

The Discipline of Psychology and Nutrition Adherence: A Logical Partnership

How is it possible that Ronald McDonald is the second most recognizable icon, next to Santa Claus, for this generation's children? More than likely, some extremely clever advertisers on Madison Avenue are responsible for making the public loyal to this food brand. This, of course, is not the only explanation for how nearly 4 million children, ages 6–11, and 5.3 million adolescents, ages 12–19, were overweight or obese in 2002, according to the American Heart Association or that since 1991, the prevalence of obesity among American adults has increased 75 percent.^{1,2} However, with the coming of age of eye-catching prepackaged foods, fast food outlets that offer toys and incentives with each meal, super-sized portions, and ever-increasing time demands on our lives, adhering to a healthy eating pattern is becoming more and more difficult. It seems as if these by-products of modern society are thwarting our efforts and clouding our thinking when it comes to eating in our best interest.

As a society, we are very fortunate to have at our disposal a plethora of nutrition and health-based knowledge; however, integrating this knowledge into our demanding lives is becoming increasingly difficult. Now, the time is ripe for the discipline of psychology to provide the bridge between nutritional information and using this information to adhere to a healthy eating pattern. As you will soon see, the relationship between psychology and the field of nutrition is a logical and natural relationship.

A WORD ABOUT PSYCHOLOGY

Before understanding the benefits that the discipline of psychology can have on nutrition adherence, it is important to have a comprehensive grasp of the field of psychology. Many individuals have a limited perspective of the field of psychology. Usually what comes to mind when one hears the word “psychologist” is an image of a therapist analyzing a patient’s thoughts. This area of psychology, known as clinical psychology, is only one aspect of what psychologists study. Many psychologists are actually research scientists and use humans as their subjects to test their theories of human nature. The formal definition of psychology from the *Concise Oxford Dictionary* is “the scientific study of the human mind and its functions, especially those affecting behavior in a given context.”³

Research psychologists study an extremely diverse range of issues such as how humans learn, remember, and process new information. There are psychologists who research the personality characteristics of those individuals with high and low self-esteem and those researchers who study athletes and the mental factors that lead to their peak performances. Psychologists even study the role that genetics play in personality formation from infancy to old age. Of particular importance to this book, there are psychologists who focus their research on eating behavior. As you can see, psychologists study and research the entire gamut of human behavior, both normal and abnormal. Just as medical researchers do, research psychologists use the scientific method (the collection of data through observation or experimentation) to test their hypotheses, frequently with an independent variable (a variable that the experimenter manipulates) and dependent variable (the outcome variable or human behavior) and then publish their findings and theories in professional journals.

GATHERING INFORMATION WITH VARIOUS RESEARCH METHODS

One common thread that ties most research psychologists together is the goal of understanding and predicting human behavior. In particular, psychologists are innately curious as to what propels our behavior in specific and general situations. They might investigate questions such as “Are individuals likely to consume more calories when having a meal by themselves or with other individuals present at the table?” or “Are there specific colors that stimulate an individual’s desire to eat?” These research questions can be tested using a variety of research methods that will give us information about how a typical person will behave in a specific situation. Psychologists do not

rely entirely on experimental methods to test their hypotheses, but instead examine the research question from various methodological designs.

Experimental Method

Let's look back at the question "Are individuals likely to consume more calories when having a meal by themselves or with other individuals present at the table?" A researcher could test this question and implement any one of at least seven different research methods. By testing this question with an experimental design, the researcher would form two conditions: a control condition in which the participant eats their meal alone and the experimental condition in which the participant is surrounded with two or three acquaintances at his or her table. The independent variable in the study would be the number of people present at the dining table, while the dependent variable would be operationalized as the number of calories consumed by the participant.

Observational (Obtrusive Versus Unobtrusive) Method

This same research question could be tested using an observational research method approach as well. An observational design involves observing and recording human behavior in a natural environment. Two types of observational designs exist: the obtrusive design and the unobtrusive design. Participants in obtrusive designs are informed that their behavior is being viewed or monitored, whereas those participants in an unobtrusive design are unaware that their behavior is being recorded or observed. As you can imagine there are advantages and disadvantages to both designs. With an obtrusive design, the participant knows that he or she is being observed and may feel obligated to change his or her behavior so that it is a socially desirable behavior. This action possibly confirms the researcher's hypothesis. However, participants in an unobtrusive design are unaware that they are in a study and will probably give the researcher a true glimpse of their unstaged behavior. (A prominent disadvantage of the unobtrusive approach though is the ethical issue of recording an individual's behavior without their consent.)

A researcher who wants to use the unobtrusive observational approach to study the previous research question might use a fast food restaurant, where the calorie count of each menu item is printed on the wrapper. With this knowledge, the researcher would position him- or herself in the restaurant for a 2-hour period and observe all patrons who are dining alone in the restaurant. For each patron, the researcher would record the items that he or she had on their tray and whether that person ate all items. Then, the next day

during the same time period, that researcher would observe all individuals who had one or more individuals dining with them at their table. Again the researcher would record the items on the target participant's tray and whether he or she ate all of the meal items. Ideally, the mean number of calories consumed by individuals dining alone would be significantly less than the number of calories consumed by patrons dining with one or more individuals.

Food Record Data

This same research question can be investigated using food records. This retrospective method involves asking the research participants to record their eating behavior at a certain point during the day. Usually the researcher provides the participants with a journal or a food log for each day of the week with preprinted questions to be answered (e.g., how many individuals were present at the table for breakfast, for lunch, for dinner?). The researcher would also have the participant record what they ate at each meal as well as the quantity. One disadvantage to food record data is that it is retrospective and this type of data can be subject to several memory errors on the part of the participant, such as forgetting, bias recall, and socially desirable responding. Research indicates that participants completing food records underreport their actual food intake by 27 to 46 percent.⁴ However, in defense of using food records, research also indicates that participants lose more weight when food records are kept. In addition, the researcher would be obtaining real life and daily information from the participant, whereas, in an experimental study, the situation is artificially contrived; the results of the study would have lower generalizability to daily life situations and behavior.

Experience Sampling

A newer research method that can be used to test research questions is the experience sampling method. This method involves alerting participants at variable intervals during the day to stop their current behavior and record it immediately on a printed template that the researcher has provided. Typically, the participants are given pagers to wear and are beeped at various intervals throughout the day (sometimes up to a half a dozen times). The participants are unaware of when they will be beeped during the day and are asked to carry on with their daily life as usual. Experience sample studies can last from 1 day to a month or more. Experience sampling is one of the optimal ways psychologists have of obtaining a participant's natural minute-to-minute behavior. One disadvantage to this technique is that

some participants have been known to experience “beeper anxiety” and stop all daily activities in anticipation of the beeper going off, much to the researcher’s dismay.

Survey Data (Self Report Versus Peer Data)

One of the most common (and sometimes overused) research methods that psychologists implement is the survey method. Surveys can typically consist of open-ended questions (e.g., Write down everything you ate for breakfast), fixed option questions (e.g., How many calories did you consume for breakfast? A. 0–100; B. 101–200; C. 201–300, etc.) or food frequency checklists (e.g., Place a checkmark next to each food item on the list that you consumed during your last meal).

Survey data is usually completed by the participant and this is known as self data. As one can surmise, there are advantages and disadvantages to having the target participant complete a survey. One advantage to having the participant complete a survey is the participant knows themselves better than anyone else. The participant is indeed the best expert regarding themselves and their personal experiences with their own eating behaviors. However, as mentioned earlier, participants are sometimes subject to forgetting information and of course embellishing information in order to look more socially acceptable to the researcher.

Due to these factors, many researchers are now asking a well-acquainted friend, peer, or family member to complete surveys about the participant; this type of data is known as informant data.⁵ By having not only the participant’s perspective about their eating behavior, but that of a good acquaintance as well, a clearer picture of the target participant’s behavior will hopefully come into view for the researcher. However, just as self data can be tainted by various factors, so too can informant data. Friends and family members may not have experienced every situation with the target participant or they could bring bias recall into the survey data as well. For these reasons, it is important when gathering survey data to use an increasingly popular method that industrial/organizational psychologists (psychologist who study human behavior in the workplace) use: 360-degree feedback.⁶ When these psychologists evaluate employees’ performance in the workplace, they typically gather survey data about the employee’s performance from everyone who interacts with the employee on a daily or weekly basis (e.g., customers, coworkers, a supervisor, and the employee’s subordinates) as well as the employee themselves. Each perspective gives the researcher another piece of the target participant’s overall behavior in various situations. These perspectives are sometimes averaged to give the participant

an overall performance evaluation score. Three hundred and sixty degree feedback is also very applicable to the field of nutrition. This method will allow the researcher to gather more information about the target subject's eating behavior that he or she may not be even aware of, but can be clearly seen from the vantage point of a peer or family member. The more perspectives that a researcher can obtain about a target participant's behavior; the more likely she or he will accrue valid and reliable data.

Multiple Method Approach

With numerous methods to choose from to test research questions, one is left to wonder which approach is the best. There is clearly no one methodological approach that is superior to the others. However, what is advocated in the field of psychology is to examine research questions from multiple approaches and to utilize multiple methods.⁷ If the results from an experimental study, a survey study, and a food record data study all confirm that indeed people are more likely to consume more calories at a meal when other diners are present at the table, researchers can feel more confident that this phenomenon is a robust occurrence and the results can be extrapolated to other populations of individuals in a variety of eating contexts. However, if this finding was confirmed through only a series of experimental studies, the generalizability of the phenomenon occurring outside of the laboratory would be tenuous at best. Ultimately, utilizing multiple research methods to test a research question will give a more complete and truthful picture of human nature than will the reliance on one methodological approach.

THEORETICAL PERSPECTIVES

Through the years, several major theoretical perspectives have been developed to account for the factors that drive human behavior. Some of the most prominent theoretical perspectives include cognitive, biological, behavioral, evolutionary, psychoanalytic, humanistic, and the trait theory. We will give an overview of each of these perspectives, because the strategies on nutrition adherence given in the upcoming chapters will be based upon combinations of these psychological perspectives.

The Cognitive Perspective

Psychologists who adopt the cognitive perspective believe or research the role that our cognitions (thoughts), perceptions, emotions, and motivation

processes fuel our behavior. To illustrate this perspective, suppose a psychologist wanted to investigate the reason behind the finding that hot colors such as red, orange, and bright yellow are known to stimulate human mood and appetite.⁸ As cognitive psychologists, they would start by examining participants' thoughts and perceptions when shown various colors. They might also explore participants' differences in *priming*. Priming refers to concepts that have been recently activated or cued by something that happened today and are quick to come to mind with even only a little stimulus.⁹ Participants who have just watched a food-related commercial on television or passed by the vibrant colors of a McDonald's or Burger King restaurant are considered *primed* to eat; when shown a bright vibrant color, this might stimulate feelings of hunger.

Emotions are another cognitive process that can be examined with regard to stimulating appetite. *Emotions* can be defined as a set of mental and physical procedures that one learns through inner experiences. For some individuals, emotional change can be a stimulus for appetite; in other individuals, a particular eating pattern may elicit positive reinforcing emotions. For example, a working mother may come home after an 8-hour work day, cook dinner for her family, help her children with homework, throw a load of clothes in the washer, prepare her children's lunches for the next day, and put her children to bed. When she finally has time to relax, she gets a bowl of ice cream and sits down in front of the TV. Eating the ice cream initiates positive pleasurable emotions and helps her to relax. Therefore, she may begin to develop a pattern of eating ice cream every night after her children are in bed in order to stimulate those same emotions. Conversely, emotions can serve either as antecedents to eating behavior or as by-products of such behavior.

Cognitive psychologists are also fascinated by how much of human behavior can be attributed to an individual's constant efforts to achieve his or her goals. Whether a goal is short term or long term, an individual's life is characterized by what Eric Klinger (1981) calls current concerns.¹⁰ A *current concern* is an ongoing motivation that persists in one's mind until the goal is either attained or the goal is abandoned. Many current concerns can bring arousing emotions to mind as well. Suppose an individual had the long-term goal of drinking eight 8 oz. glasses of water a day. This individual's current concern during each day would likely be "Have I been keeping up with my intended water intake?" If, during the course of the day, he perceives he is not on the path to attaining his goal, then certain emotions will be aroused (e.g., frustration, anxiety). As you can see, many of our cognitive processes naturally interact with one another and ultimately preempt our behavior, or relevant to this text, our eating behavior.

The Biological Perspective

Researchers who advocate the biological perspective delve into the theory that our brain anatomy, neurophysiology, and genes influence our behavior. Thanks to modern technology (e.g., EEG machines, PET scanners and MRI scans) we are able to examine the brain's anatomy to understand its relationship to the brain and our behavior. Through technology, it has been discovered that just about every structure of the brain is related to our personality in some way. However, the interactions between various structures of the brain and its effects on our mind and behavior are just beginning to be studied and understood.

Another area that biopsychologists, psychologists who analyze how the brain and its neurotransmitters influence our behaviors, are concerned with is the extent to which our biochemistry (e.g., neurotransmitters and hormones) is responsible for our personalities and behavior, particularly eating behavior. Studies from the University of Minnesota–St. Paul and the University of British Columbia–Vancouver provide relevant examples of the relationship between our biochemistry and our eating patterns. Researchers from these universities have confirmed that women get hungrier during the 2 weeks following ovulation (usually days 14 to 28 of the menstrual cycle).¹¹ That is when the body's metabolic rate climbs, most likely in response to an increased secretion of the hormone progesterone, which causes the body to burn calories at a faster rate and in turn intensifies appetite.

Researchers are also discovering hormones and neurotransmitters produced by fat cells and the gastrointestinal tract. They believe these hormones and neurotransmitters act upon the hypothalamus and communicate with the brain influencing satiety and appetite. For example, the hormone leptin is manufactured in fat cells and in the stomach.¹² It signals the brain that the body has a sufficient storage of energy (fat) and suppresses appetite. Leptin is also manufactured by cells in the stomach when food is consumed and affects levels of satiety. Researchers believe that some individuals, due to their physiological or genetic makeup, may not produce leptin at all, produce it in an insufficient amount, or produce too much but have a resistance to it. These individuals, therefore, have difficulty recognizing feelings of satiety, consume more calories than their body requires, and develop obesity. Another hormone, ghrelin, is manufactured by cells in the stomach.¹³ It stimulates appetite and promotes body fat storage. This hormone also plays a role in sleep regulation. A person who gets an insufficient amount of sleep will manufacture more ghrelin which in turn stimulates appetite. It is theorized that some people may genetically or biochemically be inclined to produce more or less of these hormones that

affect appetite stimulation and satiety signals and ultimately, regulation of body weight.¹⁴

It is also important to note that our environments can affect the biochemistry in our bodies. Individuals who are facing serious environmental stressors induce their bodies into a state of flight or fight. In this state, the body typically responds by cutting off the digestive process in order to conserve energy and thus decreasing one's desire to eat. On the other hand, chronic stress caused by work, low socioeconomic status, and depression are associated with an increased risk of obesity, particularly in women.¹⁵ Obesity is associated with inflammation and it is found that obese humans have increased blood levels of various cytokines, blood markers of inflammation, during times of stress. Researchers are just beginning to understand the interactions between environmental triggers and human biochemistry and the effect that they have on eating behaviors.

The Behavioral Perspective

Behavioral psychologists view human behavior as stemming from the rewards and punishments from our past or current environments.¹⁶ The philosophical roots of behaviorism are planted in empiricism, which is the belief that all knowledge comes from experience and also that of associationism, which is the idea that paired stimuli will come to be regarded as one. So, from these philosophical roots, we can see the logic that behaviorism is also referred to as the learning perspective. Learning is termed as any change in behavior that results from experience. The behaviorist perspective embraces several basic principles of learning including habituation, classical conditioning, operant conditioning, and social learning, which will be discussed in greater detail in upcoming chapters.

If a behaviorist was to account for how certain colors were responsible for stimulating our appetites, she would likely look back at our past experiences with color. She might be able to trace an individual whose appetite is stimulated each time he sees the color yellow to the fact that when growing up, this person's kitchen and dining room were predominantly furnished in hues of yellow. Through countless mealtime pairings of food being prepared and eaten in a yellow environment, this individual would have learned that the color yellow signals that food is present or is about to be ingested. His body, after these many learning trials, has learned that the color yellow signals food and his body then reacts by stimulating the appetite. Many times much of our learning takes place under our conscious radar and it is only after retracing our past experiences and environments can we piece together how that behavior was learned and its origins.

The Evolutionary Perspective

The evolutionary perspective is an extension of the theorizing that began with Charles Darwin's *Origin of Species* (1859).¹⁷ Darwin's theories and book compared one species of animal or plant to another to explain the functional significance of various aspects of anatomy and behavior. Recently, psychologists have been extrapolating this same kind of theorizing and reasoning to human behavior. The evolutionary perspective assumes that behaviors seen in people today are present because these behaviors were necessary for survival. In other words, the more a behavior helps an individual to survive or reproduce, the more likely the behavior is to occur in future generations.

An evolutionary psychologist who wanted to understand human eating behavior might look at the survival significance of various eating patterns. For instance, this psychologist might note the tendency for humans to consume more calories during the fall/harvest months when compared to the spring and summer months.¹⁸ The psychologist, in keeping with the evolutionary perspective, would probably view this tendency as crucial to human survival, in that it allowed humans to store up fat for the winter months when food was scarce. Turning back to our original question concerning the ability of colors to stimulate human appetite, an evolutionary psychologist would again look for the survival function that carefully discerning color produces. She might focus on how nature signifies healthy fruits for us to eat through the use of vibrant colors (e.g., ripe red apples, bright yellow bananas) and how these vibrant colors through time have come to stimulate human appetite. Conversely, nature through the use of color alerts us to which foods are dangerous and we should not eat (e.g., green mold, odd spots, less vibrant colors). Evolutionary psychologists would argue that various eating patterns, though not adaptive presently, were adaptive for human survival at some point in history.

The Psychoanalytic Perspective

The psychoanalytic perspective was developed by Sigmund Freud and posits that most aspects of our mental life (e.g., thoughts, feelings, motives, and the resulting behavior) are unconscious, which is why we have a difficult time understanding our own behavior.¹⁹ Freud theorized that forbidden impulses and desires in our unconscious mind are responsible for our everyday behavior. He believed that many of these impulses were developed during stages that we passed through in early childhood and it is only after getting in touch with the unconscious portion of the mind can one uncover the roots

of their behavior. Freud used techniques such as hypnosis and free association with words to uncover some of the impulses and desires stirring under the conscious radar. By bringing these impulses and desires to the surface, one can resolve these maladaptive behaviors.

Freud also focused much of his studies on the topic of internal and external anxiety. Freud coined the term *psychic conflict* as a state of anxiety when our mind is battling itself; in other words, when our desires are battling our morals of what is right and wrong. Freud discussed a variety of tools that our minds use to keep our anxiety levels within a tolerable range, whether the anxiety was internally generated or from stressors of the external world. One of the simplest defense mechanism is denial—where one simply refuses to acknowledge the source of anxiety. Rationalization is another defense mechanism that we use to keep stress a bay. If we have undertaken some sort of shameless behavior, we concoct a seemingly rational case for why we had to undertake that behavior. A psychoanalytic psychologist, who was examining dysfunctional eating behavior, would likely try to uncover the source of anxiety, while looking at the defense mechanisms used to cope with it. We will discuss these defense mechanisms in detail in upcoming chapters and their interplay with eating behavior.

Freud had many protégés who built on his ideas relating to the roots of human behavior. One in particular, Mary Ainsworth, put forth the idea that much of our behavior is due to how we were attached at birth to 2 years of age to our primary caregiver, typically our mother.²⁰ Ainsworth believed that our attachment style predicted much of our future behavior in life. Children who developed what Ainsworth calls a “secure attachment style” to their mothers and felt comfortable that she would meet their needs, would display well-adjusted behavior throughout life, confident faith in themselves, and form secure attachments with their future romantic partners. However, children who had an “anxious-ambivalent attachment style” to their mothers, and felt that she was not always there to meet their needs, would potentially display neurotic behavior and have dysfunctional future relationships with others. Children who formed “avoidant” relationships with their caregivers, usually came from homes where they had been rebuffed in their attempts to enjoy contact with their primary caregiver. These individuals, Ainsworth believed, would have a hard time in life coping with stress and would be more likely to deny that it exists. Psychologists who foster this perspective of human behavior examine eating behavior as a by-product of the attachment style that the target individual developed with their primary caregiver. The psychoanalytic perspective is a complex interplay of unconscious components, yet much of it revolves around the issue of tension and anxiety.

The Humanistic Perspective

Another way of accounting for the forces that drive human behavior is the humanistic perspective. Advocates of this theory believe that every human being is uniquely different in the experiences that they have encountered throughout life.²¹ Through these experiences, each person develops their own constructs or lens through which they interpret their surroundings; this lens is ultimately responsible for their behavior. Humanistic psychologists focus in on our unique experience of the world called our *construal*. Construals are interpretations rather than direct reflections of reality; they can be freely chosen and different from anyone else's. Humanistic psychologists strongly believe that only after you have "walked in another person's shoes" or experienced their unique view of reality can you begin to understand what drives their behavior. More specifically, if one were to utilize the same constructs and perspective on life as the target participant, then one could develop an understanding of the forces that are driving that individual's behavior.

When working to find the types of lens that the target participant views the world through, humanistic psychologists use a technique termed unconditional positive regard. *Unconditional positive regard* is giving respect and affirmation to the target participant regardless of what they believe or say as they are revealing their own construct system and the lens through which they process the world. Carl Rogers and Abraham Maslow, two humanistic psychologists who began their research in the 1950s, believe that a person's ultimate need or motive in life is to self-actualize, which is to maintain and enhance life. Maslow, however, believed that before one could begin to self-actualize, they need to have their basic needs met (e.g., food, water, safety, a sense of belonging, and esteem).²² Rogers and Maslow advocated that the optimal way to live is to accurately perceive the world without neurotic distortion: If you take responsibility for the choices that you make, you will become a fully functioning person. A fully functioning person faces the world without fear, self-doubt, and neurotic defenses. The only way to develop into this type of individual is to receive unconditional positive regard and affirmation from the important people in your life, such as your parents, relatives, and friends.

A humanistic psychologist researching eating behavior would examine two important aspects of an individual's life: "Have their basic needs been met?" and "Have they received unconditional positive regard and affirmation from those they value?" If the answer is "no" to these two questions, then meeting the individual's basic needs and making sure those around him provide unconditional positive regard would be a humanistic psychologist's prescription for any type of abnormal eating behavior,

because these aspects are obstructing the individual from becoming fully functional.

The Trait Perspective

The last perspective that will be incorporated in this text is the trait perspective. Trait psychologists believe that individuals differ in their characteristic patterns of thought, feeling, and behavior; these patterns are called personality traits. In fact, personality traits are such an important part of life, Allport and his graduate student Odbert (1936) researched the dictionary and compiled a list of 17,953 words in the English language that describe an individual's personality.²³ Trait psychologists hold the belief that individual behavior is the result of each person's unique and dynamic traits. Many trait proponents generally believe that biological influences, such as genes and prenatal hormones, produce children with particular childhood temperaments; some children are active and aggressive, while others are quieter. However, it is through life experiences that these temperament styles are molded into individual stable traits (e.g., is outgoing, is shy). The ultimate goal of trait psychologists is to predict future human behavior accurately and to increase our understanding of the reasons for human behavior.

A Perspective Controversy

No one perspective can account for all types of human behavior 100 percent of the time, but it is important to be open to the idea that these perspectives interact with one another to account for and predict human behavior. This idea that theoretical perspectives can interact with one another was a rather novel idea about 40 years in the history of the field.

In 1968, a prominent psychologist at Stanford University named Walter Mischel published a controversial book entitled *Personality and Assessment*.²⁴ In his book, Mischel argued that human behavior is extremely inconsistent from one situation to another; because of that, researchers cannot accurately assess an individual with personality traits. There was a prominent debate between research psychologists concerning what causes a person's behavior. Some researchers firmly believed that human behavior is solely based upon personality-related thoughts, while other researchers upheld that the situation a person finds him- or herself in causes their behavior. The researchers argued for about 20 years on this subject (later titled *The Person-Situation Debate*). Based on the results of several studies, they came to one conclusion: A person's behavior in a particular situation is best predicted by an interaction or combination of the person's traits and

the situational circumstances.²⁵ Similarly, psychologists who study human eating behavior have also concluded that individual and environmental factors interact together to influence eating behaviors.

THE LAYOUT OF THE TEXTBOOK

During the course of this textbook, we will closely examine these psychological perspectives that are believed to drive human (eating) behavior. Within each chapter, you will become acquainted with research findings that illustrate the basis for eating patterns relevant to that particular psychological perspective. The latter half of each chapter will consist of tangible illustrations of psychological strategies known to counteract dysfunctional eating patterns so one can adhere to healthy and/or prescribed eating patterns.

As stated earlier, it is fortunate that today we have a plethora of knowledge about human dietary needs and imbalances. This information can live up to its lifesaving potential when coupled with the field of psychology because the time is ripe for a merger between nutrition and psychology. The field of psychology provides a logical lens through which to understand human eating patterns and an optimal vehicle to disseminate strategies of nutrition adherence.

REFERENCES

1. American Heart Association. (2004). *End of the Year Report*. Dallas, TX: American Heart Association News.
2. Blackman, M. (2008). *Mind Your Diet: The Psychology Behind Sticking to Any Diet*. Xlibris Corporation.
3. Soanes, C., & Stevenson, A. (Eds.). (2008). *Concise Oxford Dictionary*. Oxford, England: Oxford University Press.
4. Paul, D.R., Rhodes, D.G., Kramer, M., Baer, D.J., & Rumpler, W.V. (2005). Validation of a food frequency questionnaire by direct measurement of habitual ad libitum food intake. *American Journal of Epidemiology*, *162*(8), 806–814.
5. Funder, D.C., & Colvin, C.R. (1991). Explorations in behavioral consistency: Properties of persons, situations, and behaviors. *Journal of Personality and Social Psychology*, *60*, 773–794.
6. Atkins, P., & Wood, R. (2002). Self-versus others' ratings as predictors of assessment center ratings: Validation evidence for 360-degree feedback programs. *Personnel Psychology*, *55*(4), 871–904.
7. Campbell, D.T., & Fiske, D.W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, *56*, 81–105.
8. Wansink, B. (2006). *Mindless Eating—Why We Eat More Than We Think*. New York: Bantam-Dell.

9. Neely, J.H. (1977). Semantic priming and retrieval from lexical memory: Roles of inhibitionless spreading activation and limited-capacity attention. *Journal of Experimental Psychology: General*, 106, 226–254.
10. Klinger, E., Barta, S.G., & Maxeiner, M.E. (1981). Current concerns: Assessing therapeutically relevant motivation. In P.C. Kendall & S. Hollon (Eds.), *Assessment Strategies for Cognitive-Behavioral Interventions* (pp. 161–195). New York: Academic.
11. Michener, W. (1999). The role of low progesterone and tension as triggers of perimenstrual chocolate and sweets craving: Some negative experimental evidence. *Physiology and Behavior*, 67, 417–420.
12. Keim, N., Stern, J., & Havel, P. (1998). Relation between circulating leptin concentrations and appetite during a prolonged, moderate energy deficit in women. *American Journal of Clinical Nutrition*, 68(4), 794–801.
13. Cummings, D., Weigle, D., Frayo, R., Breen, P., Ma, M., Dellinger, E., et al. (2002). Plasma ghrelin levels after diet-induced weight loss or gastric bypass surgery. *New England Journal of Medicine*, 34(21), 1623–1630.
14. Weigle, D.S., Cummings, D.E., Newby, P.D., Breen, P.A., Frayo, R.S., Matthys, C.C., et al. (2003). Roles of leptin and ghrelin in the loss of body weight caused by a low fat, high carbohydrate diet. *Journal of Clinical Endocrinology & Metabolism*, 88(4), 1577–1586.
15. Adam, T.C., & Epel, E.S. (2007). Stress, eating and the reward system. *Physiological Behavior*, 91(4), 449–458.
16. Watson, J.B. (1912). Psychology as the behaviorist views it. *Psychological Review*, 20, 158–177.
17. Darwin, C. (1859). *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life* (1st ed.). John Murray: London, England.
18. Ma, Y., Olendzki, B.C., Hafner, A.R., Chiriboga, D., Hebert, J.R., Campbell, M., et al. (2005). Seasonal variation in food intake, physical activity, and body weight in a predominantly overweight population. *European Journal of Clinical Nutrition*, 60, 519–528.
19. Freud, A. (1936). *The Ego and the Mechanisms of Defense*. New York: Hogarth.
20. Ainsworth, M.D.S., Blehar, M.C., Waters, E., & Wall, S. (1978). *Patterns of Attachment: Assessed in the Strange Situation and at Home*. Hillsdale, NJ: Erlbaum.
21. Rogers, C. (1961). *On Becoming a Person*. Boston: Houghton Mifflin.
22. Maslow, A.H. (1987). *Motivation and Personality* (3rd ed.). Harper: New York.
23. Allport, G.W., & Odbert, H.S. (1936). Trait-names: A psycho-lexical study. *Psychological Monographs: General and Applied*, 47, 171–220.
24. Mischel, W. (1968). *Personality and Assessment*. New York: Wiley.
25. Kenrick, D.T., & Funder, D.C. (1988). Profiting from controversy: Lessons from the person-situation debate. *American Psychologist*, 43, 23–34.

