. Etzioni characterized committed involvements as moral relationships of high positive intensity, calculated involvements as ones of low positive or low negative intensity, and alienated involvements as ones of high negative intensity. Committed involvements may characterize a person's relationship with a religious group, and alienated involvements may characterize a person's relationship with a prison system. Social exchange theory may be the best way to understand effort–reward relationships and the sense of fairness at work as seen in a Dutch study.

Demands and Contributions

Calculated involvements are based on the notion of social exchange in which each party in the relationship demands certain things of the other and contributes accordingly to the exchange. Business partnerships and commercial deals are excellent examples of calculated involvements. When they work well and both parties to the exchange benefit, the relationship has a positive orientation. When losses occur or conflicts arise, the relationship has a negative orientation. A model for examining these calculated exchange relationships is set out in Figure 5.4. We use this model to examine the nature of the relationship between a person and his or her employing organization. The same basic model can be used to examine the relationship between two individuals or two organizations.

DEMANDS Each party to the exchange makes demands upon the other. These demands express the expectations that each party has of the other in the relationship. The organization expresses its demands on the individual in the form of goal or mission statements, job expectations, performance objectives, and performance feedback. These are among the primary and formal mechanisms through which people learn about the organization's demands and expectations of them.

The organization is not alone in making demands of the relationship. The individual has needs to be satisfied as well, as we have previously discussed. These needs form the basis for the expectations or demands placed on the organization by the individual. These needs may be conceptualized from the perspective of Maslow, Alderfer, Herzberg, or McClelland. Different individuals have different needs.

CONTRIBUTIONS Just as each party to the exchange makes demands upon the other, each also has contributions to make to the relationship. These contributions are the basis for satisfying the demands expressed by the other party in the relationship. Employees are able to satisfy organizational demands through a range of contributions, including their skills, abilities, knowledge,
energy, professional contacts, and native talents. As people grow and develop over time, they are able to increasingly satisfy the range of demands and expectations placed upon them by the organization.

In a similar fashion, organizations have a range of contributions available to the exchange relationship to meet individual needs. These contributions include salary, benefits, advancement opportunities, security, status, and social affiliation. Some organizations are richer in resources and better able to meet employee needs than other organizations. Thus, one of the concerns that individuals and organizations alike have is whether the relationship is a fair deal or an equitable arrangement for both members of the relationship.

Adams's Theory of Inequity

Blau’s and Etzioni’s ideas about social process and exchange provide a context for understanding fairness, equity, and inequity in work relationships. Stacy Adams explicitly developed the idea that inequity in the social exchange process is an important motivator. Adams’s theory of inequity suggests that people are motivated when they find themselves in situations of inequity or unfairness. Inequity occurs when a person receives more, or less, than the person believes is deserved based on effort and/or contribution. Inequity leads to the experience of tension, and tension motivates a person to act in a manner to resolve the inequity.

When does a person know that the situation is inequitable or unfair? Adams suggests that people examine the contribution portion of the exchange relationship just discussed. Specifically, people consider their inputs (their own contributions to the relationship) and their outcomes (the organization’s contributions to the relationship). People then calculate an input/outcome ratio.
which they compare with that of a generalized or comparison other. Figure 5.5 shows one equity situation and two inequity situations, one negative and one positive. For example, inequity in (b) could occur if the comparison other earned a higher salary, and inequity in (c) could occur if the person had more vacation time, in both cases all else being equal. Although not illustrated in the example, nontangible inputs, like emotional investment, and nontangible outcomes, like job satisfaction, may well enter into a person's equity equation.

Pay inequity has been a particularly thorny issue for women in some professions and companies. Eastman Kodak and other companies have made real progress in addressing this inequity through pay equity. As organizations become increasingly international, it may be difficult to determine pay and benefit equity/inequity across national borders.

Adams would consider the inequity in Figure 5.5(b) to be a first level of inequity. A more severe, second level of inequity would occur if the comparison other's inputs were lower than the person's. Inequalities in one (inputs or outcomes) coupled with equality in the other (inputs or outcomes) are experienced as a less severe inequity than inequalities in both inputs and outcomes. Adams's theory, however, does not provide a way of determining if some inputs (such as effort or experience) or some outcomes are more important or weighted more than others, such as a degree or certification.

The Resolution of Inequity

Once a person establishes the existence of an inequity, a number of strategies can be used to restore equity to the situation. Adams's theory provides seven basic strategies to restore equity for the person: (1) alter the person's outcomes, (2) alter the person's inputs, (3) alter the comparison other's outcomes, (4) alter the comparison other's inputs, (5) change who is used as a comparison other, (6) rationalize the inequity, and (7) leave the organizational situation.

Within each of the first four strategies, a wide variety of tactics can be employed. For example, if an employee has a strategy to increase his or her income by $11,000 per year to restore equity, the tactic might be a meeting between the employee and his or her manager concerning the issue of salary equity. The person would present relevant data on the issue. Another tactic would be for the person to work with the company's compensation specialists.
A third tactic would be for the person to bring the matter before an equity committee in the company. A fourth tactic would be for the person to seek advice from the legal department.

The selection of a strategy and a set of tactics is a sensitive issue with possible long-term consequences. In this example, a strategy aimed at reducing the comparison other’s outcomes may have the desired short-term effect of restoring equity while having adverse long-term consequences in terms of morale and productivity. Similarly, the choice of legal tactics may result in equity but have the long-term consequence of damaged relationships in the workplace. Therefore, as a person formulates the strategy and tactics to restore equity, the range of consequences of alternative actions must be taken into account. Hence, not all strategies or tactics are equally preferred. The equity theory does not include a hierarchy predicting which inequity reduction strategy a person will or should choose.

Field studies on equity theory suggest that it may help explain important organizational behaviors. For example, one study found that workers who perceived compensation decisions as equitable displayed greater job satisfaction and organizational commitment. In addition, equity theory may play an important role in labor-management relationships with regard to union-negotiated benefits.

**New Perspectives on Equity Theory**

Since the original formulation of the theory of inequity, now usually referred to as equity theory, a number of revisions have been made in light of new theories and research. One important theoretical revision proposes three types of individuals based on preferences for equity. Equity sensitive are those people who prefer equity based on the originally formed theory. Equity sensitivity contributes significantly to variation in free time spent working. Benevolents are people who are comfortable with an equity ratio less than that of their comparison other, as exhibited in the Calvinistic heritage of the Dutch. These people may be thought of as givers. Entitleds are people who are comfortable with an equity ratio greater than that of their comparison other, as exhibited by some offspring of the affluent who want and expect more. Females and minorities have not always been equitably treated in business and commerce.

Research suggests that a person’s organizational position influences self-imposed performance expectations. Specifically, a two-level move up in an organization with no additional pay creates a higher self-imposed performance expectation than a one-level move up with modest additional pay. Similarly, a two-level move down in an organization with no reduction in pay creates a lower self-imposed performance expectation than a one-level move down with a modest decrease in pay. This suggests that organizational position may be more important than pay in determining the level of a person’s performance expectations. Some limitations of equity theory are its heavy emphasis on pay as an outcome, the difficulty in controlling the choices of a comparison other, and the difficulty the theory has had in explaining the overpayment condition.

Although most studies of equity theory take a short-term perspective, equity comparisons over the long term should be considered as well. Increasing, decreasing, or constant experiences of inequity over time may have very different consequences for people. For example, do increasing experiences of
inequity have a debilitating effect on people. In addition, equity theory may help companies implement two-tiered wage structures, such as the one used by American Airlines in the early 1990s. In a two-tiered system, one group of employees receives different pay and benefits than another group of employees. A study of 1,935 rank-and-file members in one retail chain using a two-tiered wage structure confirmed the predictions of equity theory. The researchers suggest that unions and management may want to consider work location and employment status (part-time versus full-time) prior to the implementation of a two-tiered system.

Expectancy Theory of Motivation

Whereas equity theory focuses on a social exchange process, Vroom's expectancy theory of motivation focuses on personal perceptions of the performance process. His theory is founded on the basic notions that people desire certain outcomes of behavior and performance, which may be thought of as rewards or consequences of behavior, and that they believe there are relationships between the effort they put forth, the performance they achieve, and the outcomes they receive. Expectancy theory is a cognitive process theory of motivation.

The key constructs in the expectancy theory of motivation are the valence of an outcome, expectancy, and instrumentality. Valence is the value or importance one places on a particular reward. Expectancy is the belief that effort leads to performance (for example, “If I try harder, I can do better”). Instrumentality is the belief that performance is related to rewards (for example, “If I perform better, I will get more pay”). A model for the expectancy theory notions of effort, performance, and rewards is depicted in Figure 5.6.

Valence, expectancy, and instrumentality are all important to a person’s motivation. Expectancy and instrumentality concern a person’s beliefs about how effort, performance, and rewards are related. For example, a person may
firmly believe that an increase in effort has a direct, positive effect on performance and that a reduced amount of effort results in a commensurate reduction in performance. Another person may have a very different set of beliefs about the effort–performance link. The person might believe that regardless of the amount of additional effort put forth, no improvement in performance is possible. Therefore, the perceived relationship between effort and performance varies from person to person and from activity to activity.

In a similar fashion, people's beliefs about the performance–reward link vary. One person may believe that an improvement in performance has a direct, positive effect on the rewards received, whereas another person may believe that an improvement in performance has no effect on the rewards received. Again, the perceived relationship between performance and rewards varies from person to person and from situation to situation. From a motivation perspective, it is the person's belief about the relationships between these constructs that is important, not the actual nature of the relationship. During volatile times in business, the performance–reward linkage may be confusing. Some CEOs work to manage expectations during these periods, as discussed in Organizational Reality 5.2, in order to help and to motivate employees.

Expectancy theory has been used by managers and companies to design motivation programs, such as Tenneco's PP&E (Performance Planning and Evaluation) system in the 1970s. In Tenneco's case, the PP&E system was designed to enhance a person's belief that effort would lead to better performance and that better performance would lead to merit pay increases and other rewards. Valence and expectancy are particularly important in establishing priorities for people pursuing multiple goals.

A person's motivation increases along with his or her belief that effort leads to performance and that performance leads to rewards, assuming the person wants the rewards. This is the third key idea within the expectancy theory of motivation. It is the idea that the valence, or value, that people place on various rewards varies. One person prefers salary to benefits, whereas another person prefers just the reverse. All people do not place the same value on each reward. Expectancy theory has been used in a wide variety of contexts, including test-taking motivation among students.

### Motivational Problems

Within the expectancy theory framework, motivational problems stem from three basic causes. These causes are a disbelief in a relationship between effort and performance, a disbelief in a relationship between performance and rewards, and lack of desire for the rewards offered.

If the motivational problem is related to the person's belief that effort will not result in performance, the solution lies in altering this belief. The person can be shown how an increase in effort or an alteration in the kind of effort put forth can be converted into improved performance. For example, the textbook salesperson who does not believe more calls (effort) will result in greater sales (performance) might be shown how to distinguish departments with high-probability sales opportunities from those with low-probability sales opportunities. Hence, more calls (effort) can be converted into greater sales (performance).

If the motivational problem is related to the person's belief that performance will not result in rewards, the solution lies in altering this belief. The person can be shown how an increase in performance or a somewhat altered

---

**Web Sighting**

The National Center for Employee Ownership (NCEO) is a leading publisher of information concerning employee ownership programs. Visit the site to learn more about employee stock-ownership plans (ESOPs) and how they motivate employees. How does employee ownership relate to the expectancy theory of motivation? How do employee stock-ownership plans create a strong relationship between human efforts and rewards?

[http://www.nceo.org](http://www.nceo.org)
Managing Expectations at Human Genome Sciences

It is not hard to manage employees in boom times when companies realize big profits and gains, which are shared with employees through handsome salary increases and stock options. Those are among the rewards employees seek for strenuous efforts and high performance on the job. However, motivating employees in volatile times is much more challenging because rewards are not always available for high performance. Human Genome Sciences' CEO William Haseltine has met the challenge of motivating employees in volatile times by managing expectations and persuading employees to take the long view to rewards and payoffs for high performance. Haseltine founded HGS as a pioneer in the race to develop gene-based drugs. Stock options are one way of rewarding employees in small, new start-ups such as HGS. However, it can be challenging to know when to exercise one's stock options so as to maximize the reward for high performance. Dr. Haseltine urged employees to be cautious in their financial commitments and judicious in the exercise of their vested options, though he never discouraged them from the exercise of their options. The cash that comes with rising stock markets can help motivate employees and boost morale, but ever-rising expectations of reward and payoff can be illusive. Therefore, employees should be cautious about financial overcommitment and should manage their own expectations about rewards and payoffs for performance.


form of performance will be converted into rewards. For example, the textbook salesperson who does not believe greater sales (performance) will result in overall higher commissions (rewards) might be shown computationally or graphically that a direct relationship does exist. Hence, greater sales (performance) are directly converted into higher commissions (rewards).

If the motivational problem is related to the value the person places on, or the preference the person has for, certain rewards, the solution lies in influencing the value placed on the rewards or altering the rewards themselves. For example, the textbook salesperson may not particularly want higher commissions, given the small incremental gain he would receive at his tax level. In this case, the company might establish a mechanism for sheltering commissions from being taxed or alternative mechanisms for deferred compensation.
Research results on expectancy theory have been mixed.\textsuperscript{54} The theory has been shown to predict job satisfaction accurately.\textsuperscript{55} However, the theory's complexity makes it difficult to test the full model, and the measures of instrumentality, valence, and expectancy have only weak validity.\textsuperscript{56} In addition, measuring the expectancy constructs is time consuming, and the values for each construct change over time for an individual. Finally, a theory assumes the individual is totally rational and acts as a minicomputer, calculating probabilities and values. In reality, the theory may be more complex than people as they typically function.

**Motivation and Moral Maturity**

Expectancy theory would predict that people work to maximize their personal outcomes. This is consistent with Adam Smith's ideas of working for one's own self-interest. Ultimately, Adam Smith and expectancy theories believe that people work to benefit themselves alone. Expectancy theory would not explain altruistic behavior for the benefit of others. Therefore, it may be necessary to consider an individual's moral maturity in order to better understand altruistic, fair, and equitable behavior. Moral maturity is the measure of a person's cognitive moral development, which was discussed in Chapter 4. Morally mature people act and behave based on universal ethical principles, whereas morally immature people act and behave based on egocentric motivations.\textsuperscript{57}

**Cultural Differences in Motivation**

Most motivation theories in use today have been developed by Americans in the United States and are about Americans.\textsuperscript{58} When researchers have examined the universality of these theories, they have found cultural differences, at least with regard to Maslow's, McClelland's, Herzberg's, and Vroom's theories. For example, while self-actualization may be the pinnacle need for Americans in Maslow's need hierarchy, security may be the most important need for people in cultures such as Greece and Japan who have a high need to avoid uncertainty.\textsuperscript{59} Although achievement is an important need for Americans, research noted earlier in the chapter suggested that other cultures do not value achievement as much as Americans do.

The two-factor theory has been tested in other countries as well. Results in New Zealand did not replicate the results found in the United States; supervision and interpersonal relationships were important motivators in New Zealand rather than hygienic factors as in America.\textsuperscript{60} Finally, expectancy theory may hold up very nicely in cultures that value individualism but break down in more collectivist cultures that value cooperative efforts. In collectivist cultures, rewards are more closely tied to group and team efforts, thus rendering unnecessary the utility of expectancy theory.

**Managerial Implications: Many Ways to Motivate People**

Managers must realize that all motivation theories are not equally good or equally useful. The later motivation theories, such as the equity and expectancy theories, may be more scientifically sound than earlier theories, such as the
two-factor theory. Nevertheless, the older theories of motivation have conceptual value, show us the importance of human needs, and provide a basis for the later theories. The individual, internal theories of motivation and the individual–environment interaction process theories uniquely contribute to our overall understanding of human behavior and motivation at work.

Managers cannot assume they understand employees’ needs. They should recognize the variety of needs that motivate employee behavior and ask employees to better understand their needs. Individual employees differ in their needs, and managers should be sensitive to ethnic, national, gender, and age differences in this regard. Employees with high needs for power must be given opportunities to exercise influence, and employees with high needs for achievement must be allowed to excel at work.

Managers can increase employee motivation by training (increased perceptions of success because of increased ability), coaching (increased confidence), and task assignments (increased perceptions of success because of more experience). Managers should ensure that rewards are contingent on good performance and that valued rewards, such as time off or flexible work schedules, are available. Managers must understand what their employees want.

Finally, managers should be aware that morally mature employees are more likely to be sensitive to inequities at work. At the same time, these employees are less likely to be selfish or self-centered and more likely to be concerned about equity issues for all employees. Morally mature employees will act ethically for the common good of all employees and the organization.

**Looking Back: American Heart Association**

**Hygienic Factors, Motivation, and Compliance**

The American Heart Association has identified noncompliance, which is the failure of patients to be given and follow appropriate treatment recommendations, as a national hidden health threat. Why would patients not comply with treatment recommendations for health risks? Maybe because health risks are viewed as hygienic factors, not motivational ones. The key to understanding hygienic factors is that they do not influence behavior unless they are bad and create dissatisfaction. For some patients it is only when they experience a health problem, such as a heart attack, that they become motivated to act. Hypertension is a symptomless health risk factor that causes no pain, no discomfort, no dizziness, and is therefore often called the silent killer. Patients with hypertension...
sion may feel just fine, have no discomfort, and therefore be less prone to understand the significant health risk that is stalking them.

The American Heart Association has begun an aggressive compliance awareness and education program called the Compliance Action Program. The program is aimed at physicians, nurses, pharmacists, other allied health professionals, health care organizations, and patients. The two key elements of the program are (1) a Physician’s Compliance Tool Kit and (2) a new patient booklet titled *Knock Out America’s Hidden Health Threat*. (In addition, there is a Pharmacist’s Compliance Tool Kit.) The Physician’s Compliance Tool Kit contains educational materials that health care providers can use to teach their patients how to follow a healthy regimen. The patient booklet contains consumer-friendly information on the benefits of compliance, compliance tips, an inventory of some compliance tools, questions to ask the doctor, and a wallet card to track prescription medications, cholesterol level, blood pressure, and weight.

Health care providers can work with patients, including them in decision-making processes concerning appropriate treatment plans, to help find effective plans that patients can and will follow for their own well-being. Positively influencing compliance behaviors on the part of patients can improve outcomes, such as patients feeling better and living longer. In addition to these individual benefits for patients, they can save money as can health care organizations and taxpayers. Although many patients are self-motivated and understand the benefits of compliance with treatment recommendations for moderate and severe hypertension, some patients need information, guidance, and support to enhance their compliance behavior in order to reduce the risk of heart attack, stroke, and other debilitating or lethal health problems.